A Critique of Using Machine Intelligence for e-Decision-Making

Gasser Auda

College of Arts and Sciences American University of Sharjah Sharjah, United Arab Emirates 26666 Tel: +9716-5152559, E-mail: <u>gauda@ausharjah.edu</u>

ABSTRACT

This paper is a critique of Artificial Intelligent agents used in the hearts of e-planning and e-decisionmaking systems in general. It refers to a case study of a web site that teaches JAVA programming language and is designed as a multi-level curriculum, each level with specific curricular objectives designed for users with certain background knowledge. The Instructor, to be replaced with the Intelligent Expert System, decides on the student's level based on his/her answer to a detailed questionnaire. The paper critically compares the Instructor's performance to three systematic approaches - procedural programs, logic expert systems, and neural networks.

Keywords

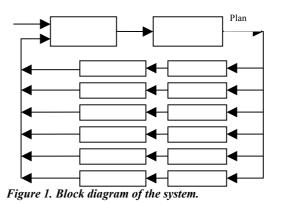
Logic Programming, Artificial Intelligence in elearning, Expert Systems, Neural Networks.

1.0 INTRODUCTION

Could artificial intelligence replace human intelligence in making decisions in e-environments? This paper proposes a negative answer to this question based on a critical examination of three different typical designs versions of an educational expert system advisor (Hasset et al., 2003). Examples of similar critiques are (Sowa, 2000) and (Masao, 2001).

Figure 1 shows a general block diagram of the system at the operating mode, i.e., after designing/training the intelligent system. A JAVA applet displays a questionnaire to the student, marks the answers and, depending on the results of the answers, the intelligent system recommends one of the available curriculum plans for the student. At the end of every chosen plan, the student goes through an outcome test, which assesses his/her understanding of the studied material. Finally, the student re-takes the questionnaire in order to be guided to the next appropriate study plan, i.e., curricular level. At the end of every chosen and completed plan, the student takes an outcome test, which assesses his/her understanding of the studied material. Finally, the student re-takes the questionnaire in order to be guided to the next appropriate study plan.

In order to design the evaluating questionnaire, a standard JAVA tutorial was studied carefully and groups of questions on each section were designed. The questionnaire included twenty-five questions in the form of main questions followed by sub-questions.



The main question, with a "yes" or "no" answer, asks the student about his/her knowledge on a specific topic. If the answer is "yes," the student will be asked a few further sub-questions on that topic to confirm his/her knowledge level of the specific topic. If the answer is "no," the program skips the sub-questions and goes to the next main question. Precedence was given to practical programming questions that cover more material in the chapters and many questions were merged into multiple-choice forms. The final questionnaire contained the questions shown in Figure 2. Note that the "main questions" are marked by an "*" and the sub-questions, which are to be skipped if the answer of the main question was "no," are marked by a "--". Also note that the actual screens were much more user friendly.

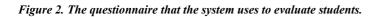
To design the curricula (levels), the course's topics were first divided into a number of modules, each contains a few interrelated topics. The following list shows the details.

Plan 1: contains all the categories (for beginners). **Plan 2:** contains categories C, D, E, F and G. Suitable for students how have the basic concepts of JAVA. **Plan 3:** contains categories C, E, F and G. **Plan 4:** contains categories D, F and G.

Plan 5: contains categories D and G.

Plan 6: means that the student is good in the material of our tutorial and does not need this course. Where the categories (A to F) are defined as follows.

 * Do you know how JAVA objects, classe & interfaces use interfaces use interfaces use interfaces use the keyword is served items. - CheckboxGroup and Choice only on time can be chosen where in CheckboxGroup and Choice only on time can be chosen where in the following code: - Using the final modifiery you can declare that your class can be be subclassed. - Using the final modifiery ou can declare that your class can be be subclassed. - O create submarse in a mean we write the following code: - Using the final modifiery ou can declare that your class can be be subclassed. - O create submarse in a mean we write the following code: - O use to submarse. - opi or up2 - Poy us know how strings are used in Java? - Which sentence of the following is incorrect: - StringBuffer stri = new StringBuffer; - System out printentwistingBuffer(1) append("con") append ("catiling"; - To use a System on charmingBuffer("Drink Java!"); - To actore a submarse of the following is incorrect: - To use a System on charmingBuffer("Drink Java!"); - To actore submarse any other class: - Appled in wat about any brainbes any other class: - Appled in wat about any brainbes any other class: - To actore Submarse any other class: - To actore Submarse any other class: - D opple input and output streams are used: - To actore Submarse is envertice. - Display a force can be thrown must be a subclass of a throwat any inmeancy but stringBuffer it memory. - Do you know what Exception is Max? - To actore Submarse is more retter. - To actore Submarse is more retter. - To actore Submarse is mark? - To actore Submarse is more retter. - Display a force and thro max? <l< th=""><th></th><th>Γ</th></l<>		Γ
 used? Which sentence is correct from the following: Class declaration must contain a superclass name. Class declaration must contain declaration declaration declaration declaration	* Do you know anything about Object-Orientation?	* Do you know how to create a Java user interface?
 Which setthere is correct from the following: Class defaution must contin a superclass name. I of class defaution must contin a superclass name. Both and 2 are correct. Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following is a menu we write the following is a menu we write the following is mearce: Both and 2 most here is a menu we write the following is mearce: Both and 2 most here is a most be and bas and there is a most be and we have it is write the or method. Both and a write is menu we may there a method. Both and a write is menu we may there a method. Both and a write is menu we may there a method. Both and a many is meany but is meany there is meany there	* Do you know how JAVA objects, classes & interfaces are	CheckboxGroup, Choice and List share same properties but:
 Which setthere is correct from the following: Class defaution must contin a superclass name. I of class defaution must contin a superclass name. Both and 2 are correct. Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following code: Menuflem mit; Both and 2 most here is a menu we write the following is a menu we write the following is a menu we write the following is mearce: Both and 2 most here is a menu we write the following is mearce: Both and 2 most here is a most be and bas and there is a most be and we have it is write the or method. Both and a write is menu we may there a method. Both and a write is menu we may there a method. Both and a write is menu we may there a method. Both and a many is meany but is meany there is meany there	used?	- CheckboxGroup have no index where Choice and List have.
 Class declaration must contain a superclass name. Di declaration must contain a superclass name. Di declaration your class implement interfaces use the keyword. Class the final modifier you can declare that your class and the subscription of the subscription of the following code: Menu ml, m2. Menu ml,	Which sentence is correct from the following:	*
 - To declare that your class implement interfaces use the keyword - Borh 1 and 2 are correct. - Oterate submension in a menu we write the following code: - All read and the following code: - All read and the following is incorrect: - StringBuffer str = new StringBuffer; - System out print(new stringBuffer) - StringBuffer str = new StringBuffer; - System out print(new stringBuffer) - StringBuffer str = new StringBuffer; - System out print(new stringBuffer) - To use a System out print(new stringBuffer) - To use a System out print(new stringBuffer) - To use a System out print and uoting strong but the dist of the soond row. Which ends and string buffer in memory. - To access files sequentialy. - To access this sequentialy. - To access this sequentialy. - To access the system class variable or method: - To access the sequentialy. - To access the system class variables or method: - To access the sequentialy. - To access the system class variable or method: - To access the sequentialy. - To access the system class variable or method: - To access the system class variable or method: - To access the system class variable or method: - To access the system class variable or method: - To access the system class sequentialy. - To access the system class sequentialy. - To access the system class wariable or method: - To access the system class wariable or method: - To access the system class wariable or method: - To access the system class wariable or method: - To access the system class wariable or method: - To access the system class waring buffer in memory. - Do		1 5
 extends. extends. Using the final modifier you can declare that your class can not be subclassed. To you know how star's traditional language features? opl (a) dp 2 opl are op2 opl are op2 opl are op2 which sentence of the following is incorrect: opl or op2 the you know how bar strings are used in Java? The value of sh after these statements is Drink Hot Java! the you know how Java deals with System class and ible of the statements is Drink Hot Java! the value of sh after these statements is Drink Hot Java! the you know how Java deals with System class and declare a variable of type System. the you know how Java deals with System class and able statements is Drink Hot Java! the result of the following is incorrect: The or of Layout to be used as ing brief in emersy. For methods that produce output to be used as ing brief in emersy. The or object that can be thrown. The or object that can be thrown. The or object that can be thrown. The object th		
 - Using the final modifier you can declare that your class can not be subclassed. - Bo you know the Jav's traditional language features? - opl and op2 - opi and op2	5 1 5	
be subclassed. be subclassed. be got a low with ava's traditional language features? • Opl (and Q2 • Opl and Q2 • Opl and Q2 • Opl and Q2 • Opl and Q2 • Do you know how strings are used in Java? • Diverse of the following is incorrect: • StringBuffer str – new StringBuffer; • System.out printingerswirtingBuffer; • System.out printingerswirtingBuffer; • Diverse of a failer these statements is Drink Hot Java! StringBuffer str – new StringBuffer; • Diverse of a failer these statements is Drink Hot Java! StringBuffer str – new StringBuffer; • Diverse of a failer these statements is Drink Hot Java! StringBuffer str – new StringBuffer; • Diverse of a failer these statements is Drink Hot Java! StringBuffer str – new StringBuffer; • Diverse of a failer these statements is Drink Hot Java! StringBuffer str – new StringBuffer; • Diverse of a failer these statements is Drink Hot Java! StringBuffer str – new StringBuffer; • Diverse of a failer these statements is Drink Hot Java! StringBuffer str – new StringBuffer; • Diverse of a failer these statements is Drink Hot Java! * Diverse of a failer these statements is Drink Hot Java! * Diverse of a failer these statements is Drink Hot Java! * Diverse of a failer these statements is Drink Hot Java! * Diverse of a failer these statements is Drink Hot Java! * Diverse of a failer these statements is Drink Hot Java! * Diverse of a failer these statements is Drink Hot Java! * Diverse of a failer these statements is Drink Hot Java! * Diverse of the statements is Drink Hot Java! * Diverse of the following is incorrect: * Diverse statements is show threads? * The update() method clearse the stream failer of the failer of a while. * Diverse failer the stream failer on estatements is on the failer mattements. * Divere failer: The stream stream		•
 * Do you know the Javis traditional language features? • opl of openesis: • opl and op? • opl or op? • Do you know how strings are used in Java? • Which sentence of the following is incorrect: • System outprintin(incwrfingBuffer; Orini, Java?); • The value of sh after these statements is Drink Hot Java! • The value of sh after these statements is Drink Hot Java! • Do you know how Java deals with System class and imput, • To use a System class variable or method; • Instantiat a System class a variable or method; • To use a System class variable or method; • To use a System class variable or method; • To trade sees files sequentially. • The ipped mupt and output at centure streams are used: • To fraid Bag(Jayout, i' we want Button I the sector of we foldbag(constraints, Remainder); • machetion = ("Button 2"; gridbag,c.); • egridwidh = GridBag(Constraints, Remainder); • machetion = ("Button 2"; gridbag,c.); • egridwidh = GridBag(Constraints, Remainder); • machetion = ("Button 2"; gridbag,c.); • egridwidh = GridBag(Constraints, Remainder); • machetion = (The folds) is in Java? • Which sentence of the following is incorrect: • Joy uk now what tapplets are and how they are writter in Java? • Which sentence of the following is incorrect: • Anyorks case mode pathet must, soud a firm any firm that accesses; • Threads exceution, the Java runtime supports: • Fried priority scheduling: • Threads exceution, the Java runtime supports: • Threads exceution, the Java runtime supports: • Price priority scheduling: • Threads exceution, the Java runtime supports: • Threads exceution, the Java runtime supports: • Threads exceution, the Java runtime supports: • Threads the production: • The indee		,
 - opl i op2 means: - opl a op2 - op1 a op2 - op2 - op2 a op2 a op2 - op2 - op2 a op2 a op2 - op3 a op3 a op3 a op3 - op3	be subclassed.	Menu m1, m2;
 opi ar op2 mb add(m); m c = new Menu("subMenu"); m c = new Menu("subMenu"); m c = new Menu("subMenu"); m c = new Menu("Menu "); m c = new Menu("subMenu"); m c = new menu(menu term); m c = new menu terms m c = new Menu("subMenu"); m c = new menu terms m c = new is new new menu terms m c = new is new new menu terms m c = new is new new menu terms m c = new is ne = new is new new new new new new new	* Do you know the Java's traditional language features?	Menultem mi;
 - opl ar op2 m = new Menu("subMenu"); m = new Menu(subMenu"); m = new Me	opl op2 means:	- m1 = new Menu("Menu 1");
 - opl ar op2 m = new Menu("subMenu"); m = new Menu(subMenu"); m = new Me	- op1 and op2	mb.add(m1):
 - opi or op2 - min backbox - Wich sentence of the following is incorrect: - System out printle(newstingBuffer;) - Yue and a set is medwingBuffer; - Yue and a set is medwingBuffer; - Yue and a set is medwingBuffer; - Yue and a system class and isolar; - To use a System class variables or methods: - In set and system class and ideclare a variable of type System - To use a System class variables or methods: - To use a System class variables or method. - To use a System class variables or method sand variables as any other class. - Append the variable or method name directly to the class name (), in otifout. - The radia form a but a range to you show what Exception is in Jawa? - To use a System class variables or method. - The radia form a string buffer in memory. - To op or false: The ByteArayInputStream read 8, bit data from a string buffer in memory. - The or false: The ByteArayInputStream read 8, bit data from a string buffer in memory. - The or false: The ByteArayInputStream read 8, bit data from a string buffer in memory. - The or false: The ByteArayInputStream read 8, bit data from a string buffer in memory. - The or false: The ByteArayInputStream read 8, bit data from a string buffer in memory. - The or false: The ByteArayInputStream read 8, bit data from a what sception is in Jawa? - The or false: The ByteArayInputStream read 8, bit data from a what sception is Jawa? - The or false: The ByteArayInputStream read 8, bit data from a what sception is Jawa? - The or false: The ByteArayInputStream read 8, bit data from a what sception is Jawa? - The or false on thrown must be a subclass of a throwat? - The or false on thrown must be a subclass of a throwat? - The or false on thrown must be a subclass of a throwat? - The or false on thrown must be		
 * Do you know how strings are used in Java? * Which sentence of the following is incorrect: * Stringbuffer str = new WindgBuffer("Jarned for a prod" con") append ("carli appe		
 - Which sentence of the following is incorrect: - Stringbuffers to -mex Stringbuffer("cont") append("cont") append("cont"); - The value of sh after these statements is Drink Hot Java! - The value of sh after these statements is Drink Hot Java! - The value of sh after these statements is Drink Hot Java! - The value of sh after these statements is Drink Hot Java! - The value of sh after these statements is Drink Hot Java! - The value of sh after these statements is Drink Hot Java! - The value of sh after these statements is Drink Hot Java! - The value of sh after these statements is Drink Hot Java! - The value of sh after these statements is Drink Hot Java! - The value of sh after these statements is Drink Hot Java! - The ordial apout rights as any other class and declare a variable of type System and use its methods and variables or methods: - The ordial apout rights as any other class and the care variable of type System reads. - The ordial apout rights as any other class and the care value of mathemation is in ava? - The ordial apout rights ago output to be used as input show what Exception is in Java? - The ordige Constraints C = mode that from a string buffer in memory. - Do you know what Exception is in Java? - The ordige Constraints C = mode that from string buffer in memory. - Do you know what Exception is in Java? - The ordige Constraints C = mode that can be thrown. - The ordige Constraints C = mode that can be thrown. - The ordige Constraints C = mode that can be thrown. - The ordige Constraints C = mode that can be thrown. - The ordige Constraints C = mode that from within segorate. - The ordige Constraints C		
 Stingbuffer str = new StringBuffer() append("con") append ("can") append("can") ("here studies of a her these statements is Drink Hot Java! The value of a her these statements is Drink Hot Java! The value of a her these statements is Drink Hot Java! The value of a her these statements is Drink Hot Java! The value of a her these statements is Drink Hot Java! The value of a her these statements is Drink Hot Java! The value of a her these statements is Drink Hot Java! The value of a her these statements is Drink Hot Java! The forfidLayout: The value of a her these statements are used: The new Menut("Menu 1"): m2 addit(m); The GridLayout: uses the component's natural size. Uses the component's		
 - System out printin(newstringBuffer() append("com") append("com") append("comin); - The value of shafter these statements is Drink HoL Java! - The value of shafter these statements is Drink HoL Java! - The value of shafter these statements is Drink HoL Java! - Disput a for status? - Do you know how how lava deals with System class and indext. - Pro et also system class variables or methods: - Instatiate a System class and declara variable of type System - The ord Lagoutt. - Use stype components in rows and/or columns use. - Display a for weard Button1 to be in the first row and use its methods and variables or methods: - The ord Lagoutt. - Use stype components in rows and/or columns use. - Display a for weard Button1 to be in the first row and string Dundario. - The ord Lagoutt. - The ord Lagoutt.<	•	
 ("cat") append("enation"); The value of batter these statements is Drink Hot Java! Stinsert(G,"Ho"); The origination of the problem of		
 The value of she after these statements is Drink Hot Java! The value of she new StringBulfer("Drink Java!"); So you know how Java deals with System class and uctar a variable or type System Instantiate a System class and declare a variable of type System Append the variable or methods: Instantiate a System class and declare a variable of type System Append the variable or methods: The priod input and output streams are used: To access files sequentially. The or methods that produce output to be used as input System ("Batton 1"); "addag.constraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton = ("Batton1"; gridbag.c); c. gridwidth = GridBagConstraints Relative(); makebutton		
StringBuffer(*Drink Javal*): mi = new Menutem(*Menu Hem*); * bo you know how Java deals with System class and input, output streams? mi = new Menutem(*Menu Hem*); * Do you know how Java deals with System class and input, output streams? mi = new Menutem(*Menu Hem*); * To use a System class and declare a variable of type System (alss stand declare a variable of type System); mi = new Menutem(*Menu Hem*); * Apped the variable or method name directly to the class name using (.) notation. - The ridiBag_layout ; if we want Button1 to be in the first row and Button2 in the second row. Which code is correct • To access file sequentially. - The or false: The ByteArayInputStream read 8 bit data from a string buffer in memory. • Do you know what Exception is in Java? - or false: The ByteArayInputStream read 8 bit data from string buffer in memory. • Do you know what Exception is in Java? - Which sentence of the following is incorrect: • Do you know what Exception with notify() to coordinate teas an animation loop, call the repaint method to draw the contrainty in machine of the following is incorrect. • Any object can be thrown. - Do you know wantifing about threads? • Any object can be thrown. - Do you know wantify about threads? • Do you know wantify in conjunction with notify() to coordinate teas an inition loop, call the repaint method to draw the contrainty in machine (now that applets an ear an anination loop, call the repaint method to draw the contrainty in maco	("cat").append("enation");	m2 = new Menu("subMenu");
 b) insert(of-Hoi⁺); D) you know how Java deals with System class and yother class and use its methods and variables or methods: Instinuita a System class und bedrare a variable of type System and use its methods and variables as any other class. Instinuita a System class und bedrare a variable of type System and use its methods and variables as any other class. Instinuita a System class und bedrare a variable of type System and use its methods and variables as any other class. Instinuita a System class und bedrare a variable of type System and use its methods and variables as any other class. Instinuita a System class variables or method are directly to the class name use! Instinuita a System class variables or method are directly to the class name tass. Instinuita a system class variables or method are directly to the used as input file grading. Inter of False: The ByteArayIputStream read 8 bit directly to the class. Inte incode data from a string buffer in memory. Dy oug know what Exception is in Java? Which sentence is incorrect: Ino object that can be thrown must be a subclass of a throwable class. We bis performs at me many threads, and those threads? Inter aglicing. Any object can be thrown. Sy option know what paptes are and how they are writint. Java? Inter sulfing method should contain: Any object sen invoke public methods of other applets on the same first. Which sentence of the following is incorrect: Applets can invoke public methods of other applets on the same first. Which sentence of the following is incorrect: Applets can invoke public methods of other applets on the same first. Applets can invoke public methods of other applets on the same first. Which sentence of the following is incorrect: Applets can invoke public methods of other applets on the same?	- The value of sb after these statements is Drink Hot Java!	mb.add(m2);
 b) insert(of-Hoi⁺); D) you know how Java deals with System class and yother class and use its methods and variables or methods: Instinuita a System class und bedrare a variable of type System and use its methods and variables as any other class. Instinuita a System class und bedrare a variable of type System and use its methods and variables as any other class. Instinuita a System class und bedrare a variable of type System and use its methods and variables as any other class. Instinuita a System class und bedrare a variable of type System and use its methods and variables as any other class. Instinuita a System class variables or method are directly to the class name use! Instinuita a System class variables or method are directly to the class name tass. Instinuita a system class variables or method are directly to the used as input file grading. Inter of False: The ByteArayIputStream read 8 bit directly to the class. Inte incode data from a string buffer in memory. Dy oug know what Exception is in Java? Which sentence is incorrect: Ino object that can be thrown must be a subclass of a throwable class. We bis performs at me many threads, and those threads? Inter aglicing. Any object can be thrown. Sy option know what paptes are and how they are writint. Java? Inter sulfing method should contain: Any object sen invoke public methods of other applets on the same first. Which sentence of the following is incorrect: Applets can invoke public methods of other applets on the same first. Which sentence of the following is incorrect: Applets can invoke public methods of other applets on the same first. Applets can invoke public methods of other applets on the same first. Which sentence of the following is incorrect: Applets can invoke public methods of other applets on the same?	StringBuffer sb = new StringBuffer("Drink Java!"):	mi = new Menultem("Menu Item"):
 * Do you know how Java deals with System class and input; comput streams? - The use a System class variables or methods: - Instantiate a System class and declare a variable of type System and use its methods and variables as any other class. - Append the variable or method name directly to the class name used: - The or False: The ByteArayInputStream read 8 bit data from a string buffer in memory. - Do you know what Exception is in Java? - Which sentence is incorrect: - The object that can be thrown. - Do you know what Exception is in Java? - The value and multiple treads using multiple resources. - In Threads exceution, the Java runtime supports: - Fixed prointy is scheduling. - The rupdate() method clears the applet resources. - In Threads exceution, the Java runtime supports: - The or False: When you write an applet you should add it to a trans threads, and those threads can an invoke public methods of other applets resources. - In Threads exceution, the Java runtime supports: - The or False: When you write an applet you should add it to a runtip form a byte and public methods. - Applets can load libraries and define nanive methods. - Applets can load libraries and define native methods. - Applets can load libraries and define native methods. - Applets can load libraries and define native methods. - Applets can start any program from the host that exceuting in Java? - The update() method clears the entire background only where necessary. - The update() method clears the entire background only where necessary. - The update() method should contain: - Applets can load libraries and define native methods. - Applets can load libraries and define native methods.		
 Just streams? Just the component's natural size. Just the component's natural size.		
 - To use a System class variables or methods: - Instantiate a System class variables of type System class declare a variable or method and uptur streams are used: - To access files sequentially. - For methods that produce output to be used as input y someone cles. - True or False: The ByteArayInputStream read 8_bit data from a byte array in memory but StringBufferInputStream read 8_bit data from a byte array in memory but StringBufferInputStream reads 16_bit Unicode data from a string buffer in memory. * Do you know what Exception is in Java? - Which sentence of the following is incorrect: - Any object can be thrown. * Do you know any threads, and those threads car no concurrently. - Synchronized keyword is used in a program that accesses teativities of multiple threads using multiple resources. - In Thread secucion, the Java runtime supports: - Fixed priority scheduling. - True or False: When you write an applet you should add it to a tiff. - Applets can load libraries and define native methods. - Applets can invoke public methods of other applets to a sund tar foro maily in to a constructi. - Applets can load libraries and define native methods. - Applets can load libraries and define native methods. - Applets can load libraries and define native methods. - Applets can invoke public methods of other applets to a space. - The cord the following is incorrect: - Which sentence of the following is incorrect: - No vot know about networking and security in Java? - True or False: When you write an applet you should add it to a tiff applet or applets to a space invoke that exceuting it. - Poties the toy would noonnally put into a constructor.		
 Institute is System class and declare a variable of type System and use its methods and variables as any other class. Append the variable or method name directly to the class name using (.) notation. In the piped input and output streams are used: To access files sequentially. For methods that produce output to be used as input system an byte array in memory but StringBufferInputStream read 8 (b) it Unicode data from a string buffer in memory. Dy ow know what Exception is in Java? Which sentence of the following is incorrect: Java program can have many threads, and those threads can ran concurrently. Any object can be thrown. We use walt (i) in conjunction with notify (1) to conditate for a sump subfier a supelase of the animation is prized. The adject that can be thrown must be a subclass of exception is any array memory but speak and those threads can ran concurrently. Any object can be thrown. Wo use walt (i) in conjunction with notify (1) to conditate for a maintation long, call the repaint method to draw the current finame then it should sleep for a while. One of the banefits of using MediaTracker class, in loading esceptione: Now the drawing code from the paint() to update() method clears the entire background only wher necessary. The update() method scense of the following is incorrect: Dy ou know what applets are and how they are written in targe. Thre or False: When you write an applet you should addit to a fartiling any correct and sing thereads using multiple resources. Hin threads subglase and other we methods. Applets can invoke public methods of other applets on that excerting it. Applets can invoke public methods of other applets on the sart any program from the host accentor. Hink has netarce of the following is incorrect: Applets can invoke public methods of other applets on the sart my	1	1
 and use its methods and variables as any other class. Append the variable or method name directly to the class nare using (.) notation. The piped input and output streams are used: To access files sequentially. For methods that produce output to be used as input by someone else. Ther or False: The ByteArayInputStream read 8 bit data from a string buffer in memory. * Do you know what Exception is in Java? Which sentence of the following is incorret: Joy object can be thrown must be a subclass of extremetical excertion effective streams (.) is mercetical excertion. Any object can be thrown. * Do you know what gabet threads. Any object can be thrown must be a subclass of a throwabe chass. Any object can be thrown. * Do you know what gabet are any threads?? Which sentence of the following is incorret: Java program can have many threads, and those threads can run concurrently. * On you know what applets are and how they are written in Java? * Thre of False: When you write an applet you should add it to an Time. The code that you would normally put into a constructor. Applets can invoke public methods. * Applets can invoke public methods. * The cord false rouse as int any program from the host that excerting it. * Applets can invoke public methods. * The ord false rouse as invoke public methods. * The cord false rouse as invoke applet rog. * The init() method should contain: * The cord false rouse as invoke applet rog		
 Append the variable or method name directly to the class name using (.) notation. The piped input and output streams are used: The piped input and output streams are used: To access files sequentially. For methods that produce output to be used as input by someone else. True or False: The ByteArayInputStream reads 8 bit dat from a byte array in memory but StringBufferInputStream reads 16 bit Unicode data from a string buffer in memory. Which sentence is incorrect: The object that can be thrown must be a subclass of excerption elss. The object that can be thrown must be a subclass of excerption elss. The object that can be thrown must be a subclass of excerption elss. The object that can be thrown must be a subclass of a throwabe class. Any object can be thrown. Do you know anything about threads? Which sentence of the following is incorrect: Java program can have many threads, and those threads can run encourrently. Thre adificange construct threads. The update() method clears the entire background only wher necessary. Thre update() method clears the entire background only wher necessary. The update() method clears offscreen, draw to it, and then display the resulting image onscreen. The update() method clears offscreen, draw to it, and then display the resulting image onscreen. The update() method should contain: Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that execution it. Appl		_ 0
 using (.) notation. The piped input and output streams are used: To access files sequentially. For methods that produce output to be used as input by someone else. The or False: The ByteArayInputStream read 8 bit data from a string buffer in memory. Po you know what Exception is in Java? Which sentence of the following is incorrect: Java program can have many threads, and those threads can run concurrently. Which sentence of the following is incorrect: Java program can have many threads, and those threads can run concurrently. We use wait() in conjunction with notify() to contact the activities of multiple threads using multiple resources. The update() method creates of Storeen, draw to it, and then display threads using multiple resources. The update() method creates of Storeen, draw to it, and then display threads using multiple resources. The update() method creates of Storeen, draw to it, and then display threads using multiple resources. The update() method creates of the following is correct: Applets can start any program fuch he of at payer any thread security in Java? The or False: When you write an applet you should add it to a TML page using the <applet> tag.</applet> Applets can start any program fuch he of at the execution resource. Applets can invoke public methods of other applets on the same page. The init() method should contain: The core false: when you write an applet you should add it to a particular process running on a computer. Datagrams Ports HTTP. Datagrams - Ports H		
 - The piped input and output streams are used: - To access files sequentially. - For methods that produce output to be used as input by someone else. - True or False: The ByteArayInputStream read 8_bit data from a byte array in memory. but StringBufferInputStream reads 16_bit Unicode data from a string buffer in memory. * Do you know what Exception is in Java? - The object that can be thrown must be a subclass of exception class. - The object that can be thrown must be a subclass of a throwhelt. - Do you know anything about threads? - Mich sentence of the following is incorrect: - Java program can have many threads, and those threads can ron concurrently. - Synchronized keyword is used in a program that accesses th same data from within separate, concurrent threads. - We use wait() in conjunction with notify() to coordinate the stricties of the following is incorrect: - Java program can have many threads, and those threads can ron concurrently. - Thre of False: When you write an applet you should ad it tot a Java? - True or False: When you write an applet you should ad it tot a Java? - True or False: When you write an applet you should ad it tot a Java? - True or False: When you write an applet you should ad it tot a Java? - True or False: When you write an applet you should ad it tot a Java? - True or False: TCP is a connection based protocol that provides is correct: - Applets can invoke public methods of other applets on thesame. - Which sentence of the following is incorrect: - Applets can invoke public methods of other applets on the agae. - The ordel the type wouth ormalis put into a constructor. - The excention code. - Which is netnere of the following is incorrect: - Applets can invoke public methods of other applets on the agae. - The initith sentence of the follo		
 - To access files sequentially. - For methods that produce output to be used as input by someone else. - True or False: The ByteArayInputStream read 8_bit data from a string buffer in memory. - Do you know what Exception is in Java? - Output the as ubclass of exception is in Java? - Which sentence is incorrect: - The object that can be thrown must be a subclass of a throwable class. - The object that can be thrown must be a subclass of a throwable class. - Any object can be thrown. - Which sentence of the following is incorrect: - Java program can have many threads? - Which sentence of the following is incorrect: - Java program can have many threads, and those threads can roncourcently. - In Threads exceution, the Java runtime supports: - Fixed priority scheduling. - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to a TAW2 - True or False: When you write an applet you should add it to a TAW2 - Applets can start any program from the host that exceuting it. - Applets can invoke public methods of other applets on these of the following is incorrect: - Applets can start any program from the host that exceuting it. - Applets can invoke public methods of other applets on these of the following is incorrect: - Applets can invoke pub	using (.) notation.	GridBagConstraints c = new GridBagConstraints();
 - To access files sequentially. - For methods that produce output to be used as input by someone else. - True or False: The ByteArayInputStream read 8_bit data from a string buffer in memory. - Do you know what Exception is in Java? - Output the as ubclass of exception is in Java? - Which sentence is incorrect: - The object that can be thrown must be a subclass of a throwable class. - The object that can be thrown must be a subclass of a throwable class. - Any object can be thrown. - Which sentence of the following is incorrect: - Java program can have many threads? - Which sentence of the following is incorrect: - Java program can have many threads, and those threads can roncourcently. - In Threads exceution, the Java runtime supports: - Fixed priority scheduling. - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to at TAW2 - True or False: When you write an applet you should add it to a TAW2 - True or False: When you write an applet you should add it to a TAW2 - Applets can start any program from the host that exceuting it. - Applets can invoke public methods of other applets on these of the following is incorrect: - Applets can start any program from the host that exceuting it. - Applets can invoke public methods of other applets on these of the following is incorrect: - Applets can invoke pub	The piped input and output streams are used:	GridBagLayout gridbag = new GridBagLayout();
 For methods that produce output to be used as input by someone else. True or False: The ByteArayInputStream read 8_bit data from a byte array in memory but StringBuffer1nputStream reads 16_bit Unicode data from a string buffer in memory. Do you know what Exception is in Java? Which sentence is incorrect: The object that can be thrown must be a subclass of exception class. Any object can be thrown. Do you know anything about threads? Which sentence of the following is incorrect: Java program can have many threads, and those threads can run concurrently. Synchronized keyword is used in a program that accesses the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time of False: When you write an applet you should add it to Tawa? Thre or False: When you write an applet you should add it to Tawa? Anyplets can load libraries and define native methods. Applets can invoke public methods of other applets on thesi mit. Applets can invoke public methods of other applets on thesi in intormally public the following is incorrect: Applets can invoke public methods of othar applets on thesi in the CTP and UDP protocols use to map incoming data to a particular process running on a computer. The or of alse: Roull of the following two lines are the same URL ("http","www bateleco com.bh/inet.html"); URL ("http","www bateleco com.bh/inet.html"); When it performs a time consuming task. 		
someone else. - True or False: The ByteArayInputStream read 8 bit dat for a byte array in memory but StringBufferInputStream reads 16 bit Unicode data from a string buffer in memory. - No you know what Exception is in Java? - Which sentence is incorrect: - The object that can be thrown must be a subclass of exception class. - The object that can be thrown must be a subclass of exception class. - The object that can be thrown must be a subclass of a throwable class. - Any object can be thrown. * Do you know anything about threads? - Which sentence of the following is incorrect: - Java program can have many threads, and those threads can run concurrently. - Wn whith sentence of the following is incorrect: - Java program can have many threads, and those threads can run - Fixed priority scheduling. - Time of False: When you write an applet you should add it to an HTML page using the <applet sea:<br="">- True or False: When you write an applet you should add it to an HTML page using the <applet sea:<br="">- True or False: When you write an applet you should add it to an HTML page using the <applet sea:<br="">- The init() method should contain: - The excettion code. - Which sentence of the following is incorrect: - Applets can start any program from the host that exceturing it. - Applets can start any program from the host that exceturing it. - Applets can start any program from the host that exceturing it. - Applets can start any program from the host that exceturing it. - Applets can start any program from the host that exceturing it. - Applets can start any program from the host that exceturing it. - The excetuion code. - Which sentence of the following is incorrect: - The excetuion code. - Which sentence of the following is incorrect: - The excetuion code. - Which sentence of the following is incorrect: - The excetuion code. - Which sentence of the following is incorrect: - The update() method should contain: - The code that you would normally put into a constructor. - The excetuion</applet></applet></applet>		
 - The or False: The ByteArayInputStream read 8 bit data from a string buffer InputStream from a byte array in memory but StringBufferInputStream from a byte array in memory. * Do you know what Exception is in Java? * Which sentence is incorrect: - The object that can be thrown must be a subclass of a throwable class. * Any object can be thrown. * Do you know anything about threads? - Which sentence of the following is incorrect: - Java program can have many threads, and those threads can run concurrently. - Synchronized keyword is used in a program that accesses this ame data from within separate, concurrent threads. - We use wait() in conjunction with notify() to coordinate tartivities of multiple threads using multiple resources. - In Threads execution, the Java runtime supports: - Fixed priority scheduling. - The or False: When you write an applet you should add it to an HTML page using the <applet li="" rag.<=""> - The init() method should contain: - Applets can load libraries and define native methods. - Applets can invoke public methods of other applets on the same page. - The init() method should contain: - The execution code. - Which sentence of the following is incorrect: - Applets can load libraries and define native methods. - Applets can invoke public methods of other applets on invoke public methods of other applets can invoke public methods of other applets on invoke public methods. - Applets can invoke public methods of other applets on invoke public methods of other applets on invoke public methods of other applets on invoke public methods. - Applets can invoke public methods of other applets on invoke public methods of other applets on i</applet>		
 from a byte array in memory but StringBnferInpuiStream reads 16_bit Unicode data from a string buffer in memory. Do you know what Exception is in Java? Which sentence is incorrect: The object that can be thrown must be a subclass of exception class. The object that can be thrown must be a subclass of a throwable class. Any object can be thrown. Wo you know anything about threads? Synchronized keyword is used in a program that accesses the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Thre or False: When you write an applet you should add it to an HTML page using the <applet>tag.</applet> The or of the following is correct: Applets can load libraries and define native methods. The ecode that you would normally put into a constructor. The excettion code. When it performs a task repeatedly. When it		
 reads 16 bit Unicode data from a string buffer in memory. * Do you know what Exception is in Java? Which sentence is incorrect: The object that can be thrown must be a subclass of a throwable class. The object can be thrown. * Do you know anything about threads? Which sentence of the following is incorrect: Java program can have many threads, and those threads can run concurrently. Synchronizzd keyword is used in a program that accesses the same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate tresulting image constraints. Fixed priority scheduling. Time or False: When you write an applet you should add it to an HTML page using the sapplet tag. The or of False: When you write an applet you should add it to an HTML page using the sapplet tag. The or of the following is correct: Applets can invoke public methods of other applets can invoke public methods of other applets tag. The init() method should contain: The code that you would normally put into a constructor. The execution code. When it performs a task repeatedly. When it performs a task repatedly. 		
 * Do you know what Exception is in Java? - Which sentence is incorrect: - The object that can be thrown must be a subclass of exception class. - The object that can be thrown must be a subclass of a throwable class. - Any object can be thrown. * Do you know anything about threads? - Which sentence of the following is incorrect: - Java program can have many threads, and those threads can run concurrently. - Synchronized keyword is used in a program that accesses ths ame data from within separate, concurrent threads. - Move the drawing code from the paint() to update() method. - The update() method clears the entire background only wher necessary. - Th Threads execution, the Java runtime supports: - Fixed priority scheduling. - True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> - The init() method should contain: - The eode that you would normally put into a constructor. - The execution code. - Which sentence of the following is incorrect: - Applets can load libraries and define native methods. - Applets can load ibraries and define native methods. - Applets can load ibraries and define native methods. - Applets can load ibraries and define native methods. - Applets can load ibraries and define native methods. - Applets can invoke public methods of other applets on the same frage. - The init() method should contain: - The code that you would normally put into a constructor. - The execution code. - Which sentence of the following is incorrect: - Applets can invoke public methods of other applets on the same frage. - The init() method should contain: - The ode that you would normally put into a constructor. - The execution code. - Which sentence of the following is incorrect:<		
 Which sentence is incorrect: The object that can be thrown must be a subclass of exception class. Any object can be thrown. Do you know anything about threads? Which sentence of the following is incorrect: Java program can have many threads, and those threads carru concurrently. Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate tha activities of multiple threads using multiple resources. In Threads exceution, the Java runtime supports: Fixed priority scheduling. Thrue or False: When you write an applet you should add it to a Java? Thrue or False: When you write an applet you should add it to a Java? Thrue or False: and how they are written in Java? Thrue or False: Men you write an applet you should add it to a Time y program from the host that exceuting it. Applets can load libraries and define native methods. Applets can invoke public methods of other applets on the same gage. The code that you would normally put into a constructor. The exceution code. When it performs a taxk repeatedly. When it performs a time consuming task. 		
 The object that can be thrown must be a subclass of exception class. The object that can be thrown must be a subclass of a throwable class. Any object can be thrown. Do you know anything about threads? Which sentence of the following is incorrect: Java program can have many threads, and those threads can run concurrently. Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. In Threads exceution, the Java runtime supports: Fixed priority scheduling. Time ylicing. The or False: When you write an applet you should add it to an Java? Thread e stati any program from the host that executing it. Applets can load libraries and define native methods. Applets can load stati any program from the host that executing it. Applets can start any program from the host that executing it. Applets can load bibraries and define native methods. When it performs a time consuming task. When it performs a task repeatedly. 	* Do you know what Exception is in Java?	makebutton = ("Button2",gridbag,c);
 class. The object that can be thrown must be a subclass of a throwable class. The object can be thrown. Do you know anything about threads? When stheme of the following is incorrect: Java program can have many threads, and those threads can run concurrently. Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. The update() method clears the entire background only when determed to a data with no guarantee for arrival. The or False: When you write an applet you should add it to a Thick scan invoke public methods of other applets can load libraries and define native methods. Applets can invoke public methods of other applets on the same age. The init() method should contain: The code that you would normally put into a constructor. The init() method should contain: The code that you would normally put into a constructor. The applet creates its own thread. When it performs a tak repeatedly. When it performs a time consuming task. 		Which sentence of the following is incorrect:
 class. The object that can be thrown must be a subclass of a throwable class. The object can be thrown. Do you know anything about threads? When stheme of the following is incorrect: Java program can have many threads, and those threads can run concurrently. Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. The update() method clears the entire background only when determed to a data with no guarantee for arrival. The or False: When you write an applet you should add it to a Thick scan invoke public methods of other applets can load libraries and define native methods. Applets can invoke public methods of other applets on the same age. The init() method should contain: The code that you would normally put into a constructor. The init() method should contain: The code that you would normally put into a constructor. The applet creates its own thread. When it performs a tak repeatedly. When it performs a time consuming task. 	- The object that can be thrown must be a subclass of exception	- Using the drawImage we can change the size of the image.
 The object that can be thrown must be a subclass of a throwable class. Any object can be thrown. * Do you know anything about threads? Java program can have many threads, and those threads can run concurrently. Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time_slicing. The or False: When you write an applet you should add it to a HTML page using the <applet>tag.</applet> The or false: When you write an applet you should add it to a HTML page using the <applet>tag.</applet> The init() method should contain: Applets can load libraries and define native methods. Applets can invoke public methods of other applets on the same gage. The init() method should contain: The code that you would normally put into a constructor. The code that you would normally put into a constructor. The code that you would normally put into a constructor. The explet creates its own thread. When it performs a take repeatedly. When it performs a take repeatedly. When it performs a take repeatedly. When it performs a time consuming task. 		- To create an animation loop, call the repaint method to draw the
 class. Any object can be thrown. Do you know anything about threads? Which sentence of the following is incorrect: Java program can have many threads, and those threads can unconcurrently. Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. Synchronized keyword is used in a program that accesses the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time silcing. Do you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTML page using the <applet></applet> tag. Which sentence of the following is correct: Applets can load libraries and define native methods. Applets can load libraries and define native methods. Applets can start any program from the host that executing it. Applets can load libraries and define native methods. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can invoke public methods of other applets on the same agae. The init() method should contain: The code that you would normally put into a constructor. The applet creates its own thread. When it performs a time consuming task. One of the benefits of using MediaTracker class, in loading sequence of the following is incorrect: Applets can invoke public methods of other applets on the same appet. The upfate form of the blank by choosing the correct input and output streams for reading from or writing to the socket. To close the speced. When it performs a time consuming task. 		
 Any object can be thrown. * Do you know anything about threads? * Which sentence of the following is incorrect: Java program can have many threads, and those threads can run concurrently. Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate tha activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time_slicing. * Do you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> Which sentence of the following is correct: Applets can load libraries and define native methods. Applets can invoke public methods of other applets on the sage. The init() method should contain: The code that you would normally put into a constructor. The code that you would normally put into a constructor. The applet creates its own thread. Which sentence of the following is incorrect: Applets can invoke public methods of other applets on the age. The init() method should contain: The code that you would normally put into a constructor. The applet creates its own thread. Which sentence of the following is incorrect: The applet creates its own thread. When it performs a tak repeatedly. When it performs a time consuming task. 		
 * Do you know anything about threads? • Which sentence of the following is incorrect: • Java program can have many threads, and those threads can run concurrently. • Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. • We use wait() in conjunction with notify() to coordinate the activities of multiple threads using multiple resources. • In Threads execution, the Java runtime supports: • Fixed priority scheduling. • Time_slicing. * Do you know what applets are and how they are written in Java? • True or False: When you write an applet you should add it to an Tirval. • Applets can load libraries and define native methods. • Applets can invoke public methods of other applets on the south cate and into method should contain: • The eccettion code. • Which sentence of the following is incorrect: • The init() method should contain: • The eccettion code. • Which sentence of the following is incorrect: • When it performs a task repeatedly. • When it performs a tame consuming task. 		
 Which sentence of the following is incorrect: Java program can have many threads, and those threads can run concurrently. Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time_slicing. To you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTTML page using the <applet>tag.</applet> Which sentence of the following is correct: Applets can load libraries and define native methods. Applets can load libraries and define native methods. Applets can invoke public methods of other applets on the agnet. The init() method should contain: The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: The init() method should contain: The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: When it performs a taik repeatedly. When it performs a time consuming task. 		
 Java program can have many threads, and those threads can run concurrently. Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate tha activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time slicing. To you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> Which sentence of the following is correct: Applets can stard any program from the host that executing it. Applets can invoke public methods of other applets on the same page. The eode that you would normally put into a constructor. The code that you would normally put into a constructor. The code that you would normally put into a constructor. The code that you would normally put into a constructor. When it performs a time consuming task. When it performs a time consuming task. Mate a pole creates its own thread. When it performs a time consuming task. Mate a pole creates its own thread. When it performs a time consuming task. When it performs a time consuming task. Mate a pole creates its own thread. When it performs a time consuming task. Mate a pole creates its own thread. When it performs a time consuming task. 		
 concurrently. Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time_slicing. To you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTML page using the <applet>tag.</applet> Thrue or False: When you write an applet you should add it to an HTML page using the <applet>tag.</applet> Which sentence of the following is correct: Applets can load libraries and define native methods. Applets can invoke public methods of other applets on the same page. The init() method should contain: The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a task repeatedly. When it performs a time consuming task. 	e	
 Synchronized keyword is used in a program that accesses the same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time_slicing. * Do you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> Which sentence of the following is correct: Applets can load libraries and define native methods. Applets can load libraries and define native methods. Applets can load libraries and define native methods. Applets can invoke public methods of other applets on the same page. The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a time consuming task. 		
 same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time_slicing. Do you know what applets are and how they are written in Java? -True or False: When you write an applet you should add it to at HTML page using the <applet> tag.</applet> Which sentence of the following is correct: Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: When it performs a time consuming task. When it performs a time consuming task. The totagrams. Wen it performs a time consuming task. 	concurrently.	- The update() method clears the entire background only when
 same data from within separate, concurrent threads. We use wait() in conjunction with notify() to coordinate the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time_slicing. Do you know what applets are and how they are written in Java? -True or False: When you write an applet you should add it to at HTML page using the <applet> tag.</applet> Which sentence of the following is correct: Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. Applets can start any program from the host that executing it. The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: When it performs a time consuming task. When it performs a time consuming task. The totagrams. Wen it performs a time consuming task. 	- Synchronized keyword is used in a program that accesses the	necessary.
 We use wait() in conjunction with notify() to coordinate the activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time_slicing. * Do you know about networking and security in Java? True or False: TCP is a connection based protocol that provides a reliable flow of data between two computers, while UDP is a protocol that sends independent packets of data with no guarantee for arrival. - True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> - True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> - Which sentence of the following is correct: Applets can load libraries and define native methods. Applets can invoke public methods of other applets on the same page. - The init() method should contain: The code that you would normally put into a constructor. The execution code. - Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a time consuming task. 		- The update() method creates offscreen, draw to it, and then display
 activities of multiple threads using multiple resources. In Threads execution, the Java runtime supports: Fixed priority scheduling. Time_slicing. Too you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> Which sentence of the following is correct: Applets can load libraries and define native methods. Applets can load libraries and define native methods. Applets can load libraries and define native methods. Applets can invoke public methods of other applets on the same page. The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a time consuming task. 		
 In Threads execution, the Java runtime supports: - Fixed priority scheduling. - Time_slicing. - Time_slicing. - To you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> Which sentence of the following is correct: - Applets can load libraries and define native methods. - Applets can load libraries and define native methods. - Applets can invoke public methods of other applets on the same page. The init() method should contain: The execution code. Which sentence of the following is incorrect: The execution code. Which sentence of the following is incorrect: Socket a new DatagramSocket(); Socket		
 Fixed priority scheduling. Time_slicing. To you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> Which sentence of the following is correct: - Applets can load libraries and define native methods. - Applets can invoke public methods of other applets on the same page. The init() method should contain: - The code that you would normally put into a constructor. - The execution code. - Which sentence of the following is incorrect: The execution code. - Which sentence of the following is incorrect: - When it performs a time consuming task. reliable flow of data between two computers, while UDP is a protocol that sends independent packets of data with no guarantee for arrival. - Fill in the blank by choosing the correct answer: - Fill in the blank by choosing the correct answer: - Fill in the blank by choosing the correct answer: - The TCP and UDP protocols use to map incoming data to a particular process running on a computer. - Datagrams Ports HTTP. - True or False: Results of the following two lines are the same - URL batelco = new - URL batelco.com.bh/Inet.html"); - URL batelco = new - URL batelco.com.bh", "/Inet.html"); - True or False: To use a socket, we must create input and output streams for reading from or writing to the socket. To close the socket after we finish using it, we must close the streams first. - socket = new DatagramPacket(buf,222); socket.receive(packet); 		
 Time slicing. To you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTML page using the <applet>tag.</applet> Which sentence of the following is correct: - Applets can load libraries and define native methods. - Applets can load libraries and define native methods. - Applets can start any program from the host that executing it. - Applets can invoke public methods of other applets on the same page. - The init() method should contain: - The code that you would normally put into a constructor. - The execution code. - Which sentence of the following is incorrect: - The applet creates its own thread. - When it performs a task repeatedly. When it performs a time consuming task. 	11	
 * Do you know what applets are and how they are written in Java? True or False: When you write an applet you should add it to an HTML page using the <applet>tag.</applet> Which sentence of the following is correct: - Applets can load libraries and define native methods. - Applets can start any program from the host that executing it. - Applets can invoke public methods of other applets on the same page. - The init() method should contain: - The init() method should contain: - The code that you would normally put into a constructor. - The execution code. - Which sentence of the following is incorrect: - The applet creates its own thread. - When it performs a task repeatedly. - When it performs a time consuming task. 		
 Java? True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> Which sentence of the following is correct: - Applets can load libraries and define native methods. - Applets can start any program from the host that executing it. - Applets can invoke public methods of other applets on the same page. The init() method should contain: - The code that you would normally put into a constructor. - The code that you would normally put into a constructor. - The applet creates its own thread. - When it performs a task repeatedly. - When it performs a time consuming task. - True or False: Results of the following to the socket. - Datagrams Ports HTTP. - Datagrams Ports HTTP. - True or False: Results of the following two lines are the same - URL batelco = new - Socket after we finish using it, we must close the streams first. - socket = new DatagramPacket(buf,222); - socket = new DatagramPacket(buf,222); - socket.receive(packet); 		· · · ·
 True or False: When you write an applet you should add it to an HTML page using the <applet> tag.</applet> Which sentence of the following is correct: - Applets can load libraries and define native methods. - Applets can start any program from the host that executing it. - Applets can invoke public methods of other applets on the same page. The init() method should contain: - The code that you would normally put into a constructor. - The execution code. - Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a time consuming task. 	5 11 5	
 HTML page using the <applet></applet> tag. Which sentence of the following is correct: Applets can load libraries and define native methods. Applets can start any program from the host that executing it. Applets can invoke public methods of other applets on the same page. The init() method should contain: The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a time consuming task. to a particular process running on a computer. Datagrams Ports HTTP. Datagrams Ports HTTP. True or False: Results of the following two lines are the same URL("http://www.batelco.com.bh/Inet.html"); URL("http://www.batelco.com.bh", "/Inet.html"); True or False: To use a socket, we must create input and output streams for reading from or writing to the socket. To close the socket are new DatagramSocket(); packet = new DatagramPacket(buf,222); socket.receive(packet); 		Fill in the blank by choosing the correct answer:
 HTML page using the <applet></applet> tag. Which sentence of the following is correct: Applets can load libraries and define native methods. Applets can start any program from the host that executing it. Applets can invoke public methods of other applets on the same page. The init() method should contain: The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a time consuming task. to a particular process running on a computer. Datagrams Ports HTTP. Datagrams Ports HTTP. True or False: Results of the following two lines are the same URL("http://www.batelco.com.bh/Inet.html"); URL("http://www.batelco.com.bh", "/Inet.html"); True or False: To use a socket, we must create input and output streams for reading from or writing to the socket. To close the socket are new DatagramSocket(); packet = new DatagramPacket(buf,222); socket.receive(packet); 	True or False: When you write an applet you should add it to an	The TCP and UDP protocols use to map incoming data
 Which sentence of the following is correct: - Applets can load libraries and define native methods. - Applets can start any program from the host that executing it. - Applets can invoke public methods of other applets on the same page. The init() method should contain: - The code that you would normally put into a constructor. - The execution code. - Which sentence of the following is incorrect: - When it performs a task repeatedly. - When it performs a time consuming task. - Datagrams Ports HTTP. - Datagrams Ports HTTP. - True or False: Results of the following two lines are the same - URL batelco = new - URL batelco.com.bh/Inet.html"); - URL batelco.com.bh", "/Inet.html"); - True or False: To use a socket, we must create input and output streams for reading from or writing to the socket. To close the socket = new DatagramSocket(); - socket = new DatagramPacket(buf,222); - socket.receive(packet); 		
 Applets can load libraries and define native methods. Applets can start any program from the host that executing it. Applets can invoke public methods of other applets on the same page. The init() method should contain: The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: The applet creates its own thread. When it performs a time consuming task. The performs a time consuming task. True or False: Results of the following two lines are the same URL batelco = new URL("http://www.batelco.com.bh/Inet.html"); URL ("http://www.batelco.com.bh", "/Inet.html"); True or False: To use a socket, we must create input and output streams for reading from or writing to the socket. To close the socket after we finish using it, we must close the streams first. socket = new DatagramPacket(buf,222); socket.receive(packet); 		
 Applets can start any program from the host that executing it. Applets can invoke public methods of other applets on the same page. The init() method should contain: The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a time consuming task. URL batelco = new URL("http://www.batelco.com.bh/Inet.html"); URL batelco = new URL("http://www.batelco.com.bh","/Inet.html"); URL ''http://www.batelco.com.bh", "/Inet.html"); True or False: To use a socket, we must create input and output streams for reading from or writing to the socket. To close the socket after we finish using it, we must close the streams first. socket = new DatagramPacket(buf,222); socket.receive(packet); 		
 Applets can invoke public methods of other applets on the same page. The init() method should contain: - The code that you would normally put into a constructor. - The execution code. Which sentence of the following is incorrect: - When it performs a task repeatedly. - When it performs a time consuming task. URL("http://www.batelco.com.bh/Inet.html"); - URL batelco = new URL("http","www.batelco.com.bh","/Inet.html"); - True or False: To use a socket, we must create input and output streams for reading from or writing to the socket. To close the socket after we finish using it, we must close the streams first. - socket after we finish using it, we must close the streams first. - socket = new DatagramPacket(buf,222); socket.receive(packet); 		-
 page. The init() method should contain: - The code that you would normally put into a constructor. - The execution code. Which sentence of the following is incorrect: When it performs a task repeatedly. - When it performs a time consuming task. URL bateleo = new URL("http","www.batelco.com.bh","/Inet.html"); True or False: To use a socket, we must create input and output streams for reading from or writing to the socket. To close the streams for reading from or writing to the socket. To close the socket after we finish using it, we must close the streams first. socket = new DatagramPacket(buf,222); socket.receive(packet); 		
 The init() method should contain: The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a time consuming task. URL("http","www.batelco.com.bh","/Inet.html"); True or False: To use a socket, we must create input and output streams for reading from or writing to the socket. To close the socket after we finish using it, we must close the streams first. socket after we finish using it, we must close the streams first. socket = new DatagramPacket(buf,222); socket.receive(packet); 		
 The code that you would normally put into a constructor. The execution code. Which sentence of the following is incorrect: When it performs a task repeatedly. When it performs a time consuming task. The applet creates its own thread. When it performs a time consuming task. The applet creates its own thread. When it performs a time consuming task. The applet creates its own thread. The applet creates its own thread. When it performs a time consuming task. The applet creates its own thread. When it performs a time consuming task. The applet creates its own thread. The applet cr		
 The execution code. Which sentence of the following is incorrect: When it performs a task repeatedly. When it performs a time consuming task. Streams for reading from or writing to the socket. To close the socket after we finish using it, we must close the streams first. socket after we finish using it, we must close the streams first. socket = new DatagramPacket(buf,222); socket.receive(packet); 		
 Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a time consuming task. Socket after we finish using it, we must close the streams first. Socket = new DatagramSocket(); packet = new DatagramPacket(buf,222); Socket.receive(packet); 	- The code that you would normally put into a constructor.	True or False: To use a socket, we must create input and output
 Which sentence of the following is incorrect: The applet creates its own thread. When it performs a task repeatedly. When it performs a time consuming task. Socket after we finish using it, we must close the streams first. Socket = new DatagramSocket(); packet = new DatagramPacket(buf,222); Socket.receive(packet); 	- The execution code.	streams for reading from or writing to the socket. To close the
The applet creates its own thread. socket = new DatagramSocket(); - When it performs a task repeatedly. - packet = new DatagramPacket(buf,222); - When it performs a time consuming task. socket.receive(packet);	Which sentence of the following is incorrect:	
- When it performs a task repeatedly.packet = new DatagramPacket(buf,222);- When it performs a time consuming task.socket.receive(packet);		
- When it performs a time consuming task. socket.receive(packet);		
	1 1 1	
- when it performs several tasks.		
	- when it performs several tasks.	The of False. The receive() blocks until a packet is received.



Module A:

Object-Oriented Programming Concepts.

• Object, Classes and Interfaces in JAVA. Module B:

- The Nuts and Bolts of JAVA Language.
- The String and String Buffers Classes.
- Setting Program Attributes.

Module C:

- System.
- Input and Output Streams.

Module D:

- Handling Errors Using Exceptions.
- Threads of Control.

Module E:

- Overview of Applets.
- Creating an Applet User Interface.
- Communication with Other Programs.
- Understanding Applet Limitations.
- Finishing an Applet.

Module F:

- Overview of JAVA UI.
- Using Components within a Container.
- Working with Graphics.

Module G:

- Overview of Networking.
- Working With URLs.
- All about Sockets.
- All about Datagrams.
- Providing Your Own Security Manager.

The levels were not arranged in a specific order in terms of difficulty. They are simply different scenarios tailored to the students' needs. For example, level 5 does not contain categories E and F, which come after categories D in order, because of the complexity of the material in Module D even for high-level students.

2.0 VERSION 1: PROCEDURAL PROGRAM

In this version, an attempt was made to implement the system using a conventional procedural approach. A procedural language was used, which was JAVA. The system was not feasible to be built, to start with, because of the nature of the problem in hand. Decision making at the level of the desired system cannot be implemented using a procedural language. The number of possible combinations of the different answers to the questions was too large for any practical implementation using this approach. Thus, in order to make decisions at a practically complex level, one has to think in terms of artificial intelligence.

3.0 VERSION 2: LOGIC-LANGUAGE EXPERT SYSTEM

In this version, the human instructor was asked about what first-order logic rules he would use to "systemize" his thinking and the decision making process in order to copy these rules into a logic system. The large number of rules that the instructor came up with (in the order of a couple hundred) were feasible to implement using a logic programming language, PROLOG in this case.

However, the actual testing of the system showed numerous discrepancies in the logic of these rules. It seems that instructors who make their "human" decisions about these kinds of issues do not have a closed-end set of rules that lead to the same result, given that one might follow different lines of reasoning. The instructor was never able to refine his many rules in order to avoid logical conflict between their generated lines of reasoning that sometimes caused logical contradictions. Moreover, the logic-language environment assumes that the set of true facts or rules are the only sets of facts or rules that exist in the "true" space. In other words, the logic program assumed, by default, that any fact or rule that is not declared is false, which was an obvious limitation of the performance of the system.

Thus, the design of a first-order logic-based expert system proved its incapability to handle such a planning decision in a systematic and coherent form.

4.0 VERSION 3: NEURAL NETWORKS

In this version, and since the number of all possible combinations of answers to the questionnaire is very high, the neural network system is trained using 300 samples/prototypes that were created based on random combinations of answers to the questionnaire and their corresponding decisions taken by the human JAVA instructor as to which curriculum is most appropriate.

A Feedforward Backpropagation network was used (Hagan, Demuth, & Beale, 1996; Demuth &

Beale, 2000). The number of inputs was 25 (equal to the number of questions) and the number of outputs was 6 (corresponding to the 6 different decisions explained above). It was found that one hidden layer was enough to achieve satisfactory results. The transfer function of the hidden laver is chosen to be the sigmoid function. The size of the network, i.e., the number of hidden nodes, appeared to affect the results significantly. That is why 10 different network sizes were used and compared. An even distribution of input samples over the neural network outputs, i.e., classified for the different plans, was necessary for good learning results (Auda, 1996). And since the sample answers were generated randomly, some samples were manually changed in order to fall into the under-represented plans/levels.

In order to test the performance of the system, another group of 300 samples were presented to the instructor and the decisions of the neural network system were compared to the recommendations of the instructor.

The neural network made 90% of its decisions on the testing samples (that were not part of the training process) similar to the human instructor's decisions. Although we find this result interesting, we do not think that the neural network should replace the human planner for the following reasons.

- 1. The performance of the system depends on the data base used for training. This reminds us of the traditional criticism of theories based on induction (Sowa, 2000); that is: If you claim that you reached your theory based on exploring all possibilities, then your claim is false in case there are an infinite number of possibilities. And if you already explored all possibilities, then there is no need for your inductive theory because all possibilities are explored anyway!
- 2. The relative importance of the questions was filtered out in the numerical representation of the data at the inputs of the neural networks. To my knowledge, there is no neural design that considers this factor (except for the biological neural network, the human brain, for example).
- 3. The neural network solution does not consider the combinations of inputs that significantly affect the resulting decision. For a human decision maker, as well as for the logic expert system, combinations of certain

inputs had their direct impact on the decision making process (for example: the failure to answer a certain question while answering another question perfectly, etc).

- 4. The hard boundaries of the neural network did not allow any fuzziness in the decision, something that a human decision maker might experience. Fuzzy logic, on the other hand, does not solve the fuzziness problem but rather adds more hard categories (Sowa, 2000).
- 5. The hidden nodes of the neural network supposedly represent higher-level concepts about the data. However, they are strongly coupled (Auda, 1996), which means their formation of the higher-level concepts was based on all inputs. In other words, the hidden nodes were not free, computationally, to form specific higher level correlations between groups of inputs.

5.0 CONCLUSION

Although modern machine-intelligent systems succeeded in modeling numerical abstractions of human decision-making, they cannot grasp the intricate complexities of human decision-making methods, especially in the educational field. The human mind remains the ultimate decision-maker, despite the machines' speed and accurate memory retrieval mechanisms.

6.0 REFERENCES

Auda, G. (1996). *Cooperative modular neural network classifiers*. Ph.D. Thesis. Systems Design Eng. Department, Univ. of Waterloo, Canada.

Demuth, H., & Beale, M. (2000). *Neural network Toolbox for MATLAB*.<u>http://www.mathworks.com</u>

Hassett, J., Ingram, A., Hassett, M., & Marino, E. (2003). What Do Learners Like? Ratings of Offthe-Shelf Web-Based Training Courses. *Intl. Journal on E-Learning* 2(1), 50-60.

Hagan, T., Demuth, H., & Beale, M. (1996). *Neural Network Design*. USA: PWS Publishing.

Masao, M. (2001). *Fuzzy Logic For Beginners*. Singapore: World Scientific.

Sowa, J. (2000). Knowledge Representation: Logical, Philosophical, and Computational Foundations. USA: Brooks/Cole.