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Online Learning Center for JAVA

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Abstract

In our project, we want to develop an online-tutorial which helps students to learn and practice basic program functions in Java. It includes learning the major features in Java language and practicing developing programs by online quizzes, code generating, debugging, executing, and verifying the result. In short our projects show a Java tutorial which includes learning materials and online Java compiler and interpreter to execute Java programs.

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1 Project Description

1.1 Competitive Information

This application can be used by the people to practice Java quizzes and compilation. This is also useful for preparing Java study material is available.

1.2 Future Enhancements

This project can be extended to generate the reports of performance evaluation with explanation and compilation results will display bottom of the program.

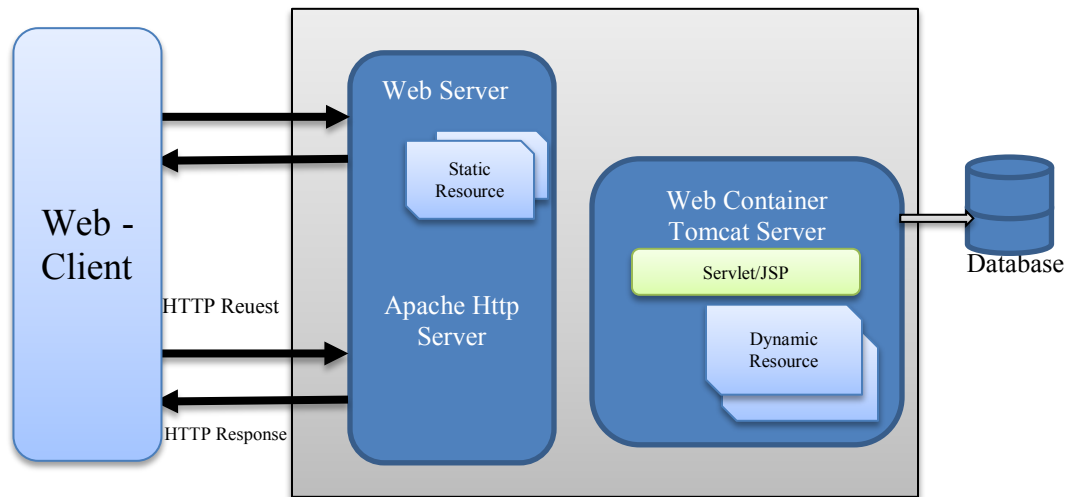
2 Technical Description

The purpose of Online Learning Center for Java is to provide:

- The admin can add content like pdf and videos.
- Admin can view user details those how register.
- Also admin will Add Test quizzes like questions.
- User should register to login.
- Then user can access test papers, E-Compiler.
- User can prepare courses from pdf's and videos without registration.

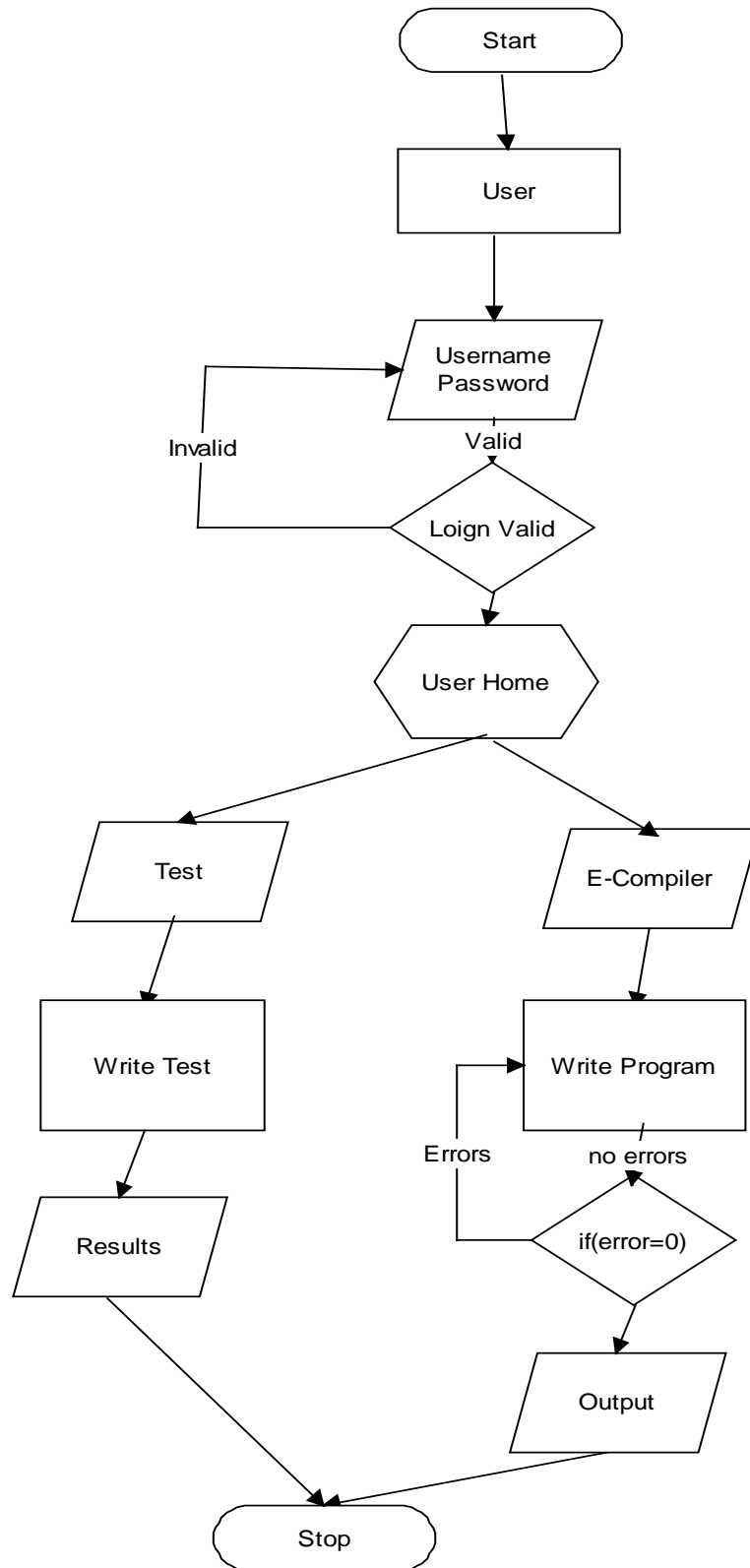
Scope: This application is helpful for students to learn Java, prepare for exams and practice programs. To learn information on specific course with the help of study materials and by watching the videos updated by the admin. Developing an online learning center for Java initiative is a typically much larger endeavor than that an instructor-led training (ILT) program. Consider the increased expenses, number of people involved, development time, technological requirements, and delivery options.

2.1 Project/Application Architecture

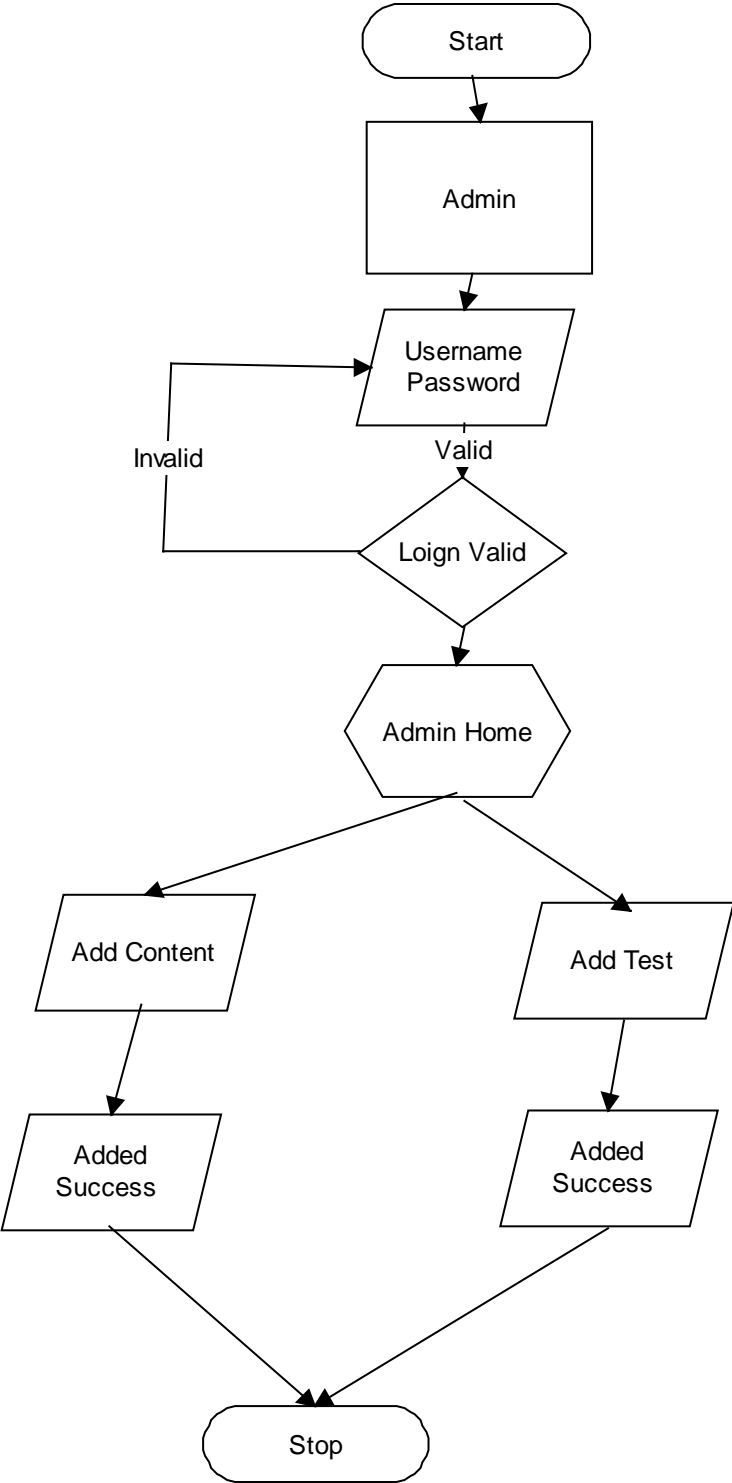


2.2 Project/Application Information flows

User:



Admin:



*

2.3 Capabilities

Software Requirements:

- **Front End:**
 - **Operating System:** Windows7 (64-bit).
 - **Web-Browsers:** IE9, IE10, Mozilla Firefox and Google Chrome.
- **Back End:**

JDK 1.7, Apache-Tomcat 7.0.55, Microsoft SQL Server 2012.
- **Technologies Used:**

HTML5, CSS, JSP2.2, JSTL1.2, Servlet 3.0, JavaScript, IDE NET BEANS

Hardware Requirements:

- 4GB RAM,
- 500GB hard disk space,
- 2.20 GHz Intel® Core™ 2 Duos CPU,
- Personal computer with higher processor.

3 Project Requirements

3.1 Identification of Requirements

- <OLCJ-P11-1.0 Admin-“R001>
Admin can Add Content like study material and add videos.
Implementation: Mandatory
- <OLCJ-P11-1.0 Admin-“R002>
Admin can view users those who register.
Implementation: Mandatory
- <OLCJ-P11-1.0 Admin-“R003>
Admin can add test questions for users.
Implementation: Mandatory
- <OLCJ-P11-1.0 User-“R004>
User should register using his/her details.
Implementation: Mandatory
- <OLCJ-P11-1.0 User-“R005>
User can reset his/her details while registering
Implementation: Optional
- <OLCJ-P11-1.0 User-“R006>
User can login with given username and password.
Implementation: Mandatory

- **<OLCJ-P11-1.0 User-“R007”>**
User can access to write test.
Implementation: Mandatory
- **<OLCJ-P11-1.0 User-“R008”>**
User can access to E-Compiler.
Implementation: Mandatory
- **<OLCJ-P11-1.0 User-“R009”>**
User should logout after the test.
Implementation: Mandatory
- **<OLCJ-P11-1.0 User-“R010”>**
Admin can create a new employee with the necessary details.
Implementation: Mandatory

3.2 Operations, Administration, Maintenance and Provisioning (OAM&P)

Reliability

The package will pick-up current transactions on line. Regarding the old transactions, User will enter them in to the system.

Portability

The application will be developed using standard open source software (Except Oracle) like Java, tomcat web server, Internet Explorer Browser etc, these software will work both on Windows and Linux o/s. Hence portability problems will not arise.

Maintainability

The system called the wheels uses the 2-tier architecture. The 1st tier is the GUI, which is said to be front-end and the 2nd tier is the database, which uses My-Sql, which is the back-end. The front-end can be run on different systems (clients). The database will be running at the server. Users access these forms by using the user-ids and the passwords.

3.3 Security and Fraud Prevention

The web server and database server should be protected from hacking, virus. The user can see his details like username, password, email id, security question and answer to the security question. The user will not have any access to change the details of the user already created. The only drawback is anyone can register with fraud information.

3.4 Release and Transition Plan

Deployment Phase:

I have used a Java IDE i.e. NetBeans 7.4 where I have put all my .jsp, .html and .css files in its workspace under a project name="E-education" and I used "MySQL" as the backend database. As, it is a web application project I have used Tomcat 7.0.34 as the server.

To deploy the project follow the below procedure

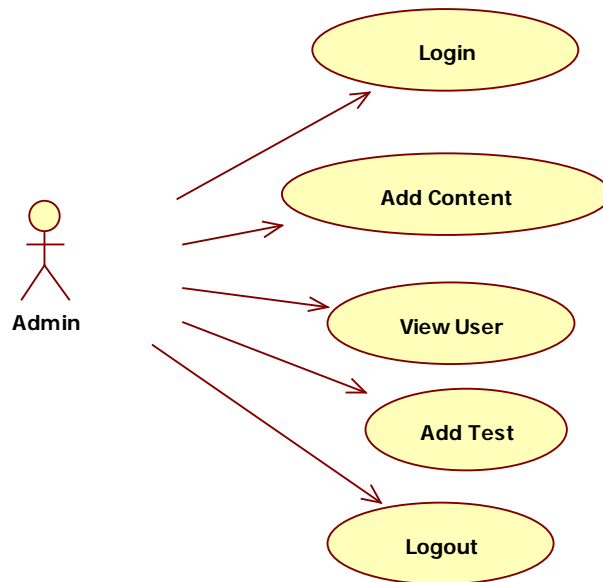
- 1) To start the project, deploy the .jsp, .html and .css files in the required environment and install the Tomcat server.
- 2) Install MySQL and load the database with the provided "" file. Please note the account credentials for the table creation is used in the project that is the username and password.
- 3) Then click run the project. To see the result open any web browser and click "localhost: 8084/E-education".

4 Project Design Description

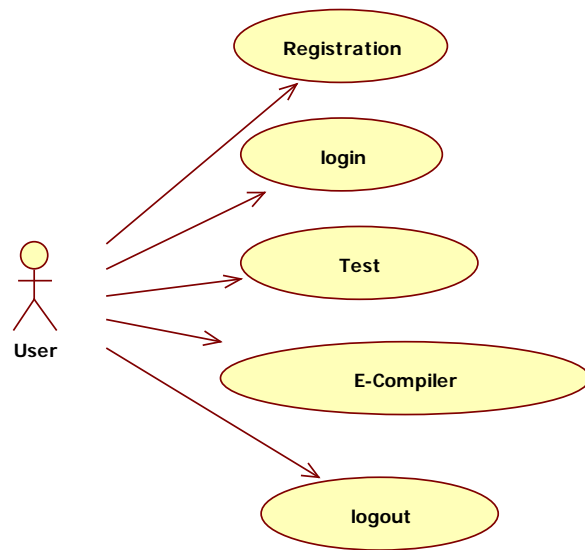
- Admin Module:
 - Admin has default username and password.
 - Admin can add content.
 - Admin can view users those who register.
 - Admin can add test questions.
- User Module:
 - User can login with given username and password.
 - User can access test.
 - User can access E-Compiler.
 - User can access study material.

5 Project Internal/external Interface Impacts and Specification

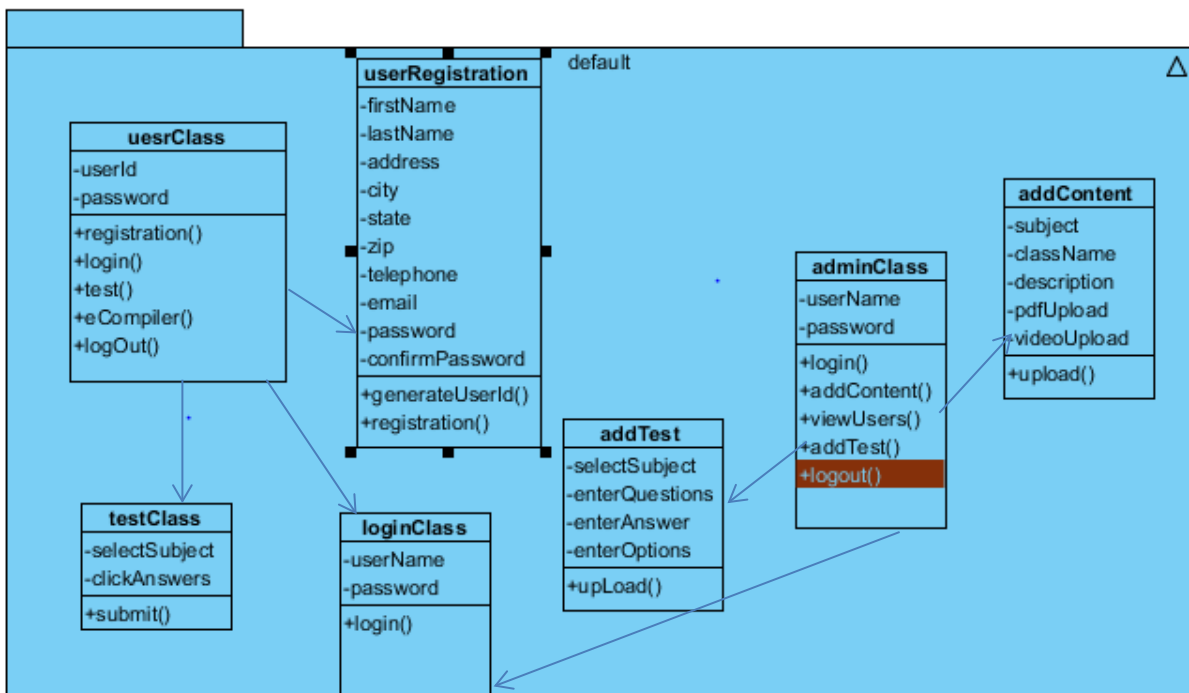
Admin Use case Diagram:



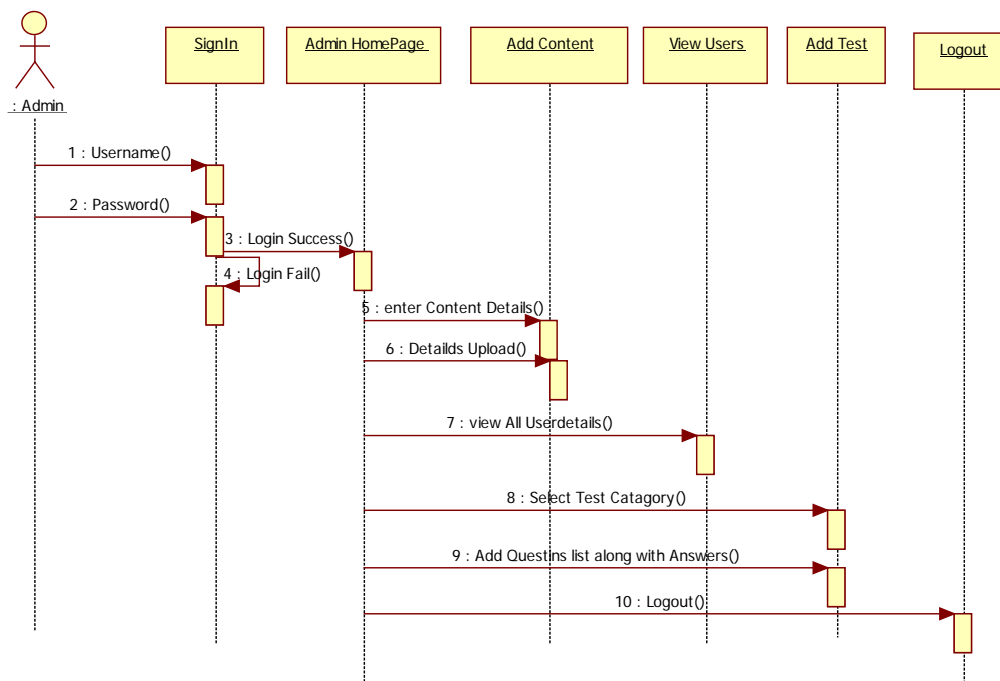
User Use case Diagram:



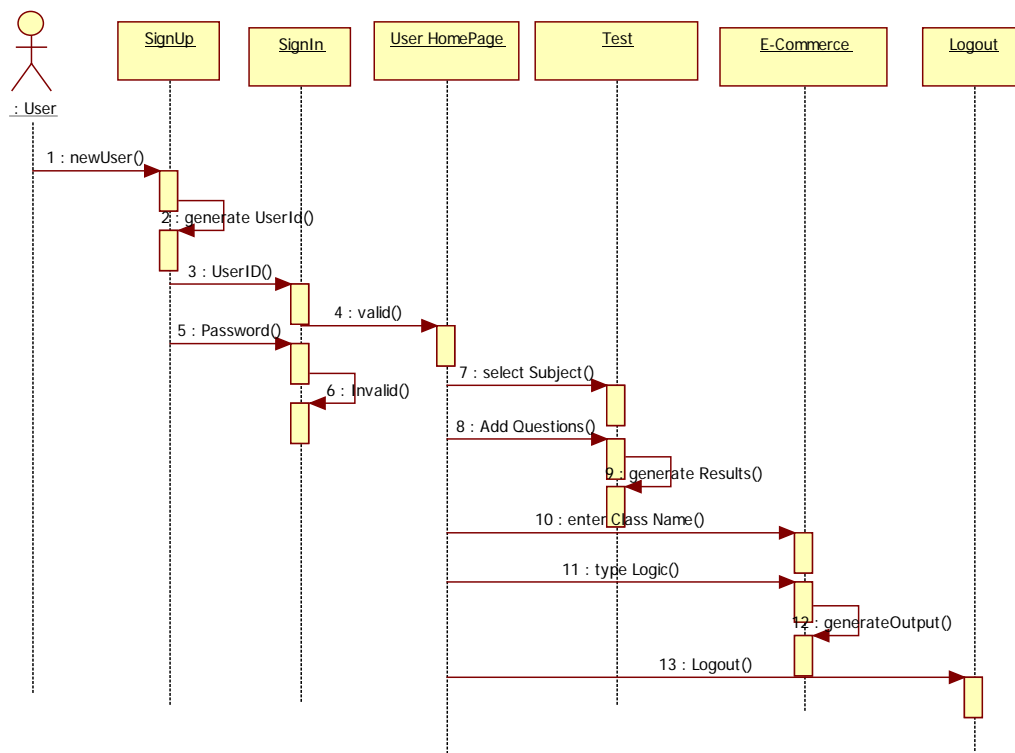
Class Diagram:



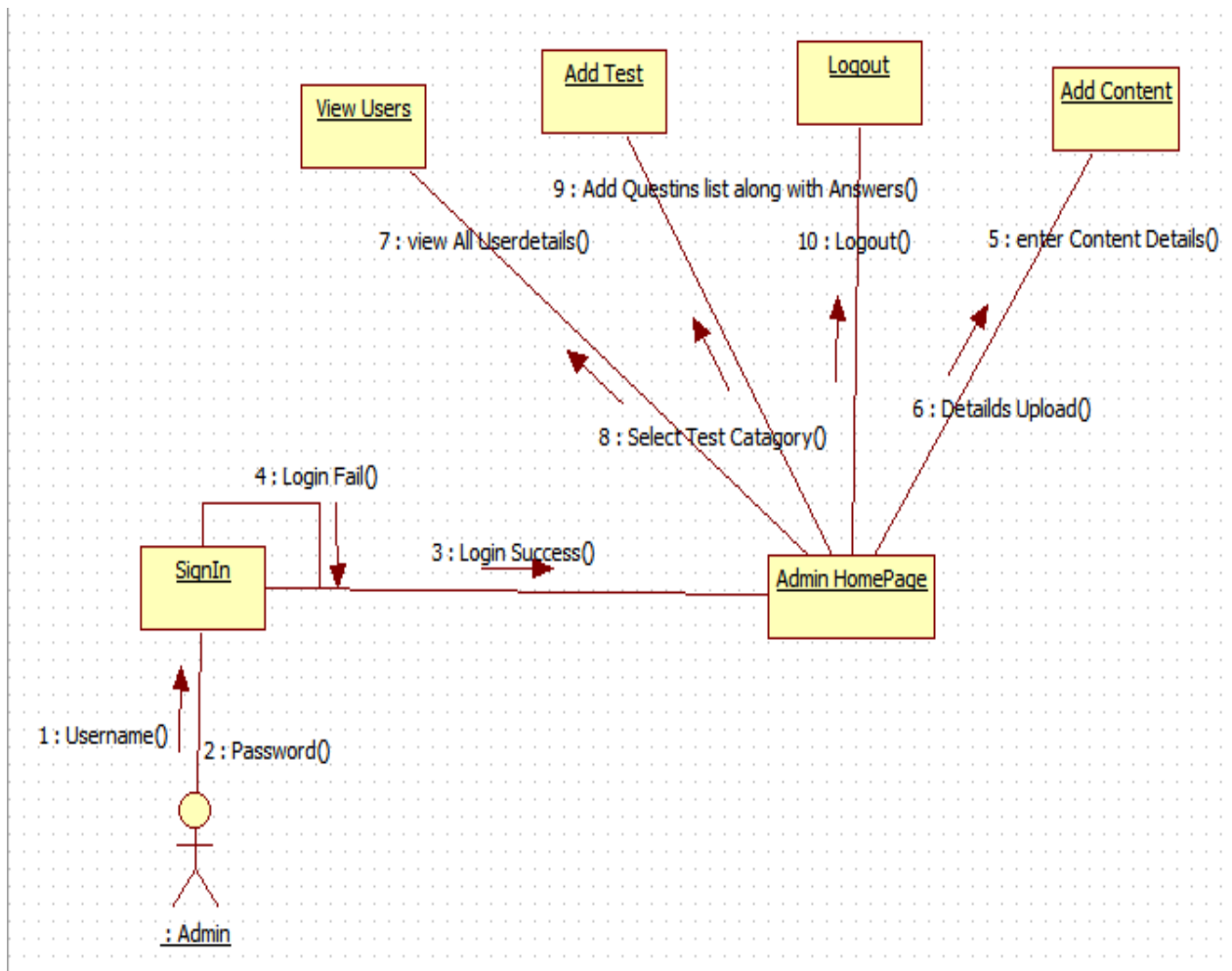
Admin Sequence Diagram:



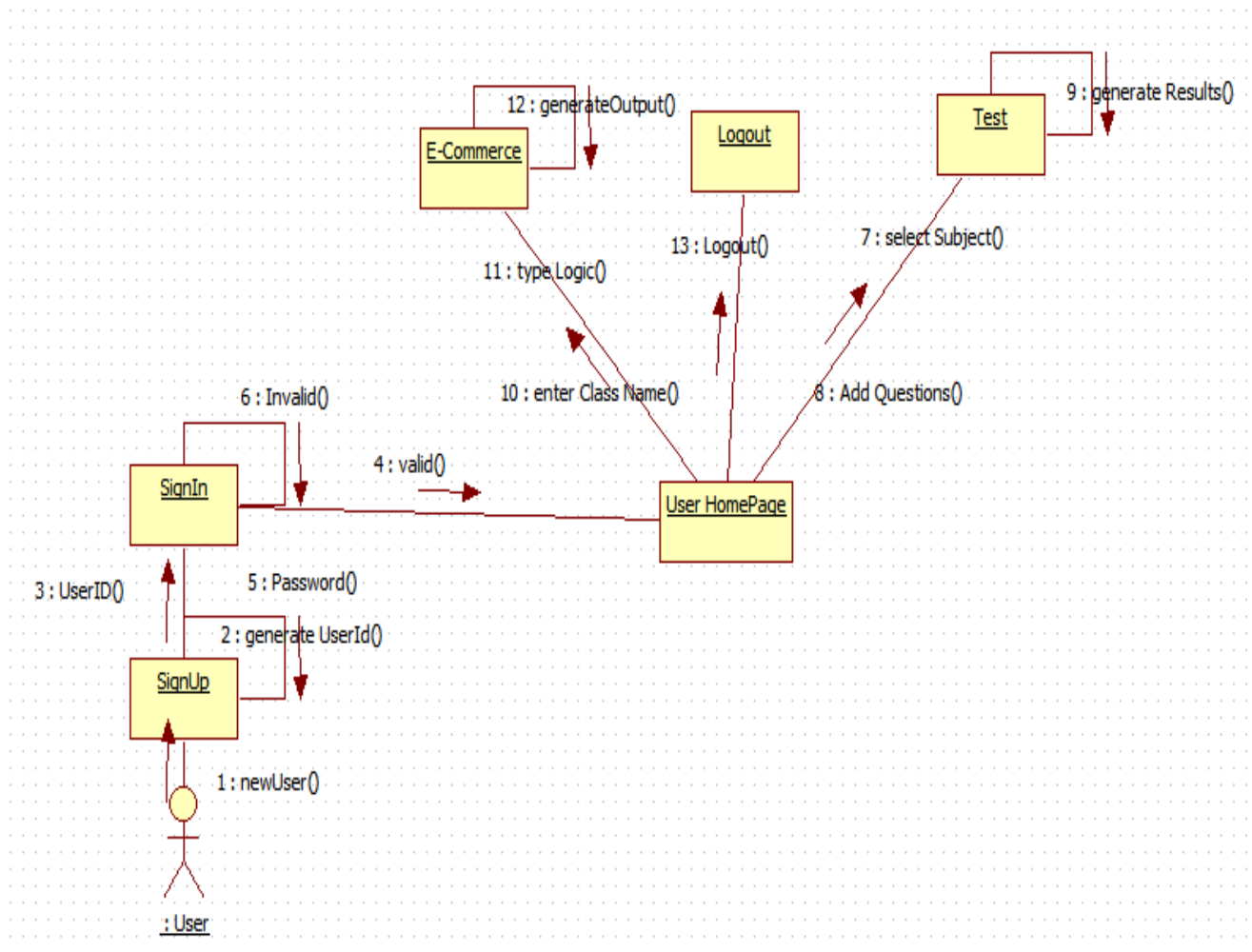
User Sequence Diagram:



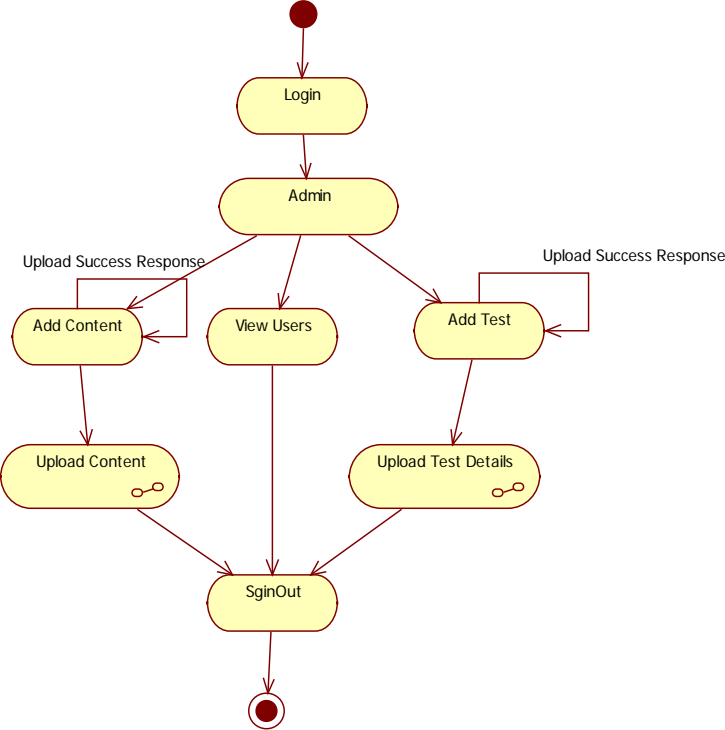
Admin Collaboration Diagram:



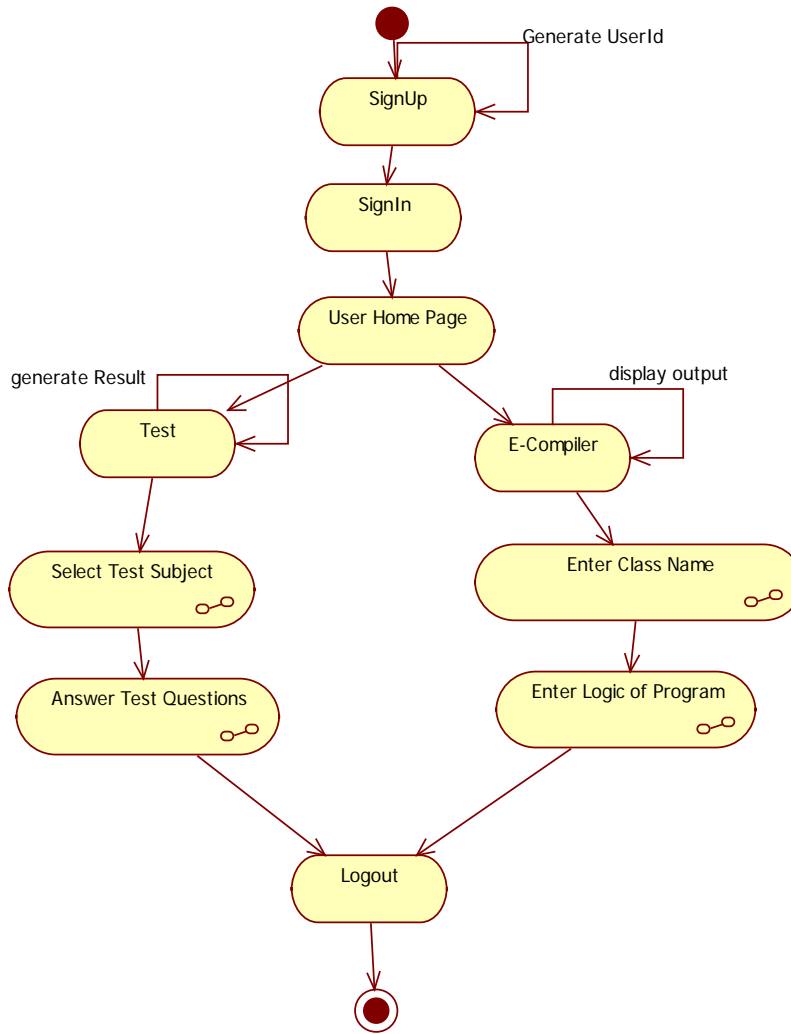
User Collaboration Diagram:



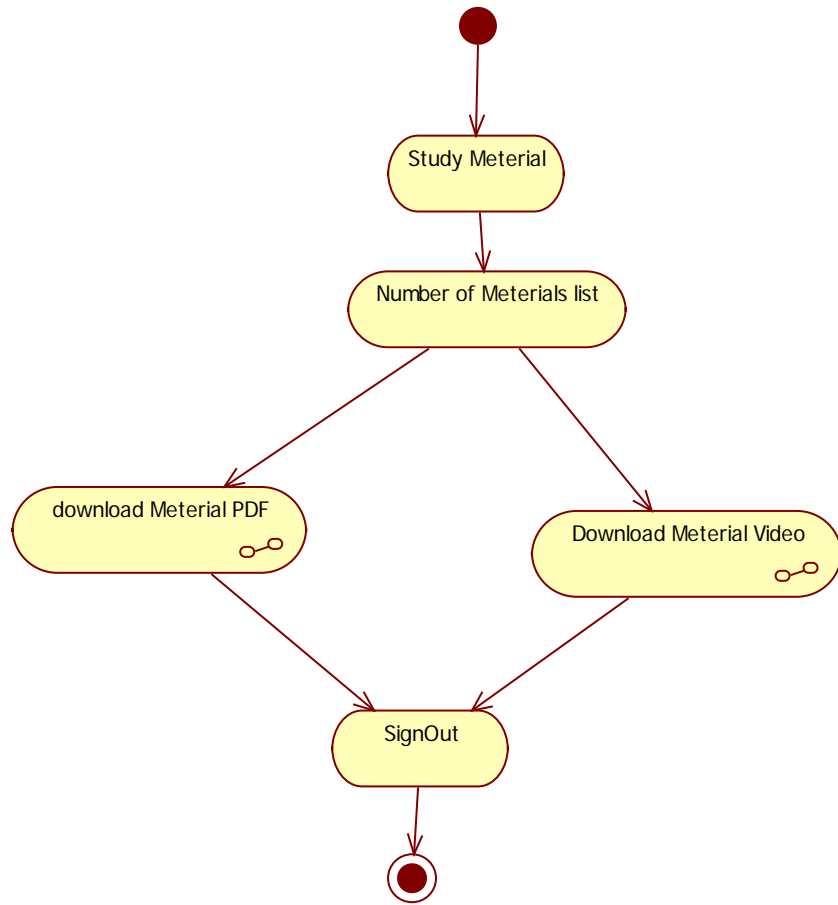
Admin Activity Diagram:



User Activity Diagram:



Material Activity Diagram:



6. Testing

Introduction to Testing:

Testing is a process, which reveals errors in the program. It is the major quality measure employed during software development. During software development. During testing, the program is executed with a set of test cases and the output of the program for the test cases is evaluated to determine if the program is performing as it is expected to perform.

Testing In Strategies

In order to make sure that the system does not have errors, the different levels of testing strategies that are applied at differing phases of software development are:

Testing Strategies:

Unit Testing:

Unit Testing is done on individual modules as they are completed and become executable. It is confined only to the designer's requirements.

Each module can be tested using the following two Strategies:

Black Box Testing:

In this strategy some test cases are generated as input conditions that fully execute all functional requirements for the program. This testing has been used to find errors in the following categories:

- Incorrect or missing functions
- Interface errors
- Errors in data structure or external database access
- Performance errors
- Initialization and termination errors.

In this testing only the output is checked for correctness. The logical flow of the data is not checked.

White Box testing:

In this the test cases are generated on the logic of each module by drawing flow graphs of that module and logical decisions are tested on all the cases. It has been used to generate the test cases in the following cases:

- Guarantee that all independent paths have been executed.
- Execute all logical decisions on their true and false Sides.
- Execute all loops at their boundaries and within their operational bounds
- Execute internal data structures to ensure their validity.

Integrating Testing:

Integration testing ensures that software and subsystems work together as a whole. It tests the interface of all the modules to make sure that the modules behave properly when integrated together.

System Testing:

Involves in-house testing of the entire system before delivery to the user. Its aim is to satisfy the user the system meets all requirements of the client's specifications.

Acceptance Testing:

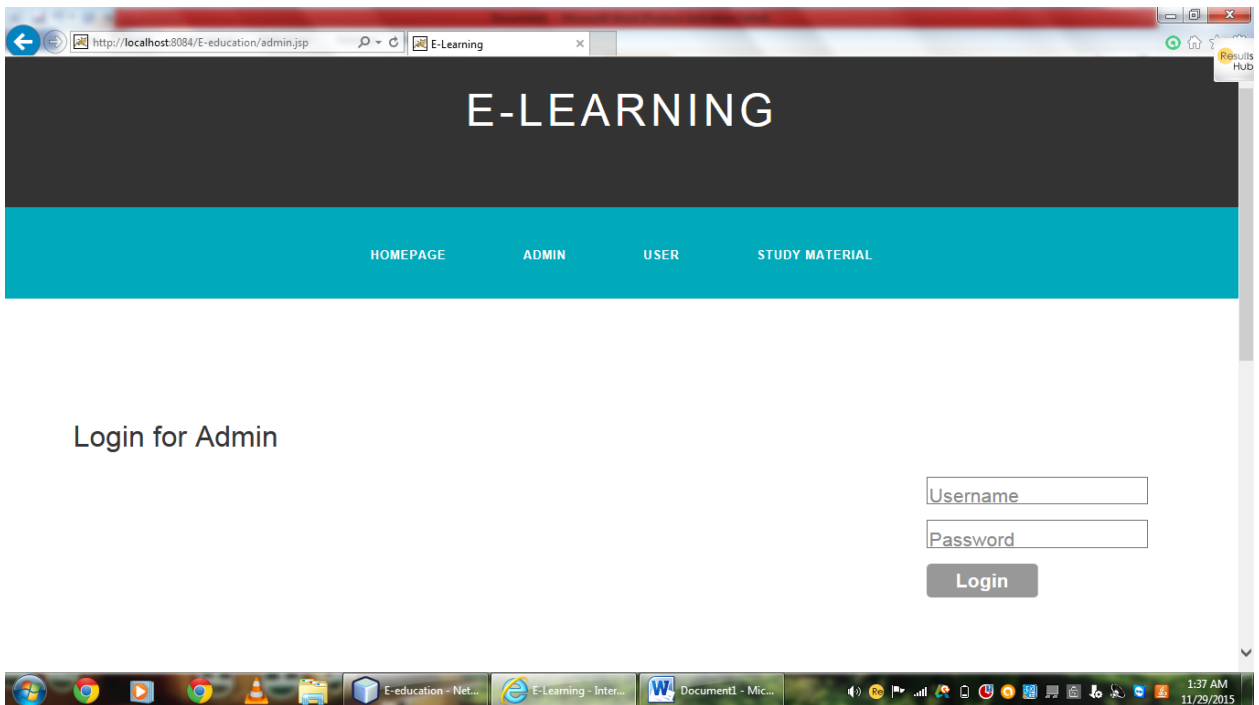
It is a pre-delivery testing in which entire system is tested at client's site on real world data to find errors.

Testing – Screens

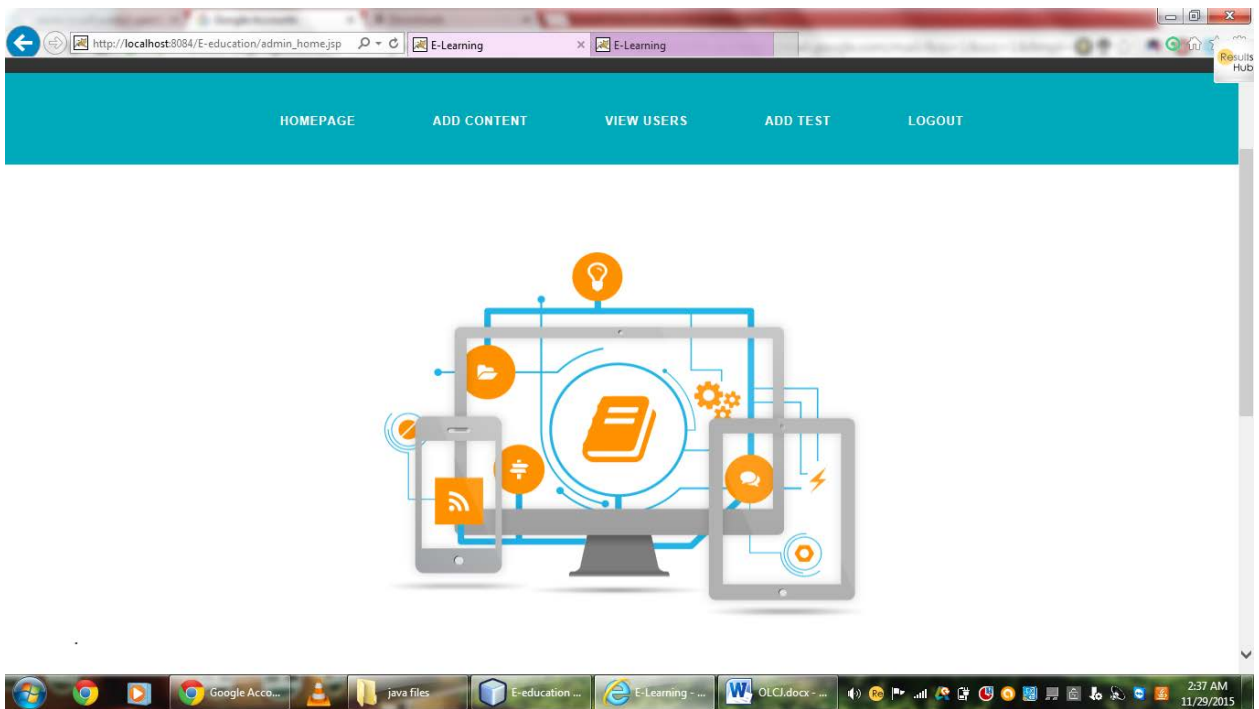
Home Page:



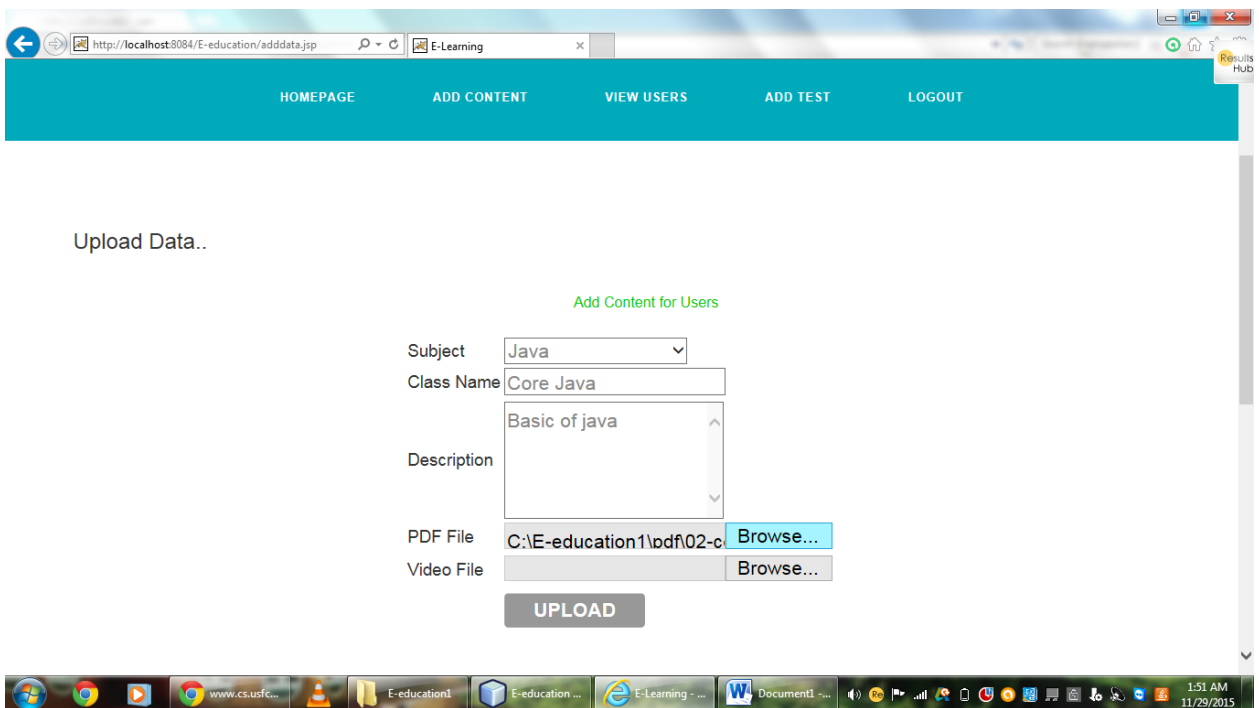
Admin Login:



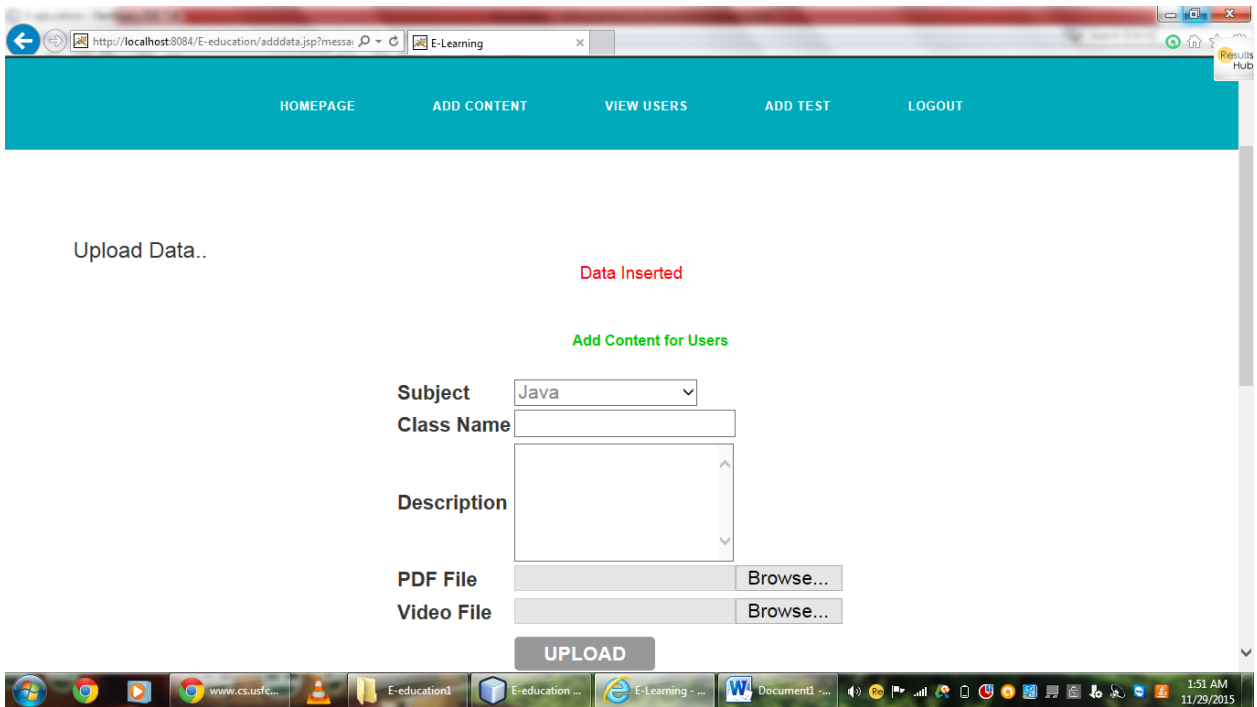
Admin Homepage:



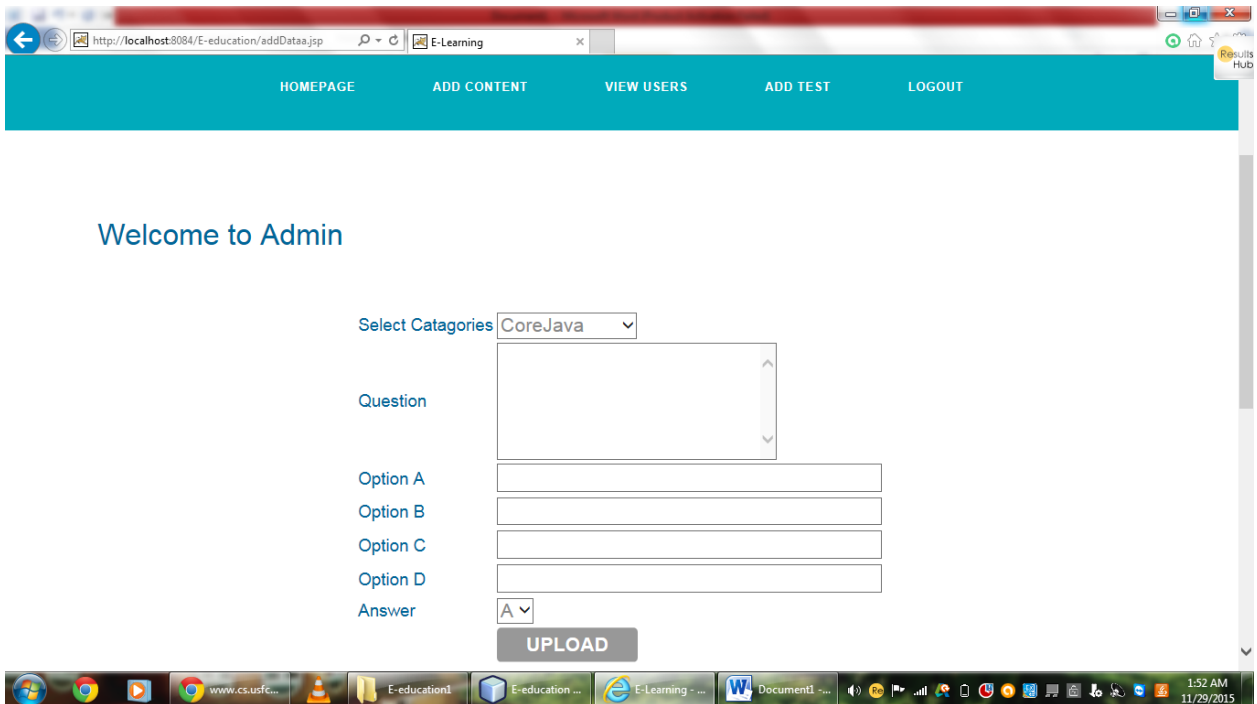
Admin Uploading Content:



After uploading data it says data inserted:



Uploading Test:



Admin can view user list:

No	Name	Mail Id	Phone No	City
1	aravind reddy	ara@gmail.com	4545454545	hyd
2	Karthik punna	gg@gmail.com	45454551555	university park
3	xxx yyy	opichand.520@gmail.com		up
4	sravan reddy	sravan@gmail.com		gg
5	ramesh r	vvv@gmail	60458	xxx
6	xxxx xxxx	ggg@gmail.com	25	xx
7	ram p	ram@gmail.com	kk	il
8	sandhya dmjg	gsajl@gmail.com	12345	park

User registration page:

Name*

Last Name*

Address*

City*

State*

Zip*

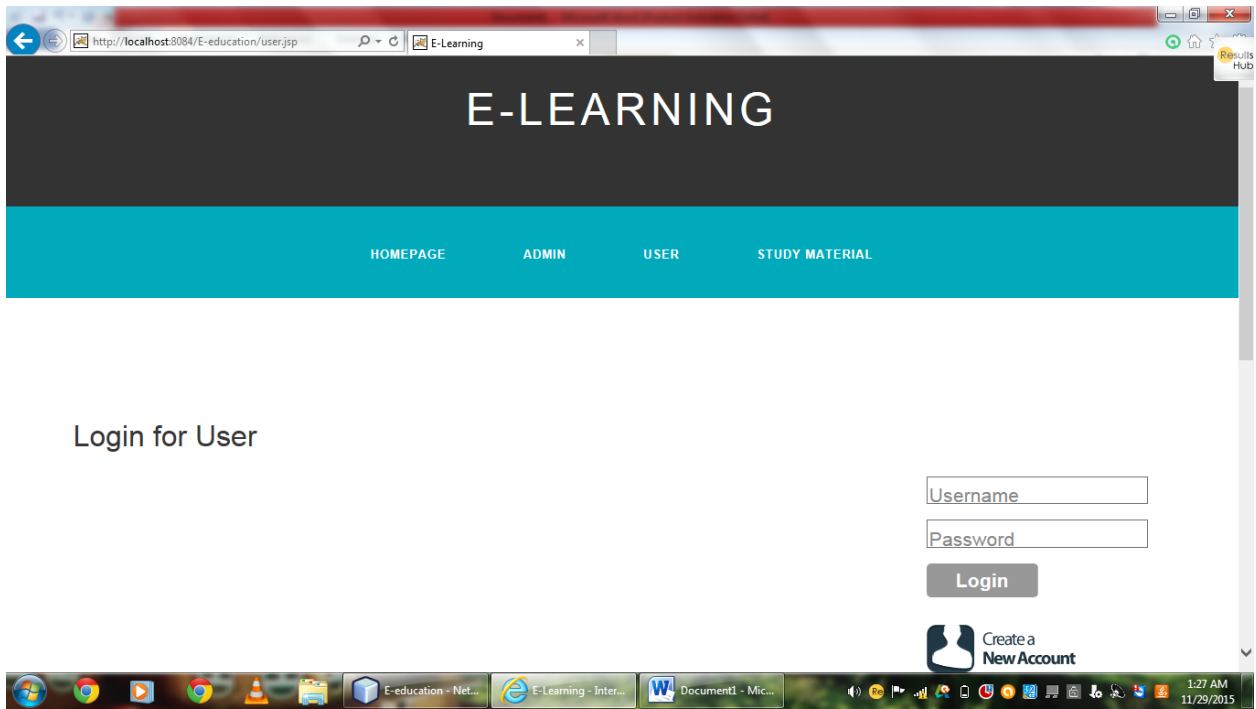
Telephone

Email*

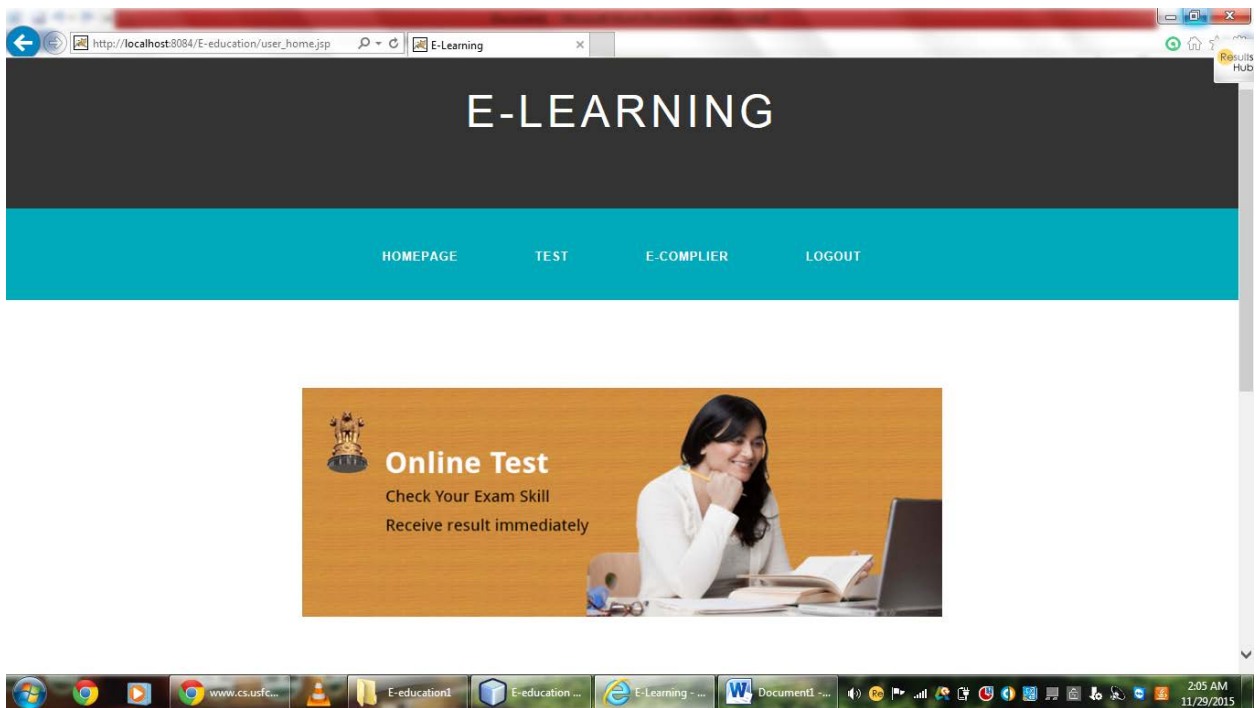
Password*

Confirm Password*

After registrations User need to login:



Home Page for User:



User Writing Test:

The screenshot shows a web browser window with the URL `http://localhost:8084/E-education/Imageview1.jsp?cat_`. The page has a teal navigation bar with links for **HOME PAGE**, **TEST**, **E-COMPLIER**, and **LOGOUT**. Below the navigation bar, there are four numbered questions:

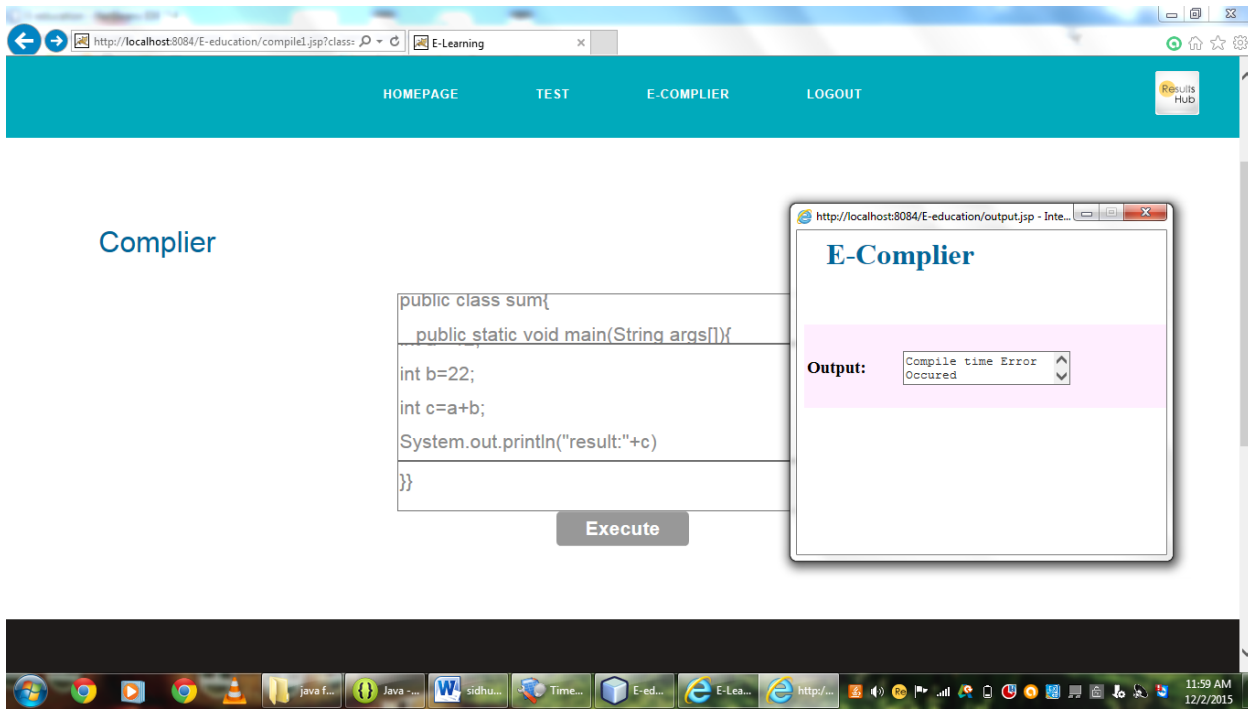
- 1
To print line what is the systax of it?
 System.out.println(" "); system.out.println(" "); Sytem.out.println(); System.out.println;
- 2
A subclass is also called as
 inner class nested class derived class hidden class
- 3
A default constructor has
 has no arguments has no return type has one argument but no return type has two arguments
- 4
The java compiler
 creates executable translates java source code to byte code creates classes produces java Interpreter

The Windows taskbar at the bottom shows the time as 2:08 AM on 11/29/2015.

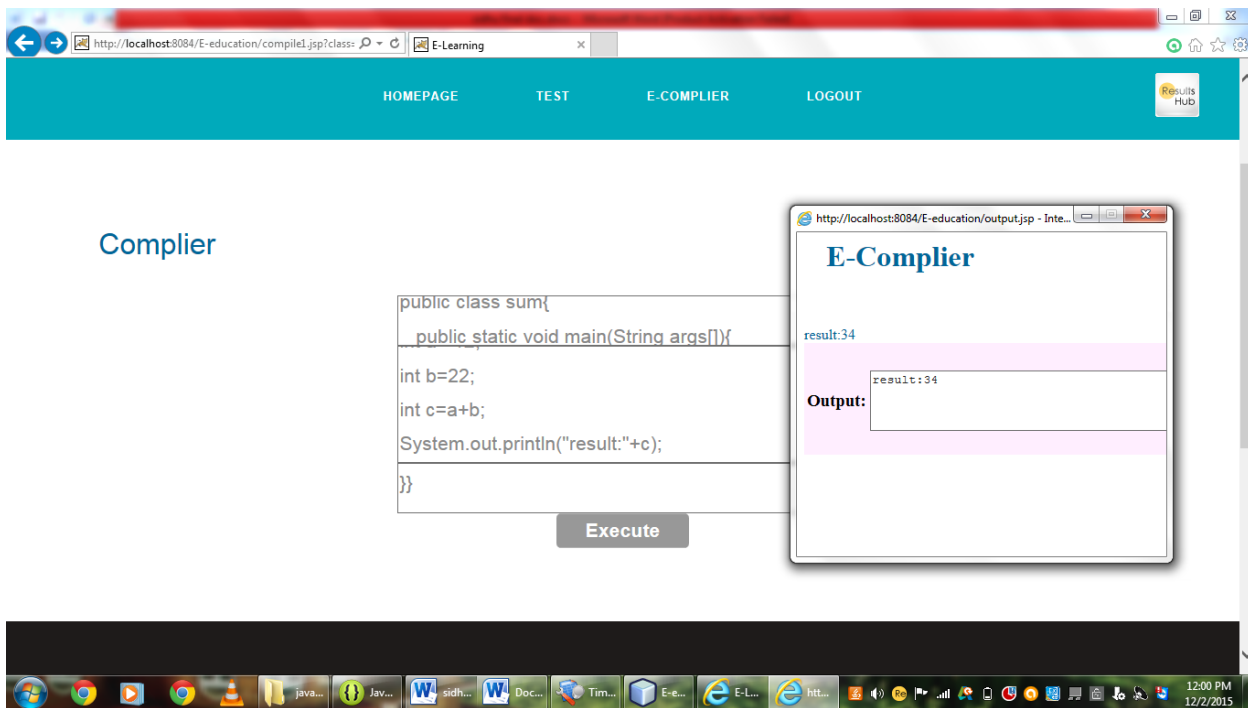
Test Result:

The screenshot shows the same E-Learning application, but now displaying the test results. The URL is `localhost:8084/E-education/result.jsp?1=A&2=B&3=B&4=B&5=B&6=C`. The page features the same teal navigation bar. The main content area displays the text **Result = 3/6;**. The Windows taskbar at the bottom shows the time as 10:54 PM on 11/29/2015.

When using E-compiler: Error screen shot



When using E-compiler: Correct output



7. Link to access Online Learning Center for JAVA

<http://localhost:8084/E-education/admin.jsp>

In future we planning to deploy it in the Local host.

8. Conclusion

Online learning is a growing and exciting new way to learn about almost anything. If there is a course you have always wanted to take or a skill you have always wanted to learn, but you have not had the time to attend a traditional face-to-face class or there hasn't been an opportunity near you, then online learning might be your answer. In this project “**ONLINE LEARNING CENTER FOR JAVA**”. The user can learn Java, go through course material and view the videos updated by the admin, user can test his programming skills through E-compiler and user can take the test. Admin can add the course material and add tests for the user the main aim for this project is to enhance the skills of the user in Java.

9. References

- <http://www.w3schools.com>
- <http://www.wikipedia.org>
- <http://www.tutorialized.com>
- <http://www.roseindia.net>
- <http://www.tutorialspoint.com>
- <http://www.Javatpoint.com>
- <http://practiceit.cs.washington.edu/>