

**UNIVERSITI  
TEKNOLOGI  
PETRONAS**

Engineering University

**Development of Online Teaching Outcome Evaluation System**

by

**Ahmad Khabir Bin Shuhaimi**

Dissertation submitted in partial fulfillment of

the requirement for the

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(Information Communication Technology)

MEI 2011

**Universiti Teknologi PETRONAS**

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CERTIFICATION OF APPROVAL

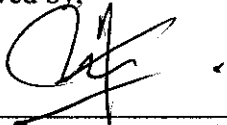
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A project dissertation submitted to the  
Information Communication Technology Programme  
Universiti Teknologi PETRONAS  
in partial fulfillment of the requirement for the  
BACHELOR OF INFORMATION TECHNOLOGY (Hons)  
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Approved by,



(Main Supervisor: Mohd. Hilmi Bin Hasan)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

Mei 2011

## CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



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AHMAD KHABIR BIN SHUHAIMI

## **ABSTRACT**

Online Teaching Outcome Evaluation System is developed to support Outcome Based Education (OBE) evaluation system using online evaluation system. This system is aimed to give added value in supporting the implementation of OBE system in Universiti Teknologi PETRONAS (UTP). This system is aimed to provide lecturers with features that will enable them to evaluate students rapidly to enable lecturer to encounter if there is any major low understanding among majority students. This system will be using Visual Basic .NET and ASP .NET to develop this online evaluation system.

## **ACKNOWLEDGEMENT**

This dissertation would not have been possible without the guidance and the help of several individuals who has contributed and extended their valuable assistance in the preparation and completion of this final year project.

First and foremost, my utmost gratitude to Mr. Mohd. Hilmi Bin Hasan, my final year project main supervisor whose sincerity and encouragement I will never forget. He gave me valuable guidance and advice. He inspired me greatly in this project. He has also motivated me and contributed to my project requirements and design.

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Last but not the least, my family, fiancé, friends, and the one above all of us, the omnipresent God, for answering my prayers for giving me the strength to plod on despite my constitution wanting to give up, thank you so much Dear Lord.

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## **ABBREVIATIONS**

**UTP** – Universiti Teknologi PETRONAS.

**OBE** – Outcome Based Education



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# **CHAPTER 1**

## **INTRODUCTION**

### **1. PROJECT BACKGROUND**

#### **1.1 Background of Study**

Universiti Teknologi PETRONAS (UTP) vision is to become A Leader in Technology Education and Centre for Creativity and Innovation. UTP is an institute of higher learning. It provides opportunities for the pursuit of knowledge and expertise for the advancement of engineering, science and technology to enhance the nation competitiveness. UTP objective is to produce well-rounded graduates who are creative and innovative with potential to become leaders of industry and the nation. Its aim is to nurture creativity and innovativeness and expand the frontiers of technology and education for the betterment of society.

UTP is practicing a new form of education (North Central Regional Educational Laboratory) method which known as Outcome Based Education (OBE). It is focused on evaluating teaching outcome to the students who have had involve in courses offered in UTP academic curriculum structure.

The current implementation of OBE evaluation in UTP lecturers will distributes paper-based evaluation to be filled-up by students. This is to evaluate how far the students had managed able to give a good outcome for a particular course's objective. This happened at the end of each semester.

## **1.2 Problem Statement**

Currently lecturers are evaluating their teaching outcome on the students using paper based assessment in the class. Lecturers with paper based assessment will later need to consume time cost to collect the paper and then need to mark and grade the assessment papers one by one individually. Analysis of the results will also need to be done manually.

Lecturer arises concern to evaluate student rapidly in order to rapidly identify students' level of understanding towards classes teachings. There was a case in one test series majority of students score low marks. Therefore lecturer come with a concern to have system that will enable rapid assessment on students using online system with auto grading that will conclude majority students understanding level rapidly before they will be assessed with official coursework assessment that will impact their course grade.

## **1.3 Objectives and Scope of Study**

The objective of this project is only one that is to develop an Online Teaching Outcome Evaluation System which has the following features:

1. Lecturer may post three questions and determine the weight of each answer.
2. Students may attempt the questions and submit their answers.
3. The system able to generate analysis of the evaluation's result:
  - Mod for answer chose for each question,
  - Mean for overall students chose answer.

## **1.4 Feasibility of the Project within the Scope and Time frame**

The project feasibility is it may only get the system running in a focused functionality within the scope and given time frame. For further advanced functions it is recommended for other future final year student who would like to enhance this project.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2. LITERATURE REVIEW**

##### **2.1 .NET**

.NET is also called the .NET Framework. According to Patrice Pelland, 2008, the formal definition of .NET Framework is as below:

“The .NET Framework is a platform with which you can develop software applications and libraries called managed applications; it provides you with the compiler and tools you need to build, debug, and execute managed applications.”

.NET Framework is direct competitor to Java (.NET Tutor, 2010). Microsoft has positioned .NET as a competitor to J2EE (Alejandro, 2008). Sairaj (2011) said that J2EE is more mature than Microsoft's .NET framework. J2EE has the capability to run on various platforms with only one language. This is because .NET is a windows-based technology therefore it can only be run only on Windows based system while J2EE has no that restrictions as it is categorized as platform dependent therefore it can run on any Operating system.

##### **2.2 Visual Basic**

Visual Basic is an object-oriented programming language. It is viewed as advancement to the traditional Visual Basic. Microsoft currently providing two implementations of

Visual Basic that is Microsoft Visual Studio for commercial market software and Microsoft Visual Studio Express for freeware (Wikipedia.org, p. last modified 27 June 2011).

VB appeared in year 2001 (Wikipedia.org, p. last modified 27 June 2011). VB code is written for the events of Web controls. The event may happen on either the client or on the server, but the code is always executed on the server (Julia Case Bradley and Anita C. Millspaugh, 2007, p. 304). Visual Basic is the descendant to the Visual Basic 6 that was last released in 1998. Visual basic today's also formerly known as Visual Basic .NET or VB .NET but it is simply known as Visual Basic (Wikipedia.org, p. last modified 27 June 2011).

In learning wise, VB .NET syntax is close to English language than Java (Imasquare, 2005). VB language is using more words that is English like while Java is punctuation heavy, but structures of control and logic are closely similar (Sun, 2009). He also thinks that VB is easier to learn because it is written in plain English (Sun, 2009) because we human write will write pseudo code in plain English.

### **2.3 ASP .NET**

ASP .NET is a type of web application framework developed and commercialized by Microsoft. This is to allow web developer to create web services, web sites and dynamic web application. Wikipedia.org (p. last modified June 2011) wrote that ASP .NET was first released in January 2002. It is the successor to the Microsoft Active Server Pages (ASP) technology earlier. ASP .NET stable release is version 4.0 on 12<sup>th</sup> April 2010 as per this dissertation was created. ASP .NET is written in .NET languages.

In language speed comparison between ASP .NET and PHP, Naspinski (2009) stated that ASP .NET is an optimized and compiled language whereas PHP is an interpreted

language. Interpreted programs run slower than compiled programs. This happens because interpreted programs must initially be condensed to machine instructions at runtime. Therefore we could understand that ASP .NET is much more faster than PHP in speed wise. Naspinski also quoted from Wikipedia to show how much faster it can be:

“A program translated by a compiler tends to be much faster than an interpreter executing the same program: even a 10:1 ratio is not uncommon. The mixed solution's efficiency is typically somewhere in between” (Wikipedia, Compiled language, 2011).

## **2.4 Related Works**

One system has been developed namely QUIZIT. In order to support adaptive standard testing, automatic grading and record keeping, QUIZIT has been developed using the WWW. WWW here I define it as the internet (Lucio C. Tinoco et. al., 1997). The researcher also said that QUIZIT will be well received by both instructors (i.e. lecturers) and students. This convinces and motivates the author that the author's to be developed system will also well received by the lecturers and students.

According to D. Lyn Sorenson, Trav D. Johnson, 2003:

“Kevin Hoffman presents the results of a national survey that tracks the increased use of the Internet for student ratings of instruction. At Northwestern University, Nedra Hardy demonstrates how ongoing research about online student evaluations is helping to dispel common misperceptions.

Beatrice Tucker, Sue Jones, Lean Straker, and Joan Cole analyze Course Evaluation on the Web (CEW), a comprehensive online system for instructional feedback and improvement. Cheryl Davis Bullock reviews the Evaluation Online (EON) system and its successful role in facilitating midcourse student feedback.

The fate of online rating may rest in the unique advantages it may – or may not – have over traditional ratings systems. Debbie E. McGhee and Nana Lowell compare online and paper-based methods through mean ratings, inter-rater reliabilities and factor structure of items. Comparing systems from another angle, Timothy W. Bothell and Tom Henderson examine the fiscal costs and benefits of implementing an online evaluation system over paper-based systems.”

Based on the work above, we can see that there is an increased in the use of online student ratings which quite similar to online teaching evaluation system concept. The author agreed with this and wants to make this project as an alternative to UTP teaching evaluation method.

Based on the work above, also shows the successful role by the online teaching evaluation to get midterm course student feedback. The author agrees with this and the proposed system is to increase the frequentness to by the end of each chapter(s).

Based on the work above also is in line with the proposed system to save cost on paper-based teaching evaluation system. UTP can save fiscal cost and also environmental cost.

In one study, Riffell & Sibley (2004) found that 93% of students participated online but only 78% that physically come to mortgage class. This statistic shows that lecturer can evaluate it students better if using online system because the percentage of students who will participate in giving respond is higher than if evaluation been done in paper-based in class session.

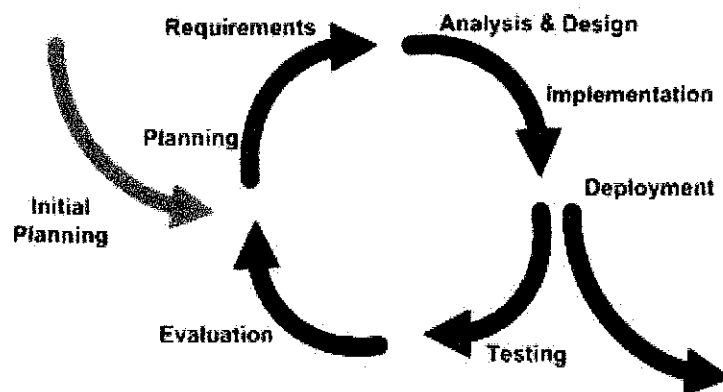


## CHAPTER 3

### METHODOLOGY

#### 3. METHODOLOGY

In this software development methodology Iterative and incremental development will be used. Iterative and incremental development is derived from waterfall model. It is developed due to the weaknesses of the waterfall model. Iterative and incremental development starts with an initial planning, followed by cyclic software development process and ends with deployment. Figure 1 below shows the iterative development model.



**Figure 1: An Iterative Development Model**

This method is suitable to the Final Year Project I and II scheduling based on the academic calendar of UTP. Planning phase will be in the 1<sup>st</sup> semester and the cyclic software development process will run throughout the 1<sup>st</sup> semester and midterm of 2<sup>nd</sup> semester. The midterm until the end of 2<sup>nd</sup> semester will be the deployment.

Waterfall model is not used because as it is known that the weaknesses are at every stage is only being done once and this effect the end result not fulfill the objective(s) set early. To make this proposed system to achieve its objectives well, the author decide not to use this model.

Spiral model also is not being chose to be used is because the proposed system does not interest in producing many prototypes. The author chose the cyclic software development process and only deploys the software at the most final stage.

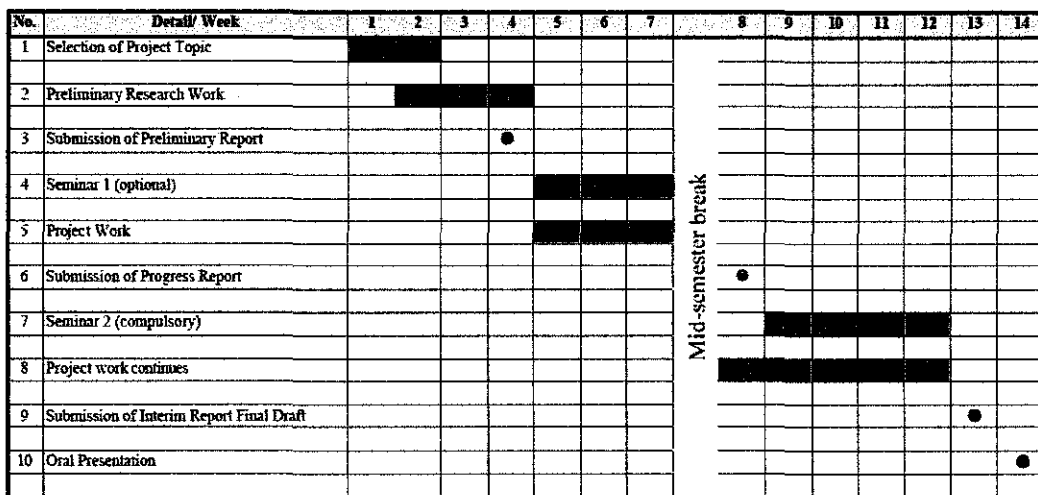
### **3.1 Planning**

#### **3.1.1 Key Milestone**

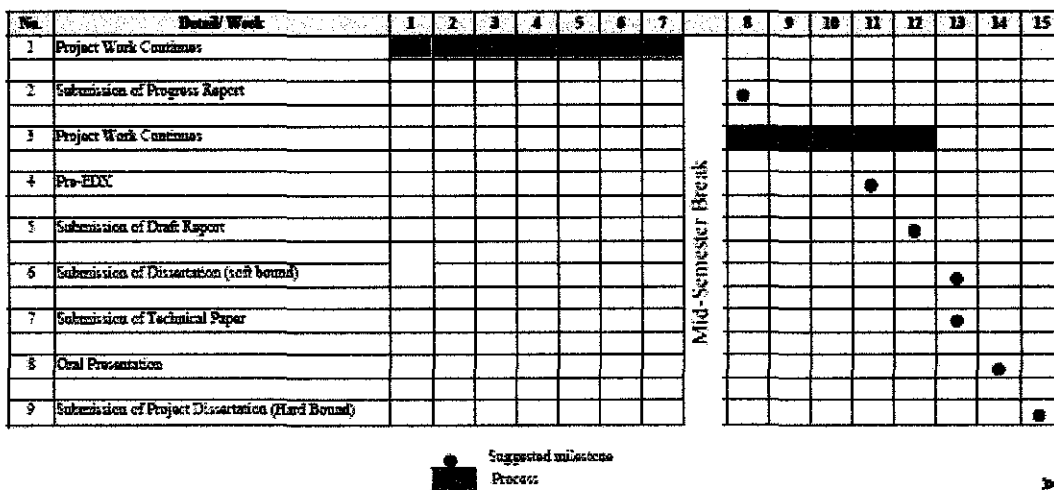
Submission of Preliminary Report	Semester 1-Week 4
Submission of Progress Report	Semester 1-Week 8
Submission of Interim Report Final Draft	Semester 1-Week 13
Oral Presentation	Semester 1-Week 14
Submission of Progress Report	Semester 2-Week 7
Pre-EDX Poster Exhibition	Semester 2-Week 11
Submission of Dissertation (soft bound)	Semester 2-Week 12
Viva	Semester 2-Week 13
Submission of Technical Paper	semester 2-Week 14
Submission of Final Dissertation (Hard Bound)	Semester 2-Week 14

#### **3.1.2 Gantt Chart**

Figure 2 and Figure 3 below show the Gantt chart for this project.



**Figure 2: Semester 1 Gantt chart**

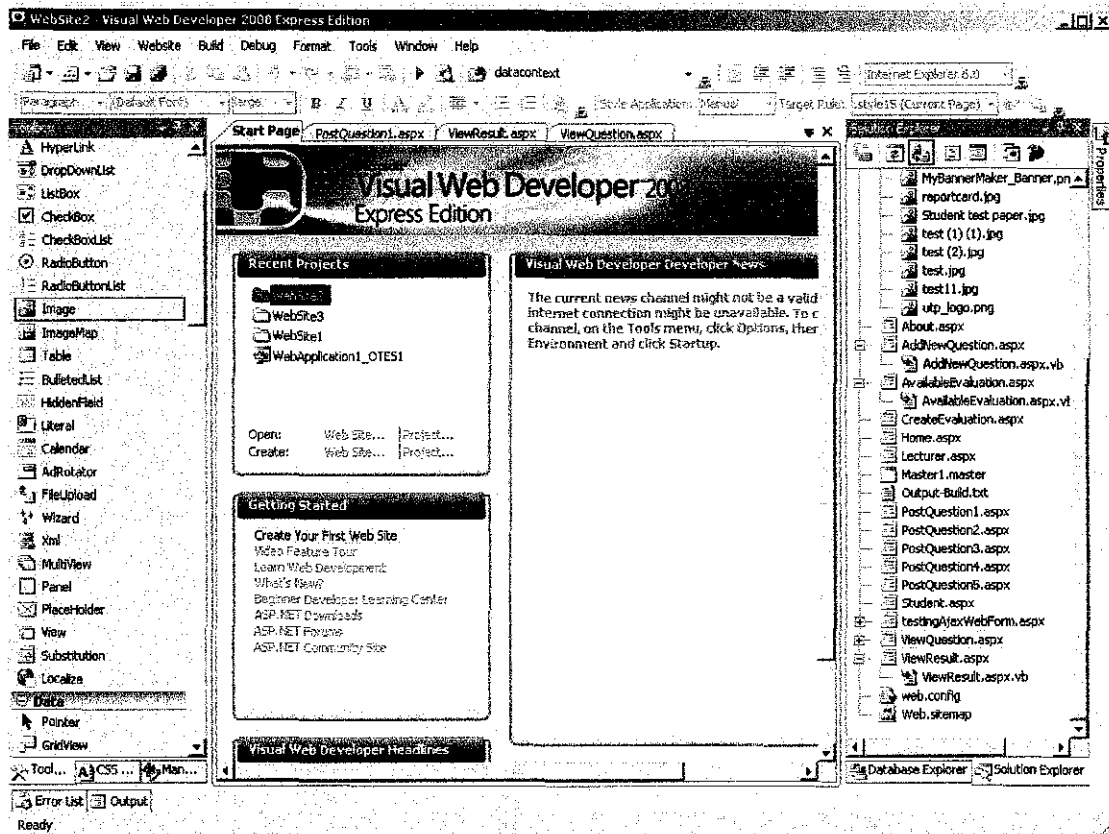


**Figure 3: Semester 2 Gantt chart**

### 3.1.3 Tools & Equipment

Software:

The author will use a laptop and will be using Visual Basic, ASP .NET and SQL to develop this system. The author is using Microsoft Visual Web Developer 2008 Express Edition as the IDE to develop the application. Figure 4 below display the example snapshot if the IDE used to develop this project.



**Figure 4: Microsoft Visual Web Developer Software Integrated Development Environment (IDE)**

Hardware:

The computer is using Microsoft Windows XP Professional Version 2002 Service Pack 3 Operating System, Processor CPU Genuine Intel® CPU Centrino Duo T2050 @ 1.60Ghz 1.32 Ghz, 24.4 Giga byte harddisk, NTFS filesystem, and lastly 1.49 GB of RAM.

### 3.1.4 Application Requirements

A lecturer has asked the author to develop a Web-based Application that allows lecturer to do online teaching outcome evaluation towards students rapidly as frequent as at every end of lecturer sessions.

### 3.2 Application Analysis

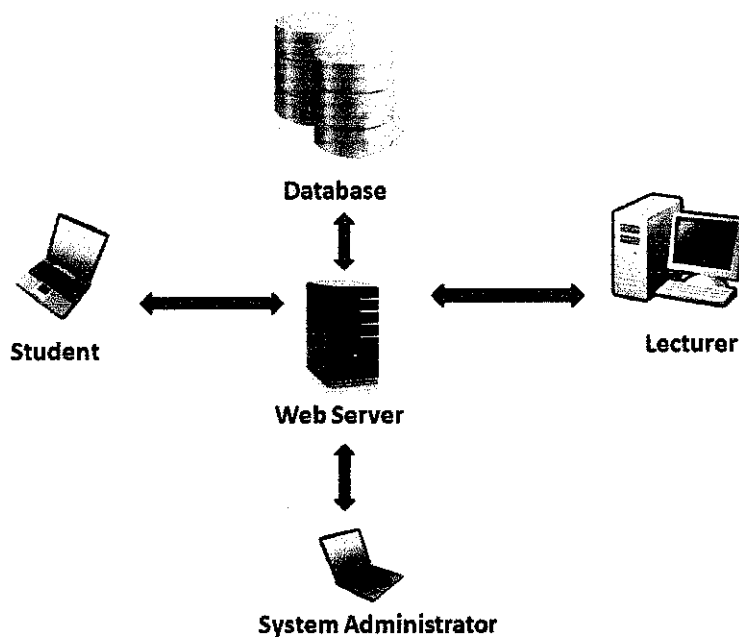
To analyze the application components, the following pseudocode describes the application's main operations:

1. Start
2. Lecturer open *Home* page.
3. Lecturer click the *Lecturer Get Stared* hyperlink
4. *Lecturer Site* page displayed.
5. Lecturer click *Create Evaluation* hyperlink
6. *Create Evaluation* page displayed.
7. Lecturer key in course objectives, questions text, answers options text, and assign answers options with respective weight.
8. Lecturer click button *Save Q1*, *Save Q2* and *Save Q3*
9. Data INSERTed INTO *Evaluation\_1* Table in a database.
10. Lecturer navigated back to *Home* page.
11. Student opens the *Home* page.
12. Student click the *Student Get Started* hyperlink
13. *Evaluation\_1* page displayed
14. Student enter student's id number
15. Student select answer from provided drop-down list
16. Student click *Submit All Answers* button
17. Student answers data INSERTed INTO all Student result Table in the database.
18. Student navigated to *Thank you* page.
19. Lecturer clicks the *View Result and Analysis* hyperlink in the *Lecturer Site* page.

20. *Result and Analysis* page, on page load event, it retrieve all student result from all student result table from the database.
21. *Result and Analysis* page, on page load event, it also retrieve a table that contain count of each answers chose by students for lecturer analysis.
22. *Result and Analysis* page, on page load event, it also select max count of answer chose by student as Mod answer for each respective question. Beside the mod answer, its respective weight will be displayed too.
23. Finally, *Result and Analysis* page, on page load event, it will calculate Mean of students' score for each question.
24. End

### 3.3 System Architecture

This system will consist of student user internet browser, lecturer user internet browser, admin user internet browser, a database, and a server. Figure 5 below show the application's system architecture. Lecturer will insert question data into the database. Next, student will retrieve question data and submit answers to database. Server will calculate students result and display the result analysis for lecturer view.



**Figure 5: System Architecture**

## CHAPTER 4

### RESULTS AND DISCUSSIONS

#### 4. RESULTS AND DISCUSSIONS

##### 4.1 Implementation

##### 4.1.1 Application Graphical User Interfaces

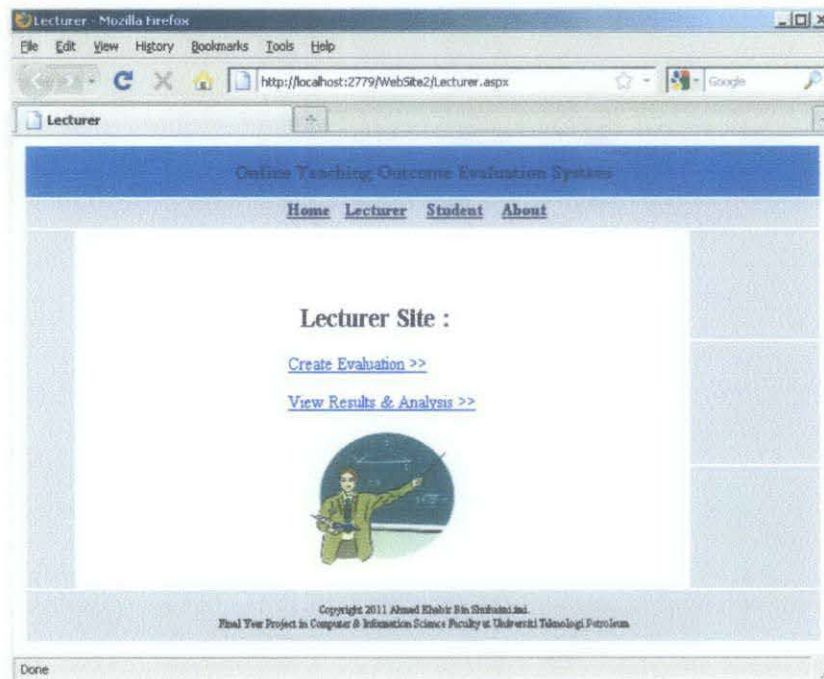
First opening the system web site URL, user will enter a *Home* page. Figure 6 below shows the application's *Home* page.



**Figure 6: Application's Home page**

This system for the time being will not include a login feature to differentiate lecturer user login, student user login and admin user login to the system. This is because the developer wants to focus on the main algorithm coding development. After opening and

viewing the *Home* page, lecturer first needs to click the *Lecturer Get Started* link. A *Lecturer Site* page will appear. Figure 7 below shows the application's *Lecturer Site* page.



**Figure 7: Lecturer Site page**

In the *Lecturer Site* page, there is two links, first is *Create Evaluation* link and another one is *View Result & Analysis* link. Next, lecturer need to click the *Create Evaluation* link. *Create Evaluation* page will appear.

Figure 8.1, 8.2 and 8.3 below show the *Create Evaluation* page interface.



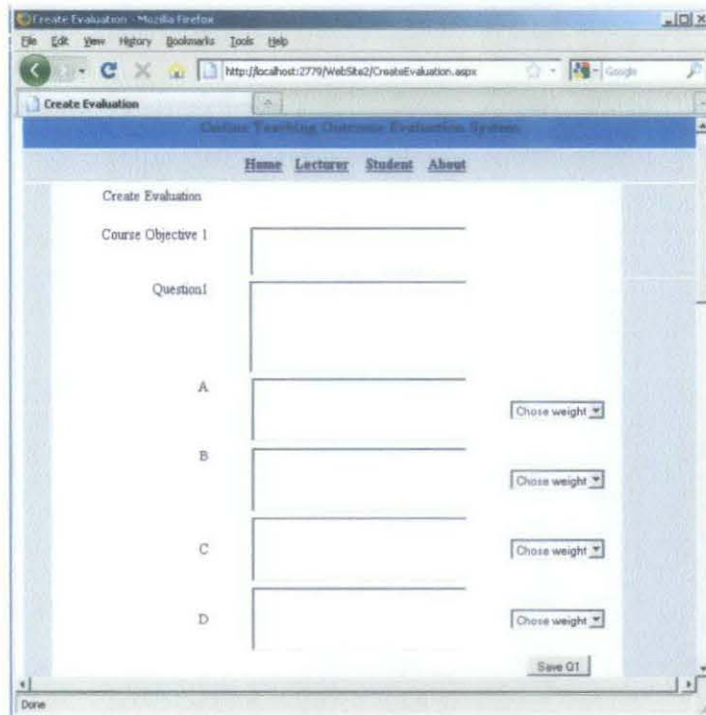


Figure 8.1: Create Evaluation page (Question 1 area)

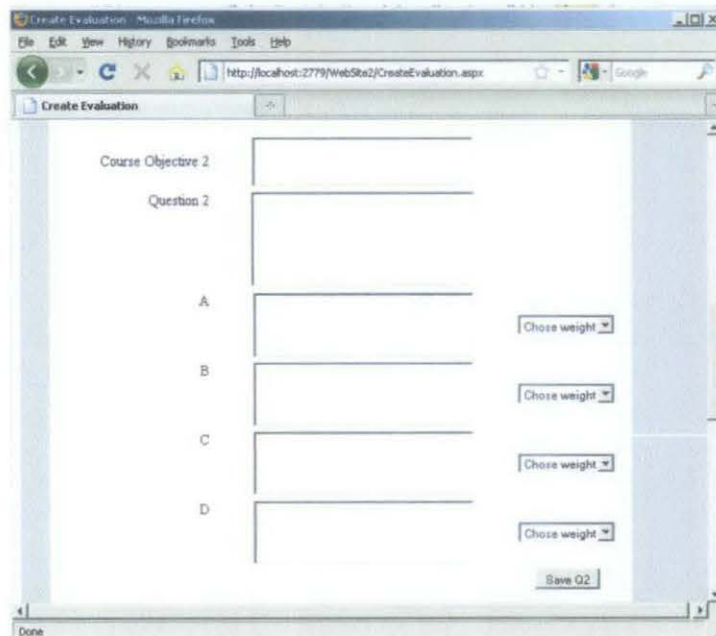
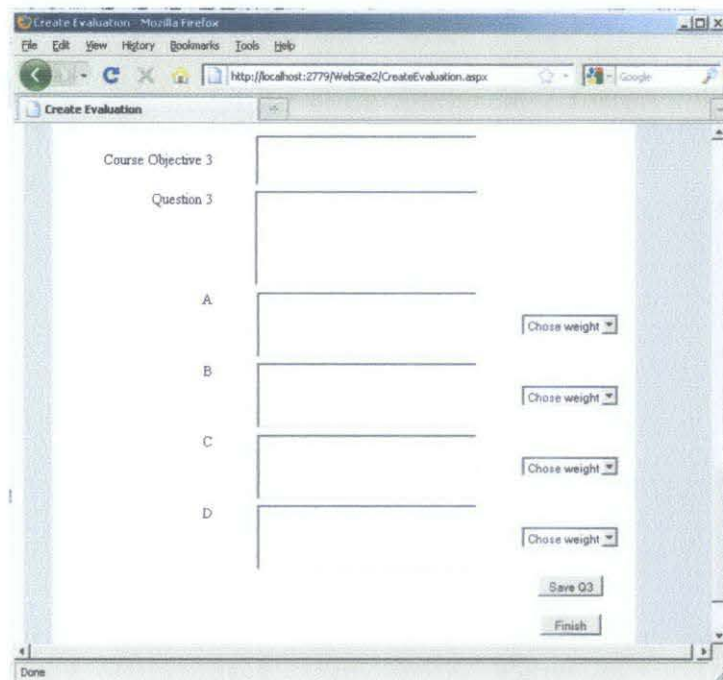


Figure 8.2: Create Evaluation page (Question 2 area)



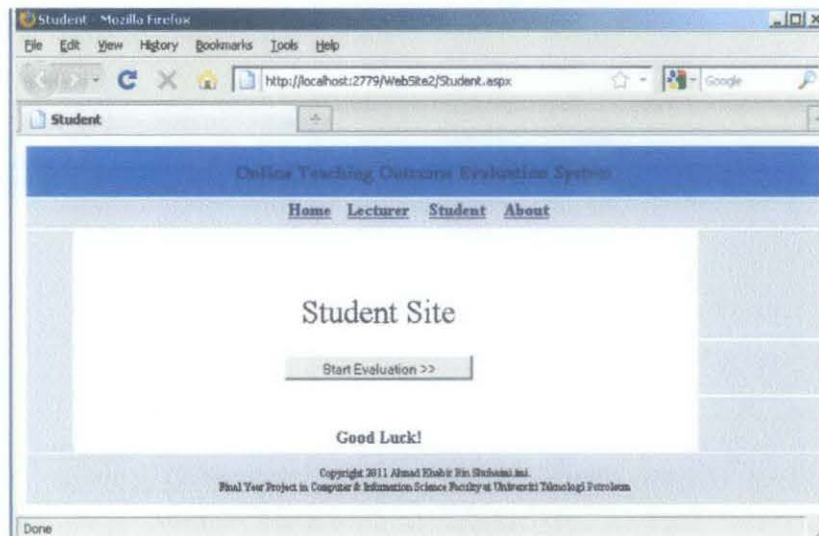
**Figure 8.3: Create Evaluation page (Question 3 area)**

In the *Create Evaluation* page, lecturer will need to key in course objectives text, questions text and also the answers options text. Lecturer will also need to assign weight from the drop-down list for each corresponding answers options available. The weights will portray the level of understanding for students who chose any of the provided answers options. Weight options for lecturer to assign are 100, 75, 50 and 25 percents.

When the lecturer clicks *Save Q1*, *Save Q2* and *Save Q3* button, the question's course objectives, questions text, answers text and corresponding weights will be saved into the database. Each button for each question will only save one question itself, for example *Save Q1* button will only save questions contents for question number one.

After lecturer done inserting the entire questions required information, lecturer will then need to click the *Finish* button to end the step. The *Finish* button will bring lecturer back to *Lecturer Site* page. Next, it's come to student role. Student need to click the *Student*

*Get Started* link provided in the *Home* page. *Student Site* page will be displayed. Figure 9 below display the *Student Site* page.



**Figure 9: Student Site page**

Next, student need to click the *Start Evaluation* button on the *Student Site* page to start answering the evaluation. The button will bring student to *Evaluation\_1* page. Figure 10.1, 10.2, and 10.3 below display the *Evaluation\_1* page.

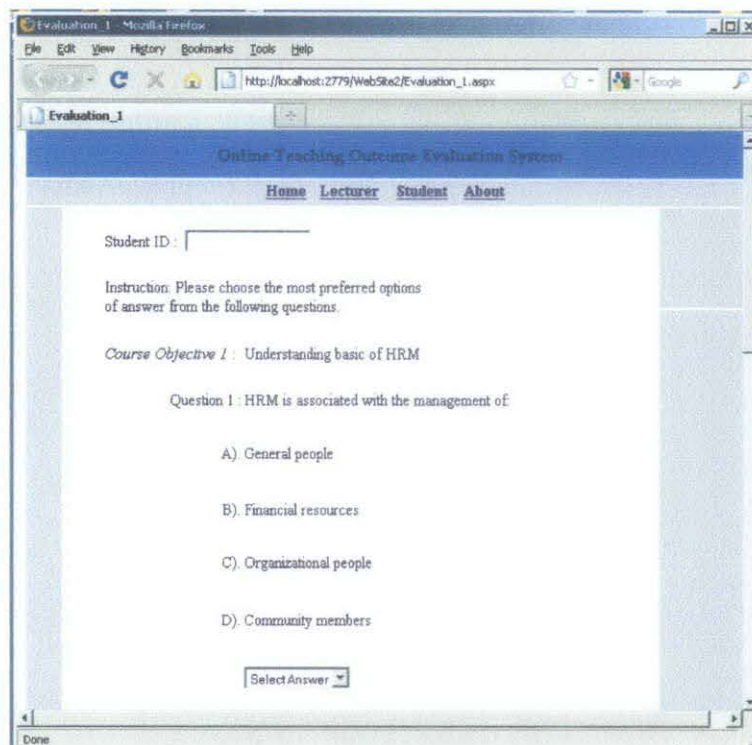


Figure 10.1: Evaluation\_1 page (Question 1 part)

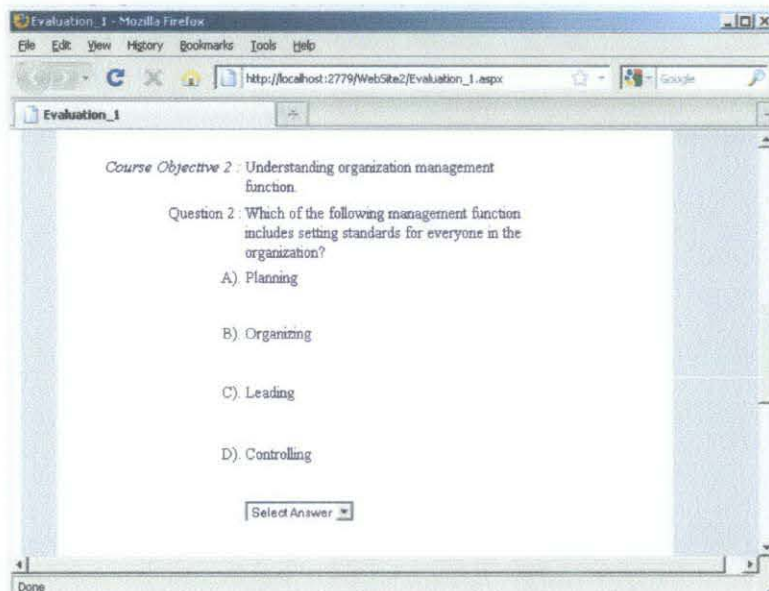
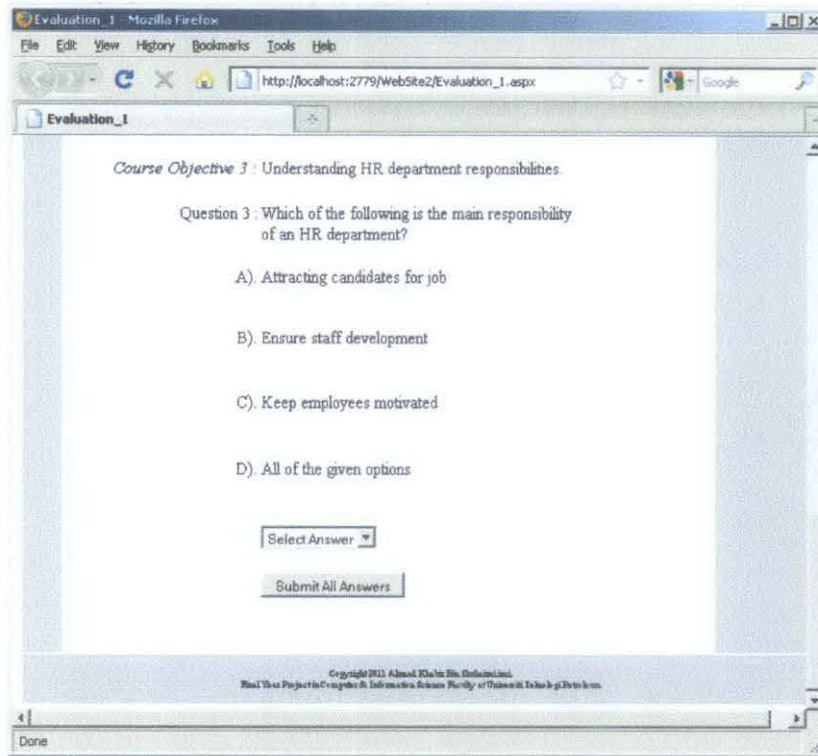
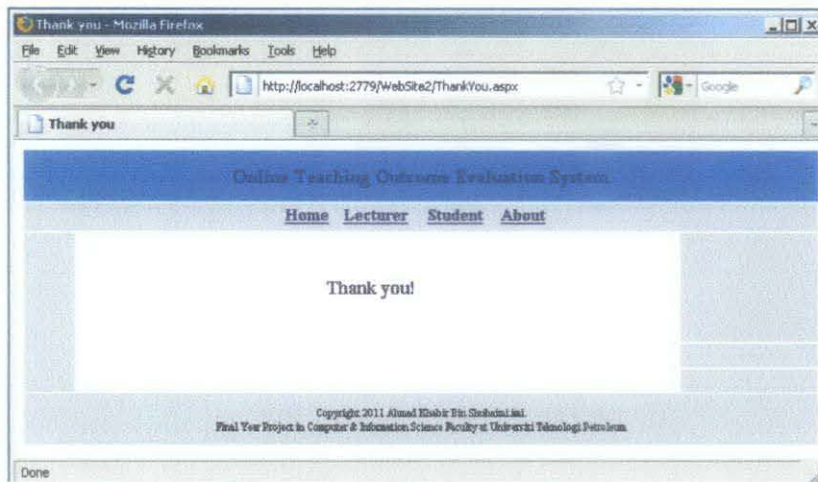


Figure 10.2: Evaluation\_1 page (Question 2 part)



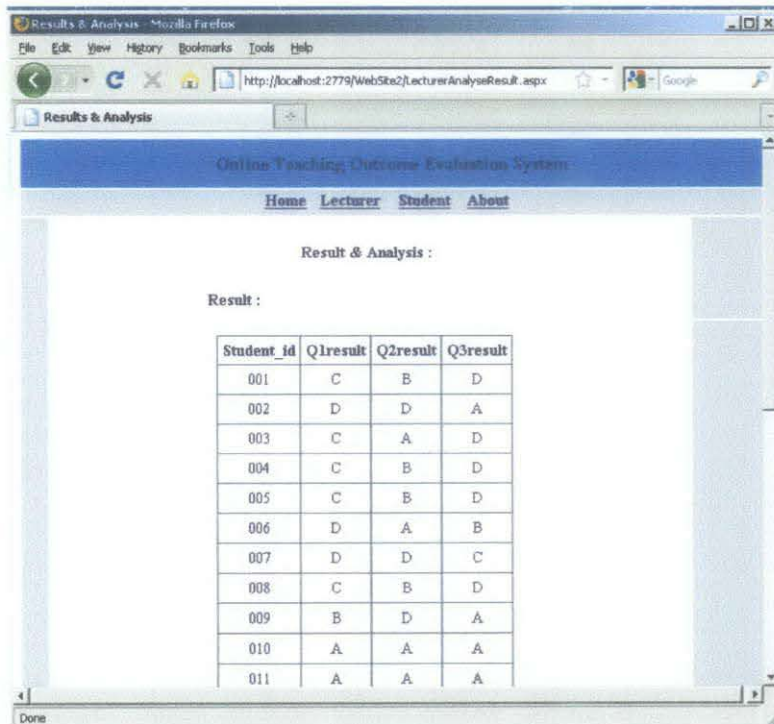
**Figure 10.3: Evaluation\_1 page (Question 3 part)**

In the *Evaluation\_1* page, student will need to read the questions and then answer the question by choosing one of the answer options provided by selecting it from the drop-down list provided at the bottom of the answers options text. Next, student will need to click the *Submit All Answers* button located at the bottom of the *Evaluation\_1* page. By clicking the *Submit All Answers* button, student scores will be saved into the database. The *Submit All Answers* button will also bring the student to a *Thank you* page. Figure 11 below display the *Thank you* page.

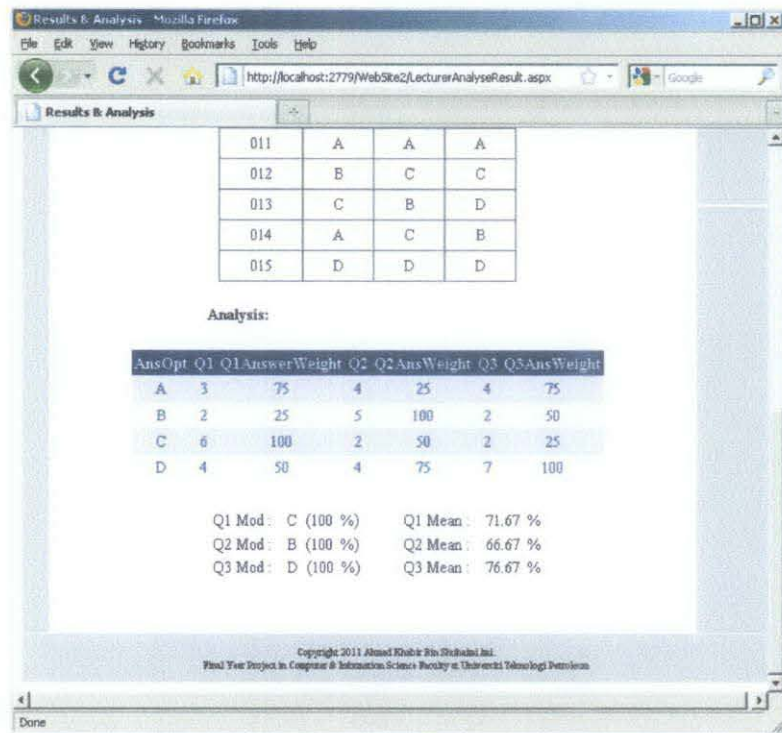


**Figure 11: Thank you page**

Student's role is done. Now it's lecturer role to click the *View Result and Analysis* link on the *Lecturer Site* page. *Result and Analysis* page will appear. Figure 12.1 and 12.2 below show the *Result and Analysis* page interface.



**Figure 12.1: Result and Analysis page (upper part)**



**Figure 12.2: Result and Analysis page (lower part)**

On page load, the *Result and Analysis* page will retrieve all students' results and it will be displayed in a table using *DataGrid* view feature from the Visual Web Developer 2008 Express Edition. *Result and Analysis* page will also retrieve a table of counted answers' chose for each question with its corresponding weight. On load event of this page it will also display Mod of answers' chose for each question with its corresponding weight. It is to help lecturer to get fast info on which answer has been chosen the most by its students. Furthermore *Result and Analysis* page on its load event will also calculate students' score's Mean for each question. This is to give fast information to lecturer as an analysis on student's results. The Mean portray overall students average score in the form of percentage of level of understanding towards the corresponding question. Finally, the *Result and Analysis* page ends the process flow of this project.

## **CHAPTER 5**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **5. CONCLUSIONS AND RECOMMENDATIONS**

##### **5.1 Conclusions**

This system targeted to provide additional option to lecturers to evaluate teaching outcome using online assessment method by using the web-based application. The system implementation can avoid less participation of students. This allow more accurate result that represent overall student understanding level. This enable lecturer to act accordingly based on the result they get from the students result.

The project deliverable has achieved the objective of this project. Lecturer will be able to assess students' level understanding rapidly as a pre-assessment before real coursework mark assessment such as quizzes, assignments, tests and final exam. As a result lecturers can help students if there happened major low understanding among students on any course teachings objectives.

##### **5.2 Recommendations**

This project development is recommended to be used as a rapid pre-assessment method in courses where suitable in the future, given its ability to quantify every question's answers chose by students, its mod and mean values.



In addition, this report recommends further work to:

- Add authentication feature to the system for different users type such as lecturers and students.
- Make the system allowing lecturer able to create evaluation account by courses.
- Make the system allowing lecturer to make multiple new evaluation.
- Add feature that allow various type of answer submission type such as fill in the blanks.

Adding the features above will impact on the user friendliness of this system. The authentication feature or login system does not include in this version of system because the developer want to spend time resources on programming the main algorithm of this system.

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## APPENDICES

### APPENDIX 1: CODES BEHIND FOR WEB PAGE - LECTURER CREATE EVALUATION

```
<%@ Import Namespace="System.Data.SqlClient" %>
<%@ Page Title="Create Evaluation" Language="VB" MasterPageFile="~/Master1.master" %>

<script runat="server">

    Protected Sub Button1_Click(ByVal sender As Object, ByVal e As System.EventArgs)

        Dim con As New SqlConnection
        Dim cmd As New SqlCommand

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "INSERT INTO
Table_Evaluation_1(qNum,cObj,qtext,atext,awght,btext,bwght,ctext,cwght,dtext,dwght)
VALUES(1,' & TextBox1.Text & ',' + TextBox2.Text + ',' + TextBox3.Text + ',' + ' &
DropDownList1.SelectedItem.Text & ',' + TextBox4.Text + ',' + ' &
DropDownList2.SelectedItem.Text & ',' + TextBox5.Text + ',' + ' &
DropDownList3.SelectedItem.Text & ',' + TextBox6.Text + ',' + ' &
DropDownList4.SelectedItem.Text & ')"
        cmd.ExecuteNonQuery()
        con.Close()

    End Sub

    Protected Sub Button2_Click(ByVal sender As Object, ByVal e As System.EventArgs)
        Dim con As New SqlConnection
        Dim cmd As New SqlCommand

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "INSERT INTO
Table_Evaluation_1(qNum,cObj,qtext,atext,awght,btext,bwght,ctext,cwght,dtext,dwght)
VALUES(2,' & TextBox17.Text & ',' + TextBox15.Text + ',' + TextBox7.Text + ',' + ' &
DropDownList5.SelectedItem.Text & ',' + TextBox8.Text + ',' + ' &
DropDownList6.SelectedItem.Text & ',' + TextBox9.Text + ',' + ' &
DropDownList7.SelectedItem.Text & ',' + TextBox10.Text + ',' + ' &
DropDownList8.SelectedItem.Text & ')"
        cmd.ExecuteNonQuery()
        con.Close()

    End Sub

    Protected Sub Button3_Click(ByVal sender As Object, ByVal e As System.EventArgs)
        Dim con As New SqlConnection
        Dim cmd As New SqlCommand

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "INSERT INTO
Table_Evaluation_1(qNum,cObj,qtext,atext,awght,btext,bwght,ctext,cwght,dtext,dwght)
VALUES(3,' & TextBox18.Text & ',' + TextBox16.Text + ',' + TextBox11.Text + ',' + ' &
DropDownList9.SelectedItem.Text & ',' + TextBox12.Text + ',' + ' &
DropDownList10.SelectedItem.Text & ',' + TextBox13.Text + ',' + ' &
```

```
DropDownList11.SelectedItem.Text & "','" + TextBox14.Text + "','" &
DropDownList12.SelectedItem.Text & "')"
    cmd.ExecuteNonQuery()
    con.Close()
End Sub

Protected Sub Button5_Click(ByVal sender As Object, ByVal e As System.EventArgs)
    Server.Transfer("~/Lecturer.aspx", True)
End Sub
</script>
```

## APPENDIX 2: CODES BEHIND FOR WEB PAGE - STUDENT VIEW QUESTIONS AND ANSWER QUESTIONS

```
<%@ Import Namespace="System.Data.SqlClient" %>
<%@ Page Title="Evaluation_1" Language="VB" MasterPageFile="~/Master1.master" %>

<script runat="server">

    Protected Sub Page_Load(ByVal sender As Object, ByVal e As System.EventArgs)
        ' Declarations
        Dim MyConnection As System.Data.SqlClient.SqlConnection
        Dim MyCommand As System.Data.SqlClient.SqlCommand
        Dim MyDataReader As System.Data.SqlClient.SqlDataReader

        ' Open the connection and execute a SQL Statement
        MyConnection = New System.Data.SqlClient.SqlConnection("Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True")
        MyConnection.Open()
        MyCommand = New System.Data.SqlClient.SqlCommand
        MyCommand.Connection = MyConnection

        '-----

        'Display cObj 1
        MyCommand.CommandText = "SELECT cObj FROM Table_Evaluation_1 WHERE qNum = 1"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        Literal1.Text = MyDataReader.Item("cObj")
        MyDataReader.Close()

        'Display qtext 1
        MyCommand.CommandText = "SELECT qtext FROM Table_Evaluation_1 WHERE qNum = 1"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        Literal2.Text = MyDataReader.Item("qtext")
        MyDataReader.Close()

        'Display atext 1
        MyCommand.CommandText = "SELECT atext FROM Table_Evaluation_1 WHERE qNum = 1"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        Literal3.Text = MyDataReader.Item("atext")
        MyDataReader.Close()

        'Display btext 1
        MyCommand.CommandText = "SELECT btext FROM Table_Evaluation_1 WHERE qNum = 1"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        Literal4.Text = MyDataReader.Item("btext")
        MyDataReader.Close()

        'Display ctext 1
        MyCommand.CommandText = "SELECT ctext FROM Table_Evaluation_1 WHERE qNum = 1"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        Literal5.Text = MyDataReader.Item("ctext")
        MyDataReader.Close()

        'Display dtext 1
        MyCommand.CommandText = "SELECT dtext FROM Table_Evaluation_1 WHERE qNum = 1"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        Literal6.Text = MyDataReader.Item("dtext")
        MyDataReader.Close()

        '-----
    End Sub
End Class
```

```

'Display cObj 2
MyCommand.CommandText = "SELECT cObj FROM Table_Evaluation_1 WHERE qNum = 2"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literal7.Text = MyDataReader.Item("cObj")
MyDataReader.Close()

'Display qtext 2
MyCommand.CommandText = "SELECT qtext FROM Table_Evaluation_1 WHERE qNum = 2"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literal8.Text = MyDataReader.Item("qtext")
MyDataReader.Close()

'Display atext 2
MyCommand.CommandText = "SELECT atext FROM Table_Evaluation_1 WHERE qNum = 2"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literal9.Text = MyDataReader.Item("atext")
MyDataReader.Close()

'Display btext 2
MyCommand.CommandText = "SELECT btext FROM Table_Evaluation_1 WHERE qNum = 2"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literal10.Text = MyDataReader.Item("btext")
MyDataReader.Close()

'Display ctext 2
MyCommand.CommandText = "SELECT ctext FROM Table_Evaluation_1 WHERE qNum = 2"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literal11.Text = MyDataReader.Item("ctext")
MyDataReader.Close()

'Display dtext 2
MyCommand.CommandText = "SELECT dtext FROM Table_Evaluation_1 WHERE qNum = 2"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literal12.Text = MyDataReader.Item("dtext")
MyDataReader.Close()
'-----

'Display cObj 3
MyCommand.CommandText = "SELECT cObj FROM Table_Evaluation_1 WHERE qNum = 3"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literal13.Text = MyDataReader.Item("cObj")
MyDataReader.Close()

'Display qtext 3
MyCommand.CommandText = "SELECT qtext FROM Table_Evaluation_1 WHERE qNum = 3"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literal14.Text = MyDataReader.Item("qtext")
MyDataReader.Close()

'Display atext 3
MyCommand.CommandText = "SELECT atext FROM Table_Evaluation_1 WHERE qNum = 3"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literal15.Text = MyDataReader.Item("atext")
MyDataReader.Close()

'Display btext 3
MyCommand.CommandText = "SELECT btext FROM Table_Evaluation_1 WHERE qNum = 3"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literal16.Text = MyDataReader.Item("btext")
MyDataReader.Close()

```

```

'Display ctext 3
MyCommand.CommandText = "SELECT ctext FROM Table_Evaluation_1 WHERE qNum = 3"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literall7.Text = MyDataReader.Item("ctext")
MyDataReader.Close()

'Display dtext 3
MyCommand.CommandText = "SELECT dtext FROM Table_Evaluation_1 WHERE qNum = 3"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Literall8.Text = MyDataReader.Item("dtext")
MyDataReader.Close()
'-----

' End Process: Clean Up
MyDataReader.Close()
MyDataReader = Nothing
MyCommand = Nothing
MyConnection.Close()
MyConnection = Nothing
End Sub

Protected Sub Button1_Click(ByVal sender As Object, ByVal e As System.EventArgs)

    Dim con As New SqlConnection
    Dim cmd As New SqlCommand

    con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
    con.Open()
    cmd.Connection = con
    cmd.CommandText = "INSERT INTO
Table_ResultAndAnalysis(Student_id,Q1result,Q2result,Q3result) VALUES('" & TextBox1.Text
& "','" & DropDownList1.SelectedItem.Text & "','" & DropDownList2.SelectedItem.Text &
"','" & DropDownList3.SelectedItem.Text & "')"
    cmd.ExecuteNonQuery()
    con.Close()

    Server.Transfer("~/ThankYou.aspx", True)

End Sub
</script>

```



### APPENDIX 3: CODES BEHIND FOR WEB PAGE - RESULTS AND ANALYSIS

```
<%@ Import Namespace="System.Data.SqlClient" %>
<%@ Page Title="Results & Analysis" Language="VB" MasterPageFile="~/Master1.master" %>

<script runat="server">

    Protected Sub Page_Load(ByVal sender As Object, ByVal e As System.EventArgs)
        ' Declarations
        Dim MyConnection As System.Data.SqlClient.SqlConnection
        Dim MyCommand As System.Data.SqlClient.SqlCommand
        Dim MyDataReader As System.Data.SqlClient.SqlDataReader

        ' Open the connection and execute a SQL Statement
        MyConnection = New System.Data.SqlClient.SqlConnection("Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True")
        MyConnection.Open()
        MyCommand = New System.Data.SqlClient.SqlCommand
        MyCommand.Connection = MyConnection

        Dim con As New SqlConnection
        Dim cmd As New SqlCommand
        Dim temp As String

        'Q1:A
        MyCommand.CommandText = "SELECT COUNT(Qlresult) As QlresultA FROM
Table_ResultAndAnalysis WHERE Qlresult='A'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("QlresultA").ToString
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Ql=(' & temp & ') WHERE
AnsOpt='A'"
        cmd.ExecuteNonQuery()
        con.Close()

        'Q1:B
        MyCommand.CommandText = "SELECT COUNT(Qlresult) As QlresultB FROM
Table_ResultAndAnalysis WHERE Qlresult='B'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("QlresultB").ToString
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Ql=(' & temp & ') WHERE
AnsOpt='B'"
        cmd.ExecuteNonQuery()
        con.Close()

        'Q1:C
        MyCommand.CommandText = "SELECT COUNT(Qlresult) As QlresultC FROM
Table_ResultAndAnalysis WHERE Qlresult='C'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("QlresultC").ToString
        MyDataReader.Close()
    End Sub
End Script
```

```

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q1=(' & temp & "') WHERE
AnsOpt='C'"
        cmd.ExecuteNonQuery()
        con.Close()

        'Q1:D
        MyCommand.CommandText = "SELECT COUNT(Q1result) As Q1resultD FROM
Table_ResultAndAnalysis WHERE Q1result='D'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("Q1resultD").ToString
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q1=(' & temp & "') WHERE
AnsOpt='D'"
        cmd.ExecuteNonQuery()
        con.Close()

        'Q1: Mod / Most frequent answer chose by student
        MyCommand.CommandText = "SELECT AnsOpt AS Q1Mod FROM Table_ResultCount WHERE
Q1=(SELECT MAX(Q1) FROM Table_ResultCount)"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        Label3.Text = MyDataReader.Item("Q1Mod")
        MyDataReader.Close()

        '-----
        'Q2
        'Q2:A
        MyCommand.CommandText = "SELECT COUNT(Q2result) As Q2resultA FROM
Table_ResultAndAnalysis WHERE Q2result='A'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("Q2resultA").ToString
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q2=(' & temp & "') WHERE
AnsOpt='A'"
        cmd.ExecuteNonQuery()
        con.Close()

        'Q2:B
        MyCommand.CommandText = "SELECT COUNT(Q2result) As Q2resultB FROM
Table_ResultAndAnalysis WHERE Q2result='B'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("Q2resultB").ToString
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q2=(' & temp & "') WHERE
AnsOpt='B'"

```

```

        cmd.ExecuteNonQuery()
        con.Close()

        'Q2:C
        MyCommand.CommandText = "SELECT COUNT(Q2result) As Q2resultC FROM
Table_ResultAndAnalysis WHERE Q2result='C'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("Q2resultC").ToString
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q2=(' & temp & ') WHERE
AnsOpt='C'"
        cmd.ExecuteNonQuery()
        con.Close()

        'Q2:D
        MyCommand.CommandText = "SELECT COUNT(Q2result) As Q2resultD FROM
Table_ResultAndAnalysis WHERE Q2result='D'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("Q2resultD").ToString
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q2=(' & temp & ') WHERE
AnsOpt='D'"
        cmd.ExecuteNonQuery()
        con.Close()

        'Q2: Mod / Most frequent answer chose by student
        MyCommand.CommandText = "SELECT AnsOpt AS Q2Mod FROM Table_ResultCount WHERE
Q2=(SELECT MAX(Q2) FROM Table_ResultCount)"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        Label4.Text = MyDataReader.Item("Q2Mod")
        MyDataReader.Close()
        '-----

        'Q3:A
        MyCommand.CommandText = "SELECT COUNT(Q3result) As Q3resultA FROM
Table_ResultAndAnalysis WHERE Q3result='A'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("Q3resultA").ToString
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q3=(' & temp & ') WHERE
AnsOpt='A'"
        cmd.ExecuteNonQuery()
        con.Close()

        'Q3:B
        MyCommand.CommandText = "SELECT COUNT(Q3result) As Q3resultB FROM
Table_ResultAndAnalysis WHERE Q3result='B'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()

```

```

temp = MyDataReader.Item("Q3resultB").ToString
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con
cmd.CommandText = "UPDATE Table_ResultCount SET Q3=(' & temp & ') WHERE
AnsOpt='B'"
cmd.ExecuteNonQuery()
con.Close()

'Q3:C
MyCommand.CommandText = "SELECT COUNT(Q3result) As Q3resultC FROM
Table_ResultAndAnalysis WHERE Q3result='C'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
temp = MyDataReader.Item("Q3resultC").ToString
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con
cmd.CommandText = "UPDATE Table_ResultCount SET Q3=(' & temp & ') WHERE
AnsOpt='C'"
cmd.ExecuteNonQuery()
con.Close()

'Q3:D
MyCommand.CommandText = "SELECT COUNT(Q3result) As Q3resultD FROM
Table_ResultAndAnalysis WHERE Q3result='D'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
temp = MyDataReader.Item("Q3resultD").ToString
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con
cmd.CommandText = "UPDATE Table_ResultCount SET Q3=(' & temp & ') WHERE
AnsOpt='D'"
cmd.ExecuteNonQuery()
con.Close()

'Q3: Mod / Most frequent answer chose by student
MyCommand.CommandText = "SELECT AnsOpt AS Q3Mod FROM Table_ResultCount WHERE
Q3=(SELECT MAX(Q3) FROM Table_ResultCount)"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Label5.Text = MyDataReader.Item("Q3Mod")
MyDataReader.Close()

'-----
'update table_resultCount with each answers weight %
'A:Q1
MyCommand.CommandText = "SELECT awght FROM Table_Evaluation_1 WHERE qNum='1'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
temp = MyDataReader.Item("awght")
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con

```

```

        cmd.CommandText = "UPDATE Table_ResultCount SET Q1AnswerWeight=('" & temp & "'"
WHERE AnsOpt='A'"
        cmd.ExecuteNonQuery()
        con.Close()

        'A:Q2
        MyCommand.CommandText = "SELECT awght FROM Table_Evaluation_1 WHERE qNum='2'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("awght")
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q2AnsWeight=('" & temp & "'"
WHERE AnsOpt='A'"
        cmd.ExecuteNonQuery()
        con.Close()

        'A:Q3
        MyCommand.CommandText = "SELECT awght FROM Table_Evaluation_1 WHERE qNum='3'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("awght")
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q3AnsWeight=('" & temp & "'"
WHERE AnsOpt='A'"
        cmd.ExecuteNonQuery()
        con.Close()
        '-----
        'B:Q1
        MyCommand.CommandText = "SELECT bwght FROM Table_Evaluation_1 WHERE qNum='1'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("bwght")
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q1AnswerWeight=('" & temp & "'"
WHERE AnsOpt='B'"
        cmd.ExecuteNonQuery()
        con.Close()

        'B:Q2
        MyCommand.CommandText = "SELECT bwght FROM Table_Evaluation_1 WHERE qNum='2'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        temp = MyDataReader.Item("bwght")
        MyDataReader.Close()

        con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
        con.Open()
        cmd.Connection = con
        cmd.CommandText = "UPDATE Table_ResultCount SET Q2AnsWeight=('" & temp & "'"
WHERE AnsOpt='B'"
        cmd.ExecuteNonQuery()

```

```

con.Close()

'B:Q3
MyCommand.CommandText = "SELECT bwght FROM Table_Evaluation_1 WHERE qNum='3'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
temp = MyDataReader.Item("bwght")
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con
cmd.CommandText = "UPDATE Table_ResultCount SET Q3AnsWeight=('" & temp & "'
WHERE AnsOpt='B'"
cmd.ExecuteNonQuery()
con.Close()
'-----
'C:Q1
MyCommand.CommandText = "SELECT cwght FROM Table_Evaluation_1 WHERE qNum='1'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
temp = MyDataReader.Item("cwght")
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con
cmd.CommandText = "UPDATE Table_ResultCount SET Q1AnswerWeight=('" & temp & "'
WHERE AnsOpt='C'"
cmd.ExecuteNonQuery()
con.Close()

'C:Q2
MyCommand.CommandText = "SELECT cwght FROM Table_Evaluation_1 WHERE qNum='2'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
temp = MyDataReader.Item("cwght")
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con
cmd.CommandText = "UPDATE Table_ResultCount SET Q2AnsWeight=('" & temp & "'
WHERE AnsOpt='C'"
cmd.ExecuteNonQuery()
con.Close()

'C:Q3
MyCommand.CommandText = "SELECT cwght FROM Table_Evaluation_1 WHERE qNum='3'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
temp = MyDataReader.Item("cwght")
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con
cmd.CommandText = "UPDATE Table_ResultCount SET Q3AnsWeight=('" & temp & "'
WHERE AnsOpt='C'"
cmd.ExecuteNonQuery()
con.Close()
'-----
'D:Q1

```

```

MyCommand.CommandText = "SELECT dwght FROM Table_Evaluation_1 WHERE qNum='1'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
temp = MyDataReader.Item("dwght")
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con
cmd.CommandText = "UPDATE Table_ResultCount SET Q1AnswerWeight=('" & temp & "'"
WHERE AnsOpt='D'"
cmd.ExecuteNonQuery()
con.Close()

'D:Q2
MyCommand.CommandText = "SELECT dwght FROM Table_Evaluation_1 WHERE qNum='2'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
temp = MyDataReader.Item("dwght")
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con
cmd.CommandText = "UPDATE Table_ResultCount SET Q2AnsWeight=('" & temp & "'"
WHERE AnsOpt='D'"
cmd.ExecuteNonQuery()
con.Close()

'D:Q3
MyCommand.CommandText = "SELECT dwght FROM Table_Evaluation_1 WHERE qNum='3'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
temp = MyDataReader.Item("dwght")
MyDataReader.Close()

con.ConnectionString = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\OTES1.MDF;Integrated
Security=True;User Instance=True"
con.Open()
cmd.Connection = con
cmd.CommandText = "UPDATE Table_ResultCount SET Q3AnsWeight=('" & temp & "'"
WHERE AnsOpt='D'"
cmd.ExecuteNonQuery()
con.Close()

'-----
'Display corresponding score for Mod AnsOpt

'Q1: Mod.Score / Most frequent answer chose by stduent
MyCommand.CommandText = "SELECT Q1AnswerWeight AS Q1ModScore FROM
Table_ResultCount WHERE Q1=(SELECT MAX(Q1) FROM Table_ResultCount)"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Label6.Text = MyDataReader.Item("Q1ModScore")
MyDataReader.Close()

'Q2: Mod.Score / Most frequent answer chose by stduent
MyCommand.CommandText = "SELECT Q2AnsWeight AS Q2ModScore FROM Table_ResultCount
WHERE Q2=(SELECT MAX(Q2) FROM Table_ResultCount)"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Label7.Text = MyDataReader.Item("Q2ModScore")
MyDataReader.Close()

'Q3: Mod.Score / Most frequent answer chose by stduent

```

```

MyCommand.CommandText = "SELECT Q3AnsWeight AS Q3ModScore FROM Table_ResultCount
WHERE Q3=(SELECT MAX(Q3) FROM Table_ResultCount)"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
Label8.Text = MyDataReader.Item("Q3ModScore")
MyDataReader.Close()

'-----
'Calculate Mean score for each Question & Display it in a Table
'idea: retrieve AnsOpt count, retrieve AnsWeight, then mutliply.
Mean=AnsOpt.Count*AnsWeight.
Dim TempAnsOptCount As Integer = 0
Dim TempAnsWeight As Integer = 0
Dim AcountTimesWeight As Integer = 0
Dim BcountTimesWeight As Integer = 0
Dim CcountTimesWeight As Integer = 0
Dim DcountTimesWeight As Integer = 0
Dim SumABCD As Integer = 0
Dim MeanABCD As Double = 0
Dim studentCount As Integer = 0

'Count students attendance SELECT COUNT(column_name) FROM table_name
MyCommand.CommandText = "SELECT COUNT (Student_id) AS StudentCount FROM
Table_ResultAndAnalysis"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
studentCount = MyDataReader.Item("StudentCount")
MyDataReader.Close()
'-----

'Q1.A.count*weight
'Q1.A, retrieve 'A' Count
MyCommand.CommandText = "SELECT Q1 AS Q1ACount FROM Table_ResultCount WHERE
AnsOpt='A'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsOptCount = MyDataReader.Item("Q1ACount")
MyDataReader.Close()

'Q1.A, retrieve 'A' AnsWeight
MyCommand.CommandText = "SELECT Q1AnswerWeight AS Q1AScore FROM
Table_ResultCount WHERE AnsOpt='A'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsWeight = MyDataReader.Item("Q1AScore")
MyDataReader.Close()
'calculate: Q1.A count*weight
AcountTimesWeight = TempAnsOptCount * TempAnsWeight

'-----

'Q1.B.count*weight
'Q1.B, retrieve 'B' Count
MyCommand.CommandText = "SELECT Q1 AS Q1BCount FROM Table_ResultCount WHERE
AnsOpt='B'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsOptCount = MyDataReader.Item("Q1BCount")
MyDataReader.Close()

'Q1.B, retrieve 'B' AnsWeight
MyCommand.CommandText = "SELECT Q1AnswerWeight AS Q1BScore FROM
Table_ResultCount WHERE AnsOpt='B'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsWeight = MyDataReader.Item("Q1BScore")
MyDataReader.Close()
'calculate: Q1.B count*weight
BcountTimesWeight = TempAnsOptCount * TempAnsWeight

'-----

```



```

        'Q1.C.count*weight
        'Q1.C, retrieve 'C' Count
        MyCommand.CommandText = "SELECT Q1 AS Q1CCount FROM Table_ResultCount WHERE
AnsOpt='C'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        TempAnsOptCount = MyDataReader.Item("Q1CCount")
        MyDataReader.Close()

        'Q1.C, retrieve 'C' AnsWeight
        MyCommand.CommandText = "SELECT Q1AnswerWeight AS Q1CScore FROM
Table_ResultCount WHERE AnsOpt='C'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        TempAnsWeight = MyDataReader.Item("Q1CScore")
        MyDataReader.Close()
        'calculate: Q1.C count*weight
        CcountTimesWeight = TempAnsOptCount * TempAnsWeight

        '-----

        'Q1.D.count*weight
        'Q1.D, retrieve 'D' Count
        MyCommand.CommandText = "SELECT Q1 AS Q1DCount FROM Table_ResultCount WHERE
AnsOpt='D'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        TempAnsOptCount = MyDataReader.Item("Q1DCount")
        MyDataReader.Close()

        'Q1.D, retrieve 'D' AnsWeight
        MyCommand.CommandText = "SELECT Q1AnswerWeight AS Q1DScore FROM
Table_ResultCount WHERE AnsOpt='D'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        TempAnsWeight = MyDataReader.Item("Q1DScore")
        MyDataReader.Close()
        'calculate: Q1.D count*weight
        DcountTimesWeight = TempAnsOptCount * TempAnsWeight

        '-----

        'Calculate Q1.Mean
        SumABCD = AcountTimesWeight + BcountTimesWeight + CcountTimesWeight +
DcountTimesWeight
        MeanABCD = SumABCD / studentCount
        Label9.Text = FormatNumber(MeanABCD, 2)
        '-----

        'Q2.A.count*weight
        'Q2.A, retrieve 'A' Count
        MyCommand.CommandText = "SELECT Q2 AS Q2ACount FROM Table_ResultCount WHERE
AnsOpt='A'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        TempAnsOptCount = MyDataReader.Item("Q2ACount")
        MyDataReader.Close()

        'Q2.A, retrieve 'A' AnsWeight
        MyCommand.CommandText = "SELECT Q2AnsWeight AS Q2AScore FROM Table_ResultCount
WHERE AnsOpt='A'"
        MyDataReader = MyCommand.ExecuteReader()
        MyDataReader.Read()
        TempAnsWeight = MyDataReader.Item("Q2AScore")
        MyDataReader.Close()
        'calculate: Q2.A count*weight
        AcountTimesWeight = TempAnsOptCount * TempAnsWeight

        '-----

        'Q2.B.count*weight

```

```

'Q2.B, retrieve 'B' Count
MyCommand.CommandText = "SELECT Q2 AS Q2BCount FROM Table_ResultCount WHERE
AnsOpt='B'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsOptCount = MyDataReader.Item("Q2BCount")
MyDataReader.Close()

'Q2.B, retrieve 'B' AnsWeight
MyCommand.CommandText = "SELECT Q2AnsWeight AS Q2BScore FROM Table_ResultCount
WHERE AnsOpt='B'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsWeight = MyDataReader.Item("Q2BScore")
MyDataReader.Close()
'calculate: Q2.B count*weight
BcountTimesWeight = TempAnsOptCount * TempAnsWeight

'-----

'Q2.C.count*weight
'Q2.C, retrieve 'C' Count
MyCommand.CommandText = "SELECT Q2 AS Q2CCount FROM Table_ResultCount WHERE
AnsOpt='C'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsOptCount = MyDataReader.Item("Q2CCount")
MyDataReader.Close()

'Q2.C, retrieve 'C' AnsWeight
MyCommand.CommandText = "SELECT Q2AnsWeight AS Q2CScore FROM Table_ResultCount
WHERE AnsOpt='C'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsWeight = MyDataReader.Item("Q2CScore")
MyDataReader.Close()
'calculate: Q2.C count*weight
CcountTimesWeight = TempAnsOptCount * TempAnsWeight

'-----

'Q2.D.count*weight
'Q2.D, retrieve 'D' Count
MyCommand.CommandText = "SELECT Q2 AS Q2DCount FROM Table_ResultCount WHERE
AnsOpt='D'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsOptCount = MyDataReader.Item("Q2DCount")
MyDataReader.Close()

'Q2.D, retrieve 'D' AnsWeight
MyCommand.CommandText = "SELECT Q2AnsWeight AS Q2DScore FROM Table_ResultCount
WHERE AnsOpt='D'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsWeight = MyDataReader.Item("Q2DScore")
MyDataReader.Close()
'calculate: Q2.D count*weight
DcountTimesWeight = TempAnsOptCount * TempAnsWeight

'-----

'Calculate Q2.Mean
SumABCD = AcountTimesWeight + BcountTimesWeight + CcountTimesWeight +
DcountTimesWeight
MeanABCD = SumABCD / studentCount
Label10.Text = FormatNumber(MeanABCD, 2)
'-----

'Q3.A.count*weight
'Q3.A, retrieve 'A' Count

```

```

MyCommand.CommandText = "SELECT Q3 AS Q3ACount FROM Table_ResultCount WHERE
AnsOpt='A'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsOptCount = MyDataReader.Item("Q3ACount")
MyDataReader.Close()

'Q3.A, retrieve 'A' AnsWeight
MyCommand.CommandText = "SELECT Q3AnsWeight AS Q3AScore FROM Table_ResultCount
WHERE AnsOpt='A'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsWeight = MyDataReader.Item("Q3AScore")
MyDataReader.Close()
'calculate: Q3.A count*weight
AccountTimesWeight = TempAnsOptCount * TempAnsWeight
'-----

'Q3.B.count*weight
'Q3.B, retrieve 'B' Count
MyCommand.CommandText = "SELECT Q3 AS Q3BCount FROM Table_ResultCount WHERE
AnsOpt='B'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsOptCount = MyDataReader.Item("Q3BCount")
MyDataReader.Close()

'Q3.B, retrieve 'B' AnsWeight
MyCommand.CommandText = "SELECT Q3AnsWeight AS Q3BScore FROM Table_ResultCount
WHERE AnsOpt='B'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsWeight = MyDataReader.Item("Q3BScore")
MyDataReader.Close()
'calculate: Q3.B count*weight
BcountTimesWeight = TempAnsOptCount * TempAnsWeight
'-----

'Q3.C.count*weight
'Q3.C, retrieve 'C' Count
MyCommand.CommandText = "SELECT Q3 AS Q3CCount FROM Table_ResultCount WHERE
AnsOpt='C'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsOptCount = MyDataReader.Item("Q3CCount")
MyDataReader.Close()

'Q3.C, retrieve 'C' AnsWeight
MyCommand.CommandText = "SELECT Q3AnsWeight AS Q3CScore FROM Table_ResultCount
WHERE AnsOpt='C'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsWeight = MyDataReader.Item("Q3CScore")
MyDataReader.Close()
'calculate: Q3.C count*weight
CcountTimesWeight = TempAnsOptCount * TempAnsWeight
'-----

'Q3.D.count*weight
'Q3.D, retrieve 'D' Count
MyCommand.CommandText = "SELECT Q3 AS Q3DCount FROM Table_ResultCount WHERE
AnsOpt='D'"
MyDataReader = MyCommand.ExecuteReader()
MyDataReader.Read()
TempAnsOptCount = MyDataReader.Item("Q3DCount")
MyDataReader.Close()

'Q3.C, retrieve 'C' AnsWeight
MyCommand.CommandText = "SELECT Q3AnsWeight AS Q3DScore FROM Table_ResultCount
WHERE AnsOpt='D'"
MyDataReader = MyCommand.ExecuteReader()

```

```

MyDataReader.Read()
TempAnsWeight = MyDataReader.Item("Q3DScore")
MyDataReader.Close()
'calculate: Q3.D count*weight
DcountTimesWeight = TempAnsOptCount * TempAnsWeight
'-----

'Calculate Q2.Mean
SumABCD = AccountTimesWeight + BcountTimesWeight + CcountTimesWeight +
DcountTimesWeight
MeanABCD = SumABCD / studentCount
Label11.Text = FormatNumber(MeanABCD, 2)
'-----

' End Process: Clean Up
MyDataReader = Nothing
MyCommand = Nothing
MyConnection.Close()
MyConnection = Nothing

End Sub
</script>

```