



Example Solution

January 2022

Pearson BTEC Nationals

In Information Technology (31761H)

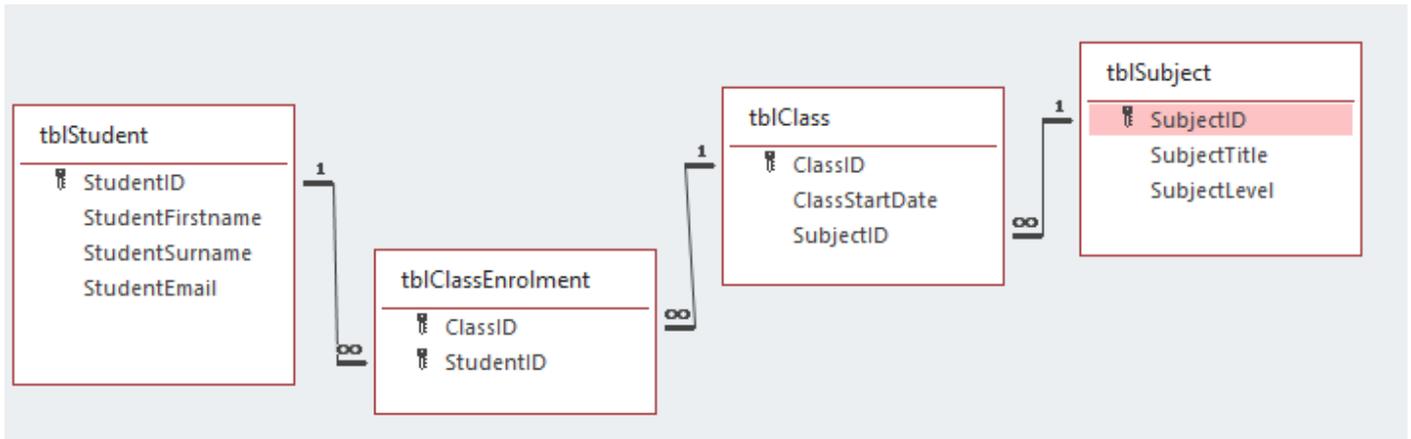
Unit 2 Creating Systems to Manage Information

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Part A

Activity 1 – Database relationships screenprint



Activity 2 – Table structures

Field Name	Data Type
StudentID	AutoNumber
StudentFirstname	Short Text
StudentSurname	Short Text
StudentEmail	Short Text

Field Name	Data Type
SubjectID	AutoNumber
SubjectTitle	Short Text
SubjectLevel	Number

Field Name	Data Type
ClassID	AutoNumber
ClassStartDate	Date/Time
SubjectID	Number

Field Name	Data Type
ClassID	Number
StudentID	Number

Presence check

Field Name	Data Type
StudentID	AutoNumber
StudentFirstname	Short Text
StudentSurname	Short Text
StudentEmail	Short Text

General	
Field Size	255
Format	@
Input Mask	
Caption	
Default Value	
Validation Rule	Is Not Null
Validation Text	You must enter a student's last name
Required	No

Length and format check

Field Name	Data Type
StudentID	AutoNumber
StudentFirstname	Short Text
StudentSurname	Short Text
StudentEmail	Short Text

General	
Field Size	19
Format	@
Input Mask	>L<LL"_">L<L"@washer.ac.uk";0;
Caption	

Value lookup

Field Name	Data Type
SubjectID	AutoNumber
SubjectTitle	Short Text
SubjectLevel	Number

General	
Display Control	Combo Box
Row Source Type	Value List
Row Source	1;2;3

Table lookup Any foreign key

Field Name	Data Type
ClassID	AutoNumber
ClassStartDate	Date/Time
SubjectID	Number

General	
Display Control	Combo Box
Row Source Type	Table/Query
Row Source	SELECT [tblSubject].[SubjectID], [tblSubject].[SubjectTitle]
Bound Column	1
Column Count	2
Column Heads	No
Column Widths	1.561cm;4.154cm
List Rows	16
List Width	5.714cm
Limit To List	Yes
Allow Multiple Values	No

Activity 3 – Queries and report

- (a) Create a query to display an alphabetically sorted list of student names who study GCSE Maths or BTEC Information Technology. The names must be sorted by surname and then firstname. It must show the full name of each student and the subject title only.

The screenshot shows the Microsoft Access Query Design view for a query named 'qryA'. The design grid includes the following tables and fields:

- tblStudent**: StudentID (PK), StudentFirstname, StudentSurname, StudentEmail
- tblClassEnrolment**: ClassID (FK), StudentID (FK)
- tblClass**: ClassID (PK), ClassStartDate, SubjectID (FK)
- tblSubject**: SubjectID (PK), SubjectTitle, SubjectLevel

The design grid shows the following criteria and sort settings:

Field:	tblSubject	tblStudent	tblStudent	
Table:	tblSubject	tblStudent	tblStudent	
Sort:		Ascending	Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:	"GCSE Maths" Or "BTEC Information Technology"			
or:				

SubjectTitle	StudentSurname	StudentFirstname
GCSE Maths	Abbott	James
GCSE Maths	Bate	Lewis
BTEC Information Technology	Scott	Komal
GCSE Maths	Scott	Taylor

(b) Create a query that will calculate:

the number of students enrolled into each class.

Display:

- the subject title
- the number of students enrolled into each class
- a field with the automatically generated field content of "Still Spaces" if there are spaces left in a class

Field:	SubjectTitle	NumberEnrolled: StudentID	AnySpacesLeft: IIf([NumberEnrolled]<20, 'Still Spaces', '')	ClassID
Table:	tblSubject	tblClassEnrolment	Expression	tblClass
Total:	Group By	Count	Expression	Group By
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:				
or:				

SubjectTitle	NumberEnrolled	AnySpacesLeft
A Level Computer Science	1	Still Spaces
AS Level Computer Science	2	Still Spaces
BTEC Information Technology	1	Still Spaces
GCSE Computer Science	2	Still Spaces
GCSE Maths	2	Still Spaces
GCSE Maths	1	Still Spaces

(c) Create a report that shows a list of classes.

For each class, calculate the total number of students enrolled:

Display:

- a suitable report title
- the class start date
- the subject title
- the names of the students enrolled
- the total number of students enrolled
- the overall number of enrolments in all classes.

The screenshot shows the 'qryReport' design grid with the following fields:

Field:	ClassID	ClassStartDate	SubjectTitle	Student: [StudentFirstname] & " " & [studentsurname]	
Table:	tblClass	tblClass	tblSubject		
Sort:					
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:					
or:					

ClassID	ClassStartDate	SubjectTitle	Student
1	06/09/2021	GCSE Maths	James Abbott
1	06/09/2021	GCSE Maths	Lewis Bate
2	06/09/2021	GCSE Computer Science	James Abbott
2	06/09/2021	GCSE Computer Science	Sophie Bentham
3	07/09/2021	AS Level Computer Science	Rhenshika Saddiq
3	07/09/2021	AS Level Computer Science	Taylor Scott
4	07/09/2021	BTEC Information Technology	Komal Scott
5	07/09/2021	A Level Computer Science	Jack Smales
6	07/09/2021	GCSE Maths	Taylor Scott
*	(New)		

NOTE: The report is for illustration purposes only. There needs to be a pdf copy of the database report.

Class Enrolments

Start Date 06/09/2021 Subject GCSE Maths

Students

Lewis Bate

James Abbott

Total Class Enrolments 2

Start Date 06/09/2021 Subject GCSE Computer Science

Students

Sophie Bentham

James Abbott

Total Class Enrolments 2

Start Date 07/09/2021 Subject AS Level Computer Science

Students

Taylor Scott

Rhenshika Saddiq

Total Class Enrolments 2

Start Date 07/09/2021 Subject BTEC Information Technology

Students

Komal Scott

Total Class Enrolments 1

Start Date 07/09/2021 Subject A Level Computer Science

Students

Jack Smales

Total Class Enrolments 1

Start Date 07/09/2021 Subject GCSE Maths

Students

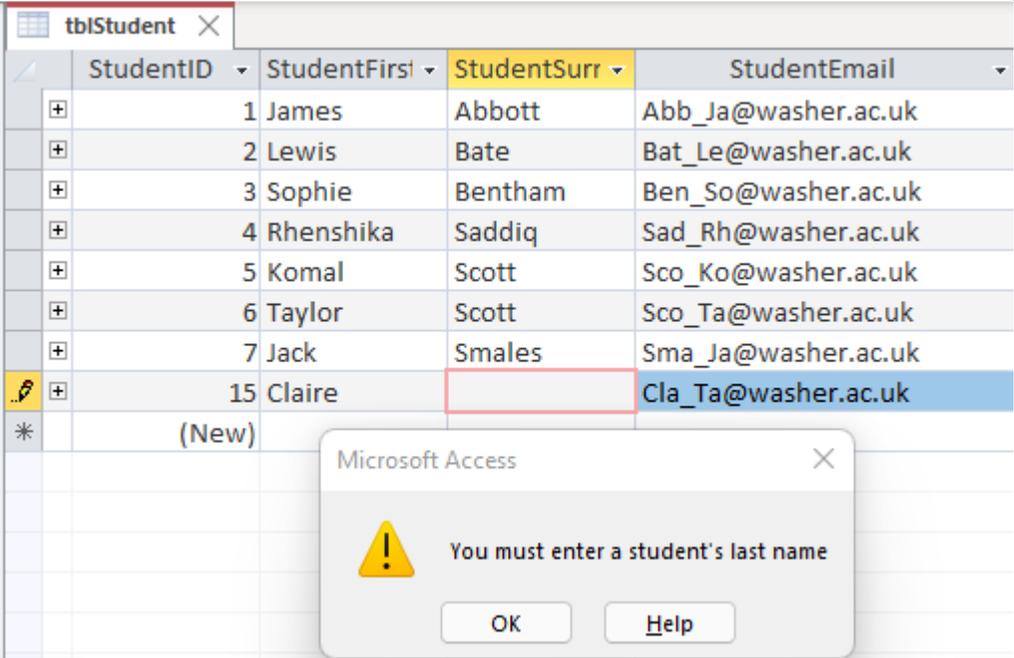
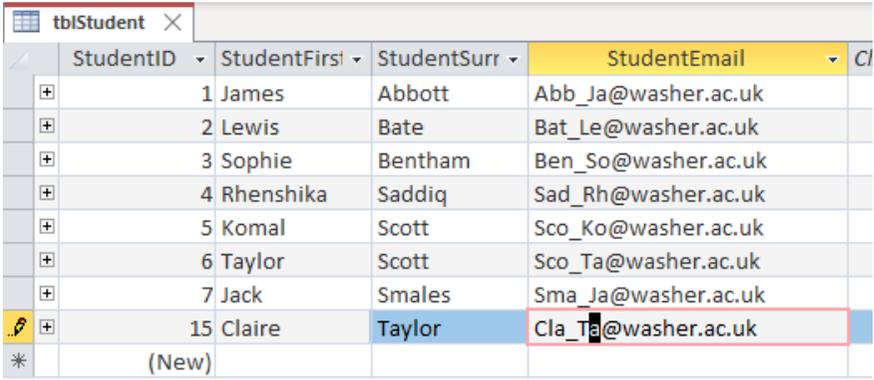
Taylor Scott

Total Class Enrolments 1

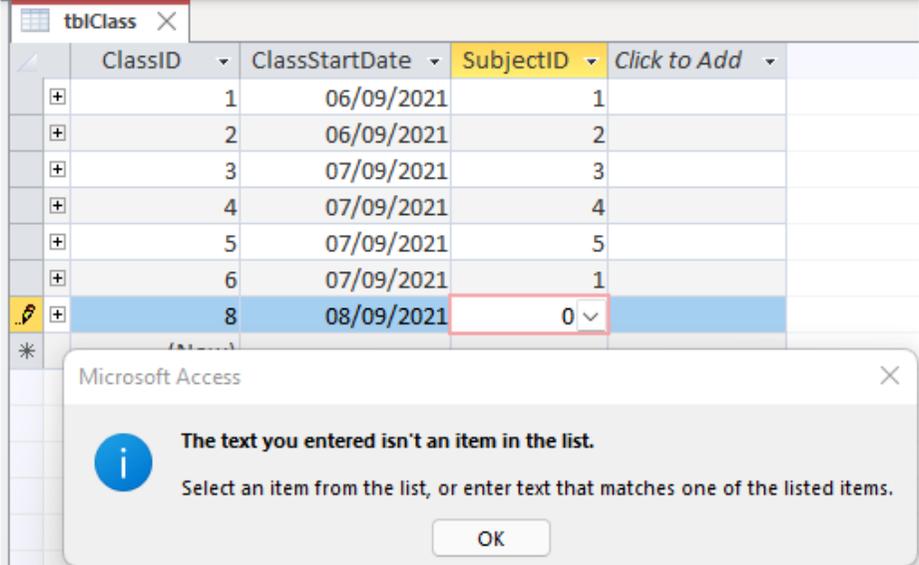
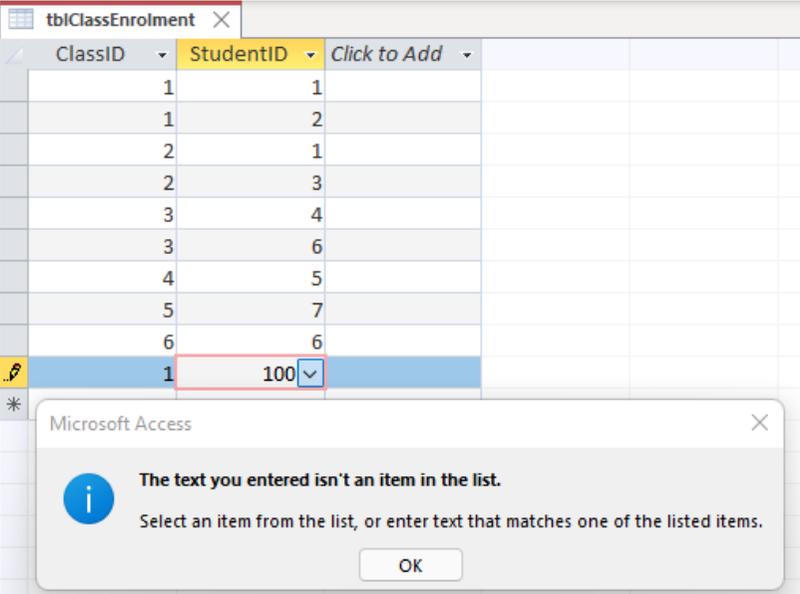
Overall Enrolments 9

Activity 4 – Structure testing

NOTE: The type of test and error column have been removed so that the contents are more easily readable in this format.

Test No	Test data	Expected results	Add screenshot(s) of the results of this test (and any retests) Ensure you show the test data used in the screenshot(s)
1	StudentID: 15 StudentFirstname: Claire StudentSurname StudentEmail: Cla_Ta@washer.ac.uk	An error message to appear telling the user they have to enter a student's last name	
2	StudentID: 15 StudentFirstname: Claire StudentSurname: Taylor StudentEmail: Cla_Tay@washer.ac.uk	No error message to appear but the cursor will not move on to allow the user to input the y	

Test No	Test data	Expected results	Add screenprint(s) of the results of this test (and any retests) Ensure you show the test data used in the screenprint(s)
3	SubjectID: 6 SubjectTitle: GCSE Biology SubjectLevel: 0	An error message to appear telling the user the subject level they have input is not an item in the list and that they have to select an item from the list	
4	SubjectID: 6 SubjectTitle: GCSE Biology SubjectLevel: 4	An error message to appear telling the user the subject level they have input is not an item in the list and that they have to select an item from the list	

Test No	Test data	Expected results	Add screenprint(s) of the results of this test (and any retests) Ensure you show the test data used in the screenprint(s)
5	ClassID: 8 ClassStartDate: 08/09/2021 SubjectID: 0	An error message to appear telling the user the subject level they have input is not an item in the list and that they have to select an item from the list	
6	ClassID:1 StudentID: 100	An error message to appear telling the user the subject level they have input is not an item in the list and that they have to select an item from the list1	

Part B

Activity 6 – Interface

Subject form

frmSubject

Form Header

Add a Subject

You must add data where * appears.
Click the save button to save the new subject

Detail

SubjectID SubjectID

Title SubjectTitle *

Level SubjectLevel

Select the faculty FacultyID

Save

Form Footer

Add a subject

Add a Subject

You must add data where * appears.
Click the save button to save the new subject

SubjectID (New)

Title *

Level 0

Select the faculty

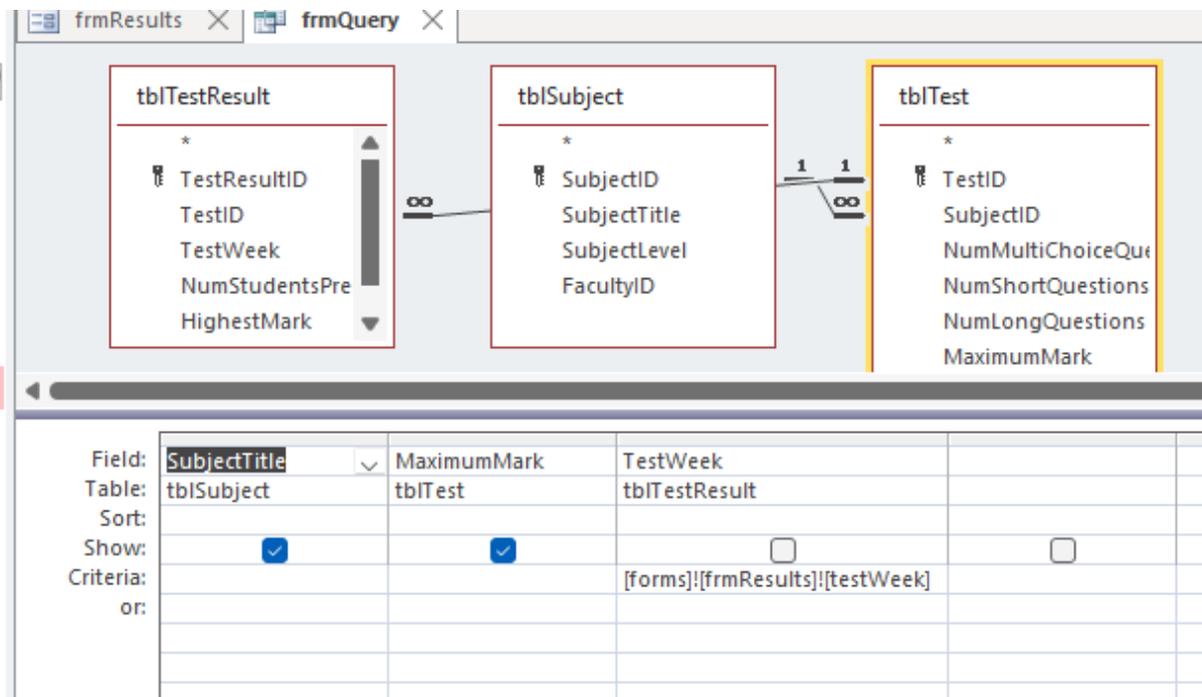
Save

```
Private Sub cmdSave_Click()  
    If IsNull(SubjectTitle) Then  
        MsgBox "You must enter the subject title", vbOKOnly  
    ElseIf SubjectLevel < 1 Or SubjectLevel > 3 Then  
        MsgBox "The subject level must be 1, 2 or 3 only", vbOKOnly  
    Else  
        DoCmd.Save  
        MsgBox "The subject has been saved", vbOKOnly  
        DoCmd.GoToRecord , , acNewRec  
    End If  
End Sub
```

Test result form

Dmax used to find most recent test week

Combo box based on frmQuery. Test Week in frmQuery links to the TestWeek on the form



MaxMark linked to column 1 in the combo box i.e. MaximumMark (column 0 is SubjectTitle)

MaxMark would automatically update when Subject is selected because it gets its value from the column in the combo box

Highest and Lowest percentages calculated and would refresh if different values input as they are formula

Add Test Results ×

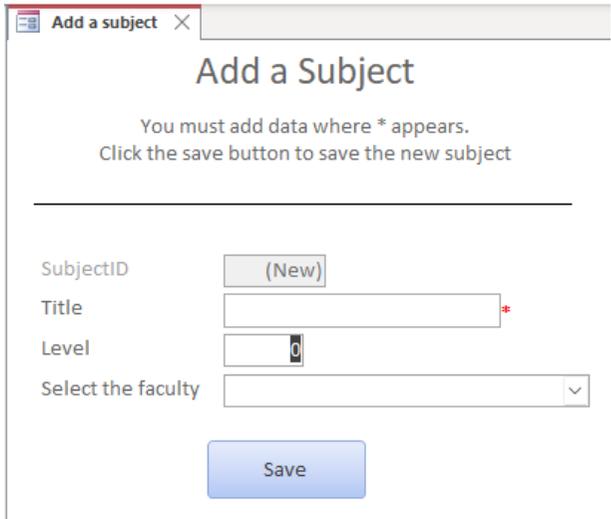
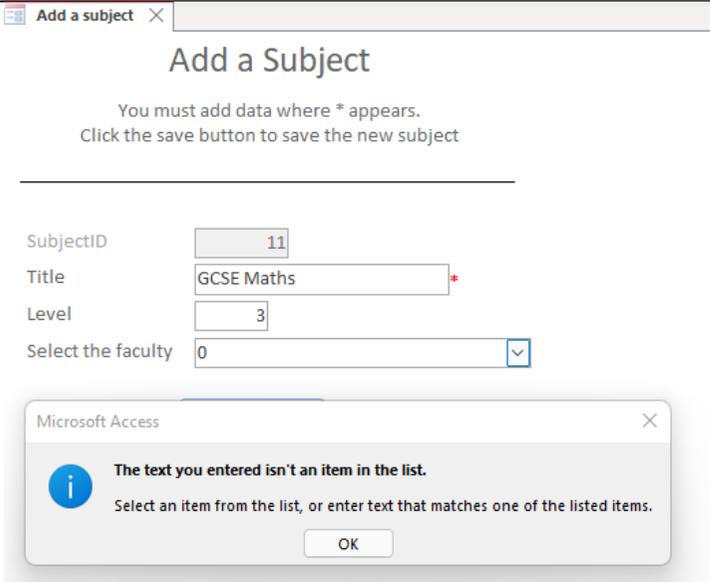
Add Test Results

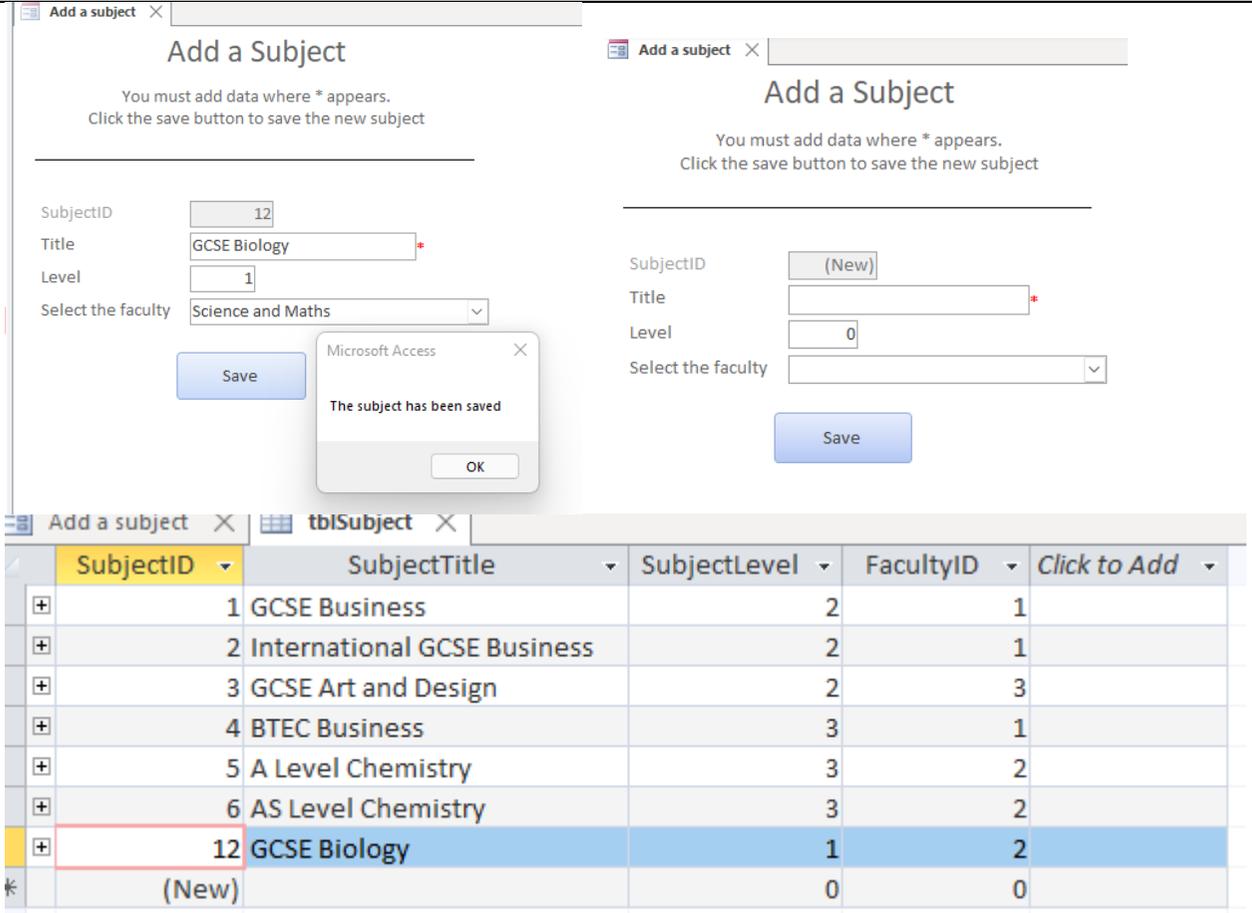
You must add data where * appears.

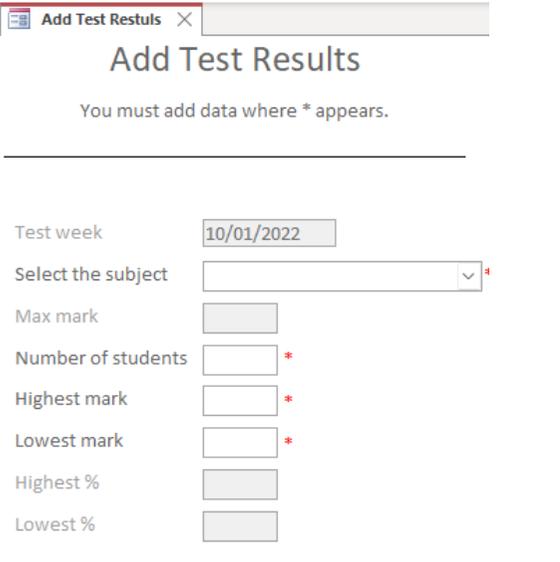
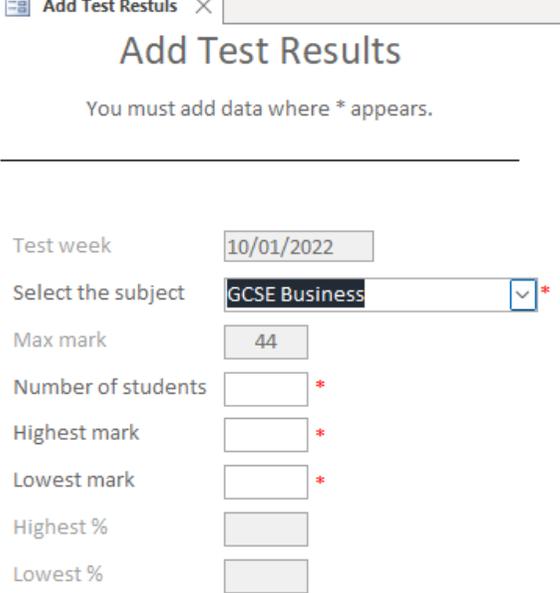
Test week	<input type="text" value="10/01/2022"/>
Select the subject	<input type="text" value="International GCSE Business"/> *
Max mark	<input type="text" value="43"/>
Number of students	<input type="text" value="20"/> *
Highest mark	<input type="text" value="42"/> *
Lowest mark	<input type="text" value="36"/> *
Highest %	<input type="text" value="98%"/>
Lowest %	<input type="text" value="84%"/>

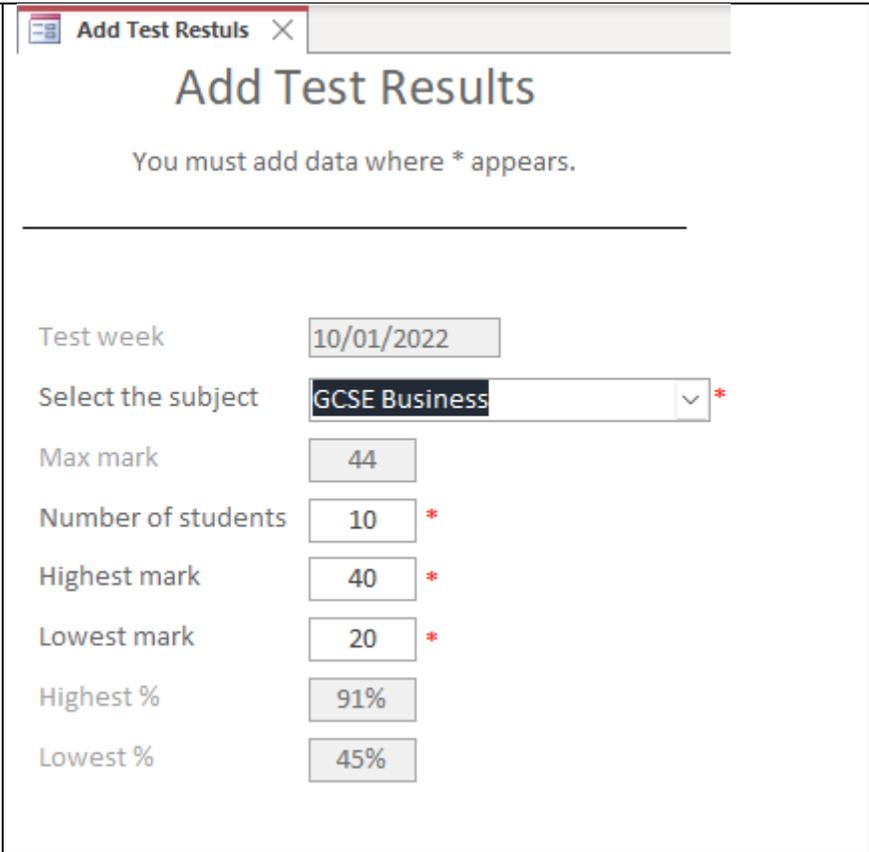
Activity 7 – Interface testing

NOTE: The type of test and error column have been removed so that the contents fit better on the screen.

Test No	Test data	Expected results	Add screenprint(s) of the results of this test (and any retests) Ensure you show the test data used in the screenprint(s)
1	Open the form	Subject ID will be (New) Level will be 0	
2	SubjectID: 11 Title: GCSE Maths Level: 3 Faculty: 0	An error message to appear saying the text you entered is not an item in the list and to select an item from the list	

Test No	Test data	Expected results	Add screenprint(s) of the results of this test (and any retests) Ensure you show the test data used in the screenprint(s)																																													
3	SubjectID: 12 Title GCSE Biology Level: 1 Faculty: Science and Maths	Record to be saved in the subject table Form to clear Message to appear telling the save has taken place	 <table border="1" data-bbox="853 683 2105 1082"> <thead> <tr> <th>SubjectID</th> <th>SubjectTitle</th> <th>SubjectLevel</th> <th>FacultyID</th> <th>Click to Add</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>GCSE Business</td> <td>2</td> <td>1</td> <td></td> </tr> <tr> <td>2</td> <td>International GCSE Business</td> <td>2</td> <td>1</td> <td></td> </tr> <tr> <td>3</td> <td>GCSE Art and Design</td> <td>2</td> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td>BTEC Business</td> <td>3</td> <td>1</td> <td></td> </tr> <tr> <td>5</td> <td>A Level Chemistry</td> <td>3</td> <td>2</td> <td></td> </tr> <tr> <td>6</td> <td>AS Level Chemistry</td> <td>3</td> <td>2</td> <td></td> </tr> <tr> <td>12</td> <td>GCSE Biology</td> <td>1</td> <td>2</td> <td></td> </tr> <tr> <td>(New)</td> <td></td> <td>0</td> <td>0</td> <td></td> </tr> </tbody> </table>	SubjectID	SubjectTitle	SubjectLevel	FacultyID	Click to Add	1	GCSE Business	2	1		2	International GCSE Business	2	1		3	GCSE Art and Design	2	3		4	BTEC Business	3	1		5	A Level Chemistry	3	2		6	AS Level Chemistry	3	2		12	GCSE Biology	1	2		(New)		0	0	
SubjectID	SubjectTitle	SubjectLevel	FacultyID	Click to Add																																												
1	GCSE Business	2	1																																													
2	International GCSE Business	2	1																																													
3	GCSE Art and Design	2	3																																													
4	BTEC Business	3	1																																													
5	A Level Chemistry	3	2																																													
6	AS Level Chemistry	3	2																																													
12	GCSE Biology	1	2																																													
(New)		0	0																																													

Test No	Test data	Expected results	Add screenprint(s) of the results of this test (and any retests) Ensure you show the test data used in the screenprint(s)
4	Open the form	The highest test week of 10/01/2022 to automatically appear in the Test Week field and the rest of the fields to be blank	 <p>The screenshot shows a web browser window with a tab titled 'Add Test Restuls'. The page title is 'Add Test Results'. Below the title, it says 'You must add data where * appears.' The form contains several input fields: 'Test week' (text box with '10/01/2022'), 'Select the subject' (dropdown menu), 'Max mark' (text box), 'Number of students' (text box with a red asterisk), 'Highest mark' (text box with a red asterisk), 'Lowest mark' (text box with a red asterisk), 'Highest %' (text box), and 'Lowest %' (text box).</p>
5	Test Week: 10/01/2022 Subject: GCSE Business Max mark: blank Number of students: blank Highest mark: blank Lowest mark: blank Highest % blank Lowest % blank	Max mark will be automatically set to 44	 <p>The screenshot shows the same 'Add Test Results' form. In this instance, the 'Test week' field is '10/01/2022', the 'Select the subject' dropdown menu is set to 'GCSE Business', and the 'Max mark' text box contains the value '44'. The other fields remain empty.</p>

6	Test Week: 10/01/2022 Subject: GCSE Business Max mark: 44 Number of students: 10 Highest mark: 40 Lowest mark: 20	The Highest % to be automatically set to 91% The Lowest % to be automatically set to 45%	 <p>Add Test Results ×</p> <h2>Add Test Results</h2> <p>You must add data where * appears.</p> <hr/> <p>Test week <input type="text" value="10/01/2022"/></p> <p>Select the subject <input type="text" value="GCSE Business"/> *</p> <p>Max mark <input type="text" value="44"/></p> <p>Number of students <input type="text" value="10"/> *</p> <p>Highest mark <input type="text" value="40"/> *</p> <p>Lowest mark <input type="text" value="20"/> *</p> <p>Highest % <input type="text" value="91%"/></p> <p>Lowest % <input type="text" value="45%"/></p>
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