Level 3 Creating an event driven computer program using VisualBasic.Net (7540-038)

Assignment guide for Candidates

Assignment B

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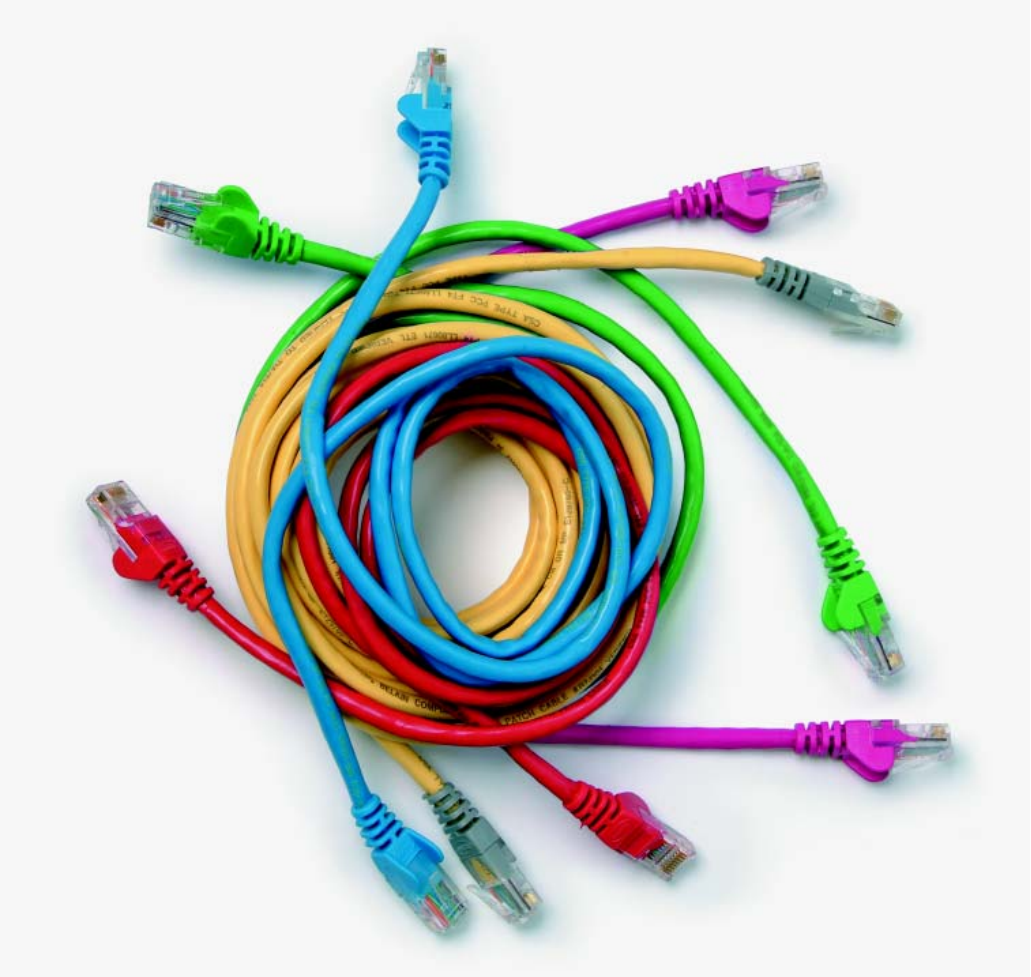

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Level 3 Creating an event driven computer program using VisualBasic.Net (7540-038)

Assignment B

Introduction – Information for Candidates

About this document

This assignment comprises all of the assessment for Level 3 Creating an event driven computer program using VisualBasic.Net (7540-038).

Health and safety

You are asked to consider the importance of safe working practices at all times.

You are responsible for maintaining the safety of others as well as your own. Anyone behaving in an unsafe fashion will be stopped and a suitable warning given. You will **not** be allowed to continue with an assignment if you compromise any of the Health and Safety requirements. This may seem rather strict but, apart from the potentially unpleasant consequences, you must acquire the habits required for the workplace.

Time allowance

The recommended time allowance for this assignment is **6 hours**.

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Candidate instructions

Candidates are advised to read **all instructions** carefully before starting work and to check with your assessor, if necessary, to ensure that you have fully understood what is required.

Time allowance: 6 hours

Assignment set up: A scenario is provided below for this assignment.

This assignment is made up of **two** tasks

- **Task A** - provides a detailed design specification for software to access a database with a graphical user interface.
- **Task B** - provides presentation criteria that should be followed by candidates when producing their work.

Scenario

A software development company, Tricolour Databases, is developing a program with a Graphical User Interface (GUI) for use with a client's database. As a contracted employee of Tricolour Databases, you have been asked to design, create and test the software to access an external database (BookSeller) table (Book). The interface to the database table must enable the user to do the following:

- display individual records
- add a new record
- delete a record
- edit a record
- update a record
- cancel amendments for a record
- cancel all amendments made to the table
- print records.

A pre-prepared database (BookSeller) containing book details is to be used. The database contains a single table named Book with the following fields:

Field Name	Data Type	Field Length
ISBN No (Primary Key)	Text	10
Title	Text	30
Author	Text	20
Publisher	Text	15
Date Published	Date (dd/mm/yyyy)	
Available	Logical (Yes/No)	1
Price	Currency, 2 decimal places	

The **ISBN No** field is a primary key and there cannot be duplicate entries in this field and a zero-length entry is not allowed.

Task A

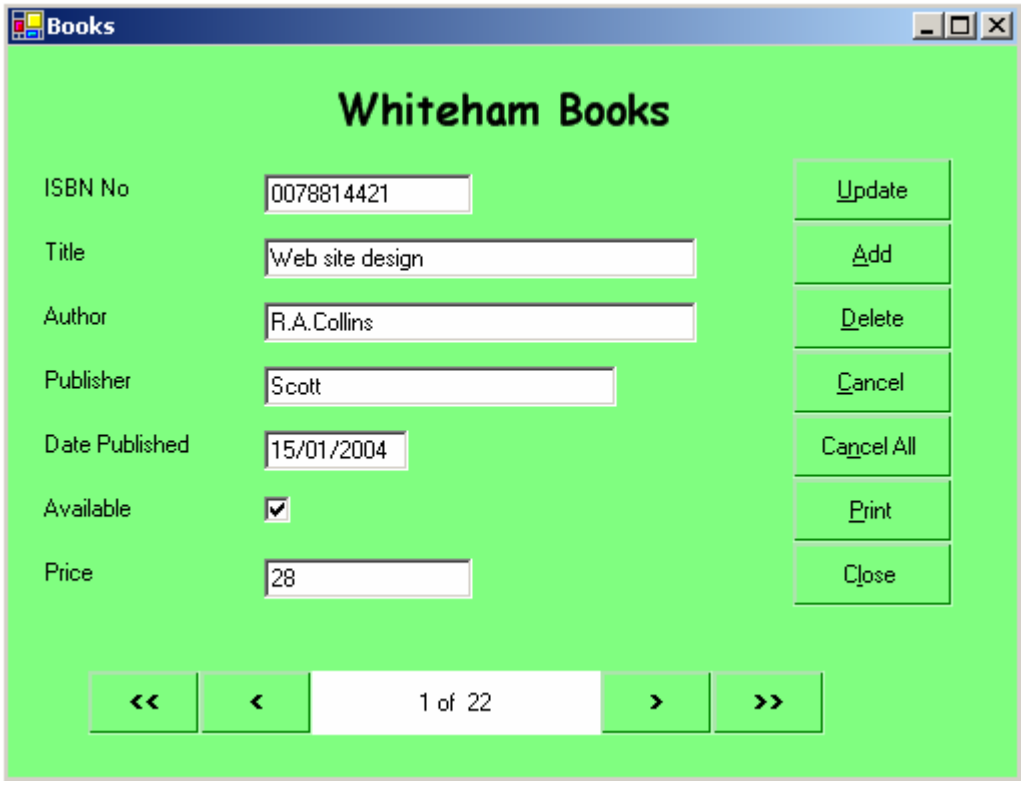
Candidates should use the following detailed specification to fulfil the company's requirements.

In this task you are required to design, create and test an application to access an external database (BookSeller) with a table (Book), via a database connection and a data form.

Copy the database file(s) that you have been given into the same directory as your project. Make a backup copy of the file(s) in another directory.

Using the Integrated Development Environment:

1 Save the project at regular intervals as you work through the task. Save the form file as frmBooks and the project as Assignment2.



frmBooks

2 Create a data form that shows a single record to appear similar to the form shown above and includes

- a label for the heading Whiteham Books in bold with a different font and a larger font size
- seven controls and associated labels to display the data for the record
- controls to move to the first, previous, next and last record and a record count
- seven buttons for Update, Add, Delete, Cancel, Cancel All, Print and Close adding the shortcuts as shown
- set the background to a suitable colour
- the data input controls receiving focus in an appropriate order.

3 Set the title of the data form frmBooks to: Books *your name* and the date.

4 Make a connection to the database BookSeller using suitable parameters.

5 Insert code so that when the data form is loaded the dataset is loaded automatically and the data for the first record is displayed in the controls.

6 Insert code for the Update, Add, Delete, Cancel and Cancel All buttons.

7 Write code for the controls to move to the first, previous, next and last records.

8 Write code to display the current record number and record total in the form n of nn as shown on the form frmBooks.

9 Insert the code required to handle errors for database access which prevents run-time errors.

10 Write code for the Close button to terminate the program.

11 Write code to validate the ISBN number. The international standard for allocating reference numbers for published books (ISBN) is based on a 10 character entry. The rightmost character may be any number between 0 (zero) to 9 or the character X. The remaining nine characters (leftmost) are always numbers between the value 0 (zero) to 9.

The 10 characters are validated by a modulus 11 check (see Appendix A). The X character counts as a 10.

Typical examples of ISBN reference numbers are:

013527754X
0078814421
0201182440
0672226324

Output one of the following error messages if the ISBN number is not valid.

Error Number	Error Message
1	1: ISBN Number must be 10 characters
2	2: ISBN Number is not a valid modulus 11 number

12 Write Code for the Print button to print out all the records with the fields ISBN No, Title, Available and Price in the database with a layout similar to that shown below where 9 indicates a digit and X indicates an alphanumeric character.

Note the field Available should be printed as either Yes or No.

```
                    Whiteham Books                          Page 99
                    Date 99/99/9999

ISBN No       Title                                Available     Price

XXXXXXXXXX    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXX          £99.99
XXXXXXXXXX    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXX          £99.99
XXXXXXXXXX    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXX          £99.99
XXXXXXXXXX    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXX          £99.99
```

13 Create test data to test the Update, Add, Delete, Cancel, Cancel All and Print buttons on the data form frmBooks and determine the expected results.

14 Prepare a test plan, test the software, compare the actual results to the expected results keeping a log for each test which identifies any discrepancies between actual and expected results and records any amendments made to correct errors.

15 Use debugging tools to help locate and resolve errors.

16 Print a program listing and screen print of the form frmBooks.

Task B

Candidates should check that the program produced meets the following requirements.

1 The program must conform to the design specification.

2 The program uses the most appropriate controls and events.

3 Meaningful names are used for controls and procedures using consistent naming conventions.

4 The program syntax must be consistently indented to aid readability.

5 The program must be commented to aid future maintenance.

Note

- Candidates should produce the following for their assessor:
  - A printed program listing.
  - Printout of the frmBooks data form.
  - Test data, test plan, expected results, actual results, log of testing and test output.
- At the conclusion of this assignment, hand all paperwork and removable media to the test supervisor.
- Ensure that your name is on the removable media and all documentation.
- If the assignment is taken over more than one period, all removable media and paperwork must be returned to the test supervisor at the end of each sitting.

Appendix A

Modulus 11 check
A modulus 11 check is carried out as follows:

Multiply each digit in the ISBN number, staring at the right, by the number 1, then 2, then 3 etc.

Multiply by	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
ISBN number	0	1	3	5	2	7	7	5	4	X
Result	0	9	24	35	12	35	28	15	8	10

The result of each multiplication is added together.

0 + 9 + 24 + 35 + 12 + 35 + 28 + 15 + 8 + 10 = 176

The result of the addition is then divided by the modulus (11).

176 divided by 11 = 16 reminder 0

If the remainder from the division is 0 the ISBN number is a valid modulus 11 number otherwise the ISBN number is not a valid modulus 11 number.

The remainder is 0 so the ISBN number 013527754X is a valid modulus 11 number.

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