Level 3 Develop software using Visual Basic (7266/7267-304)

e-Quals
Assignment guide for Candidates
Assignment B

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Contents

Introduction – Information for Candidates	2
Level 3 Develop software using Visual Basic (7266/7267-304) Candidate instructions	3

Level 3 Develop software using Visual Basic (7266/7267-304) Assignment B

Introduction – Information for Candidates

About this document

This assignment comprises part of the assessment for Level 3 Develop software using Visual Basic (7266/7267-304).

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**.

Level 3 Develop software using Visual Basic (7266/7267-304) 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 for candidates in the form of a company specification for a service they require.

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

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

Scenario

A software development company, Database Design Specialists, is developing a program with a Graphical User Interface (GUI) for use with a client's database. As a contracted employee of Database Design specialists, you have been asked to design, create and test the software to access an external table (bookstock), via a data control. 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
- create a pie chart showing the numbers in stock for each category
- print out a list of all the records.

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

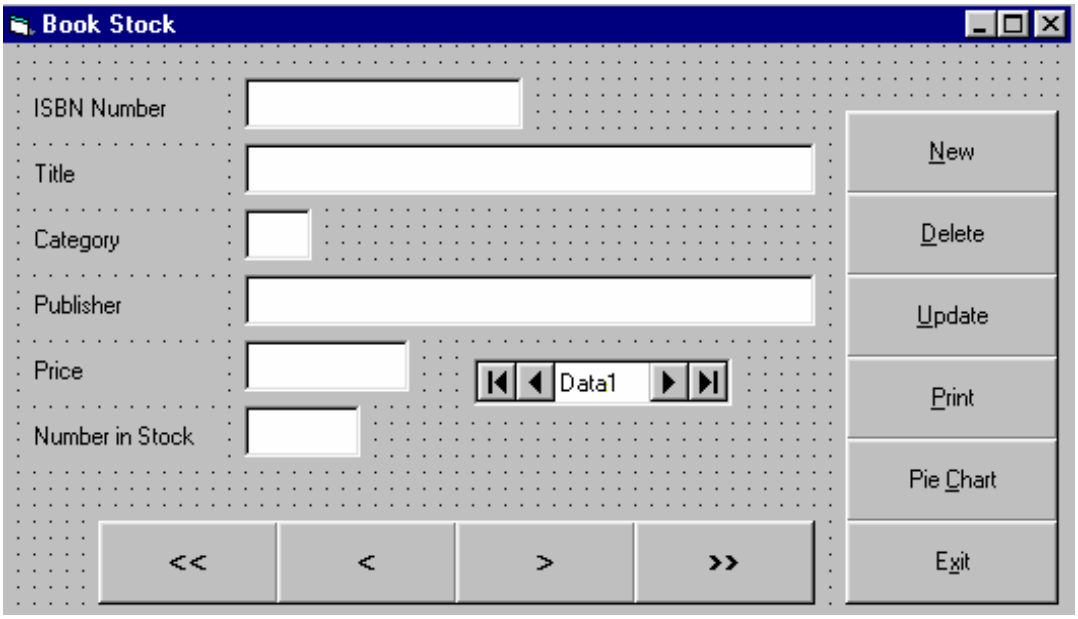
Field Name	Data Type	Field Length
ISBN-No (Primary Key)	Text	15
Title	Text	50
Category	Number	
Publisher	Text	50
Price	Currency to 2 decimal places	
NoInStock	Number	

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. When a recordset is opened the records will be displayed in ascending order of the ISBN-No field.

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 (book) with a table (bookstock), via a data control.
The first form displayed should appear similar to the screen image shown below.



frmBook

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.

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

2 Set the Caption property of the form to: Task A Book Stock *your name and the date*

3 Create the following controls:

- six text boxes and associated labels to display the data from each record
- a data control
- four command buttons to be used to navigate the database table records. Move to the first record (<<), move to previous record (<), move to next record (>) and move to the last record (>>)
- six command buttons for New, Delete, Update, Print, Pie Chart and Exit.

4 Set up the properties of the Data control to connect the supplied database files. The Data control should not be visible at run-time.

5 Set the properties of the ISBN-No, Title, Category, Publisher, Price and NoInStock text boxes as bound controls to the database.

6 Write code for the Form_Load procedure to link the database and populate the Recordset.

7 Write code for the Form_Unload procedure to update any records and close the Recordset.

8 Write the code for the navigation command buttons.

9 Write code for the New, Delete, Update and Exit command buttons.

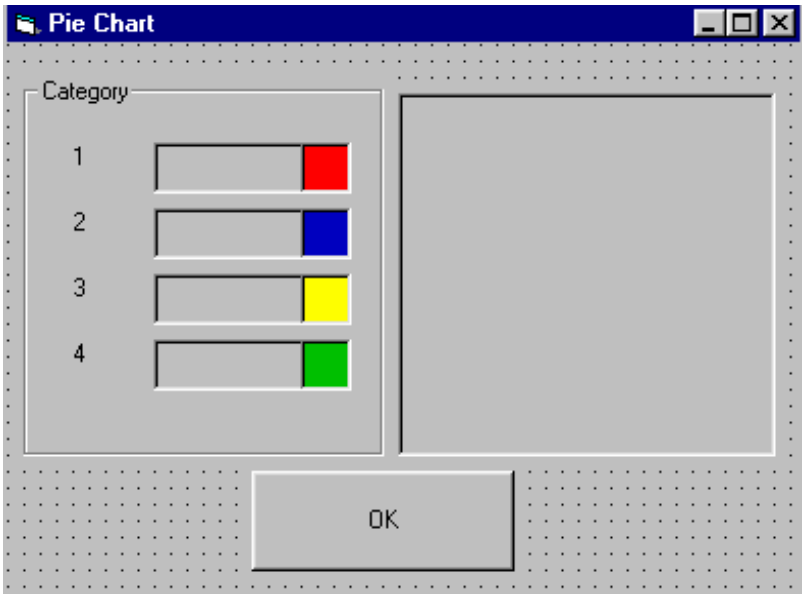
10 Create a new module and declare an array called Data as a global variable with four elements (0 to 3).

11 Write code for the Pie Chart command button that reads the records in the BookStock table and totals NoInStock for each of the four categories. The totals should be held in the global array called Data. The frmBook form should then be hidden and the frmPieChart displayed.

12 In the data control Validate event procedure, write code to validate the data entered as follows:

Field	Validation
ISBN-No	Not spaces
Title	None
Category	Less than 20
Publisher	None
Price	None
NoInStock	Not spaces Numeric

Create a second form, which should appear similar to the screen image shown below.



frmPieChart

This form is to be used to display a pie chart showing the figures for the total number in stock for each category.

13 Save the form as frmPieChart.

14 Set the Caption property of the frmPieChart to Task A Pie Chart *your name and the date*.

15 Add a Picture Box to the form and name it picPieChart. Set the AutoRedraw property of picPieChart to True.

16 Add a frame to the form and set the Caption property to Category.

17 Create four labels inside the frame and set the captions to 1, 2, 3 and 4.

18 Create a control array of four labels named lblData, position the labels to the right of the number labels, set the BorderStyle property to Fixed Single and set the Caption property to empty.

19 Create a second control array of 4 smaller labels named lblColour positioned inside the first labels as shown above. Set the BorderStyle property to Fixed Single and the BackStyle property to Opaque. Set the BackColor property for category 1 to red, category 2 to blue, category 3 to yellow and category 4 to green.

20 Add the OK command button.

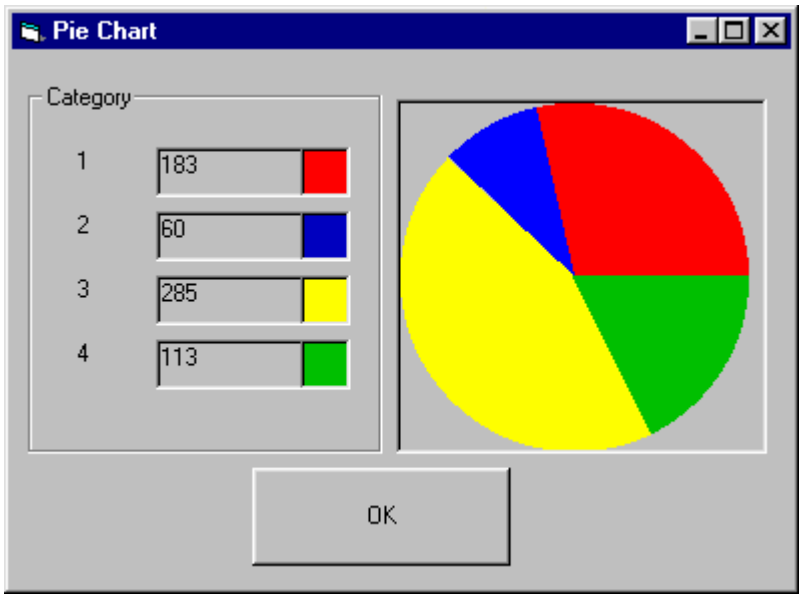
21 Write code for the OK command button to hide the frmPieChart and display the frmBook.

22 Add a new procedure named DrawPieChart.

23 Write code for the procedure DrawPieChart which draws a pie chart in the Picture Box using the totals held in the global array Data. Display the totals in the control array lblData labels. Use the following constants for the colours:

```
Const CATEGORY1 = &HFF& 'red
Const CATEGORY2 = &HFF0000 'blue
Const CATEGORY3 = &HFFFF& 'yellow
Const CATEGORY4 = &HC000& 'green
```

24 Write code for the Form_Load procedure for frmPieChart which calls the procedure DrawPieChart passing the parameter for the PictureBox named picPieChart.
The pie chart form should appear similar to the form shown below when running.



25 Produce a print layout which shows the layout and the data type of printed output. The printed output should be similar to that shown below.

		BOOK STOCK LIST			1/10/01
ISBN No	**Title**	**Category**	**Publisher**	**Price**	**No In Stock**
0-12-445572-7	Introduction to C++	1	Rackmans Books	£12.99	20
0-13-268434-9	C for Beginners	1	Xpro Press	£15.99	15

26 Write code for the Print command button on frmBook to print out all the records in the database as specified in the print layout.

27 Make an EXE file and name it **Bookdb**.

28 Run the executable file and ensure the software conforms to the specification.

29 Produce end user documentation.

30 Print a program listing and printed copies of the forms frmBook and frmPieChart

Task B

Candidates should follow the criteria below when producing their work:

1 The program conforms to the design specification.

2 The code is structured.

3 The program uses the most appropriate controls and events.

4 Meaningful names are used for forms, controls and procedures using consistent naming conventions.

5 The program syntax is consistently indented to aid readability.

6 The program is commented.

Note

- Candidates should produce the following for their assessor:
    - A printed program listing.
    - Printout of the frmBook form.
    - Printout of the frmPieChart form.
    - Print layout sheet.
    - Printed output of all records.
    - End user documentation.
- 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.

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