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

e-Quals
Assignment guide for Candidates
Assignment D

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Contents

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

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

Introduction – Information for Candidates

About this document

This assignment comprises the 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, VBDatabase Designs, is developing a program with a Graphical User Interface (GUI) for use with a client's database. As a contracted employee of VBDatabase Designs, you have been asked to design, create and test the software to access an external table (cars), 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
- select a sub-set of records that match a given criteria and display the records in tabular form in a text box
- print out a list of all the records
- archive records for sold cars to a sequential file.

A pre-prepared database **(carsdb)** containing details of cars is to be used. The database contains a single table named cars with the following fields:

Field Name	Data Type	Field Length
Registration Number (Primary Key)	Text	10
Make	Text	20
Model	Text	20
Colour	Text	15
Date Purchased	Date	

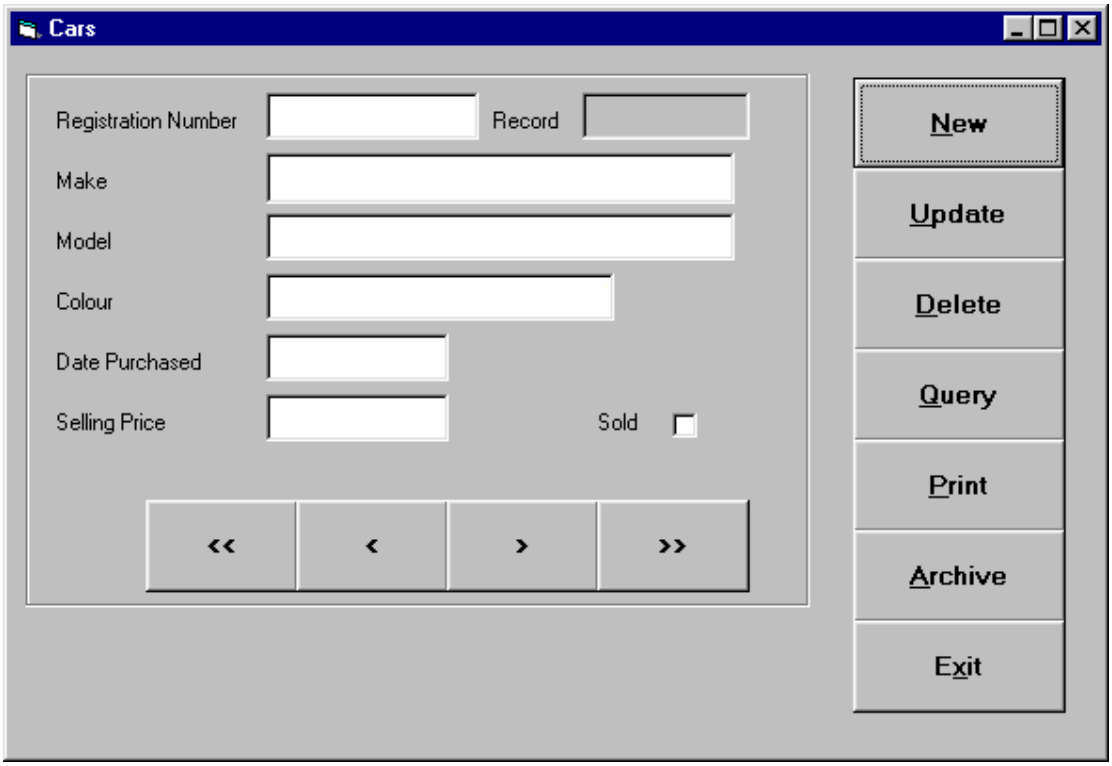
Sold	Logical	
Selling Price	Currency, 0 decimal places	

The **Registration Number** 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 Registration Number 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 (carsdb) with a table (cars), via a data control.
The first form displayed should appear similar to the screen image shown below.



frmCars

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 frmCars and the project file as TaskA.

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

3 Create a frame on frmCars to contain the following:

- six text boxes, a check box and associated labels to display the data from each record
- two labels, one containing the caption Record and the other with the name lblRecord and no caption
- 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 (>>)

4 Create seven command buttons for New, Update, Delete, Query, Print, Archive and Exit.

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

6 Set the properties of the Registration Number, Make, Model, Colour, Date Purchased and Selling Price text boxes as bound controls to the database.

7 Set the properties of the Sold check box as a bound control to the database.

8 Write a general procedure called **UpdateCaption** that can be called to display in the lblRecord Caption the number of the current record (n) and the total number of records in the recordset (N), in the form **n/N**. The current record position can be obtained from the **AbsolutePosition** property for the database.

9 Write code for the Form_Load procedure to link the database, populate the Recordset and make a call to UpdateCaption to display the record counts.

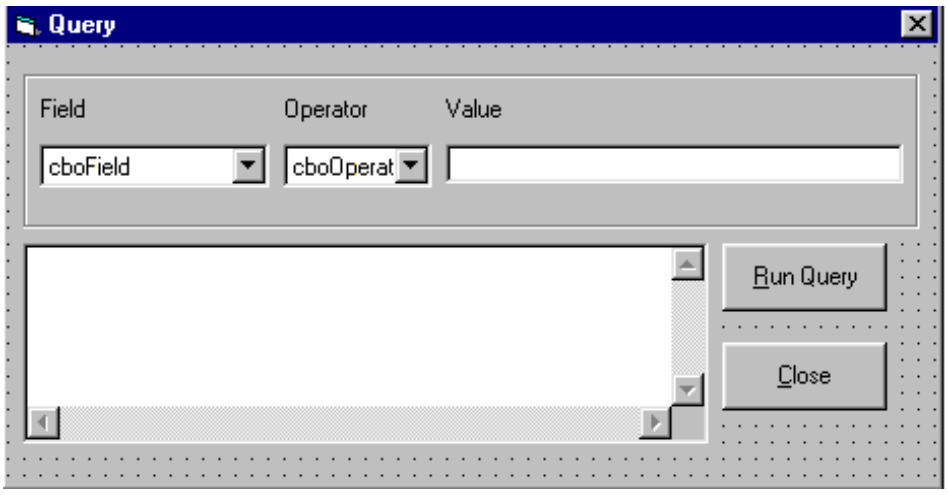
10 Write code for the Form_Unload procedure to update any records and close the Recordset.

11 Write the code for the navigation command buttons.

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

13 In the data control **Reposition** event procedure, call the **UpdateCaption** procedure so that the number of the current record will be updated in the lblRecord Caption each time the user moves to a new record.

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



frmQuery

This form is to be used to allow the user to specify search criteria and display the matching records.

14 Save the form as frmQuery.

15 Set the Caption property of the frmQuery to Task A Query *your name* and the date.

16 Create a frame on frmQuery to contain the following:
- two combo boxes cboField and cboOperator with associated labels.
- a text box for data entry with an associated label of **Value**

17 Use an appropriate control to display the results of the query. Ensure that its font is set to a fixed width: eg Courier. This is to enable the contents to be accurately tabulated.

18 Create two command buttons with the captions Run Query and Close.

19 Write code in the Form_Load procedure for frmQuery to
- populate **cboField** with the field names Make, Model, Colour and Selling Price.
- populate **cboOperator** with the following operator symbols, each one as a single list item: =, <>, <, >, <=, >=.

20 Write code for the Run Query command button that will use SQL to match the search criteria entered using the combo boxes and the value in the data entry text box. The fields Registration Number, Make, Date Purchased and Selling Price, for all the records which match the criteria, should be displayed in the output control. The query should run only if data exists in all three query criteria controls. A criteria string that is not matched by any record must return nothing. Each record should be padded with spaces between the fields so that the data is displayed in columns eg

P761 HFF	Rover	14/02/02	£3499
S129 RTY	Rover	05/02/02	£4799
T563 MAP	Rover	08/01/02	£5399

21 Write code for the Close command button to hide the form.

22 Write code for the Query command button on frmCars to load the form frmQuery.

23 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.

CARS LIST 25/6/02

Registration Number	Make	Model	Colour	Selling Price	Date Purchased	Sold
L362 FPO	Mini	Neon	Red	£2100	28/01/02	Yes
M335 WTR	Mini	Neon	Light Grey	£2500	23/02/02	No

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

25 Write code for the Archive command button on frmCars. All the records for cars that have been sold should be appended to a file “archive.dat” and then deleted from the database table.

26 Create test data to test the New, Update, Delete, Query, Print and Archive buttons on the frmCars and the Run Query button on the frmQuery and determine the expected results.

27 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.

28 Make an EXE file and name it **Carsdb**.

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

30 Produce technical documentation to describe the purpose and operation of the software.

31 Print a program listing and printed copies of the forms frmCars and frmQuery.

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 frmCars form.
  - Printout of the frmQuery form.
  - Print layout sheet.
  - Printed output of all records.
  - Prinout of “archive.dat” file.
  - Test data, test plan, expected results, actual results, the log of testing and test output.
  - Technical 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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