Level 3 Develop software using C# (7266/7267-308)

e-Quals
Assignment guide for Candidates
Assignment C

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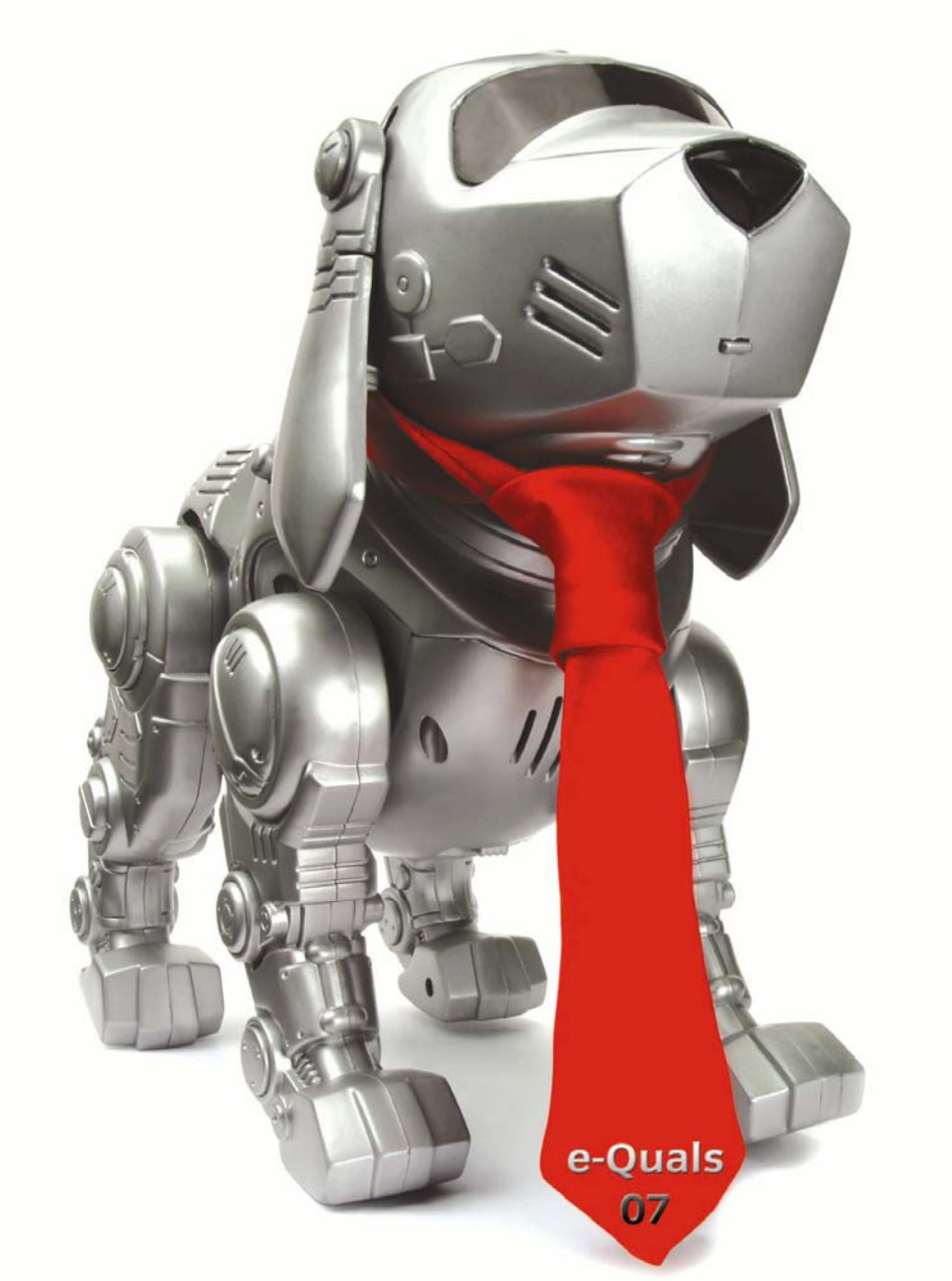

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City & Guilds
1 Giltspur Street
London EC1A 9DD
T +44 (0)20 7294 2800
F +44 (0)20 7294 2400
www.cityandguilds.com
learnersupport@cityandguilds.com

Contents

Level 3 Develop software using C# (7266/7267-308)

Assignment C

Introduction – Information for Candidates	2
Candidate instructions	3

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Introduction – Information for Candidates

About this document
This assignment comprises part of the assessment for Level 3 Develop software using C# (7266/7267-308).

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 **4 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: 4 hours

Assignment set up:

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

- Task A - Design and create software from a given design specification
- Task B - Test and document the software

Scenario

You work as a programmer for Prime Software who develops software for clients. You have been asked to design, create and test the software to access an external database. The interface to the database must enable the user to do the following:

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

A database already exists named Product containing a table tblSpice which contains details of spices. The table tblSpice contains the following fields:

Field Name	Data Type	Field Length
RefNo (Primary Key)	Numeric	
Description	Text	30
Quantity (grams)	Numeric	
Available	Logical (Yes/No)	
Price	Currency, 2 decimal places	

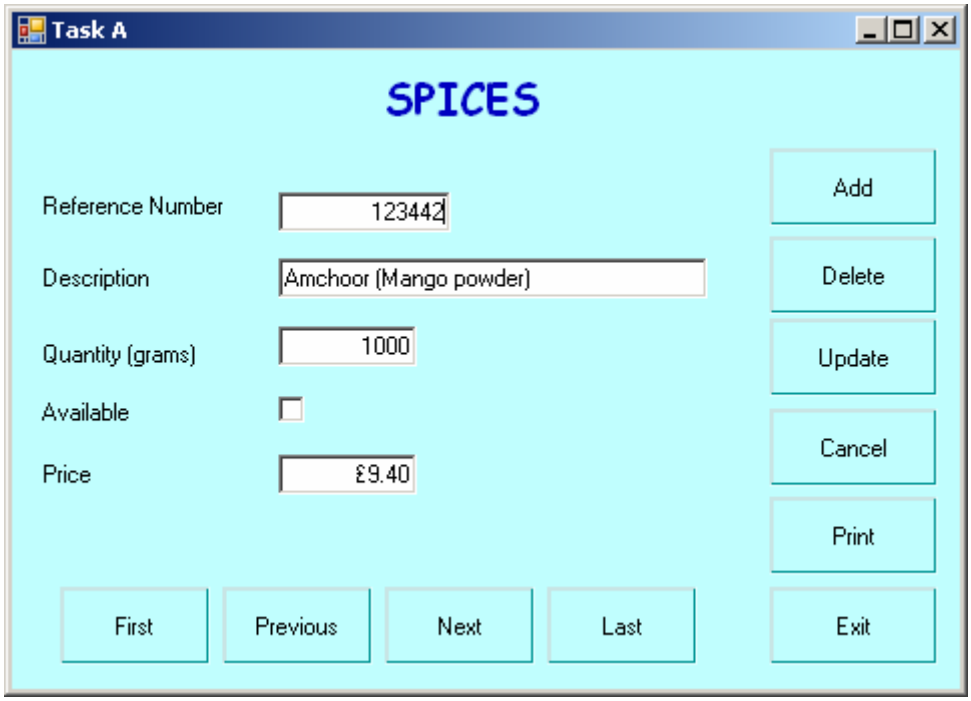
Task A

In this task you are required to design and create software to access an external database (Product) with a single table 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.

1 Save the project at regular intervals as you work through the task. Save the form file as frmSpices and the Project as ProductDatabase.

2



frmSpices

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

- a label for the heading 'Spices' in bold with a different font, a larger font size and in a dark blue colour
- five controls and associated labels to display the data for the record
- controls to move to the first, previous, next and last record
- six buttons for Add, Delete, Update, Cancel, Print and Exit
- setting the background to a suitable colour
- the data input controls receiving focus in an appropriate order.

3 Set the Text property of the form frmSpices to:
Task A *your name* and today's date

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

5 Make sure that the formats and alignment of the displayed fields are as shown in frmSpices.

6 Set up the program so that when the form frmSpices is loaded the dataset is loaded automatically and the data for the first record is displayed in the controls.

7 Write code for the Add, Delete and Update buttons.

8 Write code for the Cancel button to cancel any amendments for the current record.

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

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

11 Write code for the Exit button to terminate the program.

12 Write code to validate the RefNo field. This field should consist of 6 digits and be a valid modulus 10 number (see Appendix A). Output an error message if the reference number is not a valid modulus 10 number or is not 6 digits.

13 Write code for the Print button to print out all the records in the database with the fields RefNo, Description, Quantity, Available, Price 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.

```
                                Spices                                Page 99
                              Date 99/99/9999

Ref No  Description                        Quantity  Available    Price
999999  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        9999     XXX        £9.99
999999  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        9999     XXX        £9.99
999999  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        9999     XXX        £9.99
999999  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        9999     XXX        £9.99
```

Task B

In this task you are required to test and document the software created.

1 Create test data to test the Add, Delete, Update, Cancel and Print buttons on the frmSpices form.

2 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 to correct errors.

3 Locate the EXE file and run the executable file to demonstrate the software.

4 Print a program listing and a screen print of the form frmSpices.

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

5 The program must conform to the design specification.

6 The program uses the most appropriate controls and events.

7 Meaningful names are used for constants, variables, objects, forms and controls using consistent naming convention.

Note

- Candidates should produce the following for their assessor:
  - a printed program listing
  - screen print of the form frmSpices
  - test data, test plan, expected results, actual results (including printed output), and log of testing
  - Ensure that your name is on all documentation
- If the assignment is taken over more than one period, all paperwork must be returned to the test supervisor at the end of each sitting.

Appendix A

Modulus 10 check

A modulus 10 check is carried out as follows:

Multiply each digit in the reference number e.g. 277542, starting at the right, by the number 1, then 2, then 3 etc.

Multiply by	6	5	4	3	2	1
Reference number	2	7	7	5	4	2
Result	12	35	28	15	8	2

The result of each multiplication is added together.

12 + 35 + 28 + 15 + 8 + 2 = 100

The result of the addition is then divided by the modulus (10).

100 divided by 10 = 10 remainder 0

If the remainder from the division is 0 the reference number is a valid modulus 10 number otherwise the reference number is not a valid modulus 10 number.

The remainder is 0 so the reference number 277542 is a valid modulus 10 number.

Published by City & Guilds
1 Giltspur Street
London
EC1A 9DD
T +44 (0)20 7294 2468
F +44 (0)20 7294 2400
www.cityandguilds.com

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