Software Design & Development

Revision Assessment

Computational Constructs , Data Types & Structures 1

Level **N5**

Name:

Grade: /

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1. The large chain of supermarkets, Tesdaburies have hired your company to create a new computerised system for use in their shops.

In order to access the system each user must be issued a username and a password. The user must type in the first three letters of their first name, the first three letters of their surname and the year of their birth in order to generate a username.

For example: Barry Gellatly born in 1979 would type in

bar
gel
1979

and his username would be bargel1979

a) State the name of the programming technique being used to create the username from the 3 individual sets of data being entered. (1)

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b) The user must then select a password and enter it twice to confirm it.

Describe how the program would ensure that the user was not allowed to continue until the two password entries match each other. (1)

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2. The manager from Tesdaburies has told you that no store will ever stock more than 300 different items.

Your colleagues at the software company are suggesting that the name of each item sold by the supermarket be held in a list. The price of each item could be held in a separate list.

a) State the type of variable would be required to store the item names? (1)

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b) State the data structure would be used to store the list of 300 names. (1)

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2. **c)** When the program runs for the first time, the names and prices for 179 items are input.

(i) State the **type** of loop that would be used to enter the names and prices? (1)

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(ii) Explain why this type of loop would be used. (1)

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d) When storing the price of each product your colleague points out that price should not be stored as an integer.

State why should the prices not be stored as integers? (1)

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3. A variable is created to store if an item is in stock or out of stock.

a) State the **type** of variable required to store if the item is in stock or out of stock? (1)

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b) A better method would be to store the amount of each product in stock.   Another data structure could be created to store this information. This would allow you to identify how much of each item the store was holding.

Using pseudocode or a programming language of your choice write a program that will check each product and alert the user if any of the products are out of stock (4)

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c) State how the above method could be slightly improved so that it is of more use to the Supermarket? (1)

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4. As the code will be very large for this project each member of the programming team will be responsible for creating a separate part of the program.

You have been assigned the part of the program that is responsible for setting users passwords.

The following piece of pseudo code is given to you

Line 1   REPEAT

Line 2   RECEIVE usersPassword FROM (STRING) KEYBOARD

Line 3   RECEIVE usersPassword2 FROM (STRING) KEYBOARD

Line 4   IF usersPassword <> usersPassword2 THEN SEND <Error_Message> TO DISPLAY

Line 5   UNTIL usersPassword = usersPassword2

In a programming language you are familiar with write the code required to implement the above design.

You are free to make up meaningful variable names.   (5)

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