KZN DEPARTMENT OF EDUCATION

GREENBURY SECONDARY SCHOOL

SEPTEMBER CONTROL TEST

2018

INFORMATION TECHNOLOGY
GRADE 10

EXAMINER : M PADAYACHEE

MODERATOR: S NAIDOO

DURATION : 1 ½ HOURS

MARK: 60

Please ensure that this paper consists of 8 pages and 1 question)

INSTRUCTIONS AND INFORMATION

1. This question paper contains one question based on general programming techniques.

2. The duration of this examination is 1 ½ hours.

3. Make sure that you answer the question according to the specifications that are given in the question. Marks will only be awarded according to the set requirements.

4. Answer only what is asked in the question. For example, if the question does not ask for data validation, then no marks will be awarded for data validation.

5. Your programs must be coded in such a way that they will work with any data and not just the sample data supplied or any data extracts that appear in the question paper.

6. Routines such as search, sort and selection must be developed from first principles. You may not use the built-in features of a programming language for any of these routines.

7. All data structures must be defined by you, the programmer. You may not use components provided within the interface to store and later retrieve data.

8. You must save your work regularly on the folder you have created, or the disk space allocated to you for this examination.

9. Make sure that your name appears as a comment in every program that you code.

10. You are responsible submission of all code you have written, therefore it is detrimental that you save your work correctly on the space allocated. Missing pieces of code will receive a zero mark.

SCENARIO

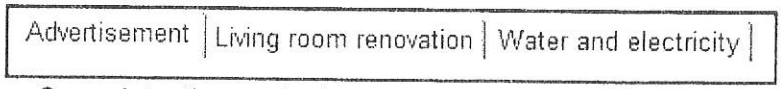
You are employed as a software developer at a company that buys, renovates and sells properties.

QUESTION 1: GENERAL PROGRAMMING SKILLS

Do the following:

- Compile and execute the program. The interface displays three different tabs, namely Advertisement, Living room renovation and Water and electricity.

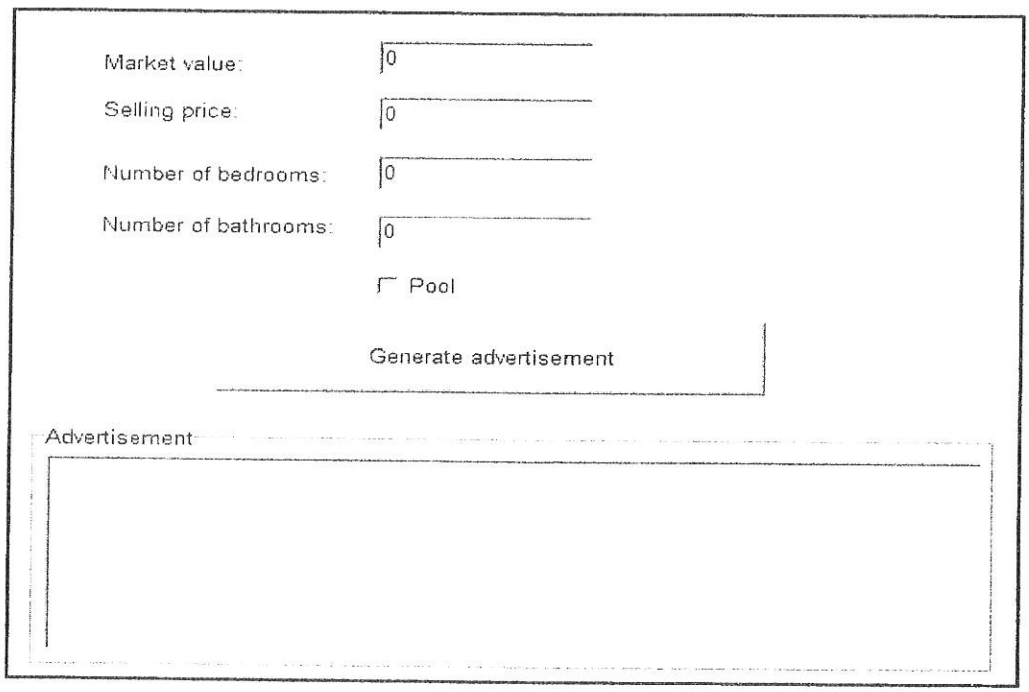
  Example of the tab sheets:



Complete the code for each tab as described in QUESTION 1.1 to QESTION 1.3.

NOTE: QUESTION 1.1 refers to the tab Advertisement.
QUESTION 1.2 refers to the tab Living room renovation.
QUESTION 1.3 refers to the tab Water and electricity.

1.1 Interface for the Advertisement tab



NOTE: The **market value** of a property is the municipal value that the property is assessed for. The **selling price** of a property is the value of the sale of the property.

[Button – Generate advertisement] Write code to do the following:

- Use information from the provided text boxes to compile an advertisement in the following format:

```
House for sale:
<selling price>#<number of bedrooms>Bed#<number of bathrooms>Bath#
```

Use the following information to compile the advertisement:

- The selling price contained in the advertisement must be formatted to a currency. Do not display any decimal values.
- If the Pool check box is selected, the text 'Pool#' must be added to the advertisement text.
- If the selling price of the property is less than the market value, the word 'Bargain' must be added to the advertisement text.

Display the advertisement information in the output area provided.

Examples of compiled advertisements:

Example 1: If the market value of the property is R950 000, the selling price is R850 000 and the house has three bedrooms, two bathrooms and a pool, the advertisement should be displayed as follows:

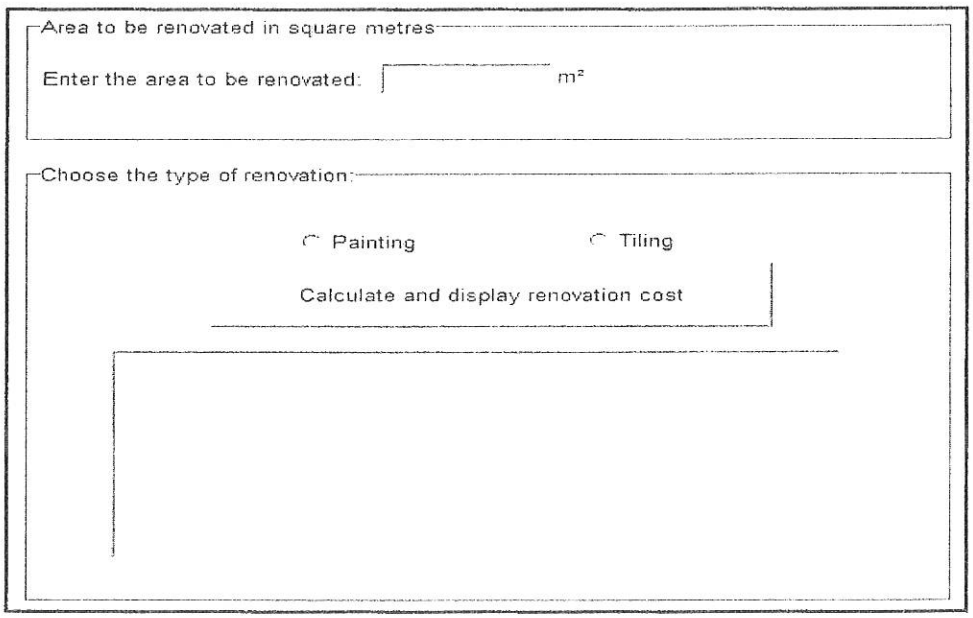
House for sale: R850000#3Bed#2Bath#Pool#Bargain

Example 2: If the market value of the property is R750 000, the selling price is R800 000 and the house has two bedrooms, one bathroom and no pool, the advertisement should be displayed as follows:

House for sale: R800000#2Bed#1Bath#

(11)

1.2 Interface for the Living room renovation tab



Write code to do the following:

1.2.1 **[Radio Button – Painting]**

If the radio button Painting is selected, use a variable to save the selected type of renovation as the character P. (1)

1.2.2 **[Radio Button – Tiling]**

If the radio button Tiling is selected, use a variable to save the selected type of renovation option as the character T. (1)

1.2.3 **[Button – Calculate and display renovation cost]**

The user is required to enter the number of square metres to be renovated as an integer value and select the type of renovation to be done. The cost of each type of renovation must be calculated as explained below.

(a) If the type of renovation is **Painting**, use the following information to calculate how much paint will be required as well as the total cost:

- One litre of paint is used to paint an area of eight square metres.
- The pricing structure of paint per drum is as follows:
    - 1-litre drum R 55.50
    - 2-litre drum R 92.30
    - 5-litre drum R 199.00

Display the calculated values in the provided output area using the following format:

Area: `<area>` square metres
Volume of paint required: `<volume>` litre

1-litre drums: `<number of 1-litre drums>`
2-litre drums: `<number of 2-litre drums>`
5-litre drums: `<number of 5-litre drums>`

Total cost: `<Total cost of paint>`

The total cost must be displayed rounded to two decimal places.

Example: If the area entered is 148 m^2, the output will be as follows:

Area: 148 square metres
Volume of paint required: 18.5 litres

1-litre drums: 0
2-litre drums: 2
5-litre drums: 3

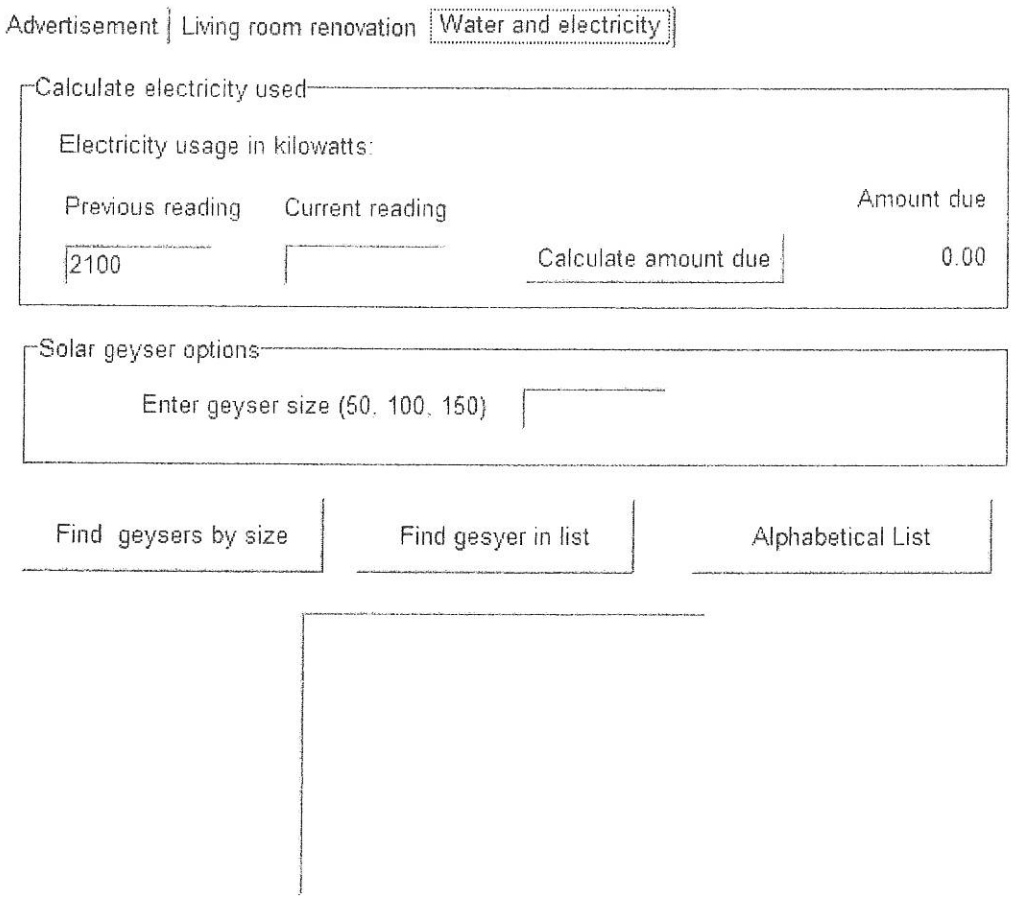
Total cost: R 781.60 (15)

(b) If the type of renovation is **Tiling**, a dialog box must be used to allow the user to enter the cost of tiling per square metre. Add five square metres to the original square metre value that was entered to provide for breakages, and then calculate the cost. Display the area to be tiled in square metres. The total cost must be displayed rounded to two decimal places.

Example: If the area entered is 100 m^2 and the cost of tiling is R50,00 per square metre, the following will be displayed:

Area: 100 square metres
Total cost: R 5250.00 (5)

1.3 Interface for the Water and electricity tab



Write code to do the following:

1.3.1 [Button – Calculate amount due]

The previous reading for electricity used is supplied in a text box as an integer. The user must enter the current reading in a text box as an integer.

- If the current reading entered by the user is less than the previous reading, display a suitable message and clear the current reading text box.

- If the current reading is equal to or greater than the previous reading, use the following tariffs to calculate the amount due for electricity used:

Units	Tariffs
0–600	R1,00 per unit
>600	R600 + R1,50 per unit for all units that exceed 600

- Display the amount in the label provided in a format that includes a currency correct two decimal places.

Example:

Previous reading	Current reading		Amount due
2100	2735	Calculate amount due	R 652.50

(8)

1.3.2 [Buttons – Find geysers by size – Geysers in List – Alphabetical List]

In an effort to save electricity, solar geysers are investigated as a possibility. Three sizes of solar geysers are available based on their capacity in litres. The user is required to enter one of the three sizes: 50 (litres), 100 (litres) or 150 (litres).

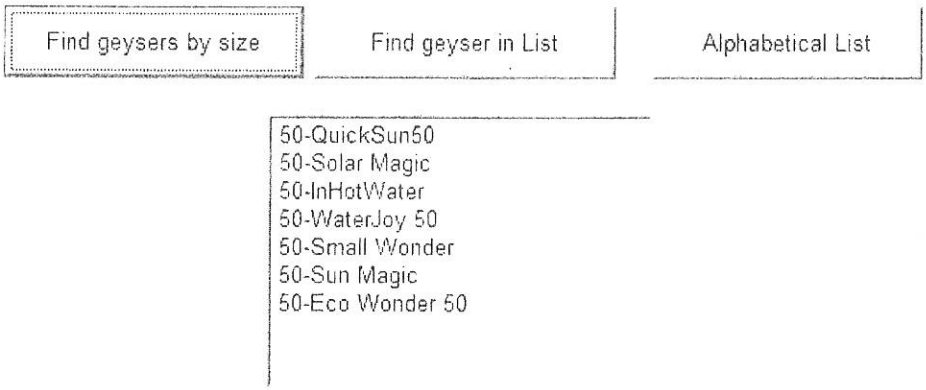
An array that contains strings of text which each describes a type of geyser is provided as part of the supplied code.

The description of each type of geyser starts with the capacity of the geyser in litres, followed by a dash and the brand name of the geyser.

Example: The geyser described as '50-Small Wonder' can hold 50 litres of water and the brand name of the geyser is 'Small Wonder'.

(a) Write code to display the types of geysers in the array that matches the capacity entered by the user when the Find **geysers by size** button is clicked. No validation of the input value is required. Program the Find geysers by size button.

Example: List of geysers when the value 50 is entered:



(5)

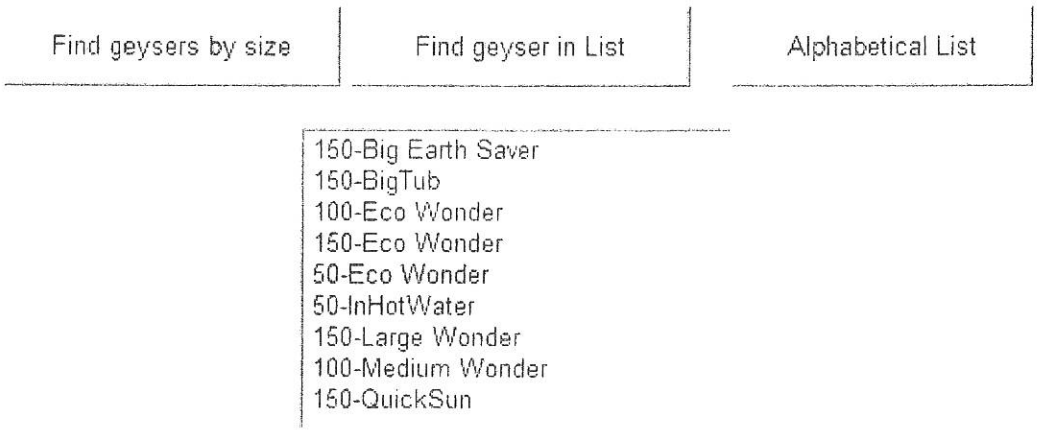
(b) Code the **Find geyser in list** button to ask the user to enter the name of a geyser to see if it is included in the list. Display a suitable message if not found. If found in list, display the full details of the geyser as follows:

If the input brand was **Eco Wonder**, the output should be:

Eco Wonder is in the list. (7)

(c) Program the **Alphabetical List** button to display the list of geysers in alphabetical order. (7)

Sample Output:



TOTAL: 60

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