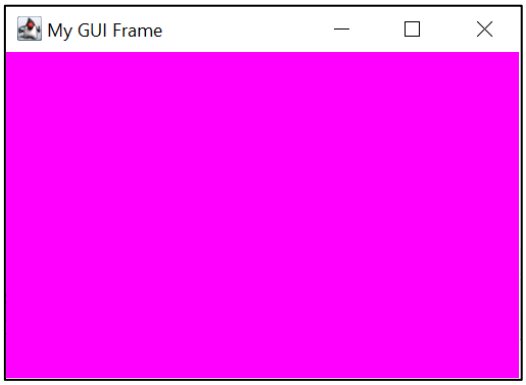
TK1143 - Tutorial 5

Graphical User Interface (GUI)

Section A

Topic: JFrame and ContentPane.

1. Complete the following class (*L1-L3, L5-L6* and *L10, L12-L14*) to create a Java frame whose title is "My GUI Frame", width is 350, height is 250, and content pane's background color is magenta (as shown below).




```
L1   import ____________ //import package awt
L2   import ____________ //import package swing
L3   class MyFrame extends _______ {
L4      public  MyFrame () {
L5          Container pane = _________________
L6          pane._____________________________ //set background
L7      }
L8      public static void main(String[] args)
L9      {
L10         _____________________________ //create frame
L11         frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
L12         _____________________________ //set title
L13         _____________________ //set size
L14         _____________________ //set visible
L15     }
L16  }
```

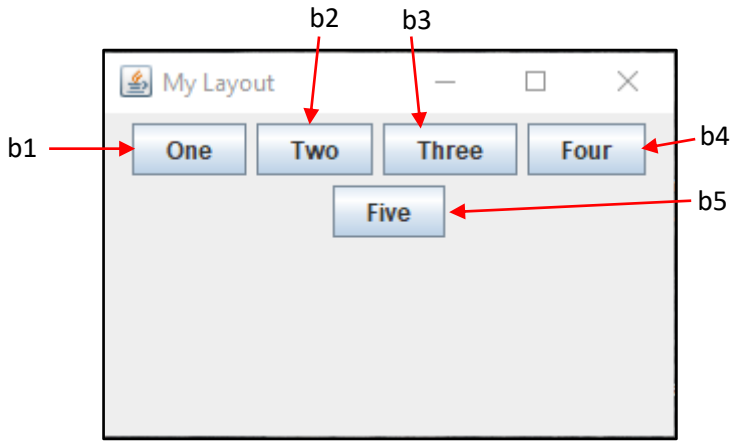
Topic: Layout Manager, GUI Component and JPanel

2. Name one Java Swing components that can be used for the following purposes:

Purpose	Component
a. Displays text on the Java form but cannot receive any input.	

b. User can choose only one from many options	
c. Displays lines of text that can be chosen by user	
d. A component that hides text from user.	
e. Display information, warning or input	
f. User can select more than one items from many items to choose.	
g. User can key in only one line of text inside it	
h. Provide a list of items from which the user can make a single selection.	
i. It has a label and generates an event when pressed.	

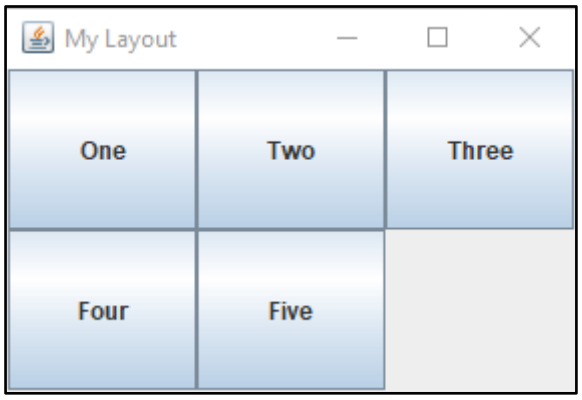
3. Complete the line of statement based on the following figure.



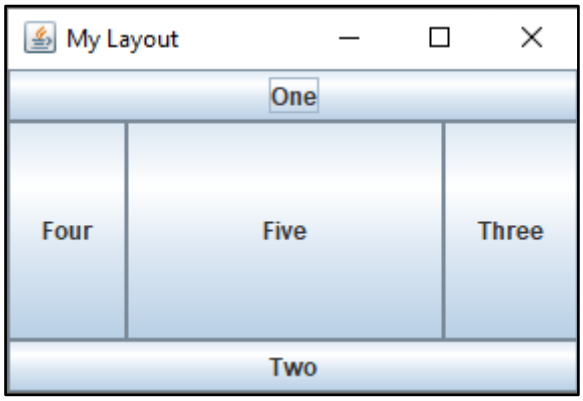

```
L1   import _______________
L2   import _______________
L3
L4   class MyLayout extends _________ {
L5      _________________________________ //Declare component
L6
L7      public MyLayout() {
L8         Container pane = getContentPane();
L9         _____________________________ //Set Layout
L10        b1=new JButton("One");  //create b1
L11        _____________________________  //create b2
L12        _____________________________  //create b3
L13        _____________________________  //create b4
L14        _____________________________  //create b5
L15        pane.add(b1); //Add b1
L16        _____________ //Add b2
L17        _____________ //Add b3
L18        _____________ //Add b4
L19        _____________ //Add b5
L20     }
L21
L22     public static void main(String[] args) {
```

```
L23         MyLayout frame = new MyLayout();
L24         frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
L25         frame.setTitle("_____________");
L26         frame.setSize(300, 200);
L27         frame.setVisible(true);
L28     }
L29 }
```

4. Modify the line of statement of *Question 3 in L9* to set this Layout in Container (as shown below).



5. a) Modify the line of statement of *Question 3 in L9, L15-L19* based on the following figure.




```
L9    _____________________________________ //Set Layout
L15   _____________________________________ //Add b1
L16   _____________________________________ //Add b2
L17   _____________________________________ //Add b3
L18   _____________________________________ //Add b4
L19   _____________________________________ //Add b5
```

b) Based on *Question 5a)* sketch the output if we remove or comment statement(s)

(i) L19

(ii) L18

(iii) L17 & L18

(iv) L6

Remove/comment L19	Remove/comment L18
Remove/comment L17 & L18	Remove/comment L16

6. Consider the following statements.

```
L1    import javax.swing.*;
L2    import java.awt.*;
L3
L4    public class TextField extends JFrame {
L5       private JLabel name, matric;
L6       private JTextField textName, textMatric;
L7
L8       public TextField()
L9       {
L10          Container pane = getContentPane();
L11          pane.setLayout(new GridLayout(2,1));
L12
```

```
L13          name = new JLabel("Name");
L14          textName = new JTextField(20);
L15          matric = new JLabel("Matric No");
L16          textMatric = new JTextField(20);
L17          pane.add(name);
L18          pane.add(textName);
L19          pane.add(matric);
L20          pane.add(textMatric);
L21      }
L22
L23      public static void main(String [] args) {
L24          TextField frame = new TextField();
L25          frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
L26          frame.setTitle("Student Info");
L27          frame.setSize(300, 100);
L28          frame.setVisible(true);
L29      }
L30  }
```

a) How many components display in the frame? List the name and type of components involve based on the following statements.

b) Sketch the expecting output

7. Consider the following statements.

```
L1   import javax.swing.*;
L2   import java.awt.*;
L3
L4   public class CheckBox extends JFrame {
L5      private JCheckbox java, c, python;
L6
L7      public CheckBox()
L8      {
L9           Container pane = getContentPane();
L10          pane.setLayout(new FlowLayout());
```

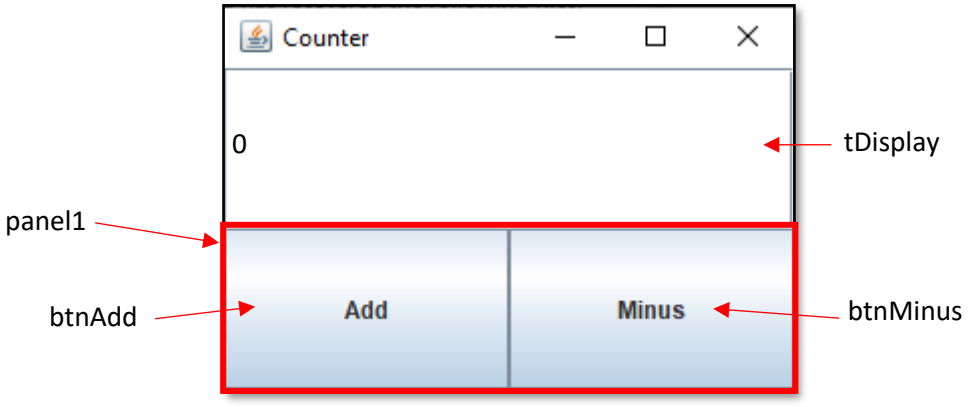
```
L11
L12           java = new JCheckBox("Java");
L13           c = new JCheckBox("C++");
L14           python = new JCheckBox("Python");
L15           pane.add(java);
L16           pane.add(C);
L17           pane.add(python);
L18      }
L19
L20      public static void main(String [] args) {
L21           CheckBox Jframe = new CheckBox();
L22           frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
L23           frame.setTitle("Programming");
L24           frame.setSize(300, 100);
L25           frame.setVisible();
L26      }
L27   }
```

a) Trace and fix if have any error(s) in the above statements.

b) Sketch the expecting output

c) What the difference between checkbox and radio button?

8. Consider the following figure.



a) What is the purpose of panel1?

b) Explain the similar and different between frame and panel?

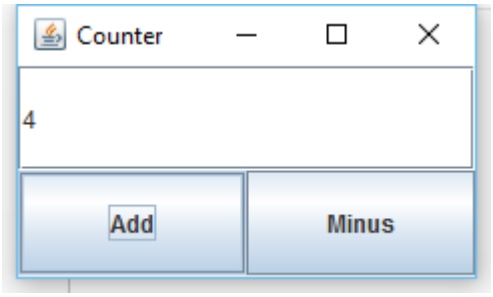
c) Complete the line of following statements.

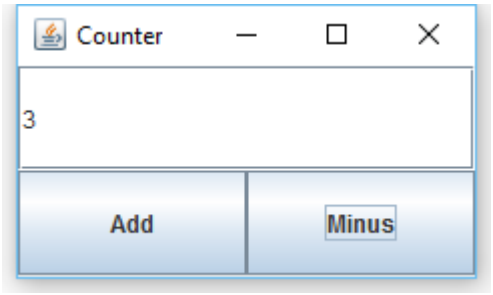
```
L1    import javax.swing.*;
L2    import java.awt.*;
L3
L4    public class Counter extends JFrame
L5    {
L6        _____________________ //declare panel1
L7        _____________________ //declare tDisplay
L8        _____________________ //declare btnAdd and btnMinus
L9
L10       public Counter()
L11       {
L12          Container pane = getContentPane(); //get content pane
L13          ___________________________________ //set layout pane
L14          ___________________________________ //create tDisplay
L15
L16          _________________________________ //create panel1
L17          _________________________________ //set layout panel1
L18          _________________________________ //create btnAdd
L19          _________________________________ //create btnMinus
L20          ________________________ //add btnAdd in panel1
L21          ________________________ //add btnMinus in panel1
L22
L23
L24          ________________________ //add tDisplay in pane
L25          ________________________ //add panel in pane
L26       }
L27
L28       public static void main (String[] args)
L29       {
L30          Counter frame = new Counter();
L31          frame.setTitle("Counter");
```

```
L32           frame.setSize(300, 200);
L33           frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
L34           frame.setVisible(true);
L35       }
L36   }
```

Topic: Event Handling.

9. Based on previous question *(Question 8)*, write the code statements to handle event so that when the Add button in the GUI is clicked, the number in the box will increased by 2, meanwhile if Minus button is clicked, the number in the box will decrease by 1 as shown in the following figures.





Step 1: The previous class Counter should import event package (*add in L3*) and implement an event listener (*modify L4*).

```
L3 _____________________________
L4 public class Counter extends JFrame _____________________
```

Step 2: Register event listener with the appropriate event source (component in the GUI) in the previous constructor (write statement in L22-L23).

```
L22 _____________________________________;
L23 _____________________________________;
```

Step 3: Write the code to handle event as shown in the above figures (insert the statement before main method).

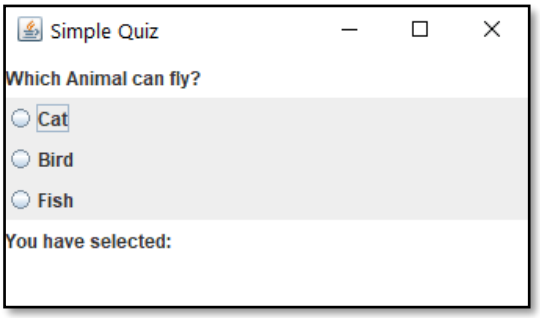
```
public void actionPerformed(ActionEvent e) {

    Object obj = e.getSource();
    ____________________________________________;

    if (obj == btnAdd){
          ____________________________;
          ____________________________;
    }
    else
    {
          ____________________________;
          ____________________________;
    }
}
```

Section B

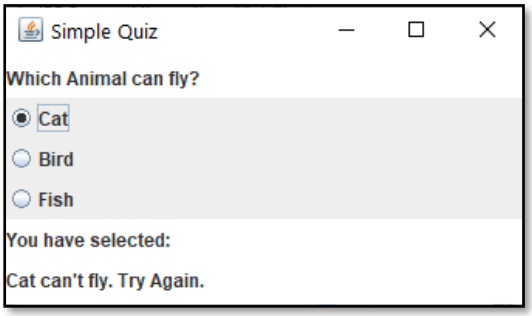
Practice - Question 1

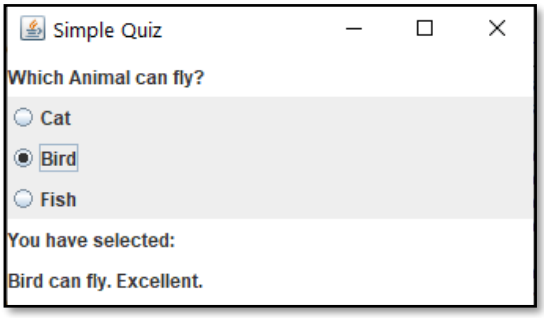
Write the GUI code statements and event for the following figure. User can choose only one answer from the radio button. The selected answer will be display in the text field such as the following figure. (Set frame size 350, 200).

Before user click radio button



After user click radio button

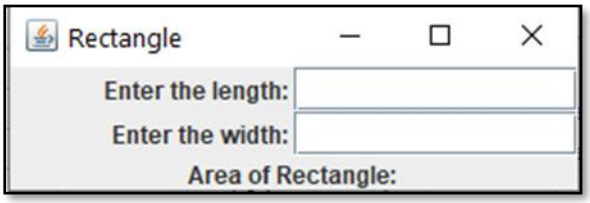




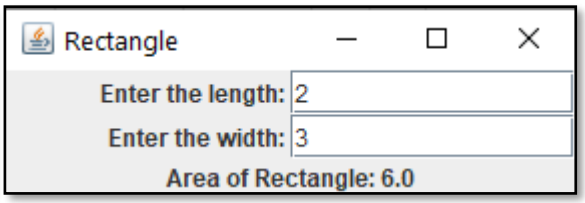
Practice - Question 2

Write the GUI code statements and event for the following figure. The output of rectangle area should be display such as the following figure after user insert the data and click “enter”. (Set frame size 300, 100).

Before user insert the data:



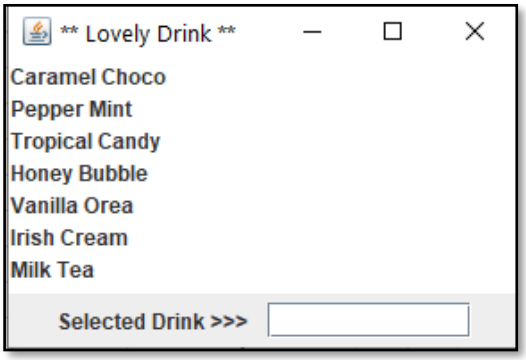
After user insert the data and click enter:



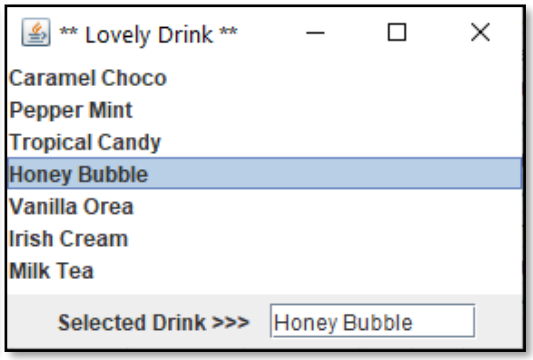
Practice - Question 3

Write the GUI code statements and event for the following figure. Customer can choose from the list of "Lovely Drink". The selected item will be display in the text field such as the following figure. (Set frame size 300, 200).

Before selection drink



After selection drink



Assignment – Question 4

A company named 'Create Your Own Pizza' is a small and famous homemade pizza in rural area at Kelantan. Since the company doesn't have enough staff and the pizza is hot selling due to very cheap and tasty, the company only limited one pizza for only one customer. The company has a very traditional way on ordering pizza. Only one staff will handle the order and the company doesn't have any system users to order the pizza. You as a freelance programmer try to help them to develop a simple order system for Create Your Own Pizza. The system should have some graphical user interface and related event for ordering the pizza. Figure 1 below show the GUI of the system.

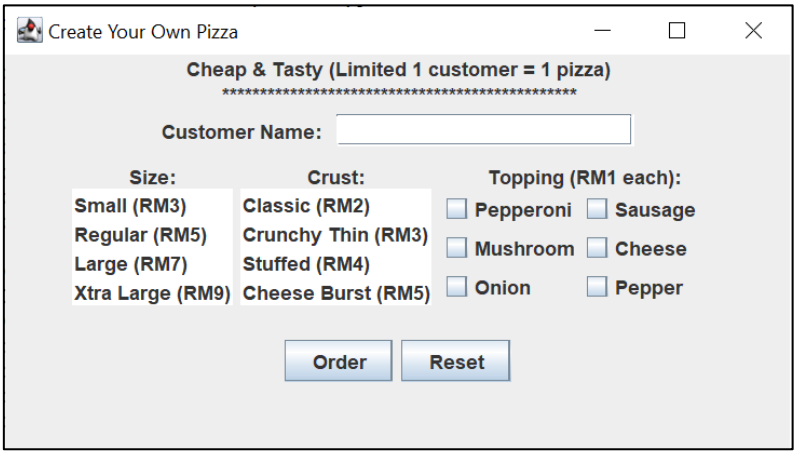


Figure 1

Customer must enter name, select size, crust and topping of pizza. The figure 2 below show the GUI when the form completed and order button clicked.

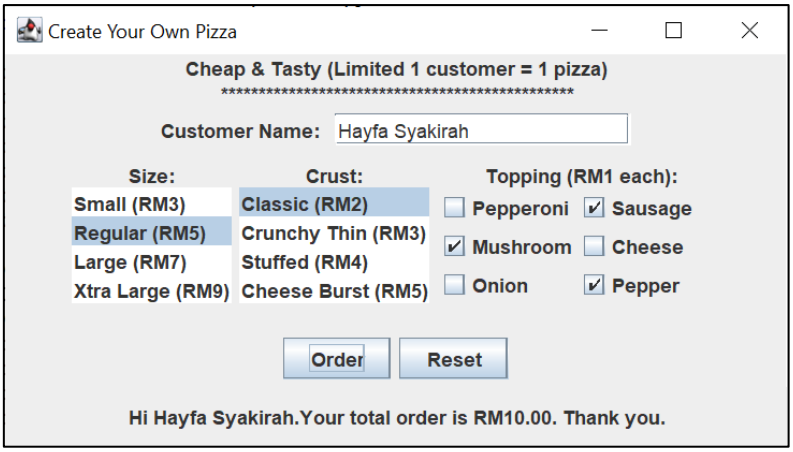


Figure 2

If the reset button clicked, all the data selected and the name filled before will be reset and it will produce the following GUI.

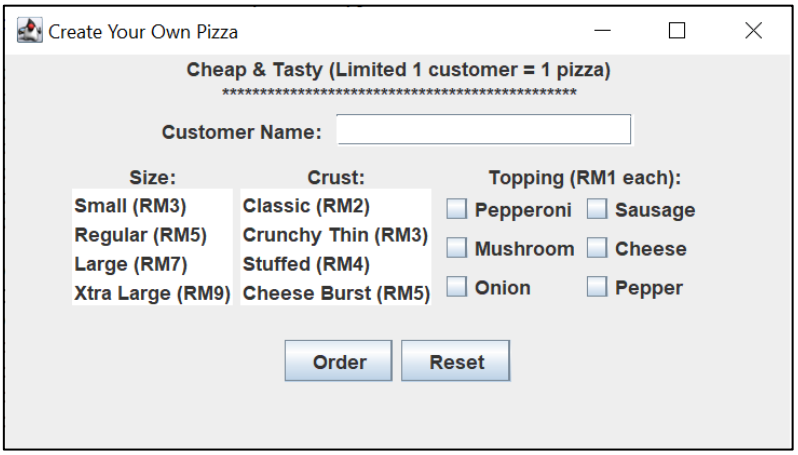
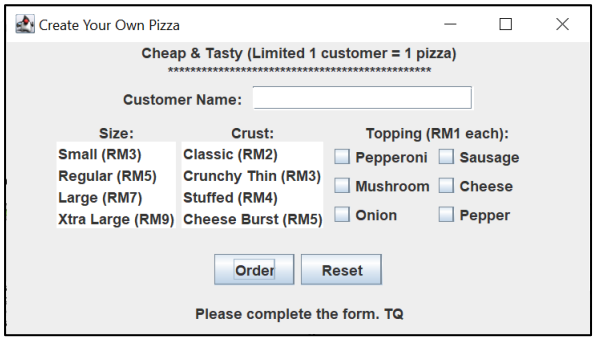
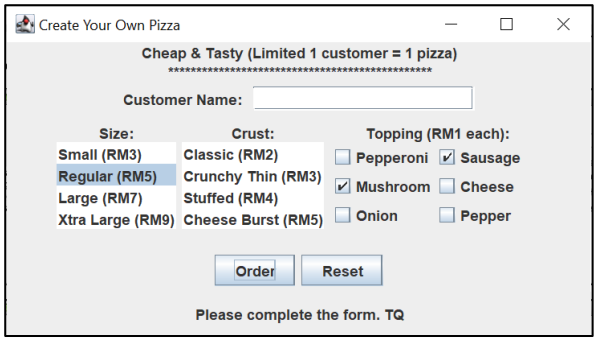
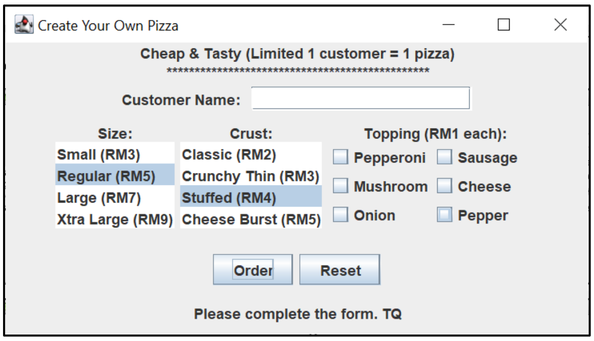


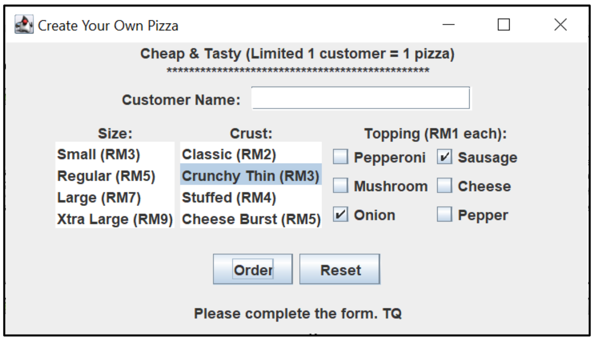
Figure 3

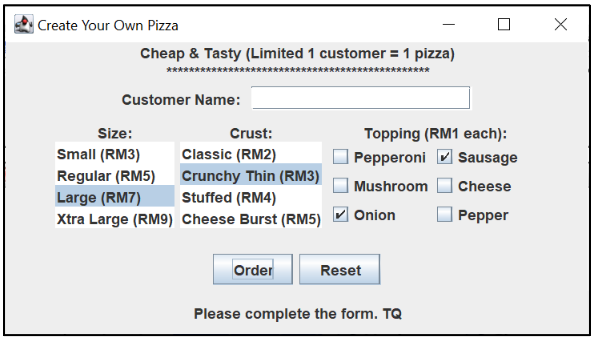
If the form is not completed such as the following figure and the order button is clicked, the feedback will display at the bottom with the message “Please complete the form. TQ”

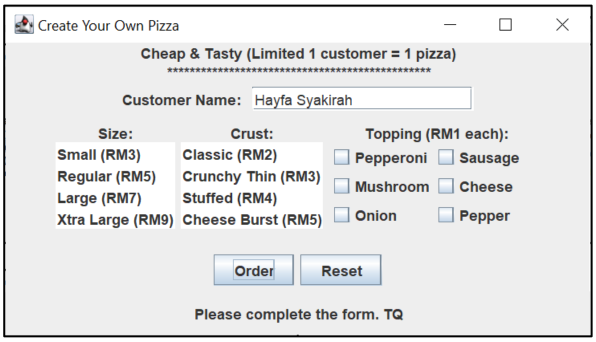












Note:

- Pizza Size and Crust only can be selected by ONE selection.
- Topping can be selected by multiple selections.