



UMS
UNIVERSITI MALAYSIA SABAH

OBJECT ORIENTED PROGRAMMING (KK14203)

SEMESTER 2, 2019/2020 SESSION

SECTION TWO

INDIVIDUAL PROJECT

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// Java Code:

// GuiPanel.java

```
package project2;
```

```
import java.awt.Component;
import java.awt.FlowLayout;
import java.awt.GridLayout;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.io.BufferedReader;
import java.io.File;
import java.io.FileNotFoundException;
import java.io.FileReader;
import java.io.FileWriter;
import java.text.DecimalFormat;
import java.util.Scanner;
```

```
import javax.swing.BorderFactory;
import javax.swing.BoxLayout;
import javax.swing.ButtonGroup;
import javax.swing.JButton;
import javax.swing.JCheckBox;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JMenu;
import javax.swing.JMenuBar;
import javax.swing.JMenuItem;
import javax.swing.JOptionPane;
import javax.swing.JPanel;
import javax.swing.JRadioButton;
import javax.swing.border.TitledBorder;
```

```

public class GuiPanel extends JPanel {

    // Creates DecimalFormat for currency
    private DecimalFormat format = new DecimalFormat("#.00");

    // Creates all the labels for the gui
    private JLabel welcomeLbl = new JLabel("Welcome to Baobei Ice Cream Parlour",
        JLabel.CENTER);
    private JLabel orderLbl = new JLabel("Please order your ice cream below, and "
        + "hit 'SUBMIT' when you are finished.", JLabel.CENTER);
    private JLabel chocoLbl = new JLabel("Chocolate");
    private JLabel vanillaLbl = new JLabel("Vanilla");
    private JLabel chocochipLbl = new JLabel("Chocolate Chip");
    private JLabel cookiescreamLbl = new JLabel("Cookies and Cream");
    private JLabel strawberryLbl = new JLabel("Strawberry");
    private JLabel cookiedoughLbl = new JLabel("Cookie Dough");
    private JLabel mintchocoLbl = new JLabel("Mint Chocolate Chip");
    private JLabel mochaLbl = new JLabel("Mocha");

    // Creates all the titled borders for the gui
    private TitledBorder flavoursBorder = new TitledBorder("Ice cream flavour");
    private TitledBorder icecreamTopBorder = new TitledBorder("Ice Cream Toppings RM0.50");

    // Creates all the radio buttons for the gui
    private JRadioButton chocoRadioBtn = new JRadioButton("RM2", true);
    private JRadioButton vanillaRadioBtn = new JRadioButton("RM2");
    private JRadioButton chocochipRadioBtn = new JRadioButton("RM3.50");
    private JRadioButton cookiescreamRadioBtn = new JRadioButton("RM3.50");
    private JRadioButton strawberryRadioBtn = new JRadioButton("RM2");
    private JRadioButton cookiedoughRadioBtn = new JRadioButton("RM4");

```

```
private JRadioButton mintchocoRadioBtn = new JRadioButton("RM3");  
private JRadioButton mochaRadioBtn = new JRadioButton("RM3");
```

```
// Creates all the check boxes for the gui
```

```
private JCheckBox hotfudgeChkBox = new JCheckBox("Hot fudge");  
private JCheckBox sprinklesChkBox = new JCheckBox("Sprinkles");  
private JCheckBox caramChkBox = new JCheckBox("Caramel");  
private JCheckBox oreosChkBox = new JCheckBox("Oreos");  
private JCheckBox whippedcChkBox = new JCheckBox("Whipped cream");  
private JCheckBox cherriesChkBox = new JCheckBox("Cherries");  
private JCheckBox gummybearsChkBox = new JCheckBox("Gummy Bears");
```

```
// Creates the button for the gui
```

```
private JButton submitBtn = new JButton("Submit");  
private JButton loadBtn = new JButton("Load");  
private JButton exitBtn = new JButton("Exit");
```

```
// Creates the option pane for the gui
```

```
private JOptionPane msgPane = new JOptionPane();  
private JFrame frame;
```

```
protected FileWriter fw;
```

```
public GuiPanel() {
```

```
    // Creates all the panels to be used in the frame
```

```
    JPanel mainPanel = new JPanel();  
    JPanel introPanel = new JPanel();  
    JPanel sizePanel = new JPanel();  
    JPanel toppingPanel = new JPanel();  
    JPanel submitPanel = new JPanel();  
    JPanel loadPanel = new JPanel();  
    JPanel exitPanel = new JPanel();
```

```
// Set up for each panel and adding all the items into them
mainPanel.setLayout(new BorderLayout(mainPanel, BorderLayout.Y_AXIS));
mainPanel.setBorder(BorderFactory.createEmptyBorder(30, 30, 30, 30));

introPanel.setLayout(new GridLayout(2, 1));
introPanel.setBorder(BorderFactory.createEmptyBorder(0, 30, 30, 30));
introPanel.add(welcomeLbl);
introPanel.add(orderLbl);

sizePanel.setLayout(new GridLayout(2, 3, 5, 5));
sizePanel.setBorder(flavoursBorder);
sizePanel.add(chocoLbl);
sizePanel.add(chocoRadioBtn);
sizePanel.add(vanillaLbl);
sizePanel.add(vanillaRadioBtn);
sizePanel.add(chocochipLbl);
sizePanel.add(chocochipRadioBtn);
sizePanel.add(cookiescreamLbl);
sizePanel.add(cookiescreamRadioBtn);
sizePanel.add(strawberryLbl);
sizePanel.add(strawberryRadioBtn);
sizePanel.add(cookiedoughLbl);
sizePanel.add(cookiedoughRadioBtn);
sizePanel.add(mintchocoLbl);
sizePanel.add(mintchocoRadioBtn);
sizePanel.add(mochaLbl);
sizePanel.add(mochaRadioBtn);

toppingPanel.setLayout(new GridLayout(5, 3, 5, 5));
```

```
toppingPanel.setBorder(icecreamTopBorder);
toppingPanel.add(hotfudgeChkBox);
toppingPanel.add(sprinklesChkBox);
toppingPanel.add(caramChkBox);
toppingPanel.add(oreosChkBox);
toppingPanel.add(whippedcChkBox);
toppingPanel.add(cherriesChkBox);
toppingPanel.add(gummybearsChkBox);
```

```
submitPanel.setLayout(new FlowLayout());
submitPanel.add(submitBtn);
```

```
loadPanel.setLayout(new FlowLayout());
loadPanel.add(loadBtn);
```

```
exitPanel.setLayout(new FlowLayout());
exitPanel.add(exitBtn);
```

```
// Adds the panels to the frame
```

```
mainPanel.add(introPanel);
mainPanel.add(sizePanel);
mainPanel.add(toppingPanel);
mainPanel.add(submitPanel);
mainPanel.add(loadPanel);
mainPanel.add(exitPanel);
add(mainPanel);
```

```
// Groups the radio buttons
```

```
ButtonGroup sizeButtonGroup = new ButtonGroup();
sizeButtonGroup.add(chocoRadioBtn);
sizeButtonGroup.add(vanillaRadioBtn);
```

```
sizeButtonGroup.add(chocochipRadioBtn);
sizeButtonGroup.add(cookiescreamRadioBtn);
sizeButtonGroup.add(strawberryRadioBtn);
sizeButtonGroup.add(cookiedoughRadioBtn);
sizeButtonGroup.add(mintchocoRadioBtn);
sizeButtonGroup.add(mochaRadioBtn);
```

```
submitBtn.addActionListener(new ActionListener() {
```

```
    public void actionPerformed(ActionEvent e) {
        double totalPrice = getIcecreamPrice();
        String icecreamType = getIcecreamType();
        String icecreamToppings = getIcecreamToppings();
```

```
        msgPane.showMessageDialog(null, "Your order of a " + icecreamType
            + " Ice Cream with\n" + "Topping(s):\n" + icecreamToppings + "was confirmed.\n"
            + "Your total comes out to RM"
            + format.format(totalPrice) + ". \nThank you for buying "
            + "from Baobei Ice Cream Parlour. \nPlease order again!");
```

```
    try {
```

```
        fw = new FileWriter("Data.txt");
        fw.write("\n");
        fw.write(flavoursBorder.getTitle() + ": " + icecreamType.toString() + "\n");
        fw.write(icecreamTopBorder.getTitle() + ": \n" + icecreamToppings.substring(0));
        fw.write("\nTotal: \t RM " + getIcecreamPrice());
        fw.write("\n");
        fw.close();
```

```
}
```

```
catch(Exception e1){
```

```
    JOptionPane.showMessageDialog(null, e1+"");
```

```
}
```

```
}
```

```
});
```

```
loadBtn.addActionListener(new ActionListener() {
```

```
    public void actionPerformed(ActionEvent e) {
```

```
        double totalPrice = getIcecreamPrice();
```

```
        String icecreamType = getIcecreamType();
```

```
        String icecreamToppings = getIcecreamToppings();
```

```
    try {
```



```

        File f = new File("Data.txt");
        Scanner m = new Scanner(f);

        while(m.hasNextLine()) {
            String data = m.nextLine();
            System.out.println(data);
        }

        msgPane.showMessageDialog(null, flavoursBorder.getTitle() +
": " + icecreamType.toString() + "\n"
+ icecreamTopBorder.getTitle() + ": \n" + icecreamToppings.substring(0)
+ "\nTotal: \t RM " + getIcecreamPrice()
+ "\n");

        m.close();
    }

    catch (FileNotFoundException e1) {
        System.out.println("An error occurred.");
        e1.printStackTrace();
    }

}

});

```

```

exitBtn.addActionListener(new ActionListener() {

    public void actionPerformed(ActionEvent e) {

        int confirm = JOptionPane.showOptionDialog(frame,
            "Are you sure you want to close this application?",
            "Exit Confirmation", JOptionPane.YES_NO_OPTION,
            JOptionPane.QUESTION_MESSAGE, null, null, null);

        if (confirm == JOptionPane.YES_OPTION) {
            System.exit(1);
        }

    }

});

}

public String getIcecreamToppings() {
    String icecreamTopping = "";

    if (hotFudgeChkBox.isSelected())
        icecreamTopping += "- hot fudge\n";
    if (sprinklesChkBox.isSelected())
        icecreamTopping += "- sprinkles\n";
    if (caramChkBox.isSelected())
        icecreamTopping += "- caramel\n";
    if (oreosChkBox.isSelected())

```

```
        icecreamTopping += "- oreos\n";
    if (whippedcChkBox.isSelected())
        icecreamTopping += "- whipped cream\n";
    if (cherriesChkBox.isSelected())
        icecreamTopping += "- cherries\n";
    if (gummybearsChkBox.isSelected())
        icecreamTopping += "- gummy bears\n";

    return icecreamTopping;
}
```

```
public double geticecreamPrice() {
    double icecreamPrice = 0.00;

    if (chocoRadioBtn.isSelected())
        icecreamPrice += 2;
    if (vanillaRadioBtn.isSelected())
        icecreamPrice += 2;
    if (chocochipRadioBtn.isSelected())
        icecreamPrice += 3.50;
    if (cookiescreamRadioBtn.isSelected())
        icecreamPrice += 3.50;
    if (strawberryRadioBtn.isSelected())
        icecreamPrice += 2;
    if (cookiedoughRadioBtn.isSelected())
        icecreamPrice += 4;
    if (mintchocoRadioBtn.isSelected())
        icecreamPrice += 3;
    if (mochaRadioBtn.isSelected())
        icecreamPrice += 3;
    if (hotfudgeChkBox.isSelected())
        icecreamPrice += 0.50;
```

```
    if (sprinklesChkBox.isSelected())
        icecreamPrice += 0.50;
    if (caramChkBox.isSelected())
        icecreamPrice += 0.50;
    if (oreosChkBox.isSelected())
        icecreamPrice += 0.50;
    if (whippedcChkBox.isSelected())
        icecreamPrice += 0.50;
    if (cherriesChkBox.isSelected())
        icecreamPrice += 0.50;
    if (gummybearsChkBox.isSelected())
        icecreamPrice += 0.50;

    return icecreamPrice;
}
```

```
public String geticecreamType() {
    String icecreamType;

    if (chocoRadioBtn.isSelected())
        icecreamType = "Chocolate";
    else if (vanillaRadioBtn.isSelected())
        icecreamType = "Vanilla";
    else if (chocochipRadioBtn.isSelected())
        icecreamType = "Chocolate Chip";
    else if (cookiescreamRadioBtn.isSelected())
        icecreamType = "Cookies Cream";
    else if (strawberryRadioBtn.isSelected())
        icecreamType = "Strawberry";
    else if (cookiedoughRadioBtn.isSelected())
        icecreamType = "Cookie Dough";
    else if (mintchocoRadioBtn.isSelected())
```

```
        icecreamType = "Mint Chocolate";  
    else  
        icecreamType = "Mocha";  
  
    return icecreamType;  
}  
}
```

// GuiFrame.java

package project2;

import javax.swing.JFrame;

public class GuiFrame extends JFrame {

// Static variables for the frame to use

static final int *WIDTH* = 1200, *HEIGHT* = 520;

static final String *FRAMETITLE* = "Ice Cream Order Form";

// Default constructor

public GuiFrame () {

super(*FRAMETITLE*);

setFrame(*WIDTH*, *HEIGHT*);

}

// Additional constructor, allows custom size for the frame

public GuiFrame(int width, int height) {

super(*FRAMETITLE*);

setFrame(width, height);

}

// display method shows the frame on the screen

public void display() {

setVisible(true);

}

// setFrame method allows easier editing of the size of the frame,

// as well as sets the frame to the center of the screen

public void setFrame(int width, int height) {

setSize(width, height);

```
        setLocationRelativeTo(null);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    }

}
```

// MainClass.java

package project2;

import project2.GuiFrame;

import project2.GuiPanel;

import project2.MainClass;

public class MainClass extends GuiFrame {

 // Extends from the GuiFrame.java to make the gui frame

 MainClass() {

 super(1200, 520);

 add(new GuiPanel());

 }

 // main class, creates the gui frame and displays it

 static public void main(String[] args) {

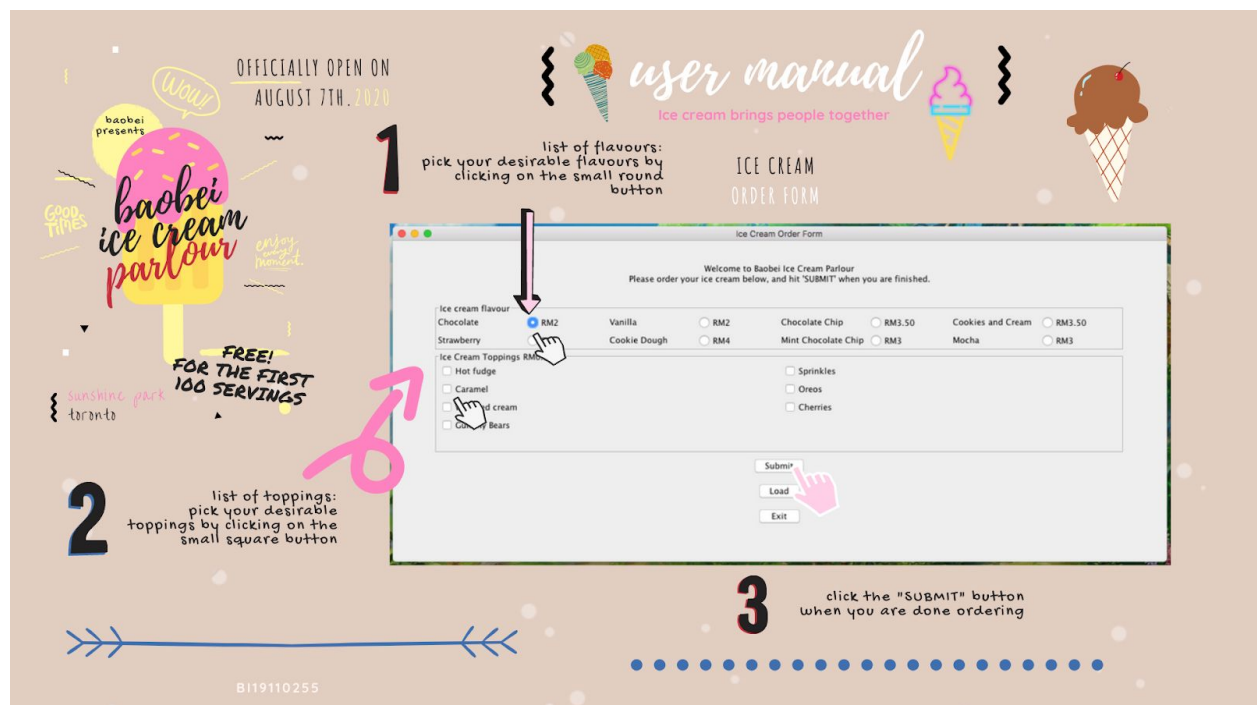
 MainClass icecreamApp = new MainClass();

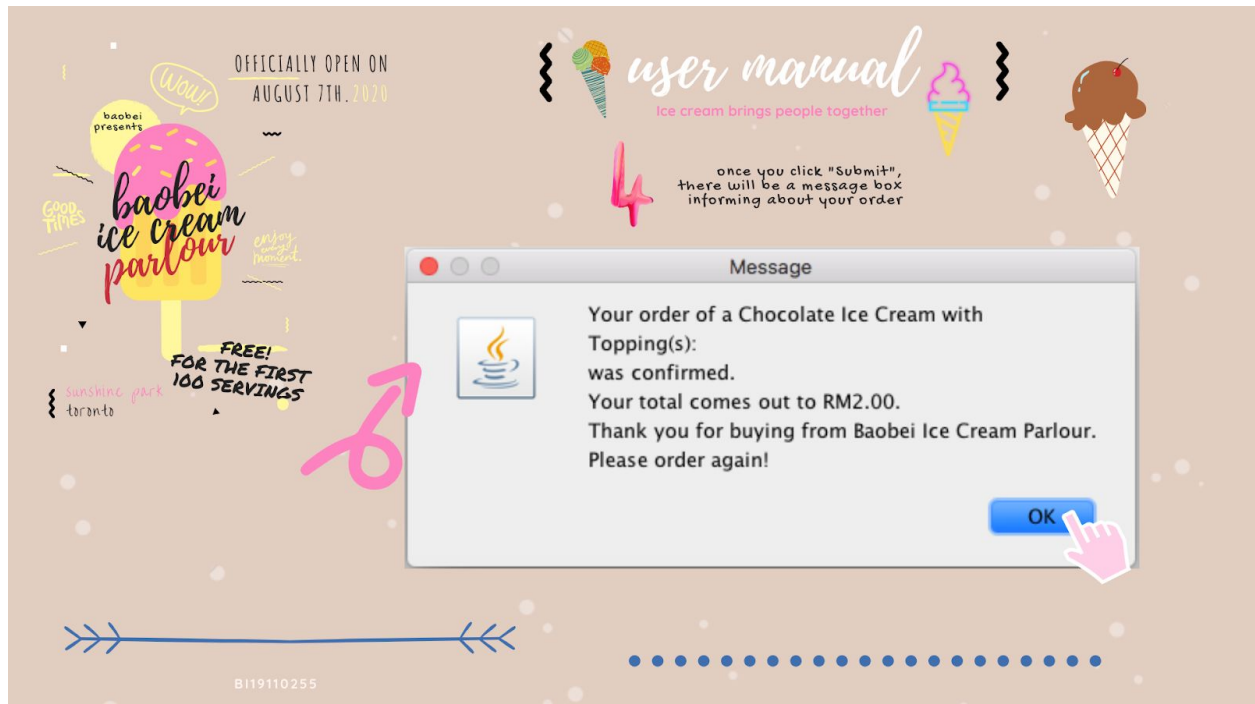
 icecreamApp.display();

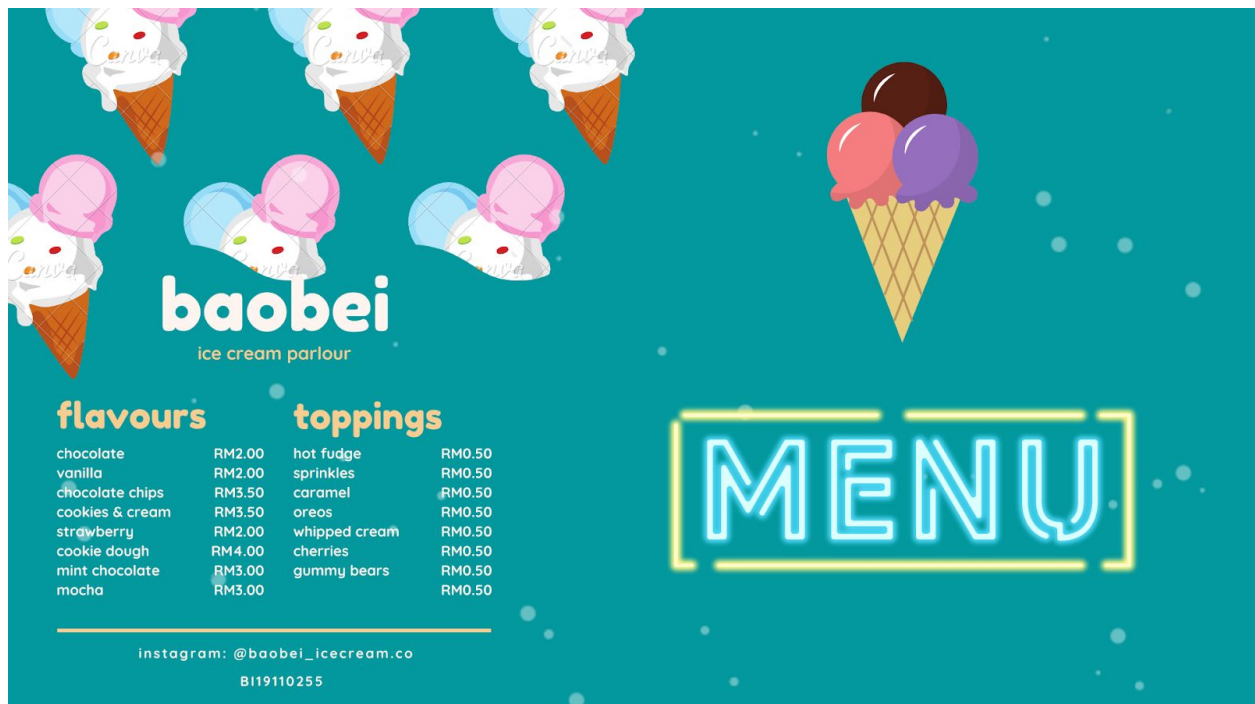
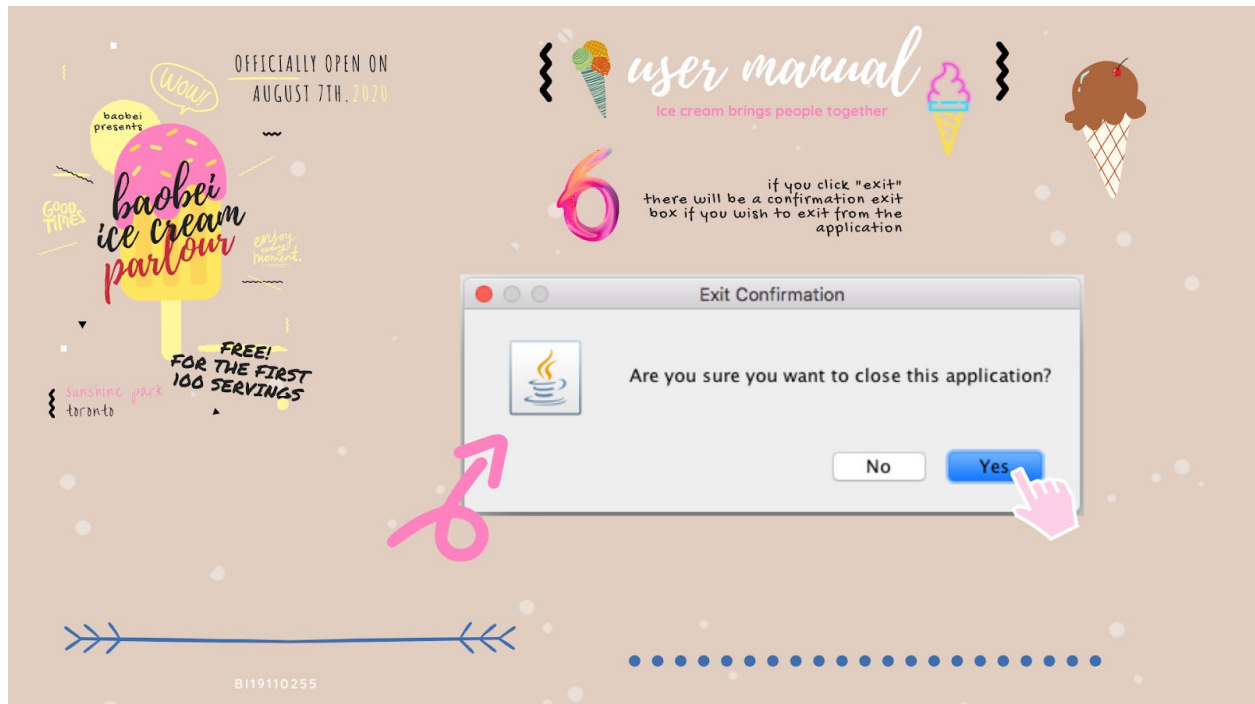
 }

}

User Manual

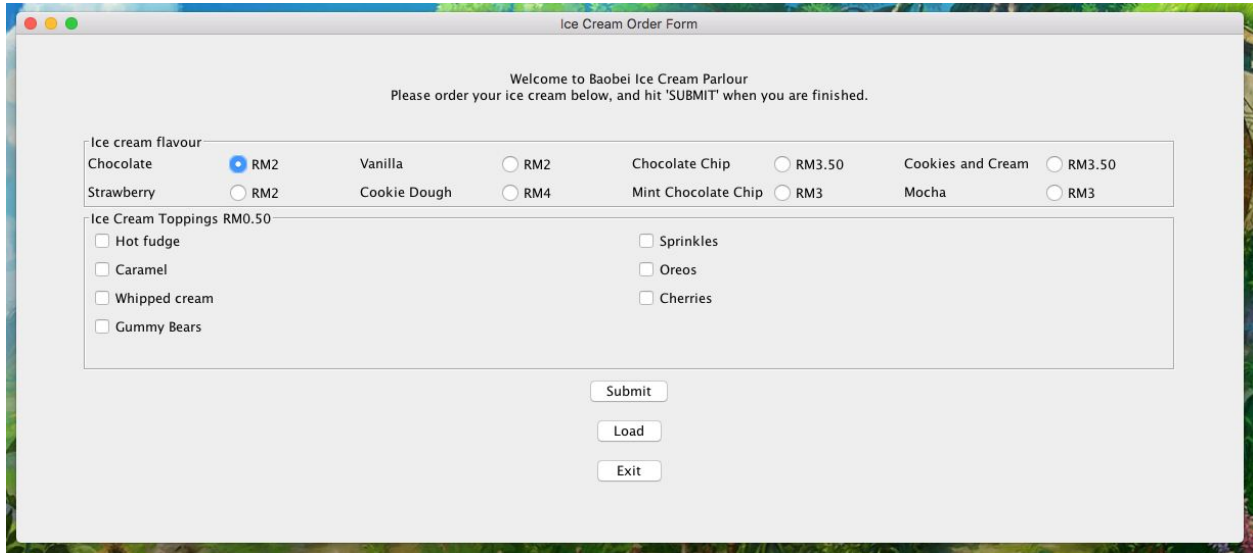






Screenshots of GUI Application

Ice Cream Order Form



The screenshot shows a window titled "Ice Cream Order Form" with a light gray background and a decorative border. At the top, it says "Welcome to Baobei Ice Cream Parlour" and "Please order your ice cream below, and hit 'SUBMIT' when you are finished." Below this, there are two main sections: "Ice cream flavour" and "Ice Cream Toppings RM0.50".

Ice cream flavour

Chocolate	<input checked="" type="radio"/> RM2	Vanilla	<input type="radio"/> RM2	Chocolate Chip	<input type="radio"/> RM3.50	Cookies and Cream	<input type="radio"/> RM3.50
Strawberry	<input type="radio"/> RM2	Cookie Dough	<input type="radio"/> RM4	Mint Chocolate Chip	<input type="radio"/> RM3	Mocha	<input type="radio"/> RM3

Ice Cream Toppings RM0.50

<input type="checkbox"/> Hot fudge	<input type="checkbox"/> Sprinkles
<input type="checkbox"/> Caramel	<input type="checkbox"/> Oreos
<input type="checkbox"/> Whipped cream	<input type="checkbox"/> Cherries
<input type="checkbox"/> Gummy Bears	

At the bottom of the form, there are three buttons: "Submit", "Load", and "Exit".

Submit Button



Load Button



Exit Button

