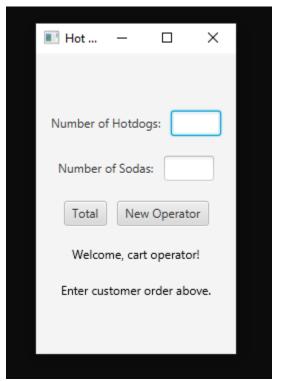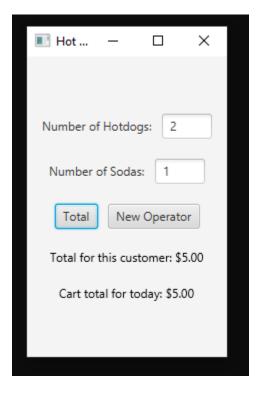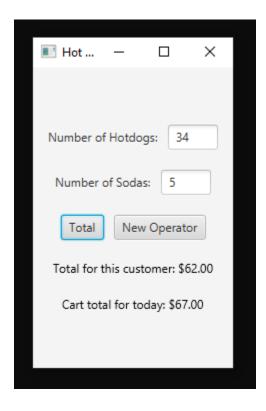CS 1073

FR03A

Assignment #5

Ethan A. McCarthy

3573807
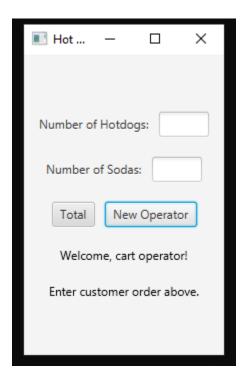
Section 1

```java
import javafx.application.Application;
import javafx.event.ActionEvent;
import javafx.geometry.Pos;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.layout.FlowPane;
import javafx.scene.text.Text;
import javafx.stage.Stage;
import java.text.NumberFormat;
/**
 * @author Ethan McCarthy 3573807
 */


public class HotDogStand extends Application{

    NumberFormat formatter = NumberFormat.getCurrencyInstance();

    private TextField hotdogField;
    private TextField sodaField;
    private Text customerTotal;
    private Text dayTotal;
    private double total;

    public void start(Stage primaryStage){
        primaryStage.setTitle("Hot Dog Stand interface");

        Button totalCost = new Button("Total");
        Button newOperator = new Button("New Operator");

        totalCost.setOnAction(this::calculateTotal);
        newOperator.setOnAction(this::newOperator);

        Label hotdogLabel = new Label("Number of Hotdogs:");
        Label sodaLabel = new Label("Number of Sodas:");

        hotdogField = new TextField();
        hotdogField.setPrefWidth(50);
        hotdogField.setOnAction(this::calculateTotal);

        sodaField = new TextField();
        sodaField.setPrefWidth(50);
```
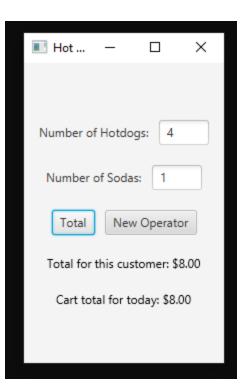
```java
        sodaField.setOnAction(this::calculateTotal);

        customerTotal = new Text("Welcome, cart operator!");
        dayTotal = new Text("Enter customer order above.");

        FlowPane pane = new FlowPane(hotdogLabel, hotdogField, sodaLabel,
sodaField, totalCost, newOperator, customerTotal, dayTotal);
        pane.setAlignment(Pos.CENTER);
        pane.setHgap(10);
        pane.setVgap(20);

        Scene scene = new Scene(pane, 200, 300);

        primaryStage.setScene(scene);
        primaryStage.show();
    }

    public void calculateTotal (ActionEvent event){
        double orderTotal;
        int hotdogIn = Integer.parseInt(hotdogField.getText());
        int sodaIn = Integer.parseInt(sodaField.getText());

        int discount = hotdogIn / 3;
        int hotdogNew = hotdogIn % 3;

        orderTotal = (discount * 5) + (hotdogNew * 2) + sodaIn;
        customerTotal.setText("Total for this customer: " +
formatter.format(orderTotal));

        total += orderTotal;
        dayTotal.setText("Cart total for today: " + formatter.format(total));

    }

    public void newOperator (ActionEvent event){
        total = 0;
        customerTotal.setText("Welcome, cart operator!");
        dayTotal.setText("Enter customer order above.");

        sodaField.setText("");
        hotdogField.setText("");
    }

}
```

Section 2

Window 1 (top left)

Hot ...

Number of Hotdogs: [ ]

Number of Sodas: [ ]

[Total]   [New Operator]

Welcome, cart operator!

Enter customer order above.

Window 2 (top right)

Hot ...

Number of Hotdogs: [2]

Number of Sodas: [1]

[Total]   [New Operator]

Total for this customer: $5.00

Cart total for today: $5.00

Window 3 (bottom left)

Hot ...

Number of Hotdogs: [34]

Number of Sodas: [5]

[Total]   [New Operator]

Total for this customer: $62.00

Cart total for today: $67.00

Window 4 (bottom right)

Hot ...

Number of Hotdogs: [ ]

Number of Sodas: [ ]

[Total]   [New Operator]

Welcome, cart operator!

Enter customer order above.

Hot ... — □ ✕

Number of Hotdogs: 4

Number of Sodas: 1

Total   New Operator

Total for this customer: $8.00

Cart total for today: $8.00

Section 3

```java
/**
 * @author Ethan McCarthy 3573807
 */


abstract class AccomodationBooking{

   private String guestName;
   private int guests;
   private int beds;
   private int nights;

   public AccomodationBooking(String nameIn, int guestsIn, int bedsIn, int
nightsIn){
       guestName = nameIn;
       guests = guestsIn;
       beds = bedsIn;
       nights = nightsIn;
   }

   public String getName(){
       return guestName;
   }

   public int getGuests(){
       return guests;
   }

   public int getBeds(){
       return beds;
   }

   public int getNights(){
       return nights;
   }

   public abstract double calculateCost();

   public abstract String getCheckoutTime();
}
```

```java
/**
 * @author Ethan McCarthy 3573807
 */

public class StandardBooking extends AccomodationBooking{

    public StandardBooking(String nameIn, int guestsIn, int bedsIn, int nightsIn){
        super (nameIn, guestsIn, bedsIn, nightsIn);
    }

    public double calculateCost(){
        double cost;
        int bedsCost = 0;
        if (getBeds() > 2 ){
            bedsCost = getBeds() - 2;
        }

        cost = (bedsCost * 25) + (240 * getNights()) + (11.75 * getNights());

        return cost;
    }

    public String getCheckoutTime(){
        String checkout;
        double number = Math.random()*2;

        if (number > 1){
            checkout = "11am";
        }
        else{
            checkout = "12pm";
        }
        return checkout;
    }
}


/**
 * @author Ethan McCarthy 3573807
 */

public class SuiteBooking extends AccomodationBooking{

    public SuiteBooking(String nameIn, int guestsIn, int bedsIn, int nightsIn){
```

```java
        super(nameIn, guestsIn, bedsIn, nightsIn);
    }

    public double calculateCost(){
        double cost;
        int bedsCost = 0;
        if(getBeds() > 2){
            bedsCost = (getBeds() - 2) * 20;
        }

        cost = (490 * getNights()) + bedsCost;
        return cost;
    }

    public String getCheckoutTime(){
        String checkout = "1pm";
        return checkout;
    }

    public String randomGift(){
        double number = Math.random()*3;
        String gift;

        if(number < 1){
            gift = "Bundle of Books";
        }
        else if (number > 1 && number < 2){
            gift = "Board and Card Games";
        }
        else {
            gift = "Snack Food Basket";
        }
        return gift;
    }
}
```

```java
import javafx.application.Application;
import javafx.event.ActionEvent;
import javafx.geometry.Pos;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.layout.FlowPane;
```

```java
import javafx.scene.text.Text;
import javafx.stage.Stage;
import java.text.NumberFormat;
/**
 * @author Ethan McCarthy 3573807
 */

public class FrontEndGUI extends Application{

    NumberFormat formatter = NumberFormat.getCurrencyInstance();

    private TextField nameField;
    private TextField guestsField;
    private TextField bedsField;
    private TextField nightsField;
    private Text welcome;
    private Text totalCost;
    private Text checkoutTime;

    public void start(Stage primaryStage){
        primaryStage.setTitle("Hotel Booking App");

        Button standard = new Button("Standard");
        Button suite = new Button("Suite");
        Button reset = new Button("Reset");

        standard.setOnAction(this::calculateStandard);
        suite.setOnAction(this::calculateSuite);
        reset.setOnAction(this::reset);

        Label nameLabel = new Label("Name:");
        Label guestsLabel = new Label("Number of Guests:");
        Label bedsLabel = new Label("Number of Beds:");
        Label nightsLabel = new Label("Number of Nights:");

        nameField = new TextField();
        nameField.setPrefWidth(100);

        guestsField = new TextField();
        guestsField.setPrefWidth(50);

        bedsField = new TextField();
        bedsField.setPrefWidth(50);

        nightsField = new TextField();
```

```java
        nightsField.setPrefWidth(50);

        welcome = new Text("Welcome to Cedar Mountain Lodge!");
        totalCost = new Text("Enter your Information.");
        checkoutTime = new Text("Check Out Time TBD.");

        FlowPane pane = new FlowPane(nameLabel, nameField, guestsLabel,
guestsField, bedsLabel, bedsField, nightsLabel, nightsField, standard, suite,
reset, welcome, totalCost, checkoutTime);
        pane.setAlignment(Pos.CENTER);
        pane.setHgap(10);
        pane.setVgap(20);

        Scene scene = new Scene(pane, 225, 400);

        primaryStage.setScene(scene);
        primaryStage.show();

    }

    public void calculateStandard(ActionEvent event){
        StandardBooking standard = new StandardBooking(nameField.getText(),
Integer.parseInt(guestsField.getText()), Integer.parseInt(bedsField.getText()),
Integer.parseInt(nightsField.getText()));
        welcome.setText("Total below includes cost of breakfast.");
        totalCost.setText("Total Cost: " +
formatter.format(standard.calculateCost()));
        checkoutTime.setText("Please check out by: " +
standard.getCheckoutTime());
    }

    public void calculateSuite(ActionEvent event){
        SuiteBooking suite = new SuiteBooking(nameField.getText(),
Integer.parseInt(guestsField.getText()), Integer.parseInt(bedsField.getText()),
Integer.parseInt(nightsField.getText()));
        welcome.setText("Room perk: " + suite.randomGift());
        totalCost.setText("Total Cost: " +
formatter.format(suite.calculateCost()));
        checkoutTime.setText("Please check out by: 1pm");
    }

    public void reset(ActionEvent event){
        welcome.setText("Welcome to Cedar Mountain Lodge!");
        totalCost.setText("Enter your Information.");
        checkoutTime.setText("Check Out Time TBD.");
```

```java
        nameField.setText("");
        guestsField.setText("");
        bedsField.setText("");
        nightsField.setText("");


    }

}
```

Section 4

Window 1

Hotel Bo... — ☐ ✕

Name: `ethan`

Number of Guests: `2`

Number of Beds: `2`

Number of Nights: `2`

[Standard] [Suite] [Reset]

Total below includes cost of breakfast.

Total Cost: $503.50

Please check out by: 11am

Window 2

Hotel Bo... — ☐ ✕

Name: `greg`

Number of Guests: `1`

Number of Beds: `1`

Number of Nights: `5`

[Standard] [Suite] [Reset]

Total below includes cost of breakfast.

Total Cost: $1,258.75

Please check out by: 12pm

Window 1

Hotel Bo... — □ ✕

Name: alicia

Number of Guests: 5

Number of Beds: 3

Number of Nights: 3

[Standard] [Suite] [Reset]

Room perk: Board and Card Games

Total Cost: $1,490.00

Please check out by: 1pm

Window 2

Hotel Bo... — □ ✕

Name: jacob

Number of Guests: 5

Number of Beds: 4

Number of Nights: 7

[Standard] [Suite] [Reset]

Room perk: Snack Food Basket

Total Cost: $3,470.00

Please check out by: 1pm