wwCS1073
FR03B
Assignment #6

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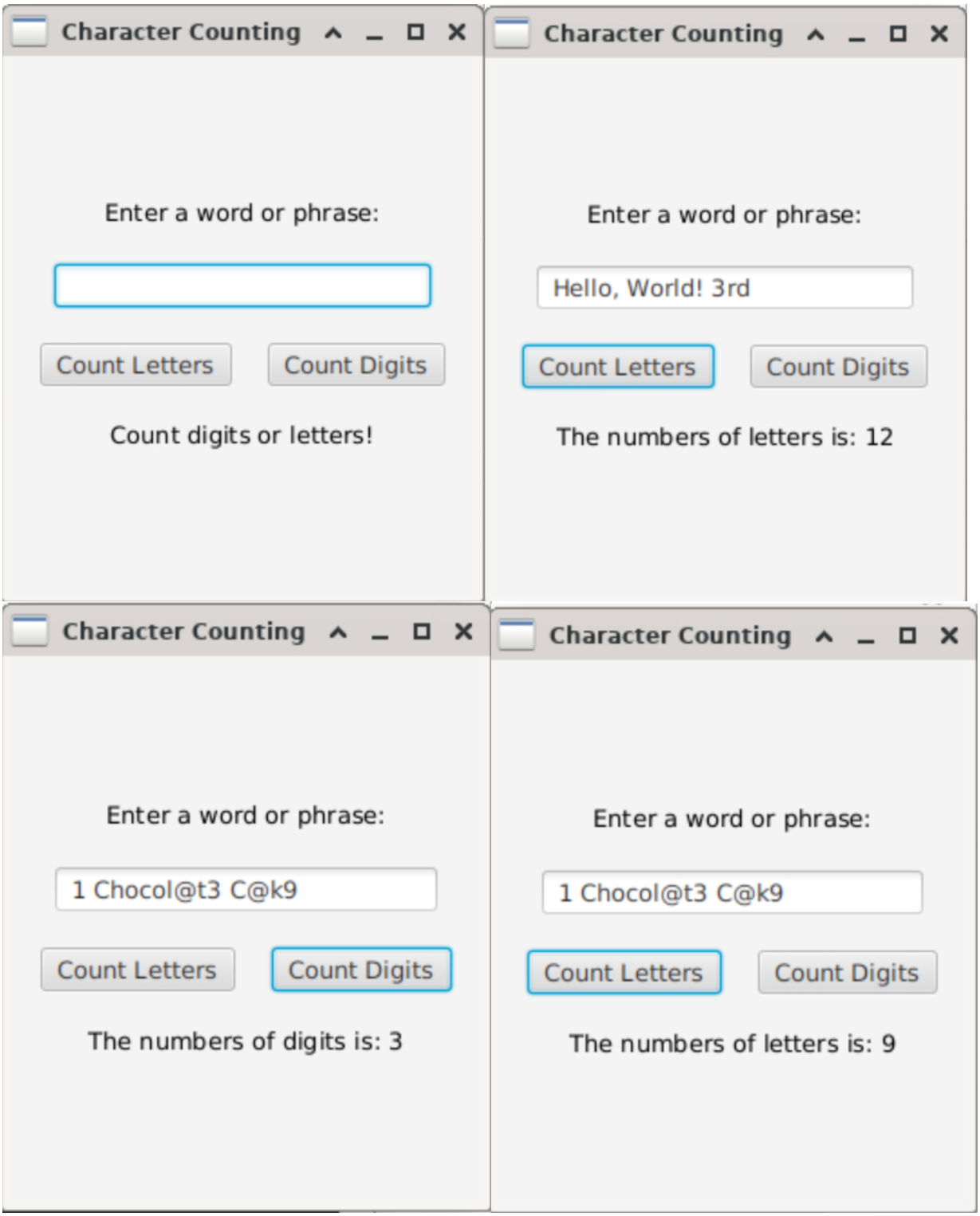
Part I:

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

/**
This class represents a javadoc application for Character
Counting
@author Daniyal Khan 3765942
*/

public class CharacterCounting extends Application {
    TextField inputField;
    Text instruct;

    public static void main(String[] args) {
        launch(args);
    }

    public void start(Stage Stage) {
        Stage.setTitle("Character Counting");

          Text heading = new Text("Enter a word or phrase:");
          inputField = new TextField();
          inputField.setPrefWidth(210);

          Button countLetters = new Button("Count Letters");
          Button countDigits = new Button("Count Digits");
          countLetters.setOnAction(this::letterCounter);
          countDigits.setOnAction(this::digitCounter);

          instruct = new Text("Count digits or letters!");
```

```
        FlowPane pane = new FlowPane(heading, inputField,
countLetters, countDigits, instruct);
        pane.setAlignment(Pos.CENTER);
        pane.setVgap(20);
        pane.setHgap(20);

        Scene scene = new Scene(pane, 260, 300);
          Stage.setScene(scene);
        Stage.show();
    }

    public void letterCounter(ActionEvent event) {
     String inputStr = inputField.getText();
     int numLetters = 0;
     for (int i = 0, len = inputStr.length(); i < len; i++) {
          if(Character.isLetter(inputStr.charAt(i))) {
               numLetters++;
          }
     }
     instruct.setText("The numbers of letters is: " +
numLetters);
    }

    public void digitCounter(ActionEvent event) {
     String inputStr = inputField.getText();
     int numDigits = 0;
     for (int i = 0, len = inputStr.length(); i < len; i++) {
          if(Character.isDigit(inputStr.charAt(i))) {
               numDigits++;
          }
     }
     instruct.setText("The numbers of digits is: " + numDigits);
    }

}
```

Output:


Character Counting
Enter a word or phrase:
Count Letters
Count Digits
Count digits or letters!
Character Counting
Enter a word or phrase:
Hello, World! 3rd
Count Letters
Count Digits
The numbers of letters is: 12
Character Counting
Enter a word or phrase:
1 Chocol@t3 C@k9
Count Letters
Count Digits
The numbers of digits is: 3
Character Counting
Enter a word or phrase:
1 Chocol@t3 C@k9
Count Letters
Count Digits
The numbers of letters is: 9

Part 2:

HotelRoomBooking.java

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

/**
This class represents a javadoc application for Character
Counting
@author Daniyal Khan 3765942
*/

public class HotelRoomBooking extends Application {
    private TextField nameField;
    private TextField guestField;
    private TextField bedField;
    private TextField nightField;
    private NumberFormat currency;
    private Text intro;
    private Text checkOut;
    private Text display;

    public static void main(String[] args) {
        launch(args);
    }

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

          Text name = new Text("Name:");
          nameField = new TextField();
          nameField.setPrefWidth(100);
```

```
          Text numGuests = new Text("Number of Guests:");
          guestField = new TextField();
          guestField.setPrefWidth(60);
          Text numBeds = new Text("Number of Beds:");
          bedField = new TextField();
          bedField.setPrefWidth(60);
          Text numNights = new Text("Number of Nights:");
      nightField = new TextField();
      nightField.setPrefWidth(60);

      Button suite = new Button("Suite");
      Button standard = new Button("Standard");
      Button reset = new Button("Reset");
      reset.setOnAction(this::resetFields);
      suite.setOnAction(this::suiteRoom);
      standard.setOnAction(this::standardRoom);

      intro = new Text("Welcome to Hotels R Us");
      checkOut = new Text("Take note of your check-out time.");
      display = new Text("Enter your information");

         FlowPane pane = new FlowPane(name, nameField, numGuests,
guestField, numBeds, bedField,               numNights,
nightField, suite, standard, reset, intro, checkOut, display);

         pane.setAlignment(Pos.CENTER);
         pane.setVgap(20);
         pane.setHgap(15);

         Scene scene = new Scene(pane, 260, 370);
           Stage.setScene(scene);
         Stage.show();
     }

     public void suiteRoom(ActionEvent event) {
      currency = NumberFormat.getCurrencyInstance();
      String nameStr = nameField.getText();
      String guestStr = guestField.getText();
      String bedStr = bedField.getText();
      String nightStr = nightField.getText();
      int numGuests = Integer.parseInt(guestStr);
      int numBeds = Integer.parseInt(bedStr);
      int numNights = Integer.parseInt(nightStr);
```

```
     Suite suite = new Suite(nameStr, numNights, numGuests,
numBeds);

     intro.setText("Your room perk is: " + suite.randPerk());
     checkOut.setText("Please check-out by: " +
suite.checkOutTime());
     display.setText("Total Cost: " +
currency.format(suite.getRate()));
    }

    public void standardRoom(ActionEvent event) {
     currency = NumberFormat.getCurrencyInstance();
     String nameStr = nameField.getText();
     String guestStr = guestField.getText();
     String bedStr = bedField.getText();
     String nightStr = nightField.getText();
     int numGuests = Integer.parseInt(guestStr);
     int numBeds = Integer.parseInt(bedStr);
     int numNights = Integer.parseInt(nightStr);

     Standard standard = new Standard(nameStr, numNights,
numGuests, numBeds);

     intro.setText("Breakfast included in room cost.");
     checkOut.setText("Please check-out by: " +
standard.checkOutTime());
     display.setText("Total Cost: " +
currency.format(standard.getRate()));
    }

    public void resetFields(ActionEvent event) {
     nameField.clear();
     guestField.clear();
     bedField.clear();
     nightField.clear();
    }

}
```

Room.java

```
/**
This class represents a room in Hotel R Us
@author Daniyal Khan 3765942
*/

public class Room {
     /**
     Name of the person booking
     */
     private String name;

     /**
     Number of nights staying
     */
     private int numNights;

     /**
     Number of guests
     */
     private int numGuests;

     /**
     Number of beds
     */
     private int numBeds;

     /**
     Contructs a object of type Room given the name, number of
nights, number of guests and
     @param name Name of the person booking
     @param numNights Number of nights
     @param numGuests Number of guests
     @param numBeds Number of beds
     */
     public Room(String name, int numNights, int numGuests, int
numBeds) {
          this.name = name;
          this.numNights = numNights;
          this.numGuests = numGuests;
          this.numBeds = numBeds;
     }
```

```
	/**
	@return Name of the person who booked
	*/
	public String name() {
		return name;
	}

	/**
	@return Number of nights staying
	*/
	public int numNights() {
		return numNights;
	}

	/**
	@return Number of guests
	*/
	public int numGuests() {
		return numGuests;
	}

	/**
	@return Number of beds
	*/
	public int numBeds() {
		return numBeds;
	}
}
```

Suite.java

```
import java.util.Random;
/**
This class represents a Suite in Hotel R Us
@author Daniyal Khan 3765942
*/

public class Suite extends Room {
     /**
     Base rate of the suite
     */
     private final double BASE_RATE;

     /**
     Contructs a object of type Suite given the name, number of
nights, number of guests and
     @param name Name of the person booking
     @param numNights Number of nights
     @param numGuests Number of guests
     @param numBeds Number of beds
     */
     public Suite(String name, int numNights, int numGuests, int
numBeds) {
          super(name, numNights, numGuests, numBeds);
          BASE_RATE = 380;
     }

     /**
     @return Total cost of the suite
     */
     public double getRate() {
          double total = 0;
          int numExtraBed = super.numBeds() - 3;
          double additionalBedCharge = 15.00;
          total = super.numNights()*BASE_RATE;
          if (numExtraBed >= 1) {
               total +=
super.numNights()*(numExtraBed*additionalBedCharge);
          }
          return total;
     }
```

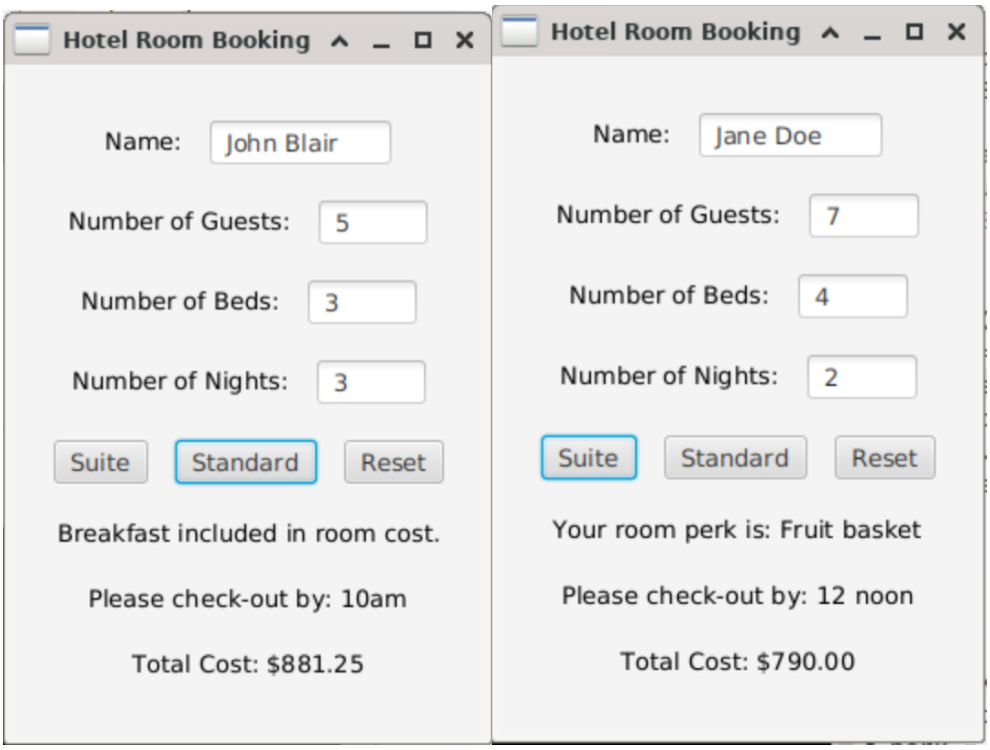
```
	/**
	@return Random perk (Champagne, Chocolates, Fruit basket)
	*/
	public String randPerk() {
		String perk = "";
		Random rand = new Random();
		int random = rand.nextInt(3)+1;
		switch (random) {
			case 1:
				perk = "Champagne";
				break;
			case 2:
				perk = "Chocolates";
				break;
			case 3:
				perk = "Fruit basket";
				break;
		}
		return perk;
	}

	/**
	@return Checkout time
	*/
	public String checkOutTime() {
		return "12 noon";
	}
}
```

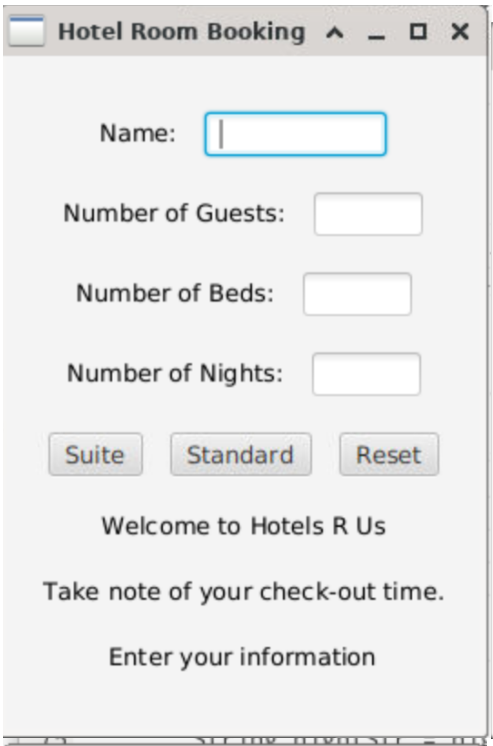
Standard.java

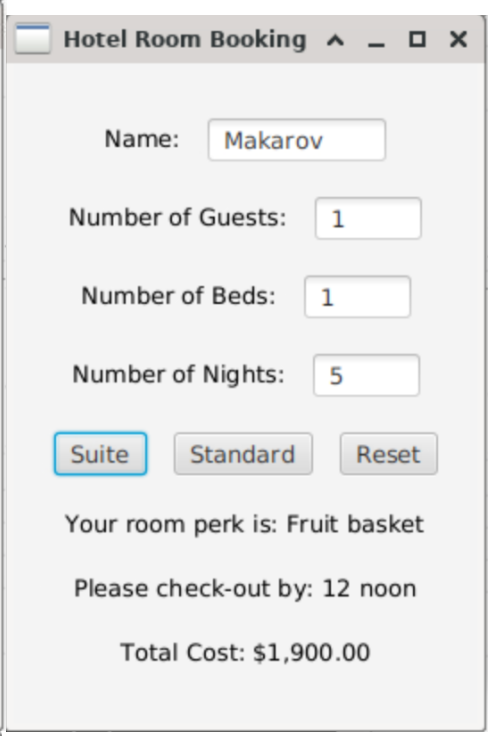
```
import java.util.Random;
/**
This class represents a Standard room in Hotel R Us
@author Daniyal Khan 3765942
*/

public class Standard extends Room {
     /**
     Base rate for a standard room
     */
     private final double BASE_RATE;

     /**
     Contructs a object of type Standard given the name, number
of nights, number of guests and
     @param name Name of the person booking
     @param numNights Number of nights
     @param numGuests Number of guests
     @param numBeds Number of beds
     */
     public Standard(String name, int numNights, int numGuests,
int numBeds) {
          super(name, numNights, numGuests, numBeds);
          BASE_RATE = 225;
     }

     /**
     @return Total cost of the suite
     */
     public double getRate() {
          double total = 0;
          int numExtraBed = super.numBeds() - 2;
          double additionalBedCharge = 20.00;
          double breakFastCharge = 9.75;
          total = super.numNights()*BASE_RATE +
super.numNights()*(breakFastCharge*super.numGuests());
          if (numExtraBed >= 1) {
               total +=
super.numNights()*(additionalBedCharge*numExtraBed);
          }
          return total;
```

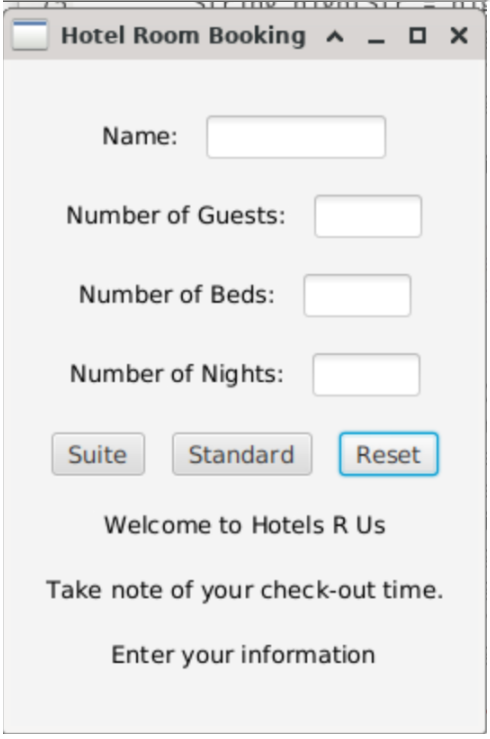
```
	}

	/**
	@return Random checkout time (either 10am or 11am)
	*/
	public String checkOutTime() {
		String time = "";
		Random rand = new Random();
		int random = rand.nextInt(2) + 1;
		switch (random) {
			case 1:
				time = "11am";
				break;
			case 2:
				time = "10am";
				break;
		}
		return time;
	}
}
```

Output:


Hotel Room Booking
Name: John Blair
Number of Guests: 5
Number of Beds: 3
Number of Nights: 3
Suite
Standard
Reset
Breakfast included in room cost.
Please check-out by: 10am
Total Cost: $881.25
Hotel Room Booking
Name: Jane Doe
Number of Guests: 7
Number of Beds: 4
Number of Nights: 2
Suite
Standard
Reset
Your room perk is: Fruit basket
Please check-out by: 12 noon
Total Cost: $790.00


Hotel Room Booking
Name:
Number of Guests:
Number of Beds:
Number of Nights:
Suite
Standard
Reset
Welcome to Hotels R Us
Take note of your check-out time.
Enter your information


Hotel Room Booking
Name:
Makarov
Number of Guests:
1
Number of Beds:
1
Number of Nights:
5
Suite
Standard
Reset
Your room perk is: Fruit basket
Please check-out by: 12 noon
Total Cost: $1,900.00


Hotel Room Booking
Name:
Number of Guests:
Number of Beds:
Number of Nights:
Suite
Standard
Reset
Welcome to Hotels R Us
Take note of your check-out time.
Enter your information