Java Programming

Section 2-2 practice

1. You need to locate all GUI elements and update their background colors to use this new color. Creating and Implementing Interfaces in the Bike Project

BikeParts Interface:

1. Define the BikeParts interface as instructed:

Code:

```
package bikeproject;
public interface BikeParts {
// Constant declaration
public final String MAKE = "Oracle Bikes";
// Required methods
public String getHandleBars();
public void setHandleBars(String newValue);
public String getTyres();
public void setTyres(String newValue);
public String getSeatType();
public void setSeatType(String newValue);
}
```

3.MountainParts Interface: Code:

```
package bikeproject;
public interface MountainParts {
// Constant declaration
public final String TERRAIN = "off_road";
// Required methods
public String getSuspension();
public void setSuspension(String newValue);
public String getType();
public void setType(String newValue);
}
```

5. RoadParts Interface:

```
package bikeproject;
public interface RoadParts {
// Constant declaration
public final String TERRAIN = "track_racing";
// Required methods
public String getTyreWidth();
public void setTyreWidth(String newValue);
public String getPostHeight();
public void setPostHeight(String newValue);
}
```

Implementing Interfaces in Classes

1. Implement BikeParts in Bike Class:

```
package bikeproject;
public class Bike implements BikeParts {
private String handleBars;
private String tyres;
private String seatType;
// Implement required methods
@Override
public String getHandleBars() {
return handleBars;
}
@Override
public void setHandleBars(String newValue) {
```

```
this.handleBars = newValue;
}
@Override
public String getTyres() {
return tyres;
}
@Override
public void setTyres(String newValue) {
this.tyres = newValue;
}
@Override
public String getSeatType() {
return seatType;
}
@Override
public void setSeatType(String newValue) {
this.seatType = newValue;
}
// Other existing code
}
```

Implement MountainParts in MountainBike Class:

```
package bikeproject;
public class MountainBike extends Bike implements MountainParts
{
private String suspension;
private String type;
// Implement required methods
@Override
public String getSuspension() {
```

```
return suspension;
}
@Override
public void setSuspension(String newValue) {
this.suspension = newValue;
}
@Override
public String getType() {
return type;
}
@Override
public void setType(String newValue) {
this.type = newValue;
}
// Other existing code
}
```

Implement MountainParts in MountainBike Class:

```
package bikeproject;
public class MountainBike extends Bike implements MountainParts
{
private String suspension;
private String type;
// Implement required methods
@Override
public String getSuspension() {
return suspension;
}
@Override
public void setSuspension(String newValue) {
```

```
this.suspension = newValue;
}
@Override
public String getType() {
return type;
}
@Override
public void setType(String newValue) {
this.type = newValue;
}
// Other existing code
}
```

7.Implement RoadParts in RoadBike Class:

```
package bikeproject;
public class RoadBike extends Bike implements RoadParts {
private String tyreWidth;
private String postHeight;
// Implement required methods
@Override
public String getTyreWidth() {
return tyreWidth;
}
@Override
public void setTyreWidth(String newValue) {
this.tyreWidth = newValue;
}
@Override
public String getPostHeight() {
return postHeight;
}

@Override

public void setPostHeight(String newValue) {

this.postHeight = newValue;

}

// Other existing code

}
```

□ Run and Test the Program: □□ Ensure that the program behaves as expected after the changes. It should work just as it

did before. □ Update the Height of the Post for bike1:

□□ At the bottom of your driver class (the main method), update the postHeight value

for bike1:

```
bike1.setPostHeight("20"); // Set the post height to 20
```

10.Display the Values of bike1: □ Print out the details of bike1 to confirm that the postHeight has been updated

```
System.out.println("Bike1 Post Height: " + bike1.getPostHeight());
```

11.Run and Test Your Program Again: □ Verify that the postHeight is correctly updated and displayed as 20 instead of 2