**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