**SECTION 2.3**

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import javax.swing.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

public class IntegratedProject {

// AbstractBankAccount class

public abstract static class AbstractBankAccount {

protected String accountNumber;

protected double balance;

public AbstractBankAccount(String accountNumber, double balance) {

this.accountNumber = accountNumber;

this.balance = balance;

}

public String getAccountNumber() {

return accountNumber;

}

public double getBalance() {

return balance;

}

@Override

public String toString() {

return "Account Number: " + accountNumber + "\nBalance: " + balance;

}

}

// SavingsAccount class

public static class SavingsAccount extends AbstractBankAccount {

private double interestRate;

public SavingsAccount(String accountNumber, double balance, double interestRate) {

super(accountNumber, balance);

this.interestRate = interestRate;

}

@Override

public String toString() {

return super.toString() + "\nInterest Rate: " + interestRate;

}

}

// CheckingAccount class

public static class CheckingAccount extends AbstractBankAccount {

private double overdraftLimit;

public CheckingAccount(String accountNumber, double balance, double overdraftLimit) {

super(accountNumber, balance);

this.overdraftLimit = overdraftLimit;

}

@Override

public String toString() {

return super.toString() + "\nOverdraft Limit: " + overdraftLimit;

}

}

// JavaBank application

public static class JavaBank {

private AbstractBankAccount[] myAccounts;

private JTextArea displayArea;

public JavaBank() {

myAccounts = new AbstractBankAccount[5]; // Example array size

displayArea = new JTextArea(10, 30);

// Example account initialization

myAccounts[0] = new SavingsAccount("12345", 1000.0, 0.05);

myAccounts[1] = new CheckingAccount("67890", 500.0, 100.0);

JFrame frame = new JFrame("JavaBank");

JButton displayButton = new JButton("Display Account Details");

displayButton.addActionListener(new ActionListener() {

@Override

public void actionPerformed(ActionEvent e) {

displayAccountDetails(myAccounts[0]); // Display the first account details as an example

}

});

frame.add(displayButton);

frame.add(new JScrollPane(displayArea));

frame.setLayout(new BoxLayout(frame.getContentPane(), BoxLayout.Y\_AXIS));

frame.setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

frame.pack();

frame.setVisible(true);

}

private void displayAccountDetails(AbstractBankAccount account) {

displayArea.setText(account.toString());

}

}

// BikeParts Interface

public interface BikeParts {

// Constant declaration

public final String MAKE = "Oracle Bikes";

// Required methods after implementation

public String getHandleBars();

public void setHandleBars(String newValue);

public String getTyres();

public void setTyres(String newValue);

public String getSeatType();

public void setSeatType(String newValue);

public String getSuspension();

public void setSuspension(String newValue);

public String getType();

public void setType(String newValue);

}

// MountainBike Class implementing BikeParts interface

public static class MountainBike implements BikeParts {

private String handleBars;

private String tyres;

private String seatType;

private String suspension;

private String type;

@Override

public String getHandleBars() {

return handleBars;

}

@Override

public void setHandleBars(String newValue) {

handleBars = newValue;

}

@Override

public String getTyres() {

return tyres;

}

@Override

public void setTyres(String newValue) {

tyres = newValue;

}

@Override

public String getSeatType() {

return seatType;

}

@Override

public void setSeatType(String newValue) {

seatType = newValue;

}

@Override

public String getSuspension() {

return suspension;

}

@Override

public void setSuspension(String newValue) {

suspension = newValue;

}

@Override

public String getType() {

return type;

}

@Override

public void setType(String newValue) {

type = newValue;

}

// Displaying the bike details

public void displayBikeDetails() {

System.out.println("Bike Make: " + MAKE);

System.out.println("HandleBars: " + getHandleBars());

System.out.println("Tyres: " + getTyres());

System.out.println("Seat Type: " + getSeatType());

System.out.println("Suspension: " + getSuspension());

System.out.println("Type: " + getType());

}

public static void main(String[] args) {

MountainBike myBike = new MountainBike();

myBike.setHandleBars("Drop");

myBike.setTyres("Off-road");

myBike.setSeatType("Comfort");

myBike.setSuspension("Full");

myBike.setType("Trail");

myBike.displayBikeDetails();

}

}

// Main method to run the entire project

public static void main(String[] args) {

// Start JavaBank application

// Test the MountainBike class

MountainBike myBike = new MountainBike();

myBike.setHandleBars("Drop");

myBike.setTyres("Off-road");

myBike.setSeatType("Comfort");

myBike.setSuspension("Full");

myBike.setType("Trail");

myBike.displayBikeDetails();

}

}

**OUTPUT:**

