**Dharmsinh Desai University**



Academic Year 2022-23

Department:

Faculty of Management and information science

Subject:

Object oriented Programming with Java

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| **Student sign.** | **Professor sign.** |

1. **Electricity Cost Estimate**

**Write a console-based java program to estimate electricity bill for a device based on given user input. Take wattage of the device, number of usage hours/day from the user**

**Steps to calculate cost:**

**● Multiply the device’s wattage by the number of hours the appliance is used per day**

**● Divide by 1000**

**● Multiply by your kWh rate**

**For example, if you have a 150 watt television that you watch five hours per day, it consumes 750 watt-hours per day (150 x 5 = 750). Divide 750 by 1000 to convert 750 watt-hours into 0.75 kWh (750 ÷ 1000 = 0.75). If your electricity rate is 70 paisa per kWh, that means it costs 525 Paisa per day to use your television (0.75 x 0.70 = 0.525). That should account for about Rs. 15.75 of your monthly electric bill (0.525 x 30 = 15.75).**

Code

import java.util.Scanner;

public class p1 {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        System.out.print("Enter the wattage of the device: ");

        int wattage = input.nextInt();

        System.out.print("Enter the number of usage hours per day: ");

        int usageHours = input.nextInt();

        System.out.print("Enter your electricity rate in paisa per kWh: ");

        double rate = input.nextDouble()/100;

        double wattHours = wattage \* usageHours;

        double kWh = wattHours / 1000;

        double costPerDay = kWh \* rate;

        double costPerMonth = costPerDay \* 30;

        System.out.printf("The estimated cost of using the device is Rs. %.2f per day.%n", costPerDay);

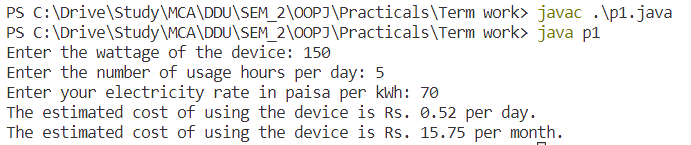
        System.out.printf("The estimated cost of using the device is Rs. %.2f per month.%n", costPerMonth);

        input.close();

    }

}

Output



1. **Write a java program using socket for client server communication.**

Code(server)

import java.io.\*;

import java.net.\*;

public class p2\_server {

    public static void main(String[] args) throws IOException {

        // create a new ServerSocket on port 5500

        ServerSocket serverSocket = new ServerSocket(5500);

        // wait for a client to connect and accept the connection

        Socket socket = serverSocket.accept();

        // create input and output streams for communication with the client

        DataInputStream dataInputStream = new DataInputStream(socket.getInputStream());

        DataOutputStream dataOutputStream = new DataOutputStream(socket.getOutputStream());

        // read an integer value from the client

        int value = dataInputStream.readInt();

        // process the value (here it is being squared)

        System.out.println("Received "+value);

        value = value \* value;

        System.out.println("Sending "+value);

        // send the processed value back to the client

        dataOutputStream.writeInt(value);

        // close the socket and serverSocket

        socket.close();

        serverSocket.close();

    }

}

Code(client)

import java.io.\*;

import java.net.\*;

import java.util.Scanner;

public class p2\_client {

    public static void main(String[] args) throws IOException {

        // create a scanner object for reading input from the user

        Scanner scanner = new Scanner(System.in);

        // create a new socket to connect to the server at "localhost" on port 5500

        Socket socket = new Socket("localhost", 5500);

        // create input and output streams for communication with the server

        DataInputStream dataInputStream = new DataInputStream(socket.getInputStream());

        DataOutputStream dataOutputStream = new DataOutputStream(socket.getOutputStream());

        // read an integer value from the user

        System.out.println("Enter a value: ");

        int value = scanner.nextInt();

        // send the value to the server

        dataOutputStream.writeInt(value);

        // receive the processed value from the server

        int result = dataInputStream.readInt();

        // print the result

        System.out.println("Result: " + result);

        // close the socket

        socket.close();

    }

}

Output

