

Object Oriented Programming with Java

TERMWORK

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 ($150 \times 5 = 750$). Divide 750 by 1000 to convert 750 watt-hours into 0.75 kWh ($750 \div 1000 = 0.75$). If your electricity rate is 70 paise per kWh, that means it costs 525 Paise per day to use your television ($0.75 \times 0.70 = 0.525$). That should account for about Rs. 15.75 of your monthly electric bills ($0.525 \times 30 = 15.75$).

Code:-

```
import java.util.*;

class Prog1
{
    public static void main(String args[])
    {
        double watt, hours, totupd;
        double kwatt, totbpd, finalbill;
        Scanner sc = new Scanner(System.in);
        System.out.println("Please enter following details:");
```

```
System.out.println("Enter total Wattage of the device");
```

```
watt=sc.nextDouble();
```

```
System.out.println("Enter Hours/day You Are Using It");
```

```
hours=sc.nextDouble();
```

```
totupd=watt*hours;
```

```
System.out.println("Total Usge Of Entered Divice/per Is="+totupd);
```

```
kwatt=totupd/1000;
```

```
System.out.println("Total Usge Of Entered Divice/per
```

```
In kWattIs="+kwatt);
```

```
totbpd=kwatt*0.70;
```

```
totbpd=Math.round(totbpd * 1000.0) / 1000.0;
```

```
System.out.println("Total Bill For One Day Usage
```

```
As 0.70/Kwatt="+totbpd);
```

```
finalbill=totbpd*30;
```

```
System.out.println("");
```

```
System.out.println("");
```

```
System.out.println("-----Final Bill-----");
```

```
System.out.println("Total Bill Per Month For This Device="+finalbill);
```

```
}
```

```
}
```

Output:-

```

D:\TERMWORK\Termwork Sem 2\2)JAVA>java Prog1
Please enter following details:
Enter total Wattage of the device
20
Enter Hours/day You Are Using It
10
Total Usge Of Entered Divice/per Is=200.0
Total Usge Of Entered Divice/per In kWattIs=0.2
Total Bill For One Day Usage As 0.70/kWatt=0.14

-----Final Bill-----
Total Bill Per Month For This Device=4.2

D:\TERMWORK\Termwork Sem 2\2)JAVA>

```

2) Write a java program using socket for client server communication**Name : Prog2_server.**

import java.io.*;

import java.net.*;

public class Prog2_server {

```

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

```

```

        ServerSocket serverSocket = new ServerSocket(8080);

```

```

        System.out.println("Your server is started on port (8080)");

```

```

        Socket socket = serverSocket.accept();

```

```

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

```

```

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

```

```

        String clientMessage = "";

```

```

        while (!clientMessage.equals("exit")) {

```

```
clientMessage = dataInput.readUTF();  
System.out.println("Client says: " + clientMessage);  
dataOutputStream.writeUTF("Thank you : Your Message received");  
dataOutputStream.flush();  
}
```

```
dataInput.close();  
socket.close();  
serverSocket.close();  
}  
}
```

Name : Prog2_client

```
import java.io.*;  
import java.net.*;  
  
public class Prog2_client {  
    public static void main(String[] args) throws IOException {  
        Socket socket = new Socket("localhost", 8080);  
  
        DataInputStream datainput = new DataInputStream(socket.getInputStream());  
        DataOutputStream dataOutput = new DataOutputStream  
            (socket.getOutputStream());  
        BufferedReader bufferedReader = new BufferedReader(new  
            InputStreamReader(System.in));  
        String serverMessage = "";  
        String clientMessage = "";
```

```
while (!clientMessage.equals("exit")) {  
    clientMessage = bufferedReader.readLine();  
    dataOutput.writeUTF(clientMessage);  
    dataOutput.flush();  
    serverMessage = datainput.readUTF();  
    System.out.println("Server says: " + serverMessage);  
}  
  
dataOutput.close();  
socket.close();  
}  
}
```

Output:

```
D:\TERMWORK\Termwork Sem 2\2)JAVA>java Prog2_server  
Server started and listening to port 8080  
Client says: hello myself jaymin valaki  
Client says: this is termwork of java .
```

```
Microsoft Windows [Version 10.0.22621.1555]  
(c) Microsoft Corporation. All rights reserved.  
  
D:\TERMWORK\Termwork Sem 2\2)JAVA>java Prog2_client  
hello myself jaymin valaki  
Server says: Message received  
this is termwork of java .  
Server says: Message received
```