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Q1. Read an Employee data with I'd, name and mobile number (regular expression and compare the mobile number must have only 10 digits name can consists of only alphabets, space character i'd number consists of 5 digits?

```
package LAB4;
import java.util.*;
import java.util.regex.*;
public class RegExp {
public static void main(String[] args) {
// To Read the input from system
Scanner sc = new Scanner(System.in);
System.out.println("Enter Name consists of 5 charecters");
System.out.println("Enter ID number");
String id= sc.next();
System.out.println("Enter Name");
String name= sc.next();
System.out.println("Enter 10 digit Mobile number");
String mobile= sc.next();
if(Pattern.matches("\\d\\d\\d\\d\\d\\d\\d\\d\\d\\d", mobile))
System.out.println("valid mobile number");
else
System.out.println("Invalid mobile number");
}
}
```

OUTPUT:

Enter Name consists of 5 charecters
Enter ID number
3
Enter Name
Deepthi!
Enter 10 digit Mobile number
9123456989
valid mobile number

(OR)

Enter Name consists of 5 charecters
Enter ID number
3
Enter Name
DEEPTHI!
Enter 10 digit Mobile number
35621
Invalid mobile number

Q2.Write a multithreading program, Thread 1; to display all perfect number Thread 2: to display factorial value of numbers from 1 to 10

```
package LAB4;
public class MultiThread4 {
public static void main(String[] args) {
First4 o1 = new First4();
Second4 o2 = new Second4();
Thread t1 = new Thread(o1);
Thread t2 = new Thread(o2);
t1.start();
t2.start();
System.out.println("End of Main");
}

}
```

Thread 1 : to display all perfect numbers,

```
package LAB4;
public class First4 implements Runnable {
public void run()
{
for(int i=1;i<=100000;i++)
{
int n=i;
int sum=0,factor=1;
while(factor<n)
{
if((n%factor)==0)
{
sum=sum+factor;
}
factor++;
}
if(sum==i)
{
System.out.println("perfect number is: ");
System.out.println(i+" ");
try
{
Thread.sleep(1000);
}
catch(Exception e)
```

```
{
System.out.println(e);
}
}
// System.out.println("End of First");
}
}
}
```

Thread 2 : to display factorial value of numbers from 1 to 10.

```
package LAB4;
import java.util.Scanner;
public class Second4 implements Runnable{
public void run() {
Scanner obj = new Scanner(System.in);
int n;
long fact=1;
long sum=0;
System.out.println("The Factorials are:");
for(int i=1;i<=10;i++)
{
fact=1;
for(int j=1;j<=i;j++)
{
fact=fact*j;
}
sum=sum+fact;
System.out.println(fact+" ! ");
}
// System.out.println("The Factorial is:");
try
{
Thread.sleep(2000);
}
catch(Exception e)
{
System.out.println(e);
}
//System.out.println("End of Second");
}
}
```

OUTPUT:

End of Main
perfect number is:
6
The Factorials are:
1 !
2 !
6 !
24 !
120 !
720 !
5040 !
40320 !
362880 !
3628800 !
perfect number is:
28
perfect number is:
496
perfect number is:
8128

Q3.Write a program read the data from fie

```
package LAB4;
import java.io.*;
public class DataFile {
public static void main(String[] sun) throws IOException
{
FileReader fr=new FileReader("F:\\Anudip\\Test.txt");
BufferedReader br=new BufferedReader(fr);
String str=null;
while( true )
{ try
{ str=br.readLine();
if(str.equals(null))
break;
System.out.println(str);
}
catch(NullPointerException e)
{ break; }
}
br.close();
fr.close();
}
}
```

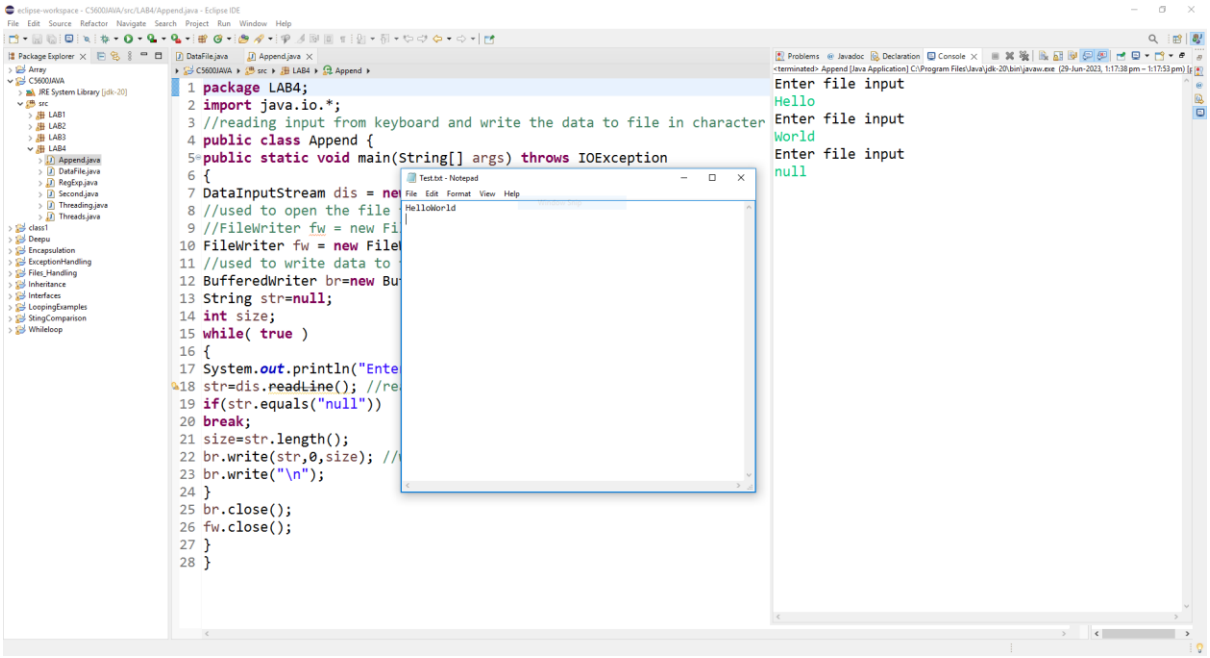
OUTPUT:

Hello
World

Q4. Write a progam to write content to file in append mode

```
package LAB4;
import java.io.*;
//reading input from keyboard and write the data to file in character stream
public class Append {
public static void main(String[] args) throws IOException
{
DataInputStream dis = new DataInputStream(System.in);
//used to open the file for writer
//FileWriter fw = new FileWriter("filename and path",appendmode);
FileWriter fw = new FileWriter("F:\\Anudip\\Test.txt",true);
//used to write data to file with the help of filewriter object
BufferedWriter br=new BufferedWriter(fw);
String str=null;
int size;
while( true )
{
System.out.println("Enter file input");
str=dis.readLine(); //read fromkeyborad
if(str.equals("null"))
break;
size=str.length();
br.write(str,0,size); //write to file
br.write("\n");
}
br.close();
fw.close();
}
}
```

OUTPUT:


Enter file input
Hello
Enter file input
World
Enter file input
null
Test.txt - Notepad
HellokWorld