5TH Package program

PROGRAM:

PackageDemo.java

```
import addition.PackageAccess;
public class PackageDemo{
  public static void main(String args[]){
      PackageAccess obj = new PackageAccess();
      System.out.println("Using Package to access the function add(), Result:
"+obj.add(100, 200));
  }
}
```

PackageAccess.java

```
package addition;

public class PackageAccess {
  public int add(int a, int b){
        return a+b;
  }
}
```

OUTPUT:

```
Using Package to access the function add(), Result:300
```

6th Streams

```
import java.io.*;
import java.util.Scanner;
class StreamDemo
{
public static void main(String[] args)throws IOException
{
String yourFile = "input.txt";
// Scanner sc = new Scanner(System.in);
// String yourContent=sc.nextLine();
String yourContent="Genius Ganesh";
File tmpDir = new File(yourFile);
if(tmpDir.exists()){
FileOutputStream fos = new FileOutputStream(yourFile);
fos.write(yourContent.getBytes());
fos.flush();
fos.close();
FileInputStream fis = new FileInputStream(yourFile);
int data;
int count =0;
while((data=fis.read()) != -1)
{
System.out.print((char)data);count++;
}
System.out.println(count);
}
}
}
```

7th JDBC

Step 1 :- ojdbc14 -> Java t point la .jar format la irukum download panni same folder potukeranum

Step 2:-

```
C:\Users\ELCOT\java_lab>set classpath=c:\Users\Elcot\java_lab\ojdbc14.jar;.;
```

Output

```
enius Ganesh13

:\Users\ELCOT\java_lab>set classpath=c:\Users\Elcot\java_lab\ojdbc14.jar;.;

:\Users\ELCOT\java_lab>javac OracleCon.java

:\Users\ELCOT\java_lab>java OracleCon
able is created
nter the no. of records you want to enter:
nter the name:
aha
nter the id:
01
nter the age:
1
ow is created
nter the name:
aveen
nter the id:
02
nter the age:
1
ow is created
ecord is updated
01 Hari 21
```

Program :

```
import java.sql.*;
import java.util.Scanner;
class OracleCon{
static Scanner sc;
private static Connection con=null;
private static Statement stmt=null;
static{
sc = new Scanner(System.in);
}
public static void main(String args[]){
try{
//step1 load the driver class
Class.forName("oracle.jdbc.driver.OracleDriver");
//step2 create the connection object
con = DriverManager.getConnection(
"jdbc:oracle:thin:@localhost:1521:xe","system","manager");
//step3 create the statement object
stmt=con.createStatement();
String createSql = "create table emp(id number(10),name varchar2(40),age number(3))";
int j = stmt.executeUpdate(createSql);
if(j == 0)
{
System.out.println("Table is created");
}
else
{
System.out.println("Table is not created");
}
System.out.println("Enter the no. of records you want to enter:");
int rec = sc.nextInt();
sc.nextLine();
String name;
int age,id,res;
for(int i=0;i<rec;i++)
{
System.out.println("Enter the name:");
name = sc.nextLine();
System.out.println("Enter the id:");
```

```
id = sc.nextInt();
System.out.println("Enter the age:");
age = sc.nextInt();
// System.out.println("INSERT INTO EMP VALUES("+id+","+"\'"+name+"\'"+","+age+")");
sc.nextLine();
res = stmt.executeUpdate("INSERT INTO EMP VALUES("+id+","+"\'"+name+"\'"+","+age+")");
if(res != 0)
{
System.out.println("Row is created");
}
else
{
System.out.println("Row is not created");
}
}
String sql = "UPDATE EMP SET NAME='Hari' " +
"WHERE id=201";
//Step 4 : Executing The Query
//We are using executeUpdate() method as we are executing UPDATE statement
int i = stmt.executeUpdate(sql);
if(i != 0)
{
System.out.println("Record is updated");
}
else
{
System.out.println("Record is not updated");
}
ResultSet rs=stmt.executeQuery("select * from emp");
while(rs.next())
System.out.println(rs.getInt(1)+" "+rs.getString(2)+" "+rs.getString(3));
}
catch (Exception e)
{
e.printStackTrace();
}
finally
{
```

```
//STEP 5 : Closing The DB Resources
//Closing the Statement object
try
{
if(stmt!=null)
{
stmt.close();
stmt=null;
}
}
catch (SQLException e)
{
e.printStackTrace();
}
//Closing the Connection object
try
{
if(con!=null)
{
con.close();
con=null;
}
}
catch (SQLException e)
{
e.printStackTrace();
}
}
}
}
```

8th EVENT or AWT Forms

Step 1:- any image download and save name for shopping.jpg in same folder

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.JOptionPane;
class AWTForm extends Frame implements ActionListener
{
TextField tf1,tf2;
Button b1;
AWTForm()
{
this.addWindowListener(new WindowAdapter(){
public void windowClosing(WindowEvent e)
{
System.exit(0);
}
});
tf1 = new TextField(25);
tf1.setBounds(100,230,260,40);
tf2 = new TextField(25);
tf2.setBounds(100,360,260,40);
tf2.setEchoChar('*');
b1 = new Button("Submit");
b1.setBounds(100,450,130,30);
b1.setBackground(new Color(238,175,0));
b1.addActionListener(this);
this.setTitle("ShowroomKit");
this.setSize(1300,600);
this.setVisible(true);
this.setLayout(null);
this.add(tf1);
this.add(tf2);
this.add(b1);
}
public void actionPerformed(ActionEvent ae)
{
```

```
if(ae.getSource()==b1)
{
if(tf1.getText().isEmpty())
{
JOptionPane.showMessageDialog(null, "Enter the email
ID","Error",JOptionPane.QUESTION_MESSAGE);
return;
}
if(tf2.getText().isEmpty())
{
JOptionPane.showMessageDialog(null, "Enter the
password","Error",JOptionPane.QUESTION_MESSAGE);
return;
}
JOptionPane.showMessageDialog(null, "Login
Successfull","Success",JOptionPane.PLAIN_MESSAGE);
}
}
public void paint(Graphics g)
{
Image img = Toolkit.getDefaultToolkit().getImage("Shopping.jpg");
MediaTracker track = new MediaTracker(this);
track.addImage(img,0);
try{
track.waitForID(0);
}catch(InterruptedException ie){}
this.setBackground(new Color(244,241,236));
Font f = new Font("Arial",Font.PLAIN,30);
g.setFont(f);
g.setColor(Color.black);
g.drawString("Welcome to",100,100);
Font f2 = new Font("Arial",Font.ITALIC,28);
g.setFont(f2);
g.drawString("ShowroomKit",270,100);
g.drawImage(img,440,130,500,400,null);
Font f3 = new Font("Arial",Font.PLAIN,24);
g.setFont(f3);
g.drawString("Enter your Email ID",100,200);
```

```
g.drawString("Enter your Password",100,330);
}
public static void main(String args[])
{
AWTForm f = new AWTForm();
}
}
```

9th Sever socket

```
import java.io.BufferedInputStream;
```

```
import java.io.DataInputStream;
import java.io.IOException;
import java.net.ServerSocket;
import java.net.Socket;
public class SocketDemoServer{
private Socket socket = null;
private ServerSocket server = null;
private DataInputStream in = null;
public SocketDemoServer(int port){
try{
server = new ServerSocket(port);
System.out.println("Server started::");
System.out.println("Waiting for a client .....");
socket = server.accept();
System.out.println("Client accepted.");
in = new DataInputStream(new BufferedInputStream(socket.getInputStream()));
String line="";
while(!line.equals("Done")){
try{
line = in.readUTF();
System.out.println(line);
}catch(Exception i){
i.printStackTrace();
}
}
System.out.println("Closing connection");
socket.close();
in.close();
}catch(Exception i){
i.printStackTrace();
}
}
public static void main(String args[]){
SocketDemoServer server = new SocketDemoServer(5000);
}}
```

Step :1 above code complie first file name SocketDemoSever

Step :1 after code complie file name SocketDemo

```
import java.io.DataInputStream;
import java.io.DataOutputStream;
import java.io.IOException;
import java.net.Socket;
import java.net.UnknownHostException;
public class SocketDemo
{
private Socket socket = null;
private DataInputStream input = null;
private DataOutputStream output = null;
public SocketDemo(String address, Integer port){
try{
socket = new Socket(address,port);
input = new DataInputStream(System.in);
output = new DataOutputStream(socket.getOutputStream());
}catch(Exception e){
e.printStackTrace();
}
String line="";
while(!(line.equals("Done"))){
try{
line = input.readLine();
output.writeUTF(line);
}catch(Exception e){
e.printStackTrace();
}
}
try{
input.close();
output.close();
socket.close();
}catch(Exception e){
e.printStackTrace();
}
```

```
}
public static void main(String[] args){
SocketDemo client = new SocketDemo("127.0.0.1",5000);
}
}
```

```
C:\Users\ELCOT\java_lab>java SocketDemo
how are you
im fine
Done
```

Step3: - Type the Done to end the program

```
C:\Users\ELCOT\java_lab>java SocketDemoServer
Server started::
Waiting for a client ......
Client accepted.
how are you
im fine
Done
Closing connection
```

1 to 4 Programs

1. CLASS AND OBJECTS

PROGRAM:

```
import java.io.*;
import java.util.*;
class Student //display() setName() setAge() setMarks()-overloaded calculateTotal()
{
String name;
int age,m1,m2,m3,flag;
int[] marks;
static Scanner sc = new Scanner(System.in);
Student()
{
name = "unknown";
age = 23;
m1=m2=m3=0;
flag = 0;
marks = new int[5];
}
Student(String name,int age)
{
this.name = name;
this.age = age;
m1=m2=m3=0;
flag = 0;
marks = new int[5];
}
public void display()
{
System.out.println('\n' +"Name: "+ name + '\n' + "Age: " + age + '\n' + "Total: " +
calculateTotal()+'\n');
}
public void setName()
{
System.out.println("Enter the name: ");
```

```
name = sc.next();
}
```

```
public void setAge()
{
System.out.println("Enter the age: ");
age = sc.nextInt();
}
public void setMarks(int a,int b,int c)
{
flag = 1;
m1 = a;
m2 = b;
m3 = c;
}
public void setMarks(int arr[])
{
int i=0;
flag = 2;
for(int a: arr)
{
marks[i]=a;
i++;
}
}
public int calculateTotal()
{
int total=0;
if(flag==1)
{
total = m1 + m2 + m3;
}
else
{
for(int a:marks)
total += a;
}
return total;
}
}
```

```
public class ClassAndObject {
public static void main(String[] args) {
System.out.println("\n-- CLASSES AND OBJECTS --\n");
Student h = new Student();
h.setName();
h.setAge();
h.setMarks(88,86,87);
h.display();
Student g = new Student("devan",22);
g.setMarks(new int[]{50,50,50,50,50});
g.display();
}
}
```

OUTPUT:
RESULT:

2. INHERITANCE

PROGRAM:

```
import java.io.*;
import java.util.*;
class Teacher
{
private int id;
private String name;
private float sal;
Scanner in = new Scanner(System.in);
Teacher(int id,String name)
{
this.id = id;
this.name = name;
}
Teacher(int id,String name,float sal)
{
this.id = id;
this.name = name;
this.sal = sal;
}
public int getId(){
return id;
}
public String getName(){
return name;
}
public float getSal(){
return sal;
}
```

```
public int getNoOfBookCanTake()
{
return 3;
}
}
interface courses
{
public String[] getCourses();
}
interface placement
{
public String[] getAttendedCompanies();
}
class MCAstudent extends Teacher implements courses,placement
{
int marks;
MCAstudent(int id,String name,int marks)
{
super(id,name);
this.marks = marks;
}
void setMarks(int marks)
{
this.marks = marks;
}
int getMarks()
{
return marks;
}
```

```
public String[] getCourses()
{
String[] courses={"OPERATING SYSTEM","C PROGRAMMING"};
return courses;
}
public String[] getAttendedCompanies()
{
String[] atndComp={"TCS","ZOHO"};
return atndComp;
}
public int getNoOfBookCanTake()
{
return 2;
}
}
public class Inheritpoly {
public static void main(String[] args)throws IOException {
System.out.println("\n-- Inheritance and Interface --\n");
int id,marks;
String name;
// float sal;
Scanner sc = new Scanner(System.in);
System.out.println("Enter the id: ");
id = sc.nextInt();
sc.nextLine();
System.out.println("Enter the name: ");
name = sc.nextLine();
System.out.println("Enter the marks: ");
```

```
marks = sc.nextInt();
MCAstudent t1 = new MCAstudent(id,name,marks);
System.out.printf("\nID : %d\nName : %s\nMarks :
%d\n",t1.getId(),t1.getName(),t1.getMarks());
courses c = t1;
System.out.print("Courses : ");
System.out.println(Arrays.toString(c.getCourses()));
placement p = t1;
System.out.print("Attended Companies : ");
System.out.println(Arrays.toString(p.getAttendedCompanies()));
System.out.println("The no. of books can take in library:
"+t1.getNoOfBookCanTake());
}
}
```

OUTPUT:
RESULT:

PROGRAM:

3. **MULTITHREADING**

```
import java.util.Scanner;
import java.util.ArrayList;
import java.util.Iterator;
//example of java synchronized method
class Table{
static int maxval=Integer.MIN_VALUE,resval=0;
public synchronized void printTable(int a,int b){ //synchronized method
int cnt,max=Integer.MIN_VALUE,result=0;
for(int i=a;i<=b;i++)
{
cnt=0;
for(int j=2;j<i;j++)
{
if(i%j==0)
{
cnt++;
}
}
if(cnt>max)
{
result = i;
max = cnt;
}
}
if(maxval<=max)
{
maxval=max;
resval=result;
}
System.out.printf("The number that has maximum number of divisors from %d to %d
is : %d",a,b,result);
System.out.println();
```

```
System.out.println("Count = "+max);
}
public int[] getFinalResult()
{
return new int[]{maxval,resval};
}
}
class MyThread extends Thread{
Table t;
int a,b;
MyThread(Table t,int a,int b){
this.t=t;
this.a=a;
this.b=b;
}
public void run(){
t.printTable(a,b);
}
}
public class TestSynchronization2{
public static void main(String args[]) throws Exception{
Scanner sc = new Scanner(System.in);
int value, kvalue;
int[] result = new int[2];
Table obj = new Table();//only one object
System.out.println("Enter the value: ");
value = sc.nextInt();
MyThread[] t = new MyThread[10];
//1000
kvalue = value/10; //100
int j=1,k=kvalue;
```

```
for(int i=0;i<10;i++)
{
t[i] = new MyThread(obj,j,k);
t[i].start();
j+=kvalue;//1 101
k+=kvalue;//100 200
}
for(int l=0;l<10;l++)
t[l].join();
result = obj.getFinalResult();
System.out.printf("Result: %d Count: %d \n",result[1],result[0]);
}
}
```

OUTPUT:
RESULT:

PROGRAM:

4.EXCEPTION

```
import java.io.File;
import java.io.FileReader;
import java.io.FileNotFoundException;
import java.io.IOException;
public class ExceptionDemo {
static void arithmeticException(int a,int b)
{
try{
System.out.println("Result = "+(a/b));
}catch(Exception e){
System.out.println("Exception message: "+e.toString());
}
}
static void nullPointerException(String str)
{
System.out.println("Length = "+str.length());
}
static void fileNotFoundException()
{
try{
File file = new File("E://file.txt");
FileReader fr = new FileReader(file);
}catch(Exception e){
System.out.println("Exception message: "+e.toString());
}
}
static void numberFormatException(String str)
{
try{
```

```
int num = Integer.parseInt(str);
System.out.println("Integer = "+(num-5));
}catch(Exception e){
System.out.println("Exception message: "+e.toString());
}
}
```

```
static char indexOutOfBounds(int pos)
{
String str = "mahadevan";
return str.charAt(pos);
}
static void userDefined(int num)throws GreaterThanTenException
{
if(num>10)
{
throw new GreaterThanTenException("Greater than 10 exception");
}
}
public static void main(String[] args) {
System.out.println("\n-- Exceptions --\n");
try{
System.out.println("passing null to a function that requires a string causes
NullPointerException");
ExceptionDemo.nullPointerException(null);
}catch(Exception e){
System.out.println("Exception message: "+e.toString());
}
System.out.println();
System.out.println("Opening a file might cause FileNotFoundException if the file is
not there");
ExceptionDemo.fileNotFoundException();
System.out.println();
```

```
System.out.println("Dividing any value by 0 causes ArithmeticException");
ExceptionDemo.arithmeticException(1,0);
System.out.println();
System.out.println("Passing a character string instead of number string causes
this error");
ExceptionDemo.numberFormatException("hel");
System.out.println();
System.out.println("passing index above 8 causes this error");
char ch=' ';
try{
ch = ExceptionDemo.indexOutOfBounds(13);
System.out.println("Char ch = "+ch);
}catch(Exception e){
System.out.println("Exception message: "+e.toString());
}
System.out.println();
try{
ExceptionDemo.userDefined(22);
}catch(Exception e){
System.out.println("Exception message: "+e.toString());
}
}
}
class GreaterThanTenException extends Exception
{
GreaterThanTenException(){}
GreaterThanTenException(String msg){
super(msg);
}
}
```