SRI RAMAKRISHNA MISSION VIDYALAYA

COLLEGE OF ARTS AND SCIENCE

[AUTONOMOUS]

COIMBATORE - 641 020

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DEPARTMENT OF COMPUTER SCIENCE

NAME :

Reg. No. : 23USC0

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BONAFIDE CERTIFICATE

This to be certified that it is a bonafide record work done by _____ Reg.No._____

in "**JAVA PROGRAMMING LAB**" for the Third semester during October 2024 and submitted for the Semester Practical Examination held on_____.

STAFF IN CHARGE **HEAD OF DEPARTMENT**

INTERNAL EXAMINER **EXTERNAL EXAMINER**

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1.AREA OF RECTANGLE USING CLASS

```
class rectangle
{
int length,width;
void  getdata (intx,int y)
{  length=x;
width=y;
}
int rectarea()
{
int area=length*width;
return(area);
}
}
class rectarea
{
public static void main(String ab[])
{
int a1,a2;
rectangle rect1=new rectangle();
rectangle rect2=new rectangle();
rect1.length=5;
rect1.width=10;
a1=rect1.length*rect1.width;
rect2.getdata(10,10);
a2=rect2.rectarea();
System.out.println("area1="+a1);
System.out.println("area2="+a2);
}
}
```

Output:

```
D:\>javac rectarea.java
D:\>java rectarea
area1=50
area2=100
```

2. SINGLE INHERITANCE

```
class room
{
int length, breadth;
room (int x, int y)
{
length = x;
breadth = y;
}
int area()
{
return (length * breadth);
}
}
class hall extends room
{
int height;
hall (int x, int y, int z)
{
super(x, y);
height = z;
}
int volume()
{
return(length * breadth * height);
}
}
class singleinherit
{
public static void main(String arg[])
{
hall h1 = new hall(10,10,10);
int a1= h1.area();
int v1 = h1.volume();
System.out.println("area of room = " + a1);
System.out.println("volume of room= " + v1);
}
}
```

Output:

```
D:\21USC031>javac singleinherit.java
D:\21USC031>java singleinherit
area= 100
volume= 1000
```

3. CREATING PACKAGE

```
package package1;
public class A
{
public void displayA()
{   System.out.println("inside the class A");
}
}
package package2;
public class B
{
protected int n=1000;
public void displayB()
{
System.out.println("inside the class B");
System.out.println("the value on n="+n);
}
}
import package1.A;
import package2.B;
class packagetest
{
public static void main(String ab[])
{
A a1=new A();
B b1=new B();
a1.displayA();
b1.displayB();
}
}
```

Output:

```
D:\>cd package1
D:\package1>javac A.java
D:\package1>cd..
D:\ >cd package2
D:\package2>javac B.java
D:\package2>cd..
D:\>javac packagetest.java
D:\>java packagetest

inside the class A
inside the class B
the value of n= 1000
```

4. INTERFACE

```
interface area
{
final static float pi=3.14f;
float compute(float x,float y);
}
class rectangle implements area
{
public float compute(float x,float y)
    { return (x*y); }
}
class circle implements area
{
public float compute(float x,float y)
    { return(pi*x*x); }  }
class testinterface
{
public static void main(String ab[])
{
rectangle r1=new rectangle();
circle c1=new circle();
area a1;
a1=r1;
System.out.println("area of rectangle="+a1.compute(10,10));
a1=c1;
System.out.println("areaof circle="+a1.compute(10,5));
}
}
```

Output:

```
D:\21USC031>javac testinterface.java
D:\21USC031>java testinterface
Area of rectangle= 100.0
Area of circle= 314.0
```

5. EXCEPTION HANDLING

```
import java.lang.Exception;
class except
{
public static void main(String ab[])
{
int a=10,b=6,c=6,x,y;
try
{
x=a/(b-c);
}
catch(ArithmeticException e)
{
System.out.println("division by zero"+e);
}
y=a/(b+c);
System.out.println("the value of y="+y);
}
}
```

Output:

```
D:\21USC031>javac except.java
D:\21USC031>java except
Division by zerojava.lang.ArithmeticException: / by zero
This is the final statement after try-catch block
The value of y=0
```

6. CREATING A THREAD

```
class newthread implements Runnable
{
Thread t;
newthread()
{
t=new Thread(this,"Demothread");
System.out.println("child thread"+t);
t.start();
}
public void run()
{
try
{
for(int i=5;i>0;i--)
{
System.out.println("child thread"+i);
Thread.sleep(500);
}
}
catch(InterruptedException e)
{
System.out.println("child interrupted");
}
System.out.println("exit child thread");
}
}
class demothread
{
public static void main(String ab[])
{
new newthread();
try
{
for(int i=5;i>0;i--)
{
System.out.println("main thread"+i);
Thread.sleep(1000);
}
}
catch(InterruptedException e)
{
System.out.println("main Thread interrupted");
}
System.out.println("main thread exit");
}
}
```

Output:

```
D:\21USC031>javac threaddemo.java
D:\21USC031>java threaddemo
ChildthreadThread[Demothread,5,main]
main thread5
Childthread5
Childthread4
main thread4
Childthread3
Childthread2
main thread3
Childthread1
exit child thread
main thread2
main thread1
main thread exit
```

7. MULTITHREAD

```
import java.io.*;
class mythread implements Runnable
{
String name;
Thread t;
mythread(String Threadname)
{
name=Threadname;
t=new Thread(this,name);
System.out.println("new thread:"+t);
t.start();
}
public void run()
{
try
{
for(inti=5;i>0;i--)
System.out.println(name+" "+i);
Thread.sleep(1500);
}
catch(InterruptedException e)
{
System.out.println(name+"Interrupted");
}
System.out.println(name+"Existing");
}
}
class demomultithread
{
public static void main(String ab[])
{
new mythread("one");
new mythread("two");
new mythread("three");
try
{
Thread.sleep(5000);
}
catch(InterruptedException e)
{
System.out.println("MainthreadInterupted");
}
System.out.println("MainthreadExisting");
}
}
```

Output:

```
D:\21USC031>javac demomultithread.java
D:\21USC031>java demomultithread
New thread: Thread[one,5,main]
New thread: Thread[two,5,main]
one 5
one 4
two 5
New thread: Thread[three,5,main]
two 4
one 3
three 5
two 3
three 4
one 2
three 3
two 2
three 2
one 1
three 1
two 1
three 0
one 0
two 0
oneExisting
threeExisting
twoExisting
mainthread existing
```

8. INTERTHREAD COMMUNICATION

```
class Q
{
int n;
booleanvalueset=false;
synchronized intget()
{
if(! valueset)
try
{
wait();
}
catch(Exception e)
{
System.out.println("exception caught");
}
System.out.println("got:"+n);
valueset=false;
notify();
return n;
}
synchronized void put(int n)
{
if(valueset)
try
{
wait();
}
catch(Exception e)
{
System.out.println("exception caught");
}
this.n=n;
valueset=true;
System.out.println("put:"+n);
notify();
}
}
class producer implements Runnable
{
Q q;
producer(Q q)
{
this.q=q;
new Thread(this,"producer").start();
}
public void run()
{
inti=0;
while(true)
```

```
{
q.put(i++);
}
}
}
class consumer implements Runnable
{
Q q;
consumer(Q q)
{
this.q=q;
new Thread(this,"consumer").start();
}
public void run()
{
while(true)
{
q.get();
}
}
}
class demointerthread
{
public static void main(String args[])
{
Q q=new Q();
new producer(q);
new consumer(q);
System.out.println("press ctrl-c to stop");
}
}
```

Output:

D:\>javac demointerthread.java

D:\>java demointerthread

put: 0

got: 0

put: 1

got: 1

put: 2

got: 2

put: 3

press ctrl-c to stop

got: 3

put: 4

got: 4

put: 5

got: 5

put: 6

got: 6

put: 7

got: 7

put: 8

got: 8

put: 9

got: 9

put: 10

9. STRING METHODS

```
class stringdemo
{
public static void main(String args[])
{
char ch;
ch="abcd".charAt(1);
System.out.println("chartAt:");
System.out.println(ch);
String age="9";
System.out.println("String Concatenation:");
String s1="he is"+age+"years old";
System.out.println(s1);
char chars[]={'a','b','c','d','e','f','g'};
String s2=new String(chars);
System.out.println("String length:");
System.out.println(s2.length());
char Chars[]={'a','b','c'};
String s3=new String(chars,1,2);
System.out.println("Using start Index:");
System.out.println(s3);
String s4="javapoint";
System.out.println(s4.substring(2,4));
System.out.println(s4.substring(2));
System.out.println("Substring:"+s4);
String s5=" Hello".replace('l','w');
System.out.println("String replace:"+s5);
String s6="hello";
String s7="HELLO";
System.out.println("Equals method:");
System.out.println(s6+"equals"+s7+"=="+s6.equals(s7));
String s8="This is index example";
int index1=s8.lastIndexOf("is");
int index2=s8.indexOf("index");
System.out.println("Searching strings:");
System.out.println(index1+" "+index2);
String s9=" hello ";
System.out.println("Trim method:");
System.out.println(s9+"how are you");
System.out.println(s9.trim()+"how are you"); }}
```

Output:

```
D:\21USC031>javac stringdemo.java
D:\21USC031>java stringdemo
charAt:
b
String concatenation:
He is9years
String length:
6
Using start Index:
bc
s4.substring(2,4)
S4.substring(2)
substring:javapoint
String replace:Hello
Equals method:
helloequalsHELLO==false
Searching String:
5 8
Trim method:
hellohow are you
hellohow are you
```

10.COPYING FILE

```
import java.io.*;
public class copyfile1
{
public static void main(String args[])
throws IOException
{
FileReader in=null;
FileWriter out=null;
try
{
in=new FileReader("java.txt");
out=new FileWriter("arun.txt");
int c;
while((c=in.read())!=-1)
{
out.write(c);
}
}
finally
{
if(in!=null)
{
in.close();
}
if (out!=null)
{
out.close();
}
}
}
}
```

Output:

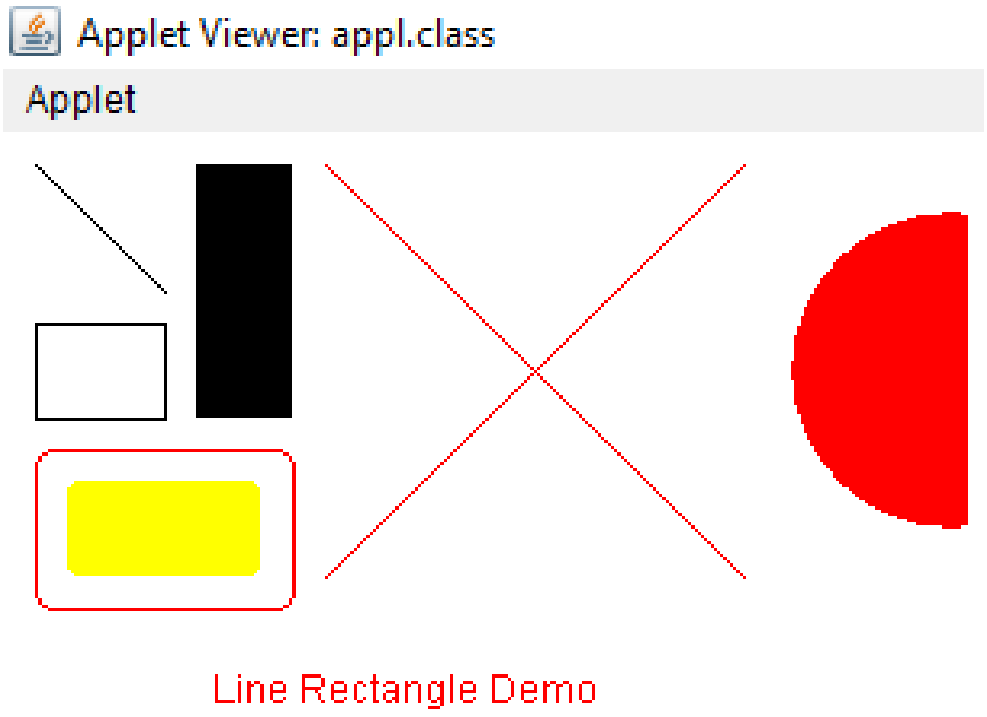
```
D:\21USC031>javac copyfile1.java
D:\21USC031>type arun.txt
21USC031
II BSC Computer Science
P.YOGESHWARAN
```

11.DIFFERENT SHAPES USING GRAPHICS METHODS

```
import java.awt.*;
import java.applet.*;
public class appl extends Applet
{
public void paint(Graphics g)
{
g.drawLine(10,10,50,50);
g.drawRect(10,60,40,30);
g.setColor(Color.blue);
g.fillRect(60,10,30,80);
g.setColor(Color.green);
g.drawRoundRect(10,100,80,50,10,10);
g.setColor(Color.yellow);
g.fillRoundRect(20,110,60,30,5,5);
g.setColor(Color.red);
g.drawLine(100,10,230,140);
g.drawLine(100,140,230,10);
g.drawString("Line Rectangles Demo",65,180);
g.drawOval(530,60,200,150);
g.setColor(Color.blue);
g.fillOval(245,25,100,100);
}
}
/*<applet code="appl.class"height=300 width=300>
</applet>*/
```

Output:

```
D:\21USC031>javac appl.java
D:\21USC031>appletviewer appl.java
```

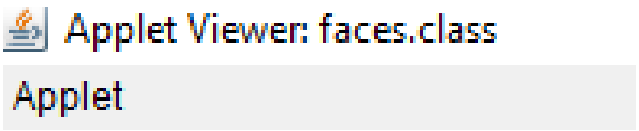


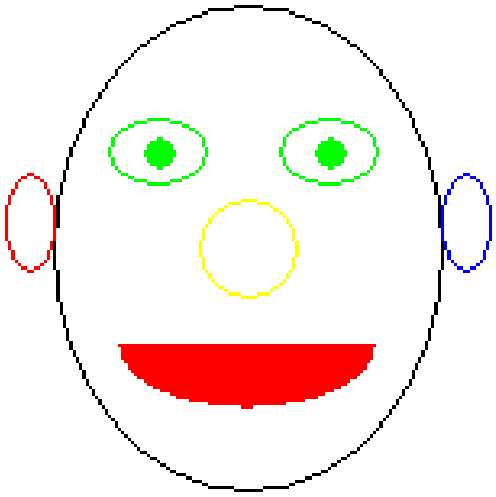
12. HUMAN FACE

```
import java.awt.*;
import java.applet.*;
public class faces extends Applet
{
public void paint(Graphics g)
{
g.drawOval(40,40,120,150);
g.setColor(Color.green);
g.drawOval(57,75,30,20);
g.drawOval(110,75,30,20);
g.fillOval(68,81,10,10);
g.fillOval(121,81,10,10);
g.setColor(Color.black);
g.drawOval(85,100,30,30);
g.setColor(Color.red);
g.fillArc(60,125,80,40,180,180);
g.drawOval(25,92,15,30);
g.setColor(Color.blue);
g.drawOval(160,92,15,30);
}
}
/*<applet code="faces.class" width=300 height=300>
</applet> */
```

Output:

```
D:\21USC031>javac faces.java
D:\21USC031>appletviewer faces.java
```



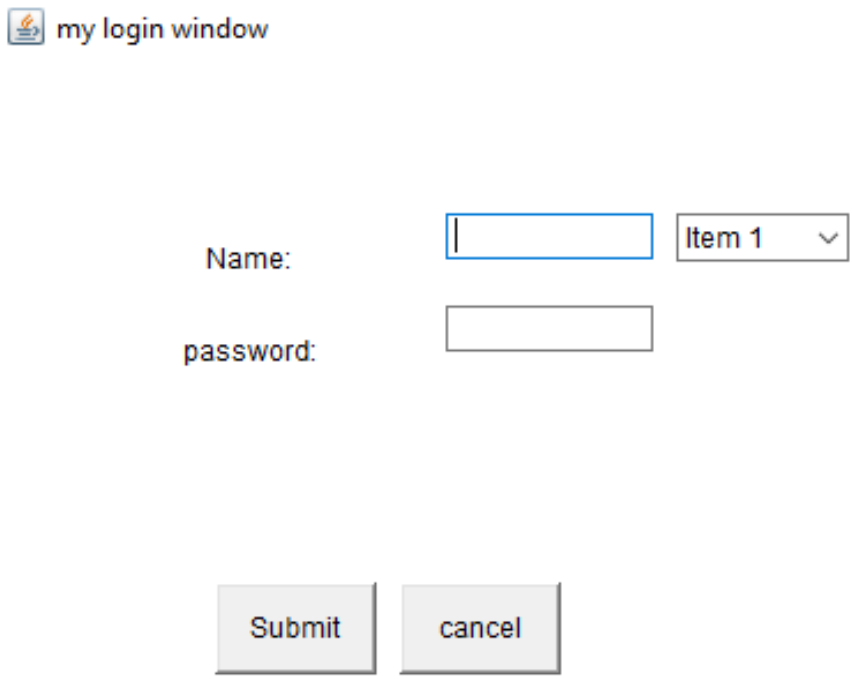


13.AWT CONTROLS

```
Import java.awt.*;
Import java.awt.event.*;
Class myLoginWindow extends frame
{
TextFieldname,pass;
Button b1,b2;
MyLoginWindow()
{
SetLayout(new FlowLayout());
this.setLayout(null);
Label n=new Label("Name:",Label.CENTRE);
Label p=new Label("Password:",Label.CENTRE);
name=new TextField(20);
pass=new TextField(20);
pass.setEchochar('#');
b1=new Button("Submit");
b2=new Button("Cancel");
Choice c=new Choice();
c.setBounds(300,100,75,75);
c.add("Item1");
c.add("Item2");
this.add(n);
this.add(name);
this.add(p);
this.add(pass);
this.add(b1);
this.add(b2);
this.add(c);
n.setBounds(70,90,90,60);
p.setBounds(70,130,90,60);
name.setBounds(200,100,90,20);
pass.setBounds(200,140,90,20);
b1.setBounds(100,290,70,40);
b2.setBounds(180,260,70,40);
}
Public static void main(String args[])
{
MyLoginWindow m1=new MyLoginWindow();
m1.setVisible(true);
m1.setSize(400,400);
m1.setTitle("My Login Window");
}
}
```

Output:

D:\21USC031>javac MyLoginWindow.java
D:\21USC031>java MyLoginWindow



14. STUDENT DATABASE

```
import java.sql.*;
public class studentdb1
{
public static void main(String[] args)
{
try
{
Connection con = DriverManager.getConnection("jdbc:odbc:DATABASE031","","");
Statement s = con.createStatement();
s.execute("create table stud1(stud_id number,stud_name varchar(20),stud_address
varchar(30) )");
s.execute("insert into stud1 values(001,'Vasanth','Coimbatore')");
s.execute("insert into stud1 values(002,'Abiswaran','Mumbai')");
s.execute("update stud1 set stud_name='SanjayKumar',stud_address='Delhi' where
stud_id=001");
s.execute("select * from stud1");
ResultSet rs = s.getResultSet();
if (rs != null)
while (rs.next() )
{
System.out.println("_____");
System.out.println("Id of the student: " + rs.getString(1) );
System.out.println("Name of student: " + rs.getString(2) );
System.out.println("Address of the student: " + rs.getString(3) );
System.out.println("_____");
}
s.execute("delete from stud1 where stud_id=001");
s.close();
con.close();
}
catch (Exception err)
{
System.out.println("ERROR: " + err);
}
}
}
```

Output:

```
D:\21USC031>javac studentdb1.java
D:\21USC031>java studentdb1
```

Id of the student: 1.0
Name of student: SanjayKumar
Address of the student: Delhi

Id of the student: 2.0
Name of student: Abiswaran
Address of the student: Mumbai
