KARPAGAM ACADEMY OF HIGHER EDUCATION

(Deemed University Established Under Section 3 of UGC Act 1956)

Coimbatore - 641021.

(For the candidates admitted from 2017 onwards)

DEPARTMENT OF COMPUTER SCIENCE, CA & IT

SUBJECT : **PROGRAMMING IN JAVA LAB**

SEMESTER : **I** **L T P C**

SUBJECT CODE: **17CSU211** **CLASS** : **I B.Sc.CS** **0 0 0 2**

LIST OF PROGRAMS

1. To find the sum of any number of integers entered as command line arguments
2. To find the factorial of a given number
3. To learn use of single dimensional array by defining the array dynamically.
4. To learn use of .length in case of a two dimensional array
5. To convert a decimal to binary number
6. To check if a number is prime or not, by taking the number as input from the keyboard
7. Write a program that show working of different functions of String and StringBufferclasss like setCharAt(, setLength(), append(), insert(), concat()and equals().
8. Write a program to create a ―distance‖ class with methods where distance is computed in terms of feet and inches, how to create objects of a class and to see the use of this pointer
9. Write a program to show that during function overloading, if no matching argument is found, then java will apply automatic type conversions(from lower to higher data type)
10. Write a program to show the use of static functions and to pass variable length arguments in a function.
11. Write a program to demonstrate the concept of boxing and un boxing.
12. Create a multi-file program where in one file a string message is taken as input from the user and the function to display the message on the screen is given in another file (make use of Scanner package in this program).

13. Write a program to create a multilevel package and also creates a reusable class to generate Fibonacci series, where the function to generate Fibonacci series is given in a different file belonging to the same package.
14. Write a program to show the use of nested try statements that emphasizes the sequence of checking for catch handler statements.
15. Write a program to demonstrate priorities among multiple threads.
16. Write a program that creates a Banner and then creates a thread to scrolls the message in the banner from left to right across the applet‘s window.
17. Write a program to get the URL/location of code (i.e. java code) and document(i.e. html file).
18. Write a program to demonstrate different mouse handling events like mouseClicked(), mouseEntered(), mouseExited(), mousePressed, mouseReleased() and mouseDragged().
19. Write a program to demonstrate different keyboard handling events.
20. Write a program to demonstrate the use of push buttons.

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COIMBATORE – 641 021

DEPARTMENT OF CS, CA & IT

I -B.Sc (COMPUTER SCIENCE)-A

PROGRAMMING IN JAVA PRACTICAL

(17CSU211)

SEMESTER: II

(2017-2020 Batch)

Name : _____

Reg.no : _____

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COIMBATORE – 641 021

DEPARTMENT OF CS, CA & IT

CERTIFICATE

This is to certify that this is a bonafide record work done by _____ of **I- B.Sc Computer Science** during the period November - 2017 to April - 2018 for the "**PROGRAMMING IN JAVA PRACTICAL"**Examination held on _____

Reg.No:

Subject Code: 17CSU211

_____ _____

Staff-in-charge Head of the Department

_____ _____

(Internal Examiner) (External Examiner)

INDEX

SUM OF ANY NUMBER OF INTEGERS

EX NO : 01

DATE :

AIM:

To write a java program for find the sum of any number of integers entered as command line arguments.

ALGORITHM:

Step 1 : Start the process.

Step 2 : Import input output package.

Step 3 : Create class name as sum.

Step 4 : Declare the variables as num=0 of type int.

Step 5 : To calculate sum num+=Integer.parseInt(args[i]);

Step 6 : Display the result.

CODING:

```
import java.io.*;

publicclass sum

{

publicstaticvoid main(String args[])

{

int num=0;

for(int i=0; i<args.length; i++)

{

num+=Integer.parseInt(args[i]);

}

System.out.println("The sum is :  "+ num);

}

}
```

OUTPUT:

3 2

The sum is : 5

RESULT :

The above program has been executed successfully and the output is verified.

FACTORIAL

EX NO : 02

DATE:

AIM:

To write a java program to find the factorial of given number.

ALGORITHM:

Step 1 : Start the process.

Step 2 : Import input output package.

Step 3 : Declare the variables as fact=1 of type int.

Step 4 : To enter the values from user using readline() method

Step 5 : To factorial using Fact=Fact*i

Step 6 : Display the result.

CODING:

```
import java.io.*;
class Factorial
{
public static void main(String args[])
{
int i,fact=1;
int number=5;
for(i=1;i<=number;i++)
{
fact=fact*i;
}
System.out.println("Factorial of "+number+" is: "+fact);
}
}
```

OUTPUT:

Factorial of 5 is : 120

RESULT :

The above program has been executed successfully and the output is verified.

SORTING SINGLE DIMENSIONAL ARRAY

EX NO : 03

DATE:

AIM:

To write a java program use of the single dimensionsl array by defining the array dynamically.

ALGORITHM:

Step 1 : Start the process.

Step 2 : Import input output package.

Step 3 : Create class name as array.

Step 4 : In main function create the object as “in” for BufferedReader class.

Step 5 : Declare the variables as i,j,temp of type int.

Step 6 : Enter values from user using readline () method.

Step 7 : To sort the elements using for loop.

Step 8 : Stop the process and displaying the result.

Coding:

```
import java.util.*;
import java.io.*;
class array1
{
public static void main(String[] args) throws IOException
{
int num[]=new int [20];
BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
int i,j,temp;
int x=Integer.parseInt(br.readLine());
System.out.println("\n Enter number:");
for(i=0;i<x;i++)
{
num[i] = Integer.parseInt(br.readLine());
}
for(i=0;i<x;i++)
{
for(j=0;j<i+1;j++)
{
if (num[i] < num[j])
{
temp = num[i];
num[i] = num[j];
num[j]= temp;
}
}
}
System.out.println(“Sorted array  : ”);
for(i=0;i<x;i++)
{
System.out.println(“  ”+num[i] );
}
}
}
```

OUTPUT:

Java array1 : 5

Enter number :

7

6

4

5

6

Sorted array :

4

5

6

6

7

RESULT:

The above program has been executed successfully and the output is verified

ADDITION OF TWO MATRIX

EX NO : 04

DATE:

AIM:

To write a java program for to length use of length increase of a two dinmensional array.

ALGORITHM:

Step 1 : Start the process.

Step 2 : Import input output package.

Step 3 : Create class as mycode.

Step 4 : public static void main(String [] args) is the line at which the program has been excuted.

Step 5 : Declare the array variable a[][] and b[][] of type(Variables like 4,8,2,3,1,5,2,5,7,8).

Step 6 : Declare the variable rows of type int used to calculate the number of rows in array by using length function.

Step 7 : Declare the variables cols of type int used to calculate the number of columns in Arrays by using length.

Step 8 : for(;;) loops can be used to display the values of array(a) and array(b).

Step 9 : System.out.println a[(row)(col)],b[(row)(col)] is the line to display the addition of two array matrix.

Step10 : Display the result and stop the process.

CODING:

```
import java.io.*;
import java.util.*;
class my code
{
public static void main (String args[])
}
int [] [] a={ {4,2,8},
{3,1,5}
};
int [] [] b={ {5,6,7},
{7,6,5}
};
int rows = a.length;
int cols = a[0].length;
System.out.println(“First matrix”);
for (int row=0;row<rows;row++)
{
for (int col=0);col<cols;col++)
{
if (col>0)  System.out.println(“ , ”);
System.out.println(a[row] [col]);
}
System.out.println();
}
System.out.println(“second matrix”);
```

```
for (int row=0;row<rows;row++)
{
for (int col=0;col<cols;cols++)
{
if (col>0) System.out.print(“,”);
System.out.println(b[row] [col]);
}
System.out.println();
}
System.out.println(“The addition of two matrix”)
for ( int row=0; row<rows;row++)
{
for (int col=0;col<cols:col++)
{
if (col>0) System.out.print(“, ”);
System.out.println(a[row][col]+b[row][]col]);
}
System.out.println()
}
}
}
```

OUTPUT:

First matrix

4 , 2 , 8

3 , 1 , 5

Second matrix

4 , 6 , 3

3 , 1 , 5

The addition of two matrix

8 , 8 , 11

6 , 2 , 10

RESULT:

The above program has been executed successfully and the output is verified.

DECIMAL TO BINARY CONVERSION

EX NO : 05

DATE:

AIM:

To covert a decimal to binary number.

ALGORITHM:

Step 1 : Start the process.

Step 2 : Import input output package.

Step 3 : In main function create the object name as “br” for buffered reader class.

Step 4 : Enter a values from user resderLine () method.

Step 5 : Declare the variables as rof type int and String s and dig[]={‘0’,’1’} of type char.

Step 6 : To calculate the Binary number using r=n%2,s=dig[r]+s,n=n/2.

Step 7 : Display the result.

CODING:

```
import java.io.*;
class dec
{
public static void main (string arts[]) throws IOException
{
BufferedReaderbr=new BufferedReader( new input stream Reader
(system.in));
System.out.println("Enter a decimal number ");
int n=integer.parseint (be.readLine());
int r;
String s= " ";
char dig []= { '0','1'};
while (n>0)
{
r =n%2;
s=dig[r]+s;
n=n/2;
}
System.out.println ("The Binary number  :"+s);
}
}
```

OUTPUT:

Enter a decimal number : 4

The Binary number : 100

RESULT:

The above program has been executed successfully and the output is verified.

NUMBER IS PRIME OR NOT

EX NO: 06

DATE:

AIM:

To check if a number is prime or not by talking the number as input from the keyboard.

ALGORITHM:

Step 1 : Start the process.

Step 2 : Import input output Stream.

Step 3 : Create class name as prime.

Step 4 : In main function create the object name as “br” buffered reader class.

Step 5 : Enter the value from user using readLine () method.

Step 6 : Declare the variables as count=0,1 type int.

Step 7 : To check whether the given number is prime or not using n/2 and

n%i==0 using for loop.

Step 8 : Stop the process and Display the result.

CODING:

```
import  java.io.*;
class prime
{
public  static  void  main(String  args[])throws  IOException
{
BufferedReader  br=new BufferedReader(new Input stream Reader(System.in));
System.out.println("Enter a number : ");
int  n=Integer.parseInt(br.readLine());
int  count =0,i;
for(i=2;i<=n/2;i++)
{
if(n%i==0)
{
count ++;
}
}
if(count==0&&n!=1)
System.out.println(n+ " is a prime number");
else
System.out.println(n+ " is not a prime number");
}
}
```

OUTPUT:

Enter a number : 5

5 is a prime number

RESULT:

The above program has been executed successfully and the output is verified.

STRING FUNCTIONS

EX NO : 07

DATE:

AIM:

Write a program that show working of different functions of string and string buffer class like set charAt , setlength(),append(),insert(),concat() , equals.

ALGORITHM:

Step 1 : Start the process.

Step 2 : Create in main function create strings.

Step 3 : In main function create String Buffer class.

Step 4 : To calculate length and capacity using String Buffer class.

Step 5 : To calculate capacity and index using String Buffer class.

Step 6 : To calculate set char and append using String Buffer class.

Step 7 : To calculate insert and delete using String Buffer class.

Step 8 : Enter a string like s2.

Step 9 : To calculate length, equals and concatenation using string class.

Step 10 : Stop the process and Display the result.

CODING:

```
import java.lang.string;
class strbuf
{
public static void main ( string args [])
{
String Buffer s1 = new string Buffer (“ This is my college “);
System. out.println (s1);
System. out.println (“ **** ** ** ******* \ n “);
System. out.println (“ LENGTH of s1: “ +s1.length ());
System. out. println (“ CAPACITY of s1: “+s1. Capacity ());
System. out.println (“INDEX of 6 is : “ + s1.charAt (6));
s1.set charAt (3,‘x’);
System. out.println (“ SETCHAR X at  position 3:”+s1);
System. out.println (“ APPEND :”+s1.append (“ in Coimbatore”));
System. out.println (“INSERT :”+s1.insert (19,“ku”));
System. out.println (“DELETE :”+s1.delete (19,22));
s1.setLength (5);
System.out.println (“After set length:” +s1);
String s2 = new String (“\n welcome to college “);
System. out.println (s2);
System.out.println (“ **********\n”);
System.out.println (“LENGTH OF s2:”+s2.length ());
System.out.println (“Equals OF s1*s2:”+s1.equals (s2));
System.out.println (“Concatenation :”s2.concat (“Hai”));
}  }
```

OUTPUT:

This is my college

**** ** ** *******

LENGTH of s1 : 18

CAPACITY of s1 : 34

INDEX of 6 is : s

SETCHAR X at position 3 : This is my collage

APPEND : This is my college in coimbatore

INSERT : This is my collage in coimbatore

DELETE :This is my collage in coimbatore

After set length: This

welcome to college

******* ** ******

LENGTH of s2 : 23

Equals of s1*s2 : flase

Concatenation : welcome to my college hai

RESULT:

The above program has been executed successfully and the output is verified.

METHOD OVERLOADING

EX NO : 08

DATE:

AIM:

Write a program to create a distance class with methods where distance is computer in terms of feet and to see the use of this pointer.

ALGORITHM:

Step 1 : Start the process.

Step 2 : Create class name as type.

Step 3 : In main function create the object name as “in” for Buffered Reader class.

Step 4 : Declare the variables tri of type int, Rect of type long.

Step 5 : Enter the values from user using readline of method.

Step 6 : To calculate the function find calculate of Rectangle using rect=l*b.

Step 7 : To calculate the overload function find calculate area of Triangle using tri=l*b*h.

Step 8 : stop the process and Display the result.

CODING:

```
import java.io.*;
class type
{
void find(long l,long b)
{
long rect;
rect=l*b;
System.out.println("Area of Rectangle is :"+rect );
}
void find(int  l,int  b,int  h)
{
int tri;
tri=l*b*h;
System.out.println("Area of Rectangle is :"+tri);
}
public static void main(String agrs[])throws  IOException
{
BufferedReader in=new BufferedReader(new Input stream Reader(System.in));
type ar=new type();
int n1,n2;
int a1,a2,a3;
System.out.println("Area of Reactangle : ");
System.out.println("**** ** *********");
System.out.println("Enter the length and breadth : ");
```

```
n1=Integer.praseInt(in.readLine());
n2= Integer.praseInt(in.readLine());
ar.find(n1,n2);
System.out.println("Area of Tringle  :");
System.out.println("**** *** ******");
System.out.println("Enter the height and breadth :");
a1=Interger.parseInt(in.readLine());
a2= Interger.parseInt(in.readLine());
a3= Interger.parseInt(in.readLine());
ar.find(a1,a2,a3);
}
}
```

OUTPUT:

Area of Rectangle

**** ** *********

Enter the length and breagth :

5

6

Area of Rectangle is : 30

Area of Triangle

**** ** *******

Enter the height and breadth :

3

4

5

Area of triangle is : 60

RESULT:

The above program has been executed successfully and the output is verified.

PACKAGES

EX NO:09

DATE:

AIM:

To write a program to create multilevel package and also create a reuseasble class to generate Fibonacci series where the program function is given in a different file belonging to the same package.

ALGORITHM:

Step 1 : Start the process.

Step 2 : F1 is an identifies that is the name of the public class.

Step 3 : public static int Fibonacci is program has been executed.

Step 4 : Declare the variable n type of int.

Step 5 : Using in a condition statement of if(n==0) and else if(n==1) and else for used in return type.

Step 6 : To calculate the Fibonacci is using formula Fibonacci(n-1)+ Fibonacci(n-2).

Step 7 : Package multilevel in create program for fibb.

Step 8 : F2 is an identifiers that is the name of the public class.

Step 9 : Public static void main(String args[])throws IOException is the program has been Executed.

Step 10 : Declare the variable n type of int.

Step 11 : Enter the value,using for loop condition in for(int i=0;i<=n;i++).

Step 12 : stop the process and Display the result.

CODING:

```
package
package fibb;
public class f1
{
public static int  Fibonacci (int n)
{
if ( n==0)
{
return 0;
}
else if ( n==1)
{
return 1;
else
{
return Fibonacci (n-1)+Fibonacci(n-2);
}
}
}
```

```
import fibb.f1

import java.io .*;

public class f2

{

public static void main (string args[]) throws IOExeception

{

int n;

Buffered Reader in = new BufferedReader(new Input stream Reader (System.
in));

f1 f = new f1();

System. Out.println ("Enter value of n:");

n=Integer.parseInt (in.readLine());

System. Out.println ("\n Fibonacci series :");

for (int i=0; i<=n;i++)

{

System. Out.println (F.Fibonacci (i)+"  ");

}

}

}
```

OUTPUT:

Enter the value of n : 5

1

1

2

3

5

RESULT:

The above program has been executed successfully and the output is verified.

ARTHMETIC EXCEPTION

EX NO : 10

DATE:

AIM:

Write a program –divided by zero that takes two number a and b as input computers a/b , and invoke Arithmetric Exception to generate a message when the demomitor is zero.

ALGORITHM:

Step 1 : Start the process.

Step 2 : ex is an identifiers that is the name of the class.

Step 3 : Public static void main(String args[])throws IOException is the program has been executed.

Step 4 : Declare the variable a,b, is type of int.

Step 5 : Declare in the dead in a arthemetic exception for input generate a message.

Step 6 : Buffered Reader used to be get number from the user.

Step 7 : In calculate the division of two number is d=a/b for used.

Step 8 : And catch in arithmetic exception.

Step 9 : Stop the process and Display the result.

CODING:

```
import java .io.*;

class ex

{

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

{

int a,b;

BufferedReader in = new BufferedReader ( new Input stream Reader (system.
in));

System.out.println (“\n Enter the first number: “);

a= Integer.parseInt (in.readLine());

System.out.println (“\n Enter the second number :”);

b= Integer.parseInt (in.readLine());

try

{

int  d= a/b;

System.out.println(“\n Division of two number: “+d);

}

catch (Arithmetic Exception e)

{

System.out.println (“\n”+e);

}

}

}
```

OUTPUT:

Enter the first number : 6

Enter the second number : 2

Division of two number : 3

Enter the first number : 5

Enter the second number : 0

Java.lang.Arithmetric:\by zero

RESULT:

The above program has been executed successfully and the output is verified.

THREADING

EX NO:11

DATE:

AIM:

To write a java program to demonstrate multiread communication by implementing synchronization among threads.

ALGORITHM:

Step 1 : Start the process.

Step 2 : Table and syn is an identifiers that is the name of the class.

Step 3 :Using is a for loop in using for(int i=1;i<=5;i++).And using catch (exception e) is used file.

Step 4 : Multiple thread in using a MyThread 1 and MyThread 2 with in table t and t print table.

Step 5 : Public static void main (String args []) throws IOException is the program has been executed .

Step 6 : The create in a new object fo new table,new MyThread 1 and 2.

Step 7 : Stop the process and Display the result.

CODING:

```
import java.io.*;
class  table
{
synchronized void print table(int n)
{
for(int=1;i<=5;i++)
{
System.out.println(n*i);
}
try
{
thread.sleep(400);
}
System.out.println(e);
}
} }
class mythread 1 extends thread
{
tablet t;
my thread 1
{
this.t=t;
}
public  void  run()
{
```

```
t.print table[5];
}
}
class mythread 2 extends thread
{
table t;
mythread 2 (table t)
{
this.t=t;
}
public void run()
{
t.print table(100);
}
}
class syn
{
public static void main(string args[]);
{
table obj=new mythread 1(obj);
mythread 1 t1=new mythread 1(obj);
mythread 2 t2=new mythread 2(obj);
t1.start();
t2.start();
}
}
```

OUTPUT:

5

10

20

25

100

200

300

400

500

RESULT:

The above program has been executed successfully and the output is verified.

MOUSE HANDLING EVENTS

EX NO:12

DATE:

AIM:

To create a java program to demonstrate in different mouse handling events like mouse checked() mouse entered() ,mouse pressed(), mouse existed() ,mouse released() and mouse dragged().

ALGORITHM:

Step 1 : Start the process.

Step 2 : Mouse is an identifies that is the name of the class.

Step 3 : Declare in a java header files is awt*and applet and awt.event.*.

Step 4 : Using in a public class and name Applet.

Step 5 : Declare the variables and string message and it variable has x and y type of int.

Step 6 : And then implements for using mouse listerer and include class is add.

Step 7 : Next mouse event is for using.

Step 8 : Declare in a variable value for x=10 and y=10nand string message is used.

Step 9 : Mouse event is public void mouse clicked and entered and pressed and released.

Step 10 : Message is mouse clicked and entered and pressed and released and dragged.

Step 11 : And then repaint () for used in program.

Step 12 : Stop the process and save the file. The compile in program and next run the program.

Step 13 : Display the result and output.

CODING:

```
import java.awt.*;
import java.applet.*;
import java.awt.event.*;
public class mouse extends Applet
{
String msg=“ ”;
int x,y;
public void int ()
{
add a=new add()
add mouse Listener(a);
}
public void paint (Graphics g)
{
g.drawString (msg,x,y);
}
class add implements  Mouse Listener
{
public void mouse clicked (mouse Event e)
{
x=10;
y=10;
```

```
msg="Mouse clicked";
repaint ();
{
x=10;
y=10;
msg="Mouse Entered";
repaint ();
}
public void mouse Entered (Mouse Event e)
{
x=10;
y=10;
msg="Mouse Entered";
repaint ();
}
public void mouse Exited (Mouse Event e)
{
x=10;
y=10;
msg="Mouse Exited" ;
repaint ();
}
public void mouse Released(Mouse Event e)
{
x=10;
```

```
y=10;
msg="Mouse Released";
repaint ();
}
public void mouse pressed (Mouse Event e)
{
x=10;
y=10;
msg="Mouse pressed";
repaint ();
}
}
}
```

OUTPUT:

Mouse
Applet Entered Clicked and Entered Entered and Entered Existed and Entered Released and Entered Pressed and Entered Dragged .

RESULT:

The above program has been executed successfully and the output is verified.