JAVA PROGRAMS

YUVAKSHETRA INSTITUTE OF MANAGEMENT STUDIES

2020

1. Write a program to find the distance between two points

```java
import java.io.*;
import java.util.*;
class Distance
{
public static void main(String args[])
{
Scanner in=new Scanner(System.in);
int x1,y1,x2,y2;
double dis;
System.out.println("Enter The Coordinates Of First Point:");
x1=in.nextInt();
y1=in.nextInt();
System.out.println("Enter The Coordinates Of Second Point:");
x2=in.nextInt();
y2=in.nextInt();
dis=Math.sqrt(((x2-x1)*(x2-x1))+((y2-y1)*(y2-y1)));
System.out.println("distance between two points "+dis);
}
}
```

2. **Write a program to find the sum, difference, product, quotient and remainder of two numbers passed as command line argument.**

```java
import java.io.*;
import java.util.*;
class one
{
public static void main(String args[])
{
int a,b;
a=Integer.parseInt(args[0]);
b=Integer.parseInt(args[1]);
System.out.println("SUM:"+(a+b));
System.out.println("DIFFERENCE:"+(a-b));
System.out.println("PRODUCT:"+(a*b));
System.out.println("QUOTIENT:"+(a/b));
System.out.println("REMINDER:"+(a%b));
}
}
```

3. Write java program to display Fibonacci series up to a limit.

```java
import java.io.*;
import java.util.*;
class Fib
{
public static void main(String args[])
{
Scanner in=new Scanner(System.in);
int n1=0,n2=1,n3,limit,i;
System.out.println("ENTER THE LIMIT:");
limit=in.nextInt();
System.out.print(n1+"\t"+n2);
for(i=2;i<limit;i++)
{
n3=n1+n2;
n1=n2;
n2=n3;
System.out.print("Fibonacci series up to a limit  \t"+n3);
}
}
}
```

4. Write java program to display Armstrong numbers within a range.

```java
import java.io.*;
import java.util.*;
class Armstrong
{
public static void main(String args[])
{
Scanner in=new Scanner(System.in);
int l,h,i,rem,sum,num;
System.out.println("ENTER THE LOWER LIMIT AND UPPER LIMIT:");
l=in.nextInt();
h=in.nextInt();
System.out.println("ARMSTRONG NUMBERS:");
for(i=l;i<=h;i++)
{
num=i;
sum=0;
while(num!=0)
{
rem=num%10;
sum=sum+(rem*rem*rem);
num=num/10;
}
if(sum==i)
System.out.println(i);
}
}
}
```

5. Given the sides of a triangle, write a program to check whether the triangle is equilateral, isosceles or scalene and find its area.

```java
import java.io.*;
import java.util.*;
class Triangle
{
public static void main(String args[])
{
int a,b,c;
double s,area;
Scanner in=new Scanner(System.in);
System.out.println("ENTER THE SIDES OF A TRIANGLE:");
a=in.nextInt();
b=in.nextInt();
c=in.nextInt();
if(a==b&&b==c)
System.out.println("EQUILATERAL TRIANGLE");
else if(a==b||b==c||a==c)
System.out.println("ISOSCELESS TRIANGLE");
else
System.out.println("SCALENE TRIANGLE");
s=(a+b+c)/2;
area=Math.sqrt(s*(s-a)*(s-b)*(s-c));
System.out.println("AREA:"+area);
}
}
```

6. Read an array of 10 or more numbers and write a program to find the

a) Smallest element in the array

b) Largest element in the array

c) Second largest element in the array

```java
import java.io.*;
import java.util.*;
class Lrgsml
{
public static void main(String args[])
{
Scanner in =new Scanner(System.in);
int n,i,j,temp;
int a[]=new int[10];
System.out.println("Enter The Array Limit:");
n=in.nextInt();
System.out.println("Enter The Elements:");
for(i=0;i<n;i++)
{
a[i]=in.nextInt();
}
for(i=0;i<n;i++)
{
for(j=0;j<n-i-1;j++)
{
if(a[j]>a[j+1])
{
temp=a[j];
a[j]=a[j+1];
a[j+1]=temp;
}}}
System.out.println("SMALLEST ELEMENT:"+a[0]+"\nLARGEST
ELEMENT:"+a[n-1]+"\nSECOND LARGEST ELEMENT:"+a[n-2]);
}
}
```

7. Write a program to perform base conversion

a) Integer to binary

b) Integer to Octal

c) Integer to Hexadecimal

```java
import java.io.*;
import java.util.*;
class Six
{
public static void main(String args[])
{
Scanner in =new Scanner(System.in);
int num,rem,base;
String str="";
char dig[]={'0','1','2','3','4','5','6','7','8','9','A','B','C','D','E','F'};
System.out.println("ENTER THE NUMBER:");
num=in.nextInt();
System.out.println("ENTER THE BASE TO CONVERT:");
base=in.nextInt();
while(num>0)
{
rem=num%base;
str=dig[rem]+str;
num=num/base;
}
System.out.println(str);
}
}
```

8. Write a program to merge two arrays.

```java
import java.io.*;
import java.util.*;
class Merge
{
public static void main(String args[])
{
Scanner in=new Scanner(System.in);
int m,n,i,j,k=0;
int a1[]=new int[10];
int a2[]=new int[10];
int a3[]=new int[20];
System.out.println("enter the size of array 1:");
m=in.nextInt();
System.out.println("enter the elements:");
for(i=0;i<m;i++)
{
a1[i]=in.nextInt();
}
System.out.println("enter the size of array 2:");
n=in.nextInt();
System.out.println("enter the elements:");
for(i=0;i<n;i++)
{
a2[i]=in.nextInt();
}
i=0;
j=0;
k=0;
while(i<m&&j<n)
{
if(a1[i]<a2[j])
{
a3[k]=a1[i];
```

```java
i++;
}
else
{
a3[k]=a2[j];
j++;
}
k++;
}
if(i>=m)
{
while(j<n)
{
a3[k]=a2[j];
j++;
k++;
}
}
if(j>=n)
{
while(i<m)
{
a3[k]=a1[i];
i++;
k++;
}
}
System.out.println("after merging:");
for(i=0;i<m+n;i++)
{
System.out.println(a3[i]);
}
}
}
```

9. Java Programming Code to Find HCF LCM of Two Numbers

```java
import java.io.*;
import java.util.*;
class HcfLcm
{
public static void main(String args[])
{
int a, b, x, y, t, hcf, lcm;
Scanner in = new Scanner(System.in);
System.out.print("Enter Two Number : ");
x = in.nextInt();
y = in.nextInt();
a = x;
b = y;
while(b != 0)
{
t = b;
b = a%b;
a = t;
}
hcf = a;
lcm = (x*y)/hcf;
System.out.print("HCF = " +hcf);
System.out.print("\nLCM = " +lcm);
}
}
```

10. Write a Java Program to convert centimeter to inch, meter and kilometer

```java
import java.io.*;
import java.util.*;
class cmconvert
{
public static void main(String args[])
{
Scanner in=new Scanner(System.in);
double cm,inch,mtr,km;
System.out.println("ENTER THE CENTEMETER VALUE:");
cm= in.nextDouble();
inch=0.3937*cm;
mtr=0.01*cm;
km=0.00001*cm;
System.out.println(cm+"cm is equal to "+inch+" inches");
System.out.println(cm+"cm is equal to "+mtr+" mtr");
System.out.println(cm+"cm is equal to "+km+" km");
}
}
```

11. Write a program to find the trace and transpose of a matrix.

```java
import java.io.*;
import java.util.*;
class Matrix
{
public static void main(String args[])
{
Scanner in=new Scanner(System.in);
int n,m,i,j,trace=0;
int a[][]=new int[10][10];
int b[][]=new int[10][10];
System.out.println("ENTER THE ORDER OF THE MATRIX:");
m=in.nextInt();
n=in.nextInt();
System.out.println("ENTER THE ELEMENTS:");
for(i=0;i<m;i++)
{
for(j=0;j<n;j++)
{
a[i][j]=in.nextInt();
}
}
for(i=0;i<m;i++)
{
for(j=0;j<n;j++)
{
b[j][i]=a[i][j];
if(i==j)
{
trace=trace+a[i][j];
}
}
}
System.out.println("TRACE:"+trace);
```

```java
System.out.println("TRANSPOSE");
for(i=0;i<m;i++)
{
for(j=0;j<n;j++)
{
System.out.print(b[i][j]);
}
System.out.println(" ");
}
}
}
```

12. Write java program to find the sum of the digits and reverse of a given number using class and objects.

```java
import java.io.*;
import java.util.*;
class sumrev
{
int num,rem,sum=0,rev=0;
public static void main(String args[])
{
ten obj=new ten();
obj.sumrev();
}
void sumrev()
{
Scanner in=new Scanner(System.in);
System.out.println("ENTER THE NUMBER:");
num=in.nextInt();
while(num!=0)
{
rem=num%10;
sum=sum+rem;
rev=rem+(rev*10);
num=num/10;
}
System.out.println("SUM:"+sum);
System.out.println("REVERSE:"+rev);
}
}
```

13. Write a Java Programming Code to Check given string Anagram or Not. If the two strings are anagram to each other, then one string can be rearranged to form the other string. For Example: abc and cba are anagram.

```java
import java.io.*;
import java.util.*;
class Anagram
{
public static void main(String args[])
{
Scanner in=new Scanner(System.in);
String str1,str2;
int len1,len2;
System.out.println("ENTER THE FIRST STRING:");
str1=in.next();
System.out.println("ENTER THE SECOND STRING:");
str2=in.next();
char[] st1=str1.toCharArray();
char[] st2=str2.toCharArray();
Arrays.sort(st1);
Arrays.sort(st2);
len1=str1.length();
len2=str2.length();
if(len1==len2)
{
if(Arrays.equals(st1,st2))
System.out.println("STRINGS ARE ANAGRAM");
else
System.out.println("STRINGS ARE NOT ANAGRAM");
}
else
{
System.out.println("DIFFERENT LENGTH... NOT ANAGRAM");
}}
}
```

14. Write a Java Program to remove all vowels from a string

```java
import java.io.*;
import java.util.*;
class vowel
{
public static void main(String args[])
{
Scanner in=new Scanner(System.in);
String str;
System.out.println("ENTER THE STRING:");
str=in.nextLine();
str=str.replaceAll("[aeiouAEIOU]","");
System.out.println(str);
}
}
```

15. Using class and objects, write a java program to find the sum of two complex numbers (Hint: Use object as parameter to function).

```java
import java.io.*;
import java.util.*;
class Complex
{
int real,image;
public static void main(String args[])
{
Scanner in=new Scanner(System.in);
Complex c1=new Complex();
Complex c2=new Complex();
System.out.println("ENTER THE FIRST COMPLEX NUMBER:");
c1.real=in.nextInt();
c1.image=in.nextInt();
System.out.println("ENTER THE FIRST COMPLEX NUMBER:");
c2.real=in.nextInt();
c2.image=in.nextInt();
c1.add(c1,c2);
}
void add(Complex c1,Complex c2)
{
Complex c3=new Complex();
c3.real=c1.real+c2.real;
c3.image=c1.image+c2.image;
System.out.println("SUM:"+c3.real+"+"+c3.image);
}
}
```

16. Write a program to count and display total number of objects created to a class (Hint: static members).

```java
import java.io.*;
import java.util.*;
class NumObj
{
static int count=0;
NumObj()
{
count++;
}
public static void main(String args[])
{
NumObj obj1=new NumObj();
NumObj obj2=new NumObj();
NumObj obj3=new NumObj();
System.out.println("NUMBER OF OBJECTS CREATED:"+count);
}
}
```

17. Write a java program to find the volume of cube, rectangular box, cylinder using function overloading.

```java
import java.io.*;
import java.util.*;
class volumefind
{
public static void main(String args[])
{
Seventeen obj=new seventeen();
Scanner in=new Scanner(System.in);
double length,width,height,radius,area;
System.out.println("ENTER THE LENGTH OF CUBE");
length=in.nextDouble();
obj.volume(length);
System.out.println("ENTER THE RADIUS AND HEIGHT OF CYLINDER");
radius=in.nextDouble();
height=in.nextDouble();
obj.volume(length,height);
System.out.println("Enter The Length, Width, Height Of Rectangular Box");
length=in.nextDouble();
width=in.nextDouble();
height=in.nextDouble();
obj.volume(length,width,height);
}
void volume(double l)
{
System.out.println("VOLUME:"+l*l*l);
}
void volume(double l,double w,double h)
{
System.out.println("VOLUME:"+l*w*h);
}
void volume(double r,double h)
{
System.out.println("VOLUME:"+3.14*r*r*h);
}
}
```

18. **Create an interface volume with member variable pi and methods readdata () and dispvolume (). Create two classes sphere and cylinder to implement this interface. Write a Java program to find the volume.**

```java
import java.io.*;
import java.util.*;
interface volume
{
static final double pi=3.14;
public abstract void readdata();
public abstract void dispvolume();
}
class sphere implements volume
{
Scanner in=new Scanner(System.in);
double r,vol;
public void readdata()
{
System.out.println("ENTER THE RADIUS SPHERE:");
r=in.nextDouble();
}
public void dispvolume()
{
vol=(4/3)*pi*r*r*r;
System.out.println("VOLUME OF SPHERE:"+vol);
}
}
class cylinder implements volume
{
Scanner in=new Scanner(System.in);
double r,vol,h;
public void readdata()
{
System.out.println("ENTER THE RADIUS OF CYLINDER:");
r=in.nextDouble();
```

```java
System.out.println("ENTER THE HEIGHT OF CYLINDER:");
h=in.nextDouble();
}
public void dispvolume()
{
vol=pi*r*r*h;
System.out.println("VOLUME OF CYLINDER:"+vol);
}
}

class Eighteen
{
public static void main(String args[])
{
cylinder cyl=new cylinder();
sphere sp=new sphere();
cyl.readdata();
cyl.dispvolume();
sp.readdata();
sp.dispvolume();
}
}
```

19. Write a multi thread java program for displaying odd numbers and even numbers up to a limit (Hint: Implement thread using Runnable interface).

```java
import java.io.*;
import java.util.*;
class Odd implements Runnable
{
int i,n=10;
public void run()
{
for(i=1;i<n;i=i+2)
{
System.out.println("ODD:"+i);
}
}
}
class Even implements Runnable
{
int i,n=10;
public void run()
{
for(i=0;i<n;i=i+2)
{
System.out.println("EVEN:"+i);
}
}
}
class OddEvenThread
{
public static void main(String args[])
{
Even ob2=new Even();
Thread obj2=new Thread(ob2);
obj2.start();
Odd ob1=new Odd();
```

```
Thread obj1=new Thread(ob1);

obj1.start();

}

}
```

20. Create an applet for displaying smiling face.

smiley.java

```
import java.applet.*;
import java.awt.*;
public class smiley extends Applet {
public void paint(Graphics g)
{

g.setColor(Color.YELLOW);
g.fillOval(80, 70, 150, 150);

g.setColor(Color.BLACK);
g.fillOval(120, 120, 15, 15);
g.fillOval(170, 120, 15, 15);

g.drawArc(125, 140, 60, 50, 180, 180);
}
}
```

smiley.html

```
<html>
<head>
<applet code="smiley.class" height='300' width='300'>
</applet>
</head>
</html>
```