MATHURADEVI INSTITUTE OF TECHNOLOGY AND MANAGEMENT, INDORE

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A

Practical File

On

Java and Oops (MCA-206)

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Q.1) write a java program to determine maximum from given 100 number

```
import java.util.Scanner;
public class Biggest_Number
{
   public static void main(String[] args)
   {
      int x, y, z;
      Scanner s = new Scanner(System.in);
      System.out.print("Enter the first number:");
      x = s.nextInt();
      System.out.print("Enter the second number:");
      y = s.nextInt();
      System.out.print("Enter the third number:");
      z = s.nextInt();
      if(x > y && x > z)
      {
         System.out.println("Largest number is:"+x);
      }
      else if(y > z)
      {
         System.out.println("Largest number is:"+y);
      }
      else
      {
         System.out.println("Largest number is:"+z);
      }
   }
}
```

Q.2) write a java program to calculate the factorial of a given number

```
class FactorialExample {
    public static void main(String args[]){
    int i,fact=1;
    int number=5;//It is the number to calculate factorial
    for(i=1;i<=number;i++){
            fact=fact*i;
     }
          System.out.println("Factorial of "+number" is: "+fact);
     }
 }
```

Q3. java program to check whether a given character is alphabet or not

```
import java.util.Scanner;

public class AlphabetOrNot

{

   public static void main(String args[])

   {

      char ch;

      Scanner scan = new Scanner(System.in);

      System.out.print("Enter a Character : ");

      ch = scan.next().charAt(0);

      if((ch>='a' && ch<='z') || (ch>='A' && ch<='Z'))

      {

         System.out.print(ch + " is an Alphabet");

      }

      else

      {

         System.out.print(ch + " is not an Alphabet");

      }

   }

}
```

Q.4) java program to find sum of all digits

```
import java.util.Scanner;
public class SumOfDigitsExample1
```

```
{
public static void main(String args[])
{
int number, digit, sum = 0;
Scanner sc = new Scanner(System.in);
System.out.print("Enter the number: ");
number = sc.nextInt();
while(number > 0)
{
digit = number % 10;
sum = sum + digit;
number = number / 10;
}
System.out.println("Sum of Digits: "+sum);
}
}
```

Q.5) write a java program to add two binary numbers

```
import java.util.Scanner;
public class BinaryNumbers
{
  public static void main(String[] args)
  {
    long num1, num2;
    int a = 0, carryover = 0;
    // to store the result
    int[] add = new int[10];
    Scanner sc = new Scanner(System.in);
    System.out.print("Please enter first binary number: ");
    num1 = sc.nextLong();
    System.out.print("Please enter second binary number: ");
    num2 = sc.nextLong();
    while(num1 != 0 || num2 != 0)
    {
      add[a++] = (int)((num1 % 10 + num2 % 10 + carryover) % 2);
      carryover = (int)((num1 % 10 + num2 % 10 + carryover) / 2);
      num1 = num1 / 10;
      num2 = num2 / 10;
    }
    if(carryover != 0)
    {
      add[a++] = carryover;
    }
    --a;
    System.out.print("add two binary numbers: ");
    while(a >= 0)
    {
```

```
        System.out.print(add[a--]);
      }
      System.out.print("\n");
      sc.close();
    }
}
```

Q.6) write a java program for switch statement

```
class Main {
  public static void main(String[] args) {
    int number = 44;
    String size;
    switch (number) {
      case 29:
        size = "Small";
        break;
      case 42:
        size = "Medium";
        break;
      case 44:
        size = "Large";
        break;
      case 48:
        size = "Extra Large";
        break;
      default:
        size = "Unknown";
        break;
    }
    System.out.println("Size: " + size);
  }
}
```

Q.7) write a java program to print perfect numbers

```
import java.util.Scanner;
public class PerfectNumberExample1
{
public static void main(String args[])
{
long n, sum=0;
Scanner sc=new Scanner(System.in);
System.out.print("Enter the number: ");
```

```
        n=sc.nextLong();
        int i=1;
        while(i <= n/2)
        {
        if(n % i == 0)
        {
        Sum = sum + i;
        }
        i++;
        }
        if(sum==n)
        {
 System.out.println(n+" is a perfect number.");
        }
    else
      System.out.println(n+" is not a perfect number.");
        }
 }
```

Q.8) write a java program to convert a decimal number to binary number

```
import java.io.*;
class GFG
{
        static void decToBinary(int n)
        {
                int[] binaryNum = new int[1000];
                int i = 0;
                while (n > 0)
                {
                        binaryNum[i] = n % 2;
                        n = n / 2;
                        i++;
                }
                for (int j = i - 1; j >= 0; j--)
                        System.out.print(binaryNum[j]);
        }
        public static void main (String[] args)
        {
                int n = 17;
                System.out.println("Decimal - " + n);
                System.out.print("Binary - ");
                decToBinary(n);
        }
}
```

Q.9) write a java program for parameterized constructor.

```
public class Edureka{
String studentName;
int studentAge;
//constructor
Edureka(String name, int age){
studentName = name;
studentAge = age;
}
void display(){
System.out.println(studentName+ " "+studentAge);
}
public static void main(String args[])
{
Edureka myObj = new Edureka("Manan" , 19);
myObj.display();
}
}
```

Q.10) write a java program using while loop, do while loop, "for" loop.

Q.11) write a java program to check whether number is Armstrong or not

```
import java.util.Scanner;
public class IsArmstrong {
public static void main(String[] args) {
int my_input, my_temp, my_remainder, my_result;
my_result = 0;
System.out.println("Required packages have been imported");
Scanner my_scanner = new Scanner(System.in);
System.out.println("A reader object has been defined ");
System.out.print("Enter the number : ");
    my_input = my_scanner.nextInt();
    my_temp = my_input;
    while (my_temp != 0){
      my_remainder = my_temp % 10;
      my_result += Math.pow(my_remainder, 3);
      my_temp /= 10;
    }
    if(my_result == my_input)
      System.out.println(my_input + " is an Armstrong number");
    else
      System.out.println(my_input + " is not an Armstrong number");
  }
}
```

Q.12) write a java program for hierarchical inheritance

```
class A
```

```
{
  public void methodA()
  {
    System.out.println("method of Class A");
  }
}
class B extends A
{
  public void methodB()
  {
    System.out.println("method of Class B");
  }
}
class C extends A
{
 public void methodC()
 {
   System.out.println("method of Class C");
 }
}
class D extends A
{
 public void methodD()
 {
   System.out.println("method of Class D");
 }
}
class JavaExample
{
 public static void main(String args[])
 {
   B obj1 = new B();
   C obj2 = new C();
   D obj3 = new D();
   //All classes can access the method of class A
   obj1.methodA();
   obj2.methodA();
   obj3.methodA();
 }
}
```

Q.13) write a java program for abstract class and for interface

```
abstract class Student implements GFG {
```

```
    // Overriding two methods of the interface,GFG
    @Override public void learnCoding()
    {
        System.out.println(
            "Let's make coding a habit with GFG");
    }
    @Override public void learnProgrammingLanguage()
    {
        System.out.println(
            "Let's master all fundamentals of java with the help of GFG");
    }
}
```

Q.14) Write a java program to declare, initialize and display the contents of an array of 5 integer values. Also show in java how the length of array can be found

```
import java.util.*;
public class Main
{
    public static void main(String[] args)
    {
    int evenArray[] = { 2,4,6,8,10 };
    //copy contents of evenArray to copyof_Array
    int[] copyof_Array = Arrays.copyOf(evenArray,5);
       System.out.println("Array Elements initialised with Arrays.copyOf:");
       //print the array elements
    for(int i=0;i<5;i++)
        System.out.println("copyof_Array[" + i +"] = " + copyof_Array[i]);
     }
}
```

Q.15) writes a program to accept a string and count total capital and small letters in string.

```
public class CountUpperLower {
public static void main(String[] args) {
    String str1 = "AbRtt";
    int upperCase = 0;
    int lowerCase = 0;
    char[] ch = str1.toCharArray();
    for(char chh : ch) {
      if(chh >='A' && chh <='Z') {
        upperCase++;
```

```
      } else if (chh >= 'a' && chh <= 'z') {
        lowerCase++;
      } else {
        continue;
      }
    }
    System.out.println("Count of Uppercase letter/s is/are " + upperCase + " and of
Lowercase      letter/s is/are " + lowerCase);
  }
}
```

Q.16) write a java program to print following output

```
0,1,1,2,3,.....(20 such items)
package TIHLoops;

public class Print1to20 {

        public static void main(String[] args) {
                for(int number=1; number<=20; number++){
                        System.out.println(number);
                }

        }

}
```

Q.17) write a java program for method overloading and for method overriding

Overloading method :-

```
class Main
{
        static int multiply(int a, int b)
        {
                int  c = a*b;
                return c;
        }
        static int multiply(int a, int b, int c)
        {
                int z = a*b*c;
                return z;
        }
  public static void main(String args[])
  {
        System.out.println(Main.multiply(12,12));
        System.out.println(Main.multiply(6,6,6));
```

```
 }
}
```

Method Overriding :-

```
class Radio
{
   void play()
  {
     System.out.println("Plays music");
  }
}
class Caravan extends Radio
{
   void play()
   {
      System.out.println("Plays old classical hits !!");
   }
}
public static void main(String args[])
{
   Caravan obj = new Caravan();
   obj.play();
}
```

Q.18) write a java program to design a class student that has three data member name; roll no; marks in five subject and member function to assign streams on the basis of table given below

```
import java.io.*;
class Student
{
int rollno;
String name;
int number_of_subjects;
int mark[];

Student(int roll,String stud_name,int noofsub)throws IOException
{
rollno=roll;
name=stud_name;
number_of_subjects= noofsub;
getMarks(noofsub);
```

```
}
public void getMarks(int nosub ) throws IOException
{
mark=new int[nosub];
BufferedReader br= new BufferedReader (new
InputStreamReader(System.in));
for (int i=0; i<nosub;i++)
{
System.out.println(“Enter “+i+”Subject Marks.:=> “);
mark[i]=Integer.parseInt(br.readLine());
System.out.println(“”);
}

}
public void calculateMarks()
{
double percentage=0;
String grade;
int tmarks=0;
for (int i=0;i<mark.length;i++)
{
tmarks+=mark[i];
}
percentage=tmarks/number_of_subjects;
System.out.println(“Roll Number :=> “+rollno);
System.out.println(“Name Of Student is :=> “+name);
System.out.println(“Number Of Subject :=> “+number_of_subjects);
System.out.println(“Percentage Is :=> “+percentage);
```



```
if (percentage>=70)
System.out.println(“Grade Is First Class With Distinction “);
else if(percentage>=60 && percentage<70)
System.out.println(“Grade Is First Class”);
else if(percentage>=50 && percentage<60)
System.out.println(“Grade Is Second Class”);
else if(percentage>=40 && percentage<50)
```

```
System.out.println(“Grade Is Pass Class”);
else
System.out.println(“You Are Fail”);
}
}
class StudentDemo
{
public static void main(String args[])throws IOException
{
int rno,no,nostud;
String name;
BufferedReader br= new BufferedReader (new
InputStreamReader(System.in));
System.out.println(“Enter How many Students:=> “);
nostud=Integer.parseInt(br.readLine());
Student s[]=new Student[nostud];

for(int i=0;i<nostud;i++)
{
System.out.println(“Enter Roll Number:=> “);
rno=Integer.parseInt(br.readLine());
System.out.println(“Enter Name:=> “);
name=br.readLine();
System.out.println(“Enter No of Subject:=> “);
no=Integer.parseInt(br.readLine());
s[i]=new Student(rno,name,no);
}
for(int i=0;i<nostud;i++)
{
s[i].calculateMarks();
}

}
}
```