***2CS302***

# Object Oriented Programming

**Definition :** Create a student management system for the University that contains several institutes like Management, Technology, Science, Pharmacy and Commerce. Design the admission module where student can select in which Institute she need to take admission in. However for each Institute there are only 60 seats available which will be filled merit wise. The student need to give the details like Name, Merit Marks, Institute, Address and DOB. Once the student is admitted in a particular Institute she cannot be admitted into any other Institute of the University. Using the appropriate concept of OOP, write an interactive program for the given situation

**Program file :** Comprehensive.java

**File purpose :** “Comprehensive.java” file contain all the classes and methods which are used for implementing student management admission module.

**Java code :**

**/\***It will accept 7 student form and print result accordingly\*/

/\*For the reference

Assume there are only 2 seats available for the each institute , student with highest merit will get addmission first \*/

import java.util.\*;

interface university

{

    String name\_university="Nirma University";

    String adderess="Sarkhej-Gandhinagar Hwy,Gota,\nAhmedabad,Gujrat 382481";

    boolean check\_addmission(double cut\_of,double m,double s);

}

class student implements university

{

    Scanner sc=new Scanner(System.in);

    public static String name\_student[]=new String[50];

    public static double merit[]=new double[50];

    public static String address[]=new String[50];

    public static String institute[]=new String[50];

    public static String dob[]=new String[50];

    public static int total\_student=0;

    void set(String student\_name,String db,String add,double m,String inst)

    {

        name\_student[total\_student]=student\_name;

        dob[total\_student]=db;

        address[total\_student]=add;

        institute[total\_student]=inst;

        merit[total\_student]=m;

        total\_student++;

    }

    int check\_present(String student\_name,String db,String add,String insti,double cut\_off,int seat,double merit)

    {

        boolean bool=true;

        int c1=1,c2=1,c3=1;

        for(int i=0;i<total\_student;i++)

        {

            if(student\_name.compareToIgnoreCase(name\_student[i])==0)

            c1=0;

            if(db.compareToIgnoreCase(dob[i])==0)

            c2=0;

            if(add.compareToIgnoreCase(address[i])==0)

            c3=0;

            if(c1==0 && c2==0 && c3==0)

            {

                bool=false;

            }

        }

        if(bool)

        {

            System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

            if(seat<2)         //Direct check addmission with seat(59) assume it as only 2

            {

            boolean b=check\_addmission(cut\_off,merit,seat);

            if(b)

            {

                seat++;

                print\_addmitted\_student(student\_name,db,add,merit,cut\_off,insti,seat);

            }

            else

            {

                print\_student\_detail(student\_name,db,add,merit,cut\_off,insti);

                System.out.println("You are not eligible for this institute");

            }

            }

            else

            {

                print\_student\_detail(student\_name,db,add,merit,cut\_off,insti);

                System.out.println("No seats available for technology\nTry for second institute");

            }

        }

        else

        {

            print\_student\_detail(student\_name,db,add,merit,cut\_off,insti);

           System.out.println("You already got addmission in our University");

        }

        return seat;

    }

    public boolean check\_addmission(double cut\_of,double m,double s) //for check addmission

    {

        if(m>=cut\_of)

        {

            return true;

        }

        else

        return false;

    }

    void print\_addmitted\_student(String student\_name,String db,String add,double m,double cut\_of,String inst,int s) //print student detail

    {

        set(student\_name,db,add,m,inst);

        System.out.println("Name : "+student\_name+"\nDate of birth : "+db+"\nAdderess : "+add+"\nMerit : "+m);

        System.out.println("Cut off for "+inst+" is "+cut\_of+"\nAvailable seats : "+(60-s));

        System.out.println("\n=============================================================================================");

        System.out.println("Congratulation "+student\_name+" you got addmission in "+inst+"\n=============================================================================================\n\nHave a great year ahead !\n"+name\_university+"\n"+adderess);

        System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

    }

    void print\_student\_detail(String student\_name,String db,String add,double m,double cut\_of,String inst)

    {

        System.out.println("Name : "+student\_name+"\nDate of birth : "+db+"\nAdderess : "+add+"\nMerit : "+m);

        System.out.println("Cut off for "+inst+" is "+cut\_of);

        System.out.println("\n=============================================================================================");

    }

}

class technology extends student

{

    Scanner sc=new Scanner(System.in);

    final double cut\_off=87.5;

    static int seat=0;

    int flag=0;

    technology()

    {

        System.out.println("\n\t\t=================== RESULT ==================\n");

    }

    void check\_student(String student\_name,String dob,String address,double merit)

    {

        int x=check\_present(student\_name,dob,address,"Technology",cut\_off,seat,merit); //IF same name dob add student is present or not

        seat=x;

    }

}

class management extends student

{

    final double cut\_off=77.5;

    static int seat=0;

    int flag=0;

    management()

    {

        System.out.println("\n\t\t=========== RESULT ============\n");

    }

    void check\_student(String student\_name,String dob,String address,double merit)

    {

        int x=check\_present(student\_name,dob,address,"Management",cut\_off,seat,merit); //IF same name dob add student is present or not

        seat=x;

    }

}

class science extends student

{

    final double cut\_off=80.5;

    static int seat=0;

    int flag=0;

    science()

    {

        System.out.println("\n\t\t=========== RESULT ============\n");

    }

    void check\_student(String student\_name,String dob,String address,double merit)

    {

        int x=check\_present(student\_name,dob,address,"Science",cut\_off,seat,merit); //IF same name dob add student is present or not

        seat=x;

    }

}

class Pharmacy extends student

{

    final double cut\_off=80.0;

    static int seat=0;

    int flag=0;

    Pharmacy()

    {

        System.out.println("\n\t\t=========== RESULT ============\n");

    }

    void check\_student(String student\_name,String dob,String address,double merit)

    {

        int x=check\_present(student\_name,dob,address,"Pharmacy",cut\_off,seat,merit); //IF same name dob add student is present or not

        seat=x;

    }

}

class Commerce extends student

{

    final double cut\_off=90.0;

    static int seat=0;

    int flag=0;

    Commerce()

    {

        System.out.println("\n\t\t=========== RESULT ============\n");

    }

    void check\_student(String student\_name,String dob,String address,double merit)

    {

        int x=check\_present(student\_name,dob,address,"Commerce",cut\_off,seat,merit); //IF same name dob add student is present or not

        seat=x;

    }

}

public class Comprehensive

{

    public static void main(String args[])

    {

        int t1=0,t2=0,t3=0,t4=0,t5=0,form\_number=0,i0=0,i1=1,i2=2,i3=3,i4=4,choice=0;

        String name\_s[]=new String[50];

     double me[]=new double[50];

      String addr[]=new String[50];

     String insti[]=new String[50];

    String date[]=new String[50];

        technology t[]=new technology[50];

       management m[]=new management[50];

       science s[]=new science[50];

       Pharmacy p[]=new Pharmacy[50];

       Commerce c[]=new Commerce[50];

        System.out.println("\n\n=============================================================================================\n");

        System.out.println("-----------------------------\tSTUDENT MANAGEMENT SYSTEM\t-----------------------------");

        System.out.println();

        Scanner sc=new Scanner(System.in);

        while(form\_number<7)            //Maximum 10 student can apply

        {

            form\_number++;

        System.out.println("=============================================================================================\n\t\t\t\t  PLEASE FILL OUT FORM\n=============================================================================================");

        System.out.print("\nEnter your name : ");

         String student\_name=sc.next();

         System.out.print("\nEnter date of birth : ");

         String dob=sc.next();

         System.out.print("\nEnter address : ");

         String address=sc.next();

         System.out.print("\nEnter merit : ");

         double merit=sc.nextDouble();

         System.out.println("\nSelect institute");

         System.out.print("1.Technology  2.Management  3.Science  4.Pharmacy  5.Commerce\n\n--->");

         choice=sc.nextInt();

        if(choice==1)

        {

            name\_s[i0]=student\_name;

            date[i0]=dob;

            addr[i0]=address;

            me[i0]=merit;

            i0=i0+5;

        }

        else if(choice==2)

        {

            name\_s[i1]=student\_name;

            date[i1]=dob;

            addr[i1]=address;

            me[i1]=merit;

            i1=i1+5;

        }

        else if(choice==3)

        {

            name\_s[i2]=student\_name;

            date[i2]=dob;

            addr[i2]=address;

            me[i2]=merit;

            i2=i2+5;

        }

        else if(choice==4)

        {

            name\_s[i3]=student\_name;

            date[i3]=dob;

            addr[i3]=address;

            me[i3]=merit;

            i3=i3+5;

        }

        else if(choice==5)

        {

            name\_s[i4]=student\_name;

            date[i4]=dob;

            addr[i4]=address;

            me[i4]=merit;

            i4=i4+5;

        }

    }

    int k=0;

    while(k<5)

    {

    for(int i=k;i<50;i=i+5)

    {

          for(int j=i+5;j<50;j=j+5)

          {

              if(me[i]<me[j])

              {

                  String temp\_name=name\_s[i];double temp\_merit=me[i];String temp\_add=addr[i];String temp\_inst=insti[i];String temp\_date=date[i];

                  name\_s[i]=name\_s[j];me[i]=me[j];addr[i]=addr[j];insti[i]=insti[j];date[i]=date[j];

                  name\_s[j]=temp\_name;me[j]=temp\_merit;addr[j]=temp\_add;insti[j]=temp\_inst;date[j]=temp\_date;

              }

          }

    }

    k++;

    }

    for(int i=0;i<50;i++)

    {

    if(i%5==0)

    choice=1;

    else if(i%5==1)

    choice=2;

    else if(i%5==2)

    choice=3;

    else if(i%5==3)

    choice=4;

    else if(i%5==4)

    choice=5;

    switch(choice)

        {

            case 1:

            if(me[i]!=0){

            t[t1]=new technology();

            t[t1].check\_student(name\_s[i], date[i], addr[i], me[i]);

            t1++;

            }

            break;

            case 2:

            if(me[i]!=0){

            m[t2]=new management();

            m[t2].check\_student(name\_s[i], date[i], addr[i], me[i]);

            t2++;}

            break;

            case 3:

            if(me[i]!=0){

            s[t3]=new science();

            s[t3].check\_student(name\_s[i], date[i], addr[i], me[i]);

            t3++;}

            break;

            case 4:

            if(me[i]!=0){

            p[t4]=new Pharmacy();

            p[t4].check\_student(name\_s[i], date[i], addr[i], me[i]);

            t4++;}

            break;

            case 5:

            if(me[i]!=0){

            c[t5]=new Commerce();

            c[t5].check\_student(name\_s[i], date[i], addr[i], me[i]);

            t5++;}

            break;

        }

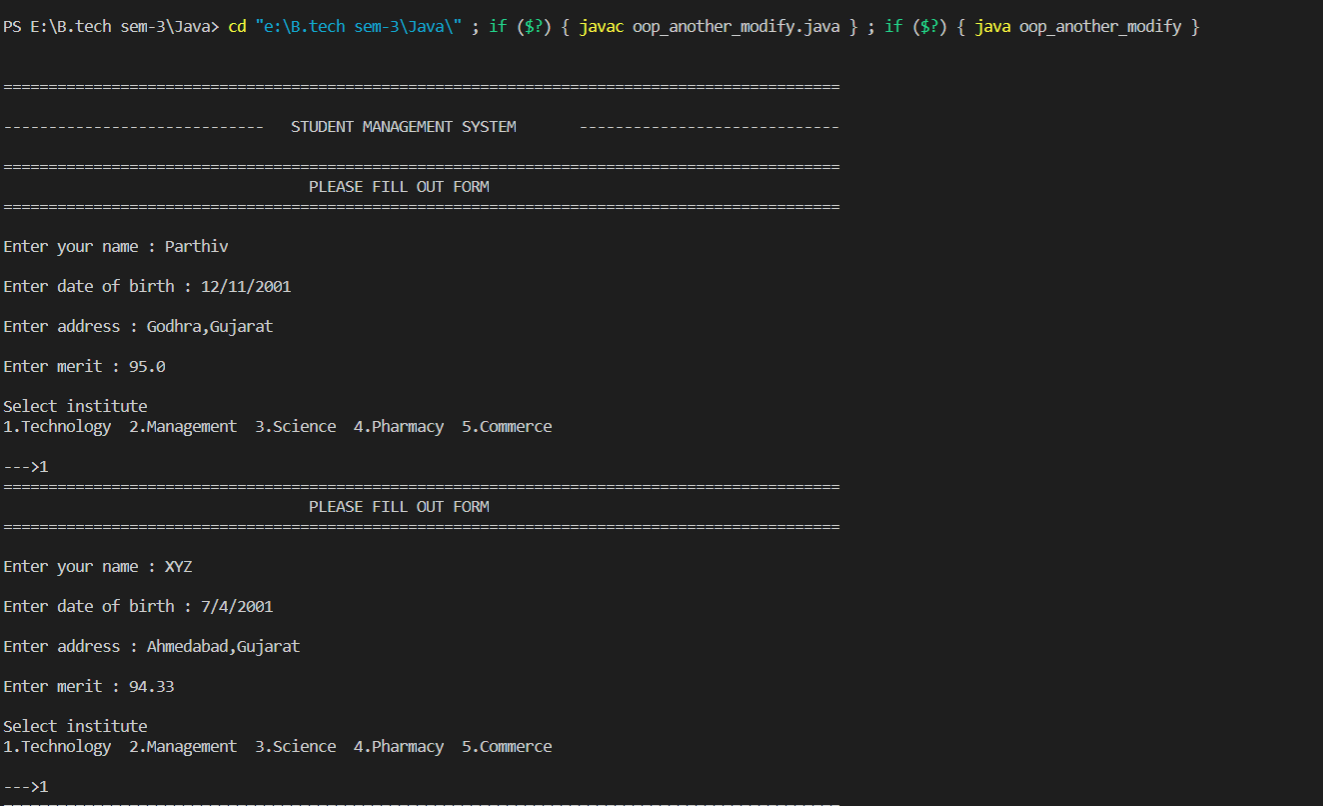
    }

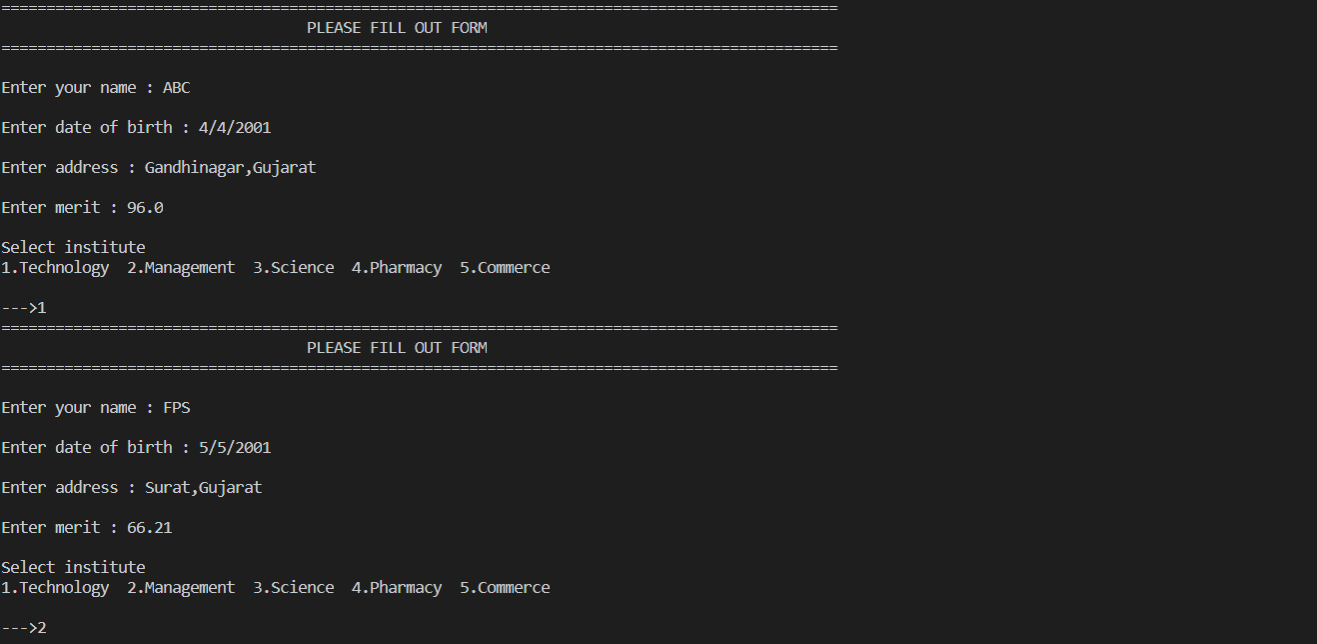
    System.out.println("\n\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_");

}

}

**OUTPUT :-**

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