NAME :-T.DAMAN
ROLL:-2005839
OOP LAB 5
Q1.

```
//q1.create a class which stores x and y coordinates of point .calculate the distance between the two point
s
#include<iostream>
#include<math.h>
using namespace std;
class dist
{
    int a;
    int b;
public:
    void get()
{
    cout<<"Enter the  value of coordinates :";
    cin>>a>>b;
}
  friend float calc(dist,dist);
};
float calc(dist d1,dist d2)
{
    int k;
    k=(pow((d1.a-d2.a),2) + pow((d1.b-d2.b),2));
    float s;
    s=pow(k,0.5);
    return s;
}
int main()
{
    dist m,n;
    m.get();
    n.get();
    cout<<"the distance b/w points is "<<calc(m,n);
return 0;
}
//T.DAMAN
//2005839
```

Output:-
Enter the value of coordinates :2 3
Enter the value of coordinates :4 5
the distance b/w points is 2.82843

Q2.

```
//q2.create a class which stores name ,roll,total marks of students input data fore n students find the ave
rge marks stored by n students ,store it as a data member of the class and display it using a private funct
ion
#include<iostream>
using namespace std;
class student{
    private:
    char name[20];
    int roll;
    int marks[3];

    public:
  void getdata()
  {
      cout<<"enter the data of students:"<<endl;
      cout<<"enter the name of student :"<<endl;
      cin>>name;
      cout<<"enter the roll of student :"<<endl;
      cin>>roll;
      for(int i=0;i<3;i++)
```

```
      {
          cout<<"enter the marks of:"<< i+1 <<"subject :"<<endl;
          cin>>marks[i];
      }
  }
  void set()
  {
     cout<<" name of student :"<<name<<endl;
      cout<<" roll of student :"<<roll<<endl;
       for(int i=0;i<3;i++)
      {
          cout<<" marks of "<<i+1<<"subject :"<<marks[i]<<endl;
  }
  }
  friend int total(student s);
};
int total(student s)
{
    int total_marks=0;
    for(int i=0;i<3;i++)
    {
        total_marks+=s.marks[i];
    }
    return total_marks;
}
int main()
{
    int n;
    cout << "Enter total numbers of student:";
    cin >> n;
    student s[n];
    for(int i=0;i<n;i++)
    {
        s[i].getdata();
        s[i].set();
        cout<<"total marks of student is :"<<total(s[i])<<endl;
     cout<<"avg marks of student "<<i+1<<" is : "<<float((total(s[i])))/3)<<endl;
    }

return 0;
}
//T.DAMAN
//2005839
```

OUTPUT:-

Enter total numbers of student:2
enter the data of students:
enter the name of student :
DAMAN
enter the roll of student :
839
enter the marks of:1subject :
99
enter the marks of:2subject :
98
enter the marks of:3subject :
97
name of student :DAMAN
roll of student :839
marks of 1subject :99

marks of 2subject :98
marks of 3subject :97
total marks of student is :294
avg marks of student 1 is : 98
enter the data of students:
enter the name of student :
RAHUL
enter the roll of student :
200
enter the marks of:1subject :
100
enter the marks of:2subject :
97
enter the marks of:3subject :
96
name of student :RAHUL
roll of student :200
marks of 1subject :100
marks of 2subject :97
marks of 3subject :96
total marks of student is :293
avg marks of student 2 is : 97

Q3.

```cpp
//write a program which create  & usesarray of a objectclass(name ,age etc)
//Q3
#include <iostream>
using namespace std;
class employee
{
    private:
        char name[20];
        int age;
        double salary;
    public:
        void get()
        {
            cout<<"\nEnter the name of the employee:";
            cin>>name;
            cout<<"Enter the age of the employee:";
            cin>>age;
            cout<<"Enter the salary of the employee:";
            cin>>salary;
        }
        void display()
        {
            cout<<"\nName of the employee:"<<name<<endl;
            cout<<"Age of the employee:"<<age<<endl;
            cout<<"Salary of the employee:"<<salary<<endl;
        }
};
int main()
{
    int i,n;
```

```
    cout<<"Enter the number of employee:";
    cin>>n;
    employee e1[n];
    cout<<"Enter the details of the employee:"<<endl;
    for(i=0;i<n;i++)
    {
        e1[i].get();
    }
    cout<<"\n";
    cout<<"Your entered detalis are as follow:"<<endl;
    for(i=0;i<n;i++)
    {
        e1[i].display();
    }
    return 0;
}
//T.DAMAN
//2005839
```

Output:-
Enter the number of employee:2
Enter the details of the employee:

Enter the name of the employee:daman
Enter the age of the employee:19
Enter the salary of the employee:2010101

Enter the name of the employee:raj
Enter the age of the employee:21
Enter the salary of the employee:123455

Your entered detalis are as follow:

Name of the employee:daman
Age of the employee:19
Salary of the employee:2.0101e+006

Name of the employee:raj
Age of the employee:21
Salary of the employee:123455

Q4.

```
//wap to find the max. out of two numbers using friend functionb
#include <iostream>
using namespace std;
class number1;
class number2
{
    private:
        int n2;
    public:
        void get()
        {
            cout<<"Enter the second number:";
            cin>>n2;
        }
```

```
        friend void compare(number1,number2);
};
class number1
{
    private:
        int n1;
    public:
        void get()
        {
            cout<<"Enter the first number:";
            cin>>n1;
        }
        friend void compare(number1,number2);
};
void compare(number1 p,number2 q)
{
    int m;
    if(p.n1>q.n2)
    {
        m=p.n1;
        cout<<"The biggest number is : "<<m<<endl;
    }
    else
    {
        m=q.n2;
        cout<<"The biggest number is : "<<m<<endl;
    }
}
int main()
{
    number1 p;
    p.get();
    number2 q;
    q.get();
    compare(p,q);
    return 0;
}
//T.DAMAN
//2005839
```

Output:-

Enter the first number:100

Enter the second number:199

The biggest number is : 199

Q5.

```
//q5
#include <iostream>
using namespace std;
class number1;
class number2
{
    private:
        int n2;
    public:
        void get()
        {
            cout<<"Enter the second number:";
            cin>>n2;
        }
        friend void swap(number1,number2);
};
class number1
{
    private:
        int n1;
    public:
        void get()
        {
```

```
            cout<<"Enter the first number:";
            cin>>n1;
        }
        friend void swap(number1,number2);
};
void swap(number1 p,number2 q)
{
    int m,o,v;
    m=p.n1;
    p.n1=q.n2;
    q.n2=m;
    cout<<"After swaping two number.\n";
    cout<<"The first number : "<<p.n1<<"\n";
    cout<<"The second number : "<<q.n2<<"\n";
}
int main()
{
    number1 n;
    n.get();
    number2 p;
    p.get();
    swap(n,p);
    return 0;
}
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//2005839
```

Output:-
Enter the first number:201
Enter the second number:567
After swaping two number.
The first number : 567
The second number : 201

Q6.add two complex numbers using friend friend function

```
//q6.
#include <iostream>
using namespace std;
class complex
{
    private:
        int a,b;
    public:
        void get()
        {
            cout<<"Enter the real part of the complex number:";
            cin>>a;
            cout<<"Enter the imaginary part of the complex number:";
            cin>>b;
        }
        void display()
        {
            cout<<"The complex number is : "<<a<<"+"<<b<<"i"<<"\n";
            cout<<"\n";
        }
        friend void add(complex l,complex m);
};
void add(complex l,complex m)
{
    int q,o;
    q=l.a+m.a;
    o=l.b+m.b;
    cout<<"The sum of given two complex number is : "<<q<<"+"<<o<<"i"<<endl;
}
int main()
{
    complex n,p;
    n.get();
```

```
    n.display();
    p.get();
    p.display();
    add(n,p);
    return 0;
}
//T.DAMAN
//2005839
```

Output:-

Enter the real part of the complex number:2
Enter the imaginary part of the complex number:3
The complex number is : 2+3i

Enter the real part of the complex number:4
Enter the imaginary part of the complex number:5
The complex number is : 4+5i

The sum of given two complex number is : 6+8i