NUST

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

Academic Year 2019 -20

Department: Computer

LAB 2

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Roll No.: 352076 **Section:** "A"

Subject: Object Oriented Programming

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TASK 1

CODE:

```
#include<iostream> //Header File for input and out put
#include<math.h>    //header file for math functions

using namespace std;    //NAMESPACE

class point                          //class of point
{
private:                                 //private section
    double a,b;                              //class attributes
public:                                  //public section

point(double x=0,double y=0){  //Constructor Parameters & Default
    a=x;                       //this work as default and parameterize
    b=y;
}
void output(){
    cout<<"X value ="<<a<<endl;  //display values on console
    cout<<"Y value ="<<b<<endl;
}
 void setter(double x,double y){a=x;b=y;} //setter setting values of a & b;

    double distance(point c){                    //function for calculating
distance
        double p;
        p=pow(c.a-a,2)+pow(c.b-b,2);
        return sqrt(p);                           //returning distance of type
double

    }
    point midpoint(point c){                //midpoint function
        point n;
        n.a=(a+c.a)/2;
        n.b=(b+c.b)/2;
        return n;               //returning midpoint value in an
object

    }
    bool izero(){                 //function for checking point is on origin
        if(a==0&&b==0){
            return true;              //returning true
        }
        else
        {
            return false;               //returning false
```

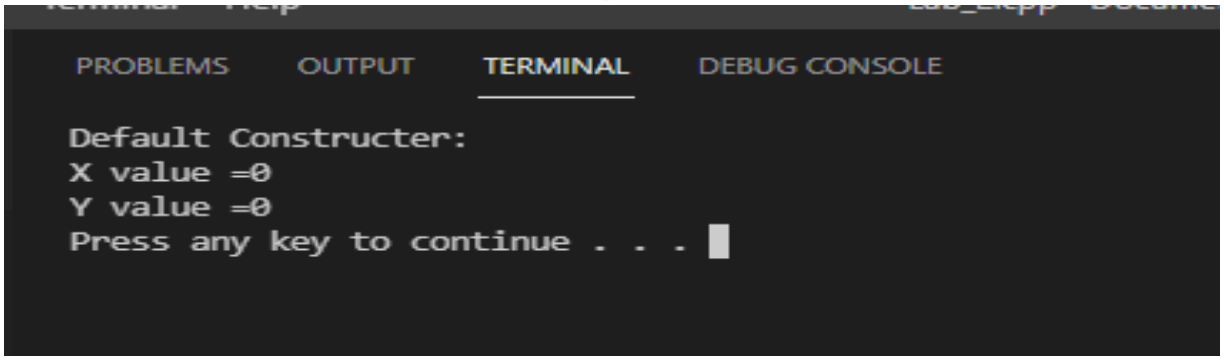
```
        }

    }
     bool izequal(point c){                    //function for finding equal
points
        if(a==c.a&& b==c.b){
            return true;                        // returning true
        }
        else
        {
            return false;                          //returning false
        }

    }

    ~point(){
        cout<<"\nDistructor!\n";
    }
};                                  //class ended




int main() //main function
{
     int x,y;       // declaring variables

    system("cls");


    cout<<"Default Constructer: \n";
    point s;                                  //obj declaration
    s.output();                               //calling class function
    system("pause");
    system("cls");

    point d(3,5);                             //parametrize function
calling
    cout<<"Parameterize Constructer: \n";
    d.output();                                   //calling class
function
    system("pause");
    system("cls");


    cout<<"Point A:\n";
    cout<<"Enter x value: ";
    cin>>x;                                 //taking input
```

```
    cout<<"Enter y value: ";
    cin>>y;
    s.setter(x,y);
    cout<<"Point B:\n";
    cout<<"Enter x value: ";
    cin>>x;
    cout<<"Enter y value: ";
    cin>>y;
    d.setter(x,y);
    system("pause");
    system("cls");

     bool t=s.izequal(d);                 //calling class function
    if (t==1){
        cout<<"Point A & Point B are Equal!\n";
    }
    else{
        cout<<"Point A & Point B are Not Equal!\n";
    }
    t=s.izero();                         //calling class function
    if(t==1){
        cout<<"Point A is on Origin:!\n";
    }
    t=d.izero();                            //calling class function
    if(t==1){
        cout<<"Point B is on Origin:!\n";
    }


    cout<<"DISTANCE BETWEEN A & B is =
"<<s.distance(d)<<endl;        //displaying distance


    point z=s.midpoint(d);                     //displaying midpoint
    cout<<"MIDPOIT BETWEEN A & B is :\n";
    z.output();









    return 0; //main function returning 0
```

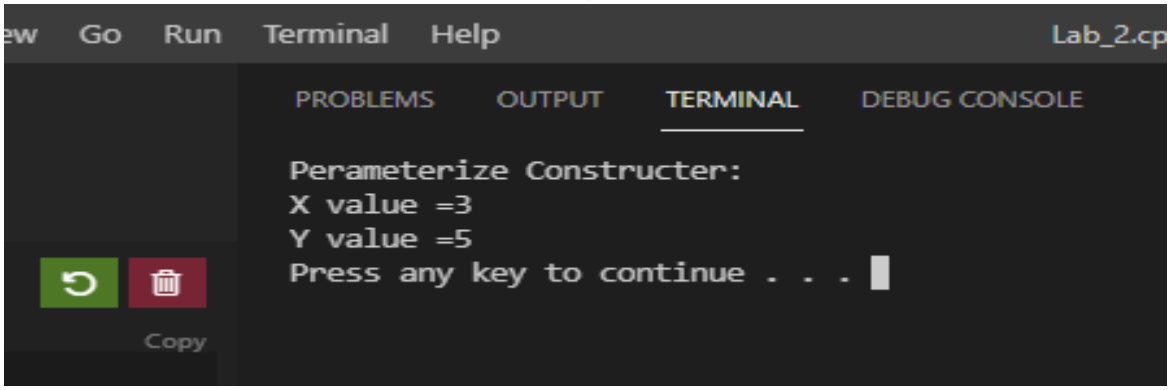
```
}
```

SCREENSHOT:

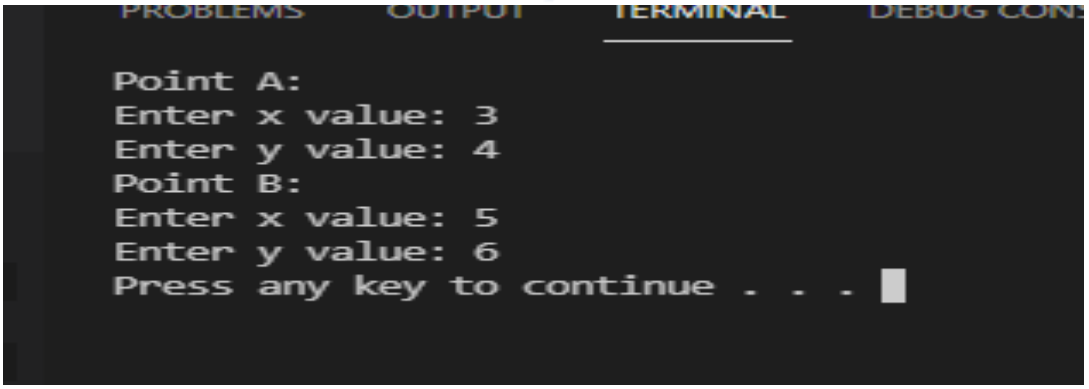
1



2



3



4

```
PROBLEMS    OUTPUT    TERMINAL    DEBUG CONSOLE

Distructor!
Point A & Point B are Not Equal!
DISTANCE BETWEEN A & B is = 2.82843

Distructor!

Distructor!
MIDPOIT BETWEEN A & B is :
X value =4
Y value =5

Distructor!

Distructor!

Distructor!
PS C:\Users\Furqan Ahmad\Documents>
```