

NUST
NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY



Academic Year 2019 -20

Department: Computer

LAB 2

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Section: "A"

Subject: Object Oriented Programming

Date of Submission: 3/11/2021

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<<"MIDPOINT BETWEEN A & B is :\n";
    z.output();

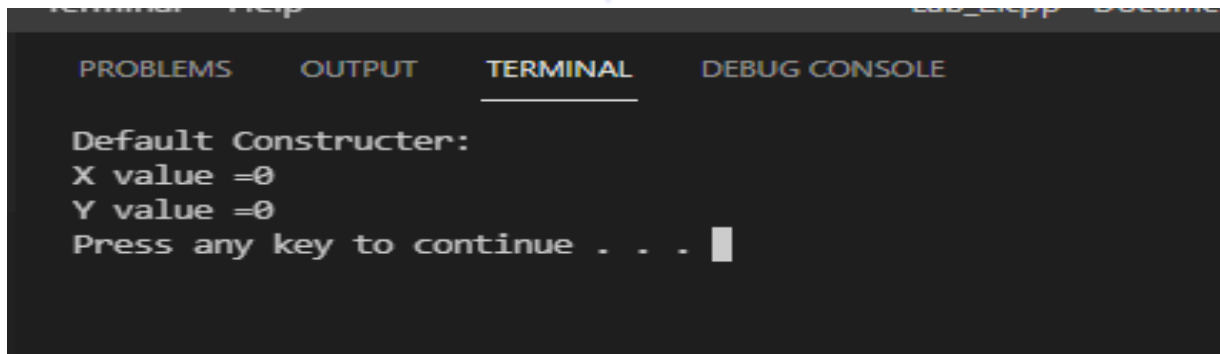
    return 0; //main function returning 0

```

```
}
```

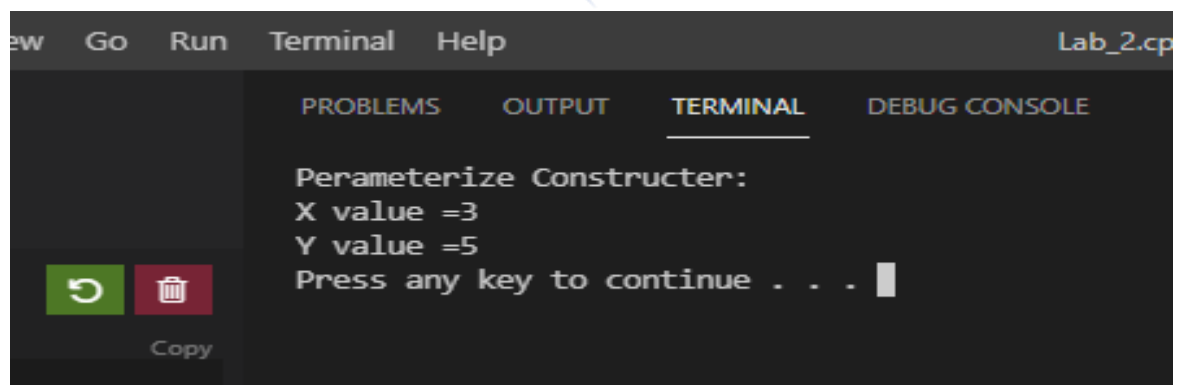
SCREENSHOT:

1



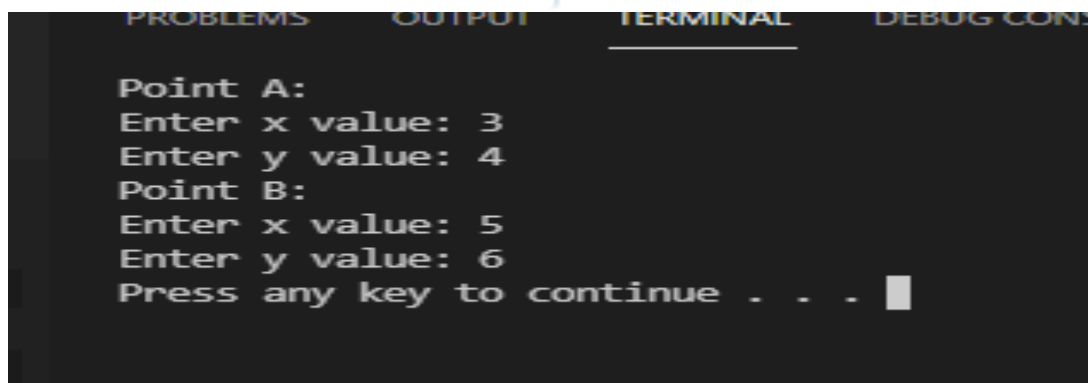
A screenshot of an IDE's terminal window. The terminal has tabs for PROBLEMS, OUTPUT, TERMINAL (selected), and DEBUG CONSOLE. The output text reads: "Default Constructor:", "X value =0", "Y value =0", and "Press any key to continue . . .". A cursor is visible at the end of the last line.

2



A screenshot of an IDE's terminal window. The terminal has tabs for PROBLEMS, OUTPUT, TERMINAL (selected), and DEBUG CONSOLE. The output text reads: "Parameterize Constructor:", "X value =3", "Y value =5", and "Press any key to continue . . .". A cursor is visible at the end of the last line. On the left side of the terminal, there are icons for a green circular arrow and a red trash can, with a "Copy" button below them.

3



A screenshot of an IDE's terminal window. The terminal has tabs for PROBLEMS, OUTPUT, TERMINAL (selected), and DEBUG CONSOLE. The output text reads: "Point A:", "Enter x value: 3", "Enter y value: 4", "Point B:", "Enter x value: 5", "Enter y value: 6", and "Press any key to continue . . .". A cursor is visible at the end of the last line.

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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> █
```



THE END