

LAB - 8  
C PROGRAMMING  
06-05-2024

Euclidean space Distance Formula

**Expt (17)** Read two inputs each representing the distances between two points in Euclidean space, store these in structure variables and add the two distance value.

Ans:

Program Code

```
#include <stdio.h>
#include <math.h>

struct points
{
    int x;
    int y;
}p1,p2;

int main()
{
    //Coordinates of First Point
    printf("Enter the Coordinate of Point1: ");
    scanf("%d %d", &p1.x, &p1.y);

    //Coordinated of Second Point
    printf("Enter the Coordinate of Point2: ");
    scanf("%d %d", &p2.x, &p2.y);
```

```
//Difference of X and y Coordinates
```

```
//(x2 - x1), (y2-y1)
```

```
int XP=p2.x-p1.x;
```

```
int YP=p2.y-p1.y;
```

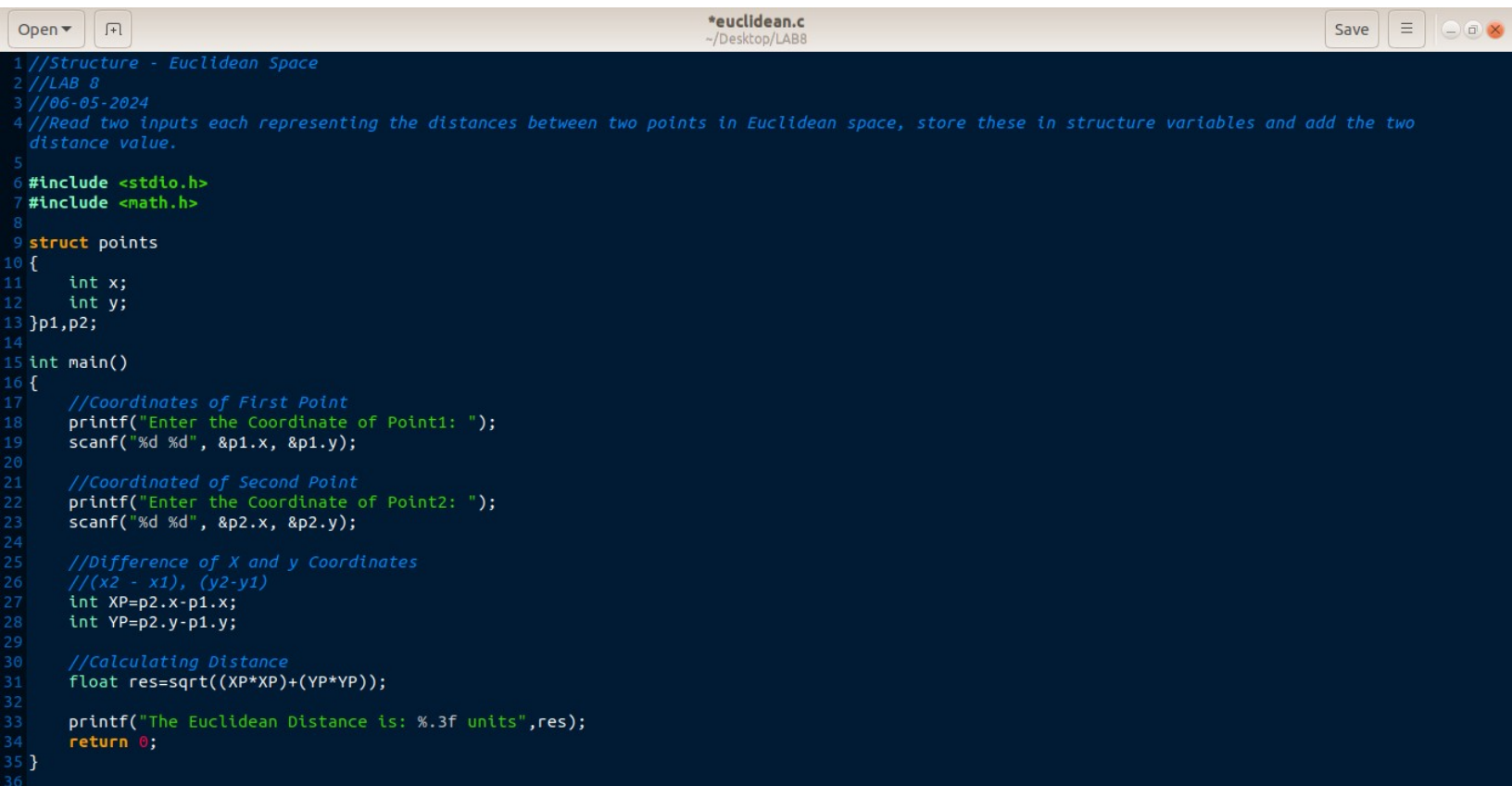
```
//Calculating Distance
```

```
float res=sqrt((XP*XP)+(YP*YP));
```

```
printf("The Euclidean Distance is: %.3f units",res);
```

```
return 0;
```

```
}
```



```
Open  J+1  *euclidean.c  ~/Desktop/LAB8  Save  [Menu]  [Close]  [Exit]

1 //Structure - Euclidean Space
2 //LAB 8
3 //06-05-2024
4 //Read two inputs each representing the distances between two points in Euclidean space, store these in structure variables and add the two
  distance value.
5
6 #include <stdio.h>
7 #include <math.h>
8
9 struct points
10 {
11     int x;
12     int y;
13 }p1,p2;
14
15 int main()
16 {
17     //Coordinates of First Point
18     printf("Enter the Coordinate of Point1: ");
19     scanf("%d %d", &p1.x, &p1.y);
20
21     //Coordinated of Second Point
22     printf("Enter the Coordinate of Point2: ");
23     scanf("%d %d", &p2.x, &p2.y);
24
25     //Difference of X and y Coordinates
26     //(x2 - x1), (y2-y1)
27     int XP=p2.x-p1.x;
28     int YP=p2.y-p1.y;
29
30     //Calculating Distance
31     float res=sqrt((XP*XP)+(YP*YP));
32
33     printf("The Euclidean Distance is: %.3f units",res);
34     return 0;
35 }
36
```

## OUTPUT

```
Enter the Coordinate of Point1: 3 4  
Enter the Coordinate of Point2: 7 1  
The Euclidean Distance is: 5.000 units
```

```
...Program finished with exit code 0  
Press ENTER to exit console.
```