

Lab # 01

Prepared by

Name	Class	Qalam ID
Muhammad Asim Shah	ME-15 "C"	470574

Home Task:

1. Write a C++ program to calculate distance between two points. The values of Coordinates should be input by user.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Input:

```
#include<iostream>
```

```
using namespace std;
```

```
int main() {
```

```
    float x1, y1, x2, y2;
```

```
    cout << "Enter x1: ";
```

```
    cin >> x1;
```

```
    cout << "Enter y1: ";
```

```
    cin >> y1;
```

```
    cout << "Enter x2: ";
```

```
    cin >> x2;
```

```
    cout << "Enter y2: ";
```

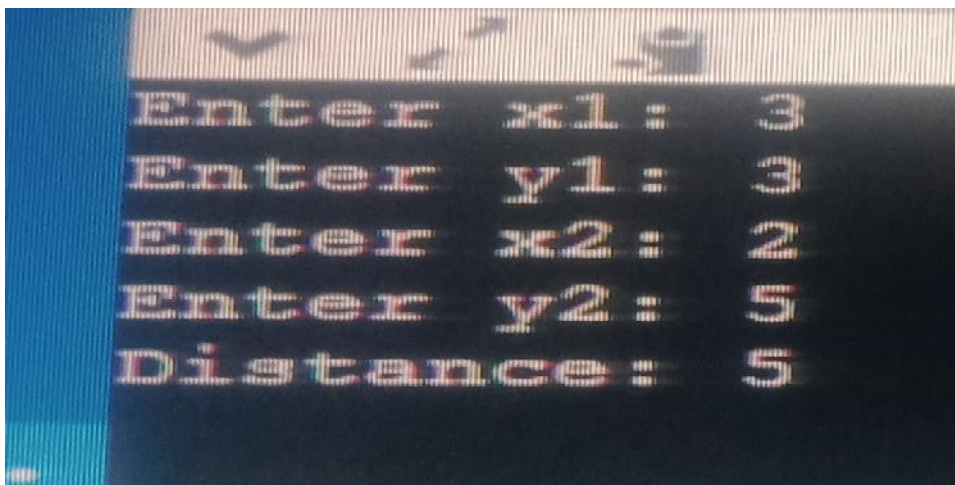
```
    cin >> y2;
```

```
    float xdifference = x2 - x1;
```

```
    float squaredxdifference = xdifference * xdifference;
```

```
float ydifference = y2 - y1;  
float squaredydifference = ydifference * ydifference;  
float distance = squaredxdifference + squaredydifference;  
  
cout << "Distance: " << distance << endl;  
  
return 0;  
}
```

Output:



```
Enter x1: 3  
Enter y1: 3  
Enter x2: 2  
Enter y2: 5  
Distance: 5
```

2. Write a code in C++ to take length from user in centimeter and convert it into meter and Kilometer.

Input:

```
#include <iostream>
```

```
using namespace std;

int main () {

float a;

cout << "Enter Length in Centimeter: ";

cin >> a;

float b= a/100;

cout << "Length in Meters: " << b << endl;

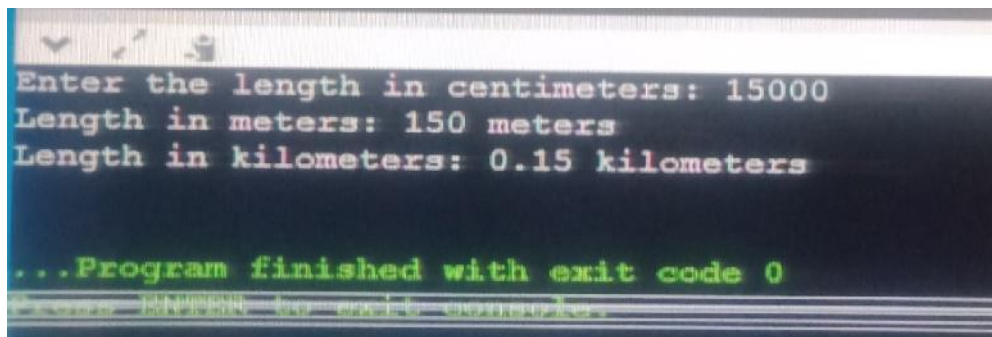
float c = a/100000;

cout << "Length in Kilometer: " << c;

return 0;

}
```

Output

A screenshot of a console window showing the output of a C++ program. The text is as follows:
Enter the length in centimeters: 15000
Length in meters: 150 meters
Length in kilometers: 0.15 kilometers
...Program finished with exit code 0
Press ENTER to exit console.
The console has a dark background with light-colored text. The first three lines are in a monospaced font, while the last two lines are in a green monospaced font.

3. Write a code in C++ that takes values of a and b from the user and displays result of polynomial.

$$a^2 + 2ab + b^2$$

Input

```
#include<iostream>
using namespace std;

int main() {
    float a;
    cout << "Enter the value of a: ";
    cin >> a;

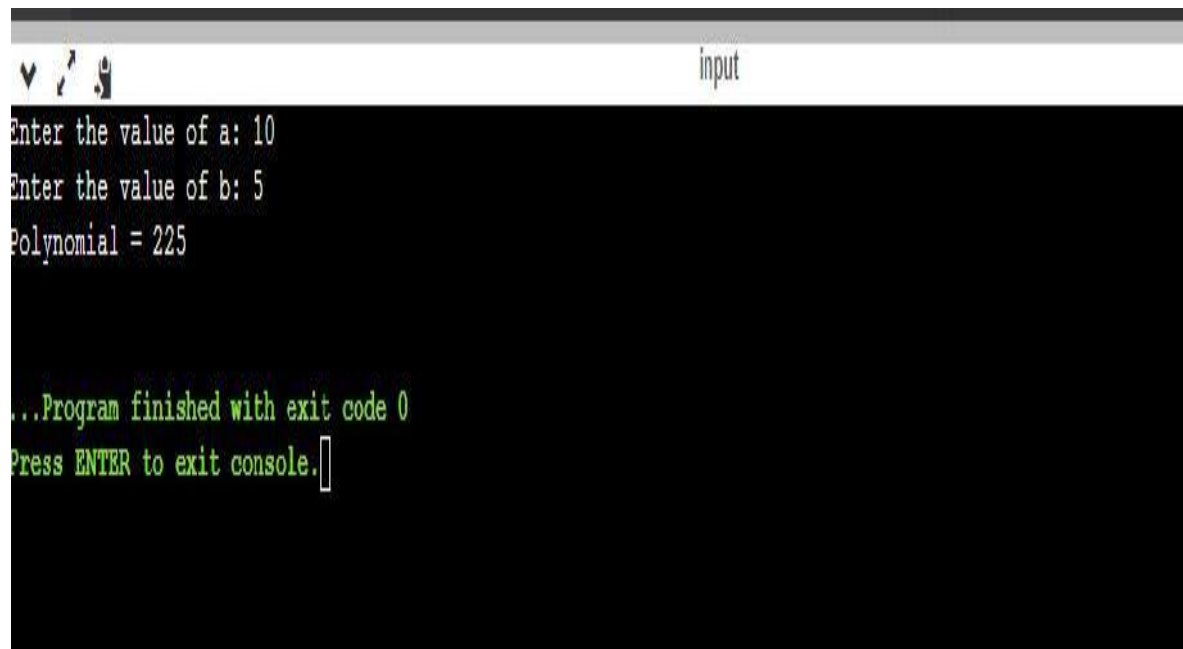
    float b;
    cout << "Enter the value of b: ";
    cin >> b;

    float aflux = a * a;
    float bflux = b * b;
    float abflux = 2 * a * b;
    float polynomials = aflux + abflux + bflux;

    cout << "Polynomial = " << polynomials << endl;

    return 0;
}
```

Output



```
input
Enter the value of a: 10
Enter the value of b: 5
Polynomial = 225

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

4. Write a program in C++ to convert temperature in Fahrenheit to Celsius.

Input

```
#include <iostream>

using namespace std;

int main () {

float a;

cout <<"Enter Temperature in Fehrenheit: ";

cin >> a;

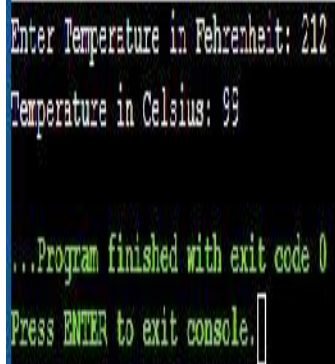
float xon = 0.55 * (a-32);

cout <<"Temperature in Celsius: " << xon ;

return 0;

}
```

Output

A screenshot of a console window with a black background and green text. The text shows the program's execution: it prompts for Fahrenheit temperature, receives '212', calculates the Celsius equivalent, and outputs '99'. It then displays a completion message and a prompt to press ENTER to exit.

```
Enter Temperature in Fehrenheit: 212
Temperature in Celsius: 99

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