School Of Mechanical & Manufacturing Engineering, NUST

Department of Mechanical Engineering

CS-114 - Fundamental of Programing

Assignment # 01

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

$$D = (x_2-x_1)^2 + (y_2-y_1)^2$$

Code

```
#include <iostream>
using namespace std;
int main()
{
    float x1,y1,x2,y2,x,y,d;
    //variables to store float values
    cout<<"Enter x coordinate of first point "<<cin<<endl;
    //computer will print enter first coordinate of first point
    cin>>x1;
    //user will enter x1 value
    cout<<"Enter x coordinate of second point "<<cin<<endl;
    //computer will print enter x coordinate of second point
    cin>>x2;
    //user will enter x2 value
    cout<<"Enter y coordinate of first point "<<cin<<endl;
    //computer will print enter y coordinate of first point
    cin>>y1;
    //user will enter y1 value
    cout<<"Enter y coordinate of second point "<<cin<<endl;
    //computer will print enter y coordinate of second point
    cin>>y2;
    //user will enter y2 value
    x=(x2-x1)*(x2-x1);
    y=(y2-y1)*(y2-y1);
    d=x+y;
    cout<<"Distace between these points is "<<d<<endl;
    //computer will print the distance between the given points
    return 0;

}
```

Output

```
D:\c++\LAB TASK 1.exe
enter x coordinate of first point 0x486650
1
enter x coordinate of second point 0x486650
2
enter y coordinate of first point 0x486650
1
enter y coordinate of second point0x486650
2
distance between these points is 2

--------------------------------
Process exited after 22.88 seconds with return value 0
Press any key to continue . . .
```

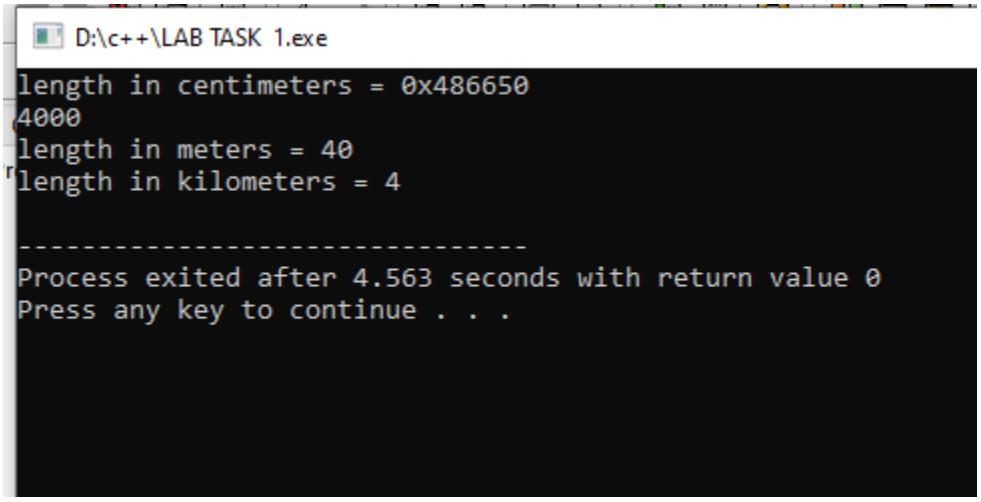
2. Write a code in C++ to take length from user in centimeter and convert it into meter and kilometer.

Code

```cpp
#include <iostream>
using namespace std;
int main()
{
    float L,M,K;
    //variables to store float values
    cout<<"length in centimeters= "<<cin<<endl;
    //computer to print length in centimeters
    cin>>L;
    //user to enter length in centemeters
    M=L/100;
    cout<<"length in meters= "<<M<<endl;
    //computer will print length in meters
    K=L/1000;
    cout<<"length in kilometers= "<<K<<endl;
    //computer will print length in kilometers
    return 0;

}
```

Output



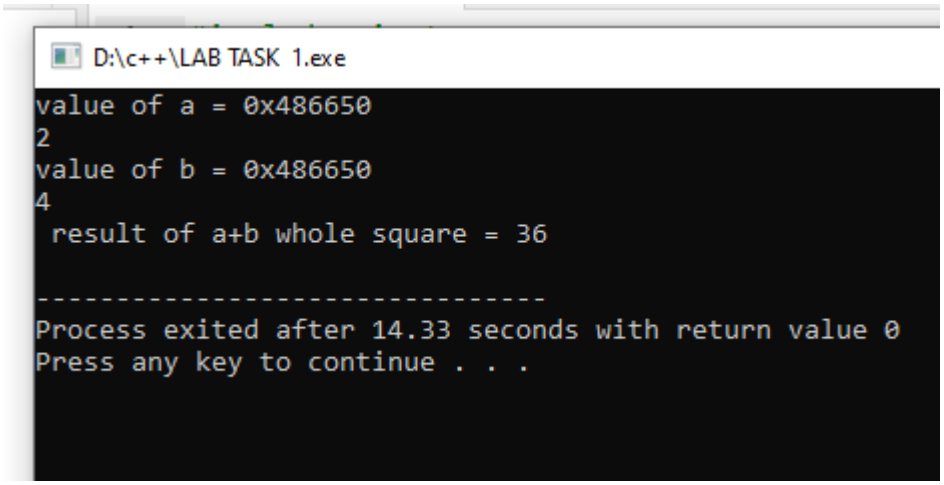
3. Write a code in C++ that takes values of a and b from the user and displays result of polynomial $a^2 + 2ab + b^2$.

Code

```
#include <iostream>
using namespace std;
int main()
{
    float a,b,x;
    //variables to store float values
    cout<<"value of a = "<<cin<<endl;
    //computer to print value of a =
    cin>>a;
    //user to enter value of a
    cout<<"value of b = "<<cin<<endl;
    //computer to print value of b =
    cin>>b;
    //user to enter value of b
    x=a*a+2*a*b+b*b;
    cout<<"result of a+b whole square = "<<x<<endl;
    //computer will print result of a+b whole square
    return 0;

}
```

Output



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

Code

```
#include <iostream>
using namespace std;
int main()
{
    float C,F;
    //variables to store float values
    cout<<"temp in degree fahrenheit = "<<cin<<endl;
    //computer to print temp in degree fahrenheit =
    cin>>F;
    //user to enter temp in fahrenheit
    C=(F-32)*5/9;
    cout<<"temp in degree celcius = "<<C<<endl;
    //computer will print temp in degree celcius
    return 0;

}
```

Output