

Dhehdh **Assignment no.1**

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Course: FOP

Task no.1:

} Write a C++ code to calculate a factorial of 6.

```
#include <iostream>
```

```
Using namespace std;
```

```
// Function used to calculate factorial of a given  
number
```

```
Int factorial(int n) {
```

```
    // Base case: if n is 0 or 1, return 1
```

```
    If (n == 0 || n == 1) {
```

```
        Return 1;
```

```
    }
```

```
    // Recursive case: return n times the factorial of n-  
1
```

```
    Else {
```

```
        Return n * factorial(n-1);
```

```
    }
```

```
}
```

```
Int main() {  
    // Declare a variable to store the user input  
    Int num;  
    // Prompt the user to enter a number  
    Cout << "Enter a positive integer: ";  
    // Read the user input and store it in num  
    Cin >> num;  
    // Check if the input is valid  
    If (num < 0) {  
        // If not, print an error message and exit the  
program  
        Cout << "Invalid input. Please enter a positive  
integer." << endl;  
        Return -1;  
    }  
    // If valid, calculate and print the factorial of num  
    Else {
```

```
    Cout << "The factorial of " << num << " is " <<
factorial(num) << endl;

    Return 0;

}
```

Task no.2:

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

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

```
#include <iostream>

using namespace std;
```

```
int main()
```

```
{
```

```
    // Declare FOUR variables to store the values of
x1, x2, y1 and y2.
```

```
    Float x1, x2, y1 and y2;
```

// Prompt the user to enter the values of x1,x2,y1
and y2

```
cout << "Enter the value of x1:";
```

```
cin >> x1;
```

```
cout << "Enter the value of x2:";
```

```
cin >> x2;
```

```
cout << "Enter the value of y1: ";
```

```
cin >> y1;
```

```
cout << "Enter the value of y2: ";
```

```
cin >> y2;
```

```
Float result = (x2-x1 )*(y2-y1)
```

```
// Display the result to the user
```

```
    cout << "The Distance between points are: " <<  
    result << endl;
```

```
    return 0;  
}
```

Task no.3

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

```
#include <iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{  
    // Declare variable to store the value of a and b  
    Float a, b;  
  
    // Prompt the user to enter the value of a  
    Cout << "Enter the value of a: ";  
    Cin >> a;  
  
    // Prompt the user to enter the value of b  
    Cout << "Enter the value of b: ";  
    Cin >> b;  
  
    // Calculate the result using formula  
    Float result = (a*a)+(b*b)+(2*a*b);  
  
    // Display result to the user  
    Cout << " Result of polynomial expression is : " <<  
    result << endl;
```

```
    Return 0;  
}
```

Task no.4

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

```
#include <iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    // Declare variable to store the value of Lcm
```



```
Float Lcm;
```

```
// Prompt the user to enter the value of Lcm
```

```
Cout << "Enter the value of Lcm: ";
```

```
Cin >> Lcm;
```

```
// Calculate the result using the formula Lcm/100
```

```
Float Lm = Lcm/100;
```

```
// Display the result to the user
```

```
Cout << "Length in meter: " << Lm << endl;
```

```
// calculate the result using the formula
```

```
Lkm/100000
```

```
Float Lkm = Lcm/100000;
```

```
// Display result to the user
```

```
Cout << "Length in km: " << Lkm << endl;
```

```
Return 0;
```

```
}
```