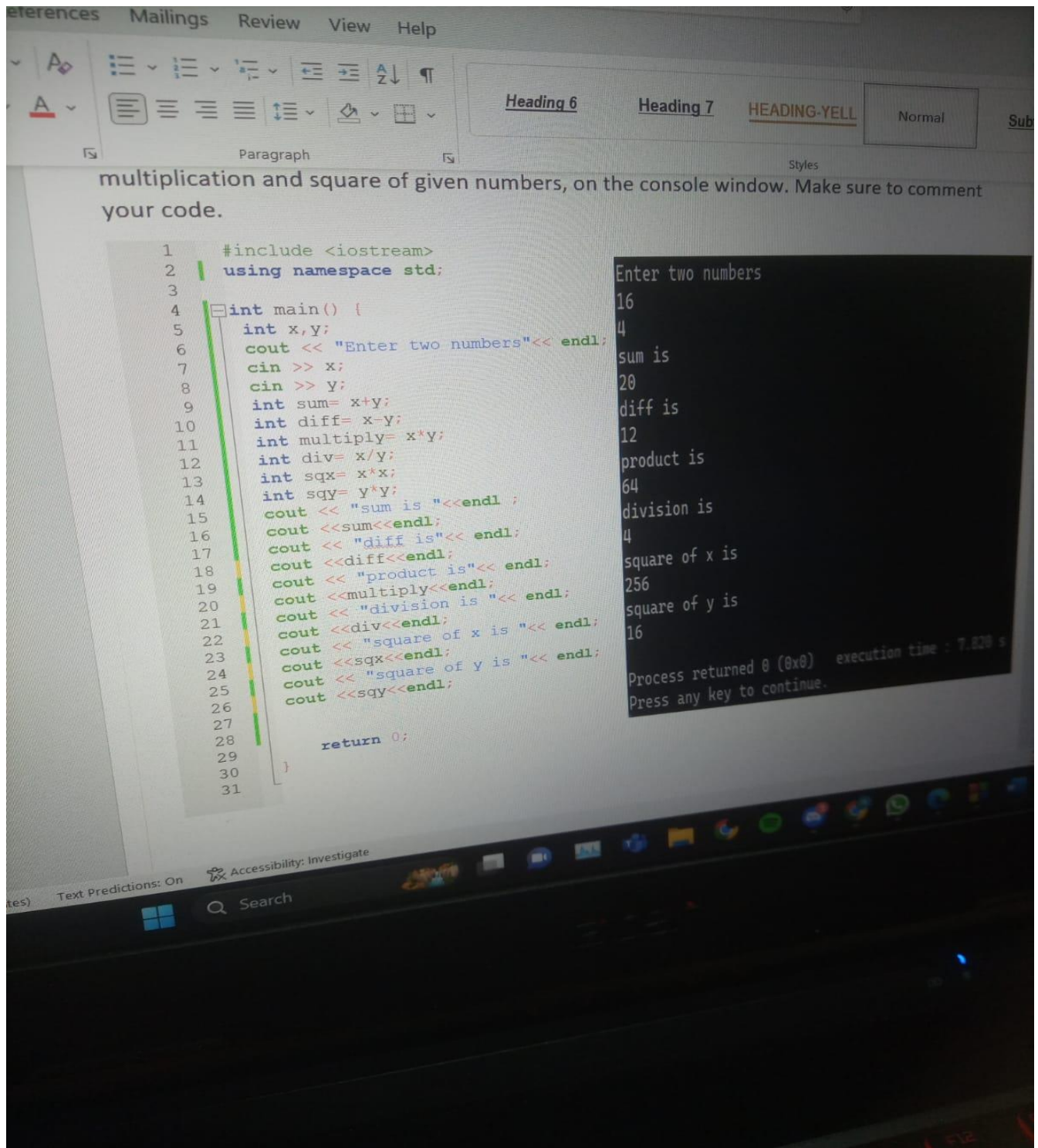


1. Write a C++ code that displays your name, department and degree on the console. Make sure the three things are in three different lines.

```
1  #include<iostream>
2  using namespace std;
3  int main() {
4  cout<<"Name:Rehan Hasaan Iqbal"<<endl;|
5  cout<<"Department:SMME"<<endl;
6  cout<<"Degree:Mechanical Engineering"<<endl;
7
8
```

```
Name:Rehan Hasaan Iqbal
Department:SMME
Degree:Mechanical Engineering
-----
Process exited after 0.02475 seconds with return value 0
Press any key to continue . . .
```

2. Write a C++ code that takes two numbers and displays the addition, subtraction, division, multiplication and square of given numbers, on the console window. Make sure to comment your code.



The image shows a screenshot of a computer screen. The top part displays a text editor window with a C++ program. The program takes two numbers as input and calculates their sum, difference, product, division, and squares. The bottom part shows the console output of the program, where the user has entered 16 and 4, and the program has displayed the results of the calculations. The Windows taskbar is visible at the bottom of the screen.

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int x,y;
6     cout << "Enter two numbers"<< endl;
7     cin >> x;
8     cin >> y;
9     int sum= x+y;
10    int diff= x-y;
11    int multiply= x*y;
12    int div= x/y;
13    int sqx= x*x;
14    int sqy= y*y;
15    cout << "sum is "<<endl ;
16    cout <<sum<<endl;
17    cout << "diff is"<< endl;
18    cout <<diff<<endl;
19    cout << "product is"<< endl;
20    cout <<multiply<<endl;
21    cout << "division is "<< endl;
22    cout <<div<<endl;
23    cout << "square of x is "<< endl;
24    cout <<sqx<<endl;
25    cout << "square of y is "<< endl;
26    cout <<sqy<<endl;
27
28    return 0;
29
30 }
31
```

Enter two numbers
16
4
sum is
20
diff is
12
product is
64
division is
4
square of x is
256
square of y is
16
Process returned 0 (0x0) execution time : 7.820 s
Press any key to continue.

3. Write a code in C++ that takes radius of a circle as input from user and outputs the circumference and area. The output should be clear and readable. Add proper comments to the code. You can set the value of π up to 3 decimal places.

```
1  #include <iostream>
2  using namespace std;
3
4  int main() {
5      int r;
6
7      double pie=3.142;
8
9      cout << "enter your radius "<<endl ;
10     cin >> r;
11     double area=pie*(r*r);
12     double circumference=2*pie*r;
13     cout << "your area is"<< endl;
14     cout <<area<<endl;
15     cout << "your circumference is"<< endl;
16     cout <<circumference<<endl;
17
18
19
20     return 0;
21 }
22
```

```
enter your radius
20
your area is
1256.8
your circumference is
125.68

Process returned 0 (0x0)   execution time : 2.530 s
Press any key to continue.
```

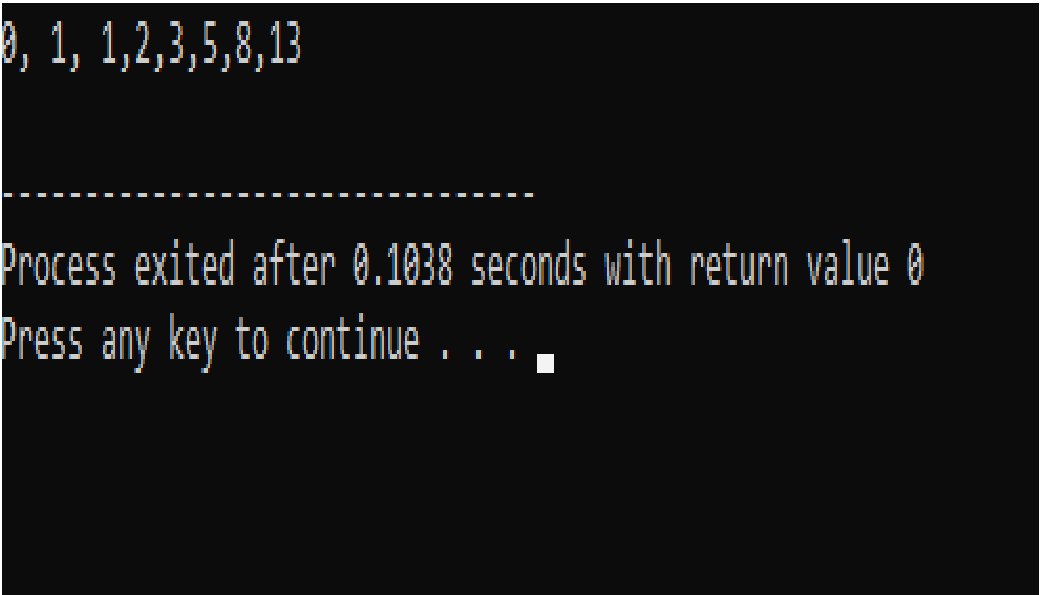
4. Write a C++ code that prints out the following sequence: 0, 1, 1, 2, 3, 5, 8, 13 using three variables.

```
#include <iostream>
int main() {
    int a = 0, b = 1, c;
    std::cout<< a << ", " << b << ", ";
    //print the first two numbers

    for (int i = 2; i < 8; i++) { // we already printed 0 and 1, so we print 6 more numbers.
        c = a + b;
        std::cout<< c;
        if (i<7) {
            std::cout << ", ";
        }
        a = b;
        b = c;
    }

    std::cout << std::endl;

    return 0;
}
```



```
0, 1, 1, 2, 3, 5, 8, 13
```

```
-----
Process exited after 0.1038 seconds with return value 0
Press any key to continue . . .
```

1- Write a code to find out distance between two points.

```
#include <iostream>
#include <cmath>
int main() {
    double x1 , y1 , x2, y2;
    std::cout << "enter the coordinates of the first point (x1 y1): ";
    std::cin>> x1 >> y1;

    std::cout << "enter the coordinates of the second point (x1 y2): ";
    std::cin>> x2 >> y2;

    double distance = sqrt(pow(x2 - x1,2)+ pow(y2 - y1 ,2));

    std::cout << "the distance between the two points is:" << distance <<
    std::endl;
    return 0;
}
```

```
enter the coordinates of the first point (x1 y1): 4
7
enter the coordinates of the second point (x1 y2): 8
9
the distance between the two points is:4.47214
-----
Process exited after 11.04 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.

```
#include <iostream>
int main () {
    double lengthInCentimeters;
    double lengthInMeters;
    // input length in centimeters from the user
    std::cout<< "enter the length in centimeters: ";
    std::cin >> lengthInCentimeters;

    // Convert to meters and kilometers double LengthInMeters =
    lengthInMeters = lengthInCentimeters / 100.0; // 1
    double lengthInKilometers =
    lengthInCentimeters / 100000.0; // 1

    // Display the results
    std::cout<< "Length in meters:| " << lengthInMeters << " meters" << std::endl;
    std::cout << "Length in kilometers: " << lengthInKilometers << " Kilometers" << std::endl;
    return 0;
}
```

```
enter the length in centimeters: 100
Length in meters: 1 meters
Length in kilometers: 0.001 Kilometers

-----
Process exited after 3.818 seconds with return value 0
Press any key to continue . . .
```

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

```
#include <iostream>
int main () {
    double a, b;

    // Input values of 'a' and 'b' from the user
    std::cout<< "Enter the values of 'a' ";
    std::cin>> a;

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

    // Calculate the polynomial expression
    double result = a*a+2*a*b+b*b

    // Display the result
    std::cout <<" the result of "<<a
    <<"^2 + 2*" << a << "*" << b << " + "
    << b << "^2 is: " << result <<
    std::endl;
    result 0;
```

- 3- Write a program in c++ to convert temperature in Fahrenheit to Celsius.

```
#include <iostream>
int main () {
    double fahrenheit, celsius;

    //Input temperature in Fahrenheit

    std::cout << "Enter temperature in Fahrenheit: ";
    std::cin >> fahrenheit;

    //Convert Fahrenheit to Celsius
    celsius = (fahrenheit - 32) * 5.0 / 9.0;

    // Display the result
    std::cout << "Temperature in Celsius: " << celsius << " degrees Celsius" << std::endl;
    return 0;
}
```

```
Enter temperature in Fahrenheit: 98.6
Temperature in Celsius: 37 degrees Celsius

-----
Process exited after 4.953 seconds with return value 0
Press any key to continue . . .
```

- 4-