

LAB#1

HOME TASK

Task#1

```
#include <iostream>
using namespace std;
int main()
{
    int x1, y1, x2, y2, Distance;
    // let two points P(x1,y1) and Q(x2,y2)
    cout << "Enter the four numbers" << endl;
    cin >> x1;
    cin >> y1;
    cin >> x2;
    cin >> y2;
    // Formula of distance between two points
    // D is distance between two points
    Distance = sqrt(pow(x2 - x1, 2) + pow(y2 - y1, 2));
    cout << "Distance between two points P and Q is :" << Distance << endl;

    return 0;
}
```



```
Microsoft Visual Studio Debu x + v
Enter the four numbers
9
8
7
6
Distance between two points P and Q is :2
C:\Users\Misbah\source\repos\bushralab1\x64\Debug\bushralab1.exe (process 12348) exited with code 0.
Press any key to close this window . . .
```

Task#2

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

int main() {
    double centimeters, meters, kilometers;

    // Input the length in centimeters
    cout << "Enter the length in centimeters: ";
    cin >> centimeters;

    // Convert centimeters to meters and kilometers
    // 1 meter = 100 centimeters
    meters = centimeters / 100.0;
    // 1 kilometer = 100,000 centimeters
    kilometers = centimeters / 100000.0;
    cout << "Length in meters: " << meters << " m" << endl;
    cout << "Length in kilometers: " << kilometers << " km" << endl;

    return 0;
}
```



```
Microsoft Visual Studio Debu... X + v
Enter the length in centimeters: 985
Length in meters: 9.85 m
Length in kilometers: 0.00985 km

C:\Users\Misbah\source\repos\bushralab1\x64\Debug\bushralab1.exe (process 12112) exited with code 0.
Press any key to close this window . . .
```

Task#3

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

int main() {
    double a, b, result;

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

    // Calculate the result of the polynomial  $a^2 + 2ab + b^2$ 
    result = a * a + 2 * a * b + b * b;

    cout << "Result of the polynomial  $a^2 + 2ab + b^2$  is: " << result << endl;

    return 0;
}
```



```
Microsoft Visual Studio Debu... X + v
Enter the value of a and b: 3.5,
Result of the polynomial a^2 + 2ab + b^2 is: 12.25

C:\Users\Misbah\source\repos\bushralab1\x64\Debug\bushralab1.exe (process 7560) exited with code 0.
Press any key to close this window . . .
```

Task#4

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

int main() {
    double fahrenheit, celsius;

    // Input the temperature in Fahrenheit
    cout << "Enter the temperature in Fahrenheit: ";
    cin >> fahrenheit;

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

    cout << "Temperature in Celsius: " << celsius << " °C" << endl;

    return 0;
}
```

```
Microsoft Visual Studio Debu... X + v
Enter the temperature in Fahrenheit: 98
Temperature in Celsius: 36.6667 °C

C:\Users\Misbah\source\repos\bushralab1\x64\Debug\bushralab1.exe (process 10300) exited with code 0.
Press any key to close this window . . .
```



LAB 2

HOME TASK

Task#1

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

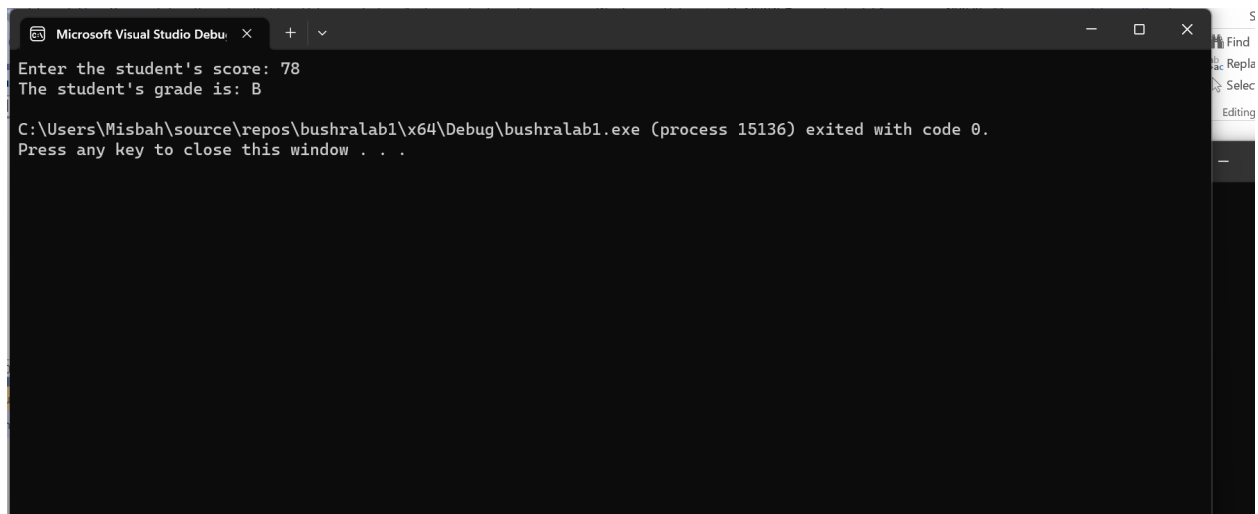
int main() {
    int score;
    char grade;

    // Input the student's score
    cout << "Enter the student's score: ";
    cin >> score;

    // Assign a grade based on the score using logical operators
    if (score >= 90 && score <= 100) {
        grade = 'A';
    }
    else if (score >= 75 && score < 90) {
        grade = 'B';
    }
    else if (score >= 60 && score < 75) {
        grade = 'C';
    }
    else if (score >= 45 && score < 60) {
        grade = 'D';
    }
    else if (score >= 0 && score < 45) {
        grade = 'F';
    }
    else {
        cout << "Invalid score entered. Score should be between 0 and 100." << endl;
        return 1; // Exit with an error code
    }
    cout << "The student's grade is: " << grade << endl;

    return 0;
}
```





```
Microsoft Visual Studio Debug Console
Enter the student's score: 78
The student's grade is: B
C:\Users\Misbah\source\repos\bushralab1\x64\Debug\bushralab1.exe (process 15136) exited with code 0.
Press any key to close this window . . .
```

Task#2

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

int main() {
    int num;

    // Input an integer from the user
    cout << "Enter an integer: ";
    cin >> num;

    // Check if the integer is both even and divisible by 5
    if (num % 2 == 0 && num % 5 == 0) {
        cout << num << " is both even and divisible by 5." << endl;
    }
    else {
        cout << num << " is not both even and divisible by 5." << endl;
    }

    return 0;
}
```



```
Microsoft Visual Studio Debu  X + v
Enter an integer: 80
80 is both even and divisible by 5.

C:\Users\Misbah\source\repos\bushra 2\x64\Debug\bushra 2.exe (process 6520) exited with code 0.
Press any key to close this window . . .|
```

Task#3

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

int main() {
    int year;

    cout << "Enter a year: ";
    cin >> year;

    // Check if it's a leap year
    if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
        cout << year << " is a leap year." << endl;
    }
    else {
        cout << year << " is not a leap year." << endl;
    }
    return 0;
}
```



```
Microsoft Visual Studio Debu x + v - □ x
Enter a year: 2020
2020 is a leap year.

C:\Users\Misbah\source\repos\bushra 2\x64\Debug\bushra 2.exe (process 8460) exited with code 0.
Press any key to close this window . . .
```

Task#4

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

int main() {
    double gpa;
    double attendancePercentage;

    // Input the student's GPA and attendance percentage
    cout << "Enter the student's GPA: ";
    cin >> gpa;
    cout << "Enter the student's attendance percentage: ";
    cin >> attendancePercentage;

    // Check if the student is eligible for a scholarship
    if (gpa >= 3.5 && attendancePercentage >= 80) {
        cout << "The student is eligible for a scholarship." << endl;
    }
    else {
        cout << "The student is not eligible for a scholarship." << endl;
    }

    return 0;
}
```




```
Microsoft Visual Studio Debug Console
Enter the student's GPA: 3.6
Enter the student's attendance percentage: 88
The student is eligible for a scholarship.

C:\Users\Misbah\source\repos\bushra 2\Debug\bushra 2.exe (process 13456) exited with code 0.
Press any key to close this window . . .
```

Task#5

```
#using namespace std;

int main() {
    char character;

    // Input a character from the user
    cout << "Enter a character: ";
    cin >> character;

    // Check if the character is a vowel (a, e, i, o, u)
    if ((character == 'a' || character == 'e' || character == 'i' || character == 'o' || character == 'u') ||
        (character == 'A' || character == 'E' || character == 'I' || character == 'O' || character == 'U')) {
        cout << character << " is a vowel." << endl;
    }
    else {
        cout << character << " is a consonant." << endl;
    }

    return 0;
}
```



```
Microsoft Visual Studio Debu  X + v
Enter a character: a
a is a vowel.

C:\Users\Misbah\source\repos\bushra 2\x64\Debug\bushra 2.exe (process 1184) exited with code 0.
Press any key to close this window . . .
```

LAB TASK

Task#1

```
#include <upstream>
Using namespace STD;

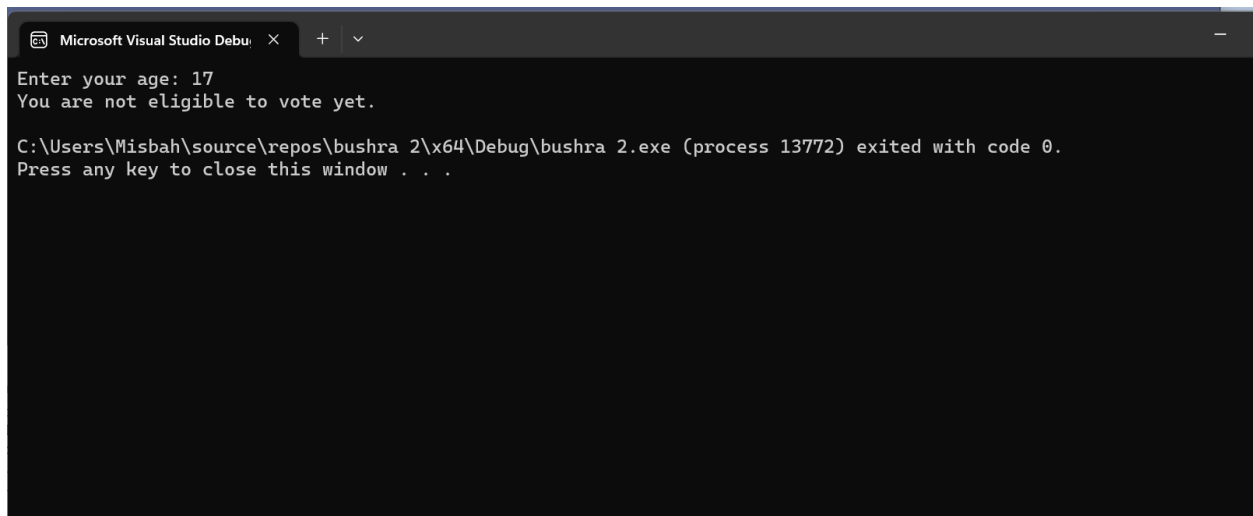
int main () {
    int age;

    // Input the person's age
    cout << "Enter your age: "
    cin >> age;

    // Check if the person is eligible to vote (18 years or older)
    If (age >= 18) {
        cout << "You are eligible to vote!" << Endl;
    }
    else {
        cout << "You are not eligible to vote yet." << Endl;
    }

    return 0;
}
```





```
Microsoft Visual Studio Debug Console
Enter your age: 17
You are not eligible to vote yet.

C:\Users\Misbah\source\repos\bushra 2\x64\Debug\bushra 2.exe (process 13772) exited with code 0.
Press any key to close this window . . .
```

Task#2

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

int main () {
    int num;

    // Input an integer from the user
    cout << "Enter an integer: ";
    cin >> num;

    // Check if the integer falls within the range [10, 50]
    if (num >= 10 && num <= 50) {
        cout << num << "falls within the range [10, 50]." << endl;
    }
    else {
        cout << num << "does not fall within the range [10, 50]." << endl;
    }

    return 0;
}
```



```
Microsoft Visual Studio Debu  X + v
Enter an integer: 45
45 falls within the range [10, 50].

C:\Users\Misbah\source\repos\bushra 2\x64\Debug\bushra 2.exe (process 13308) exited with code 0.
Press any key to close this window . . .
```

Task#3

```
#include <upstream>
Using namespace STD;

int main () {
    int num1, num2, max;

    // Input two integers from the user
    cout << "Enter the first, second integer: "
    cin >> num1;
    cin >> num2;

    // Compare and find the maximum value

    If (num1 > num2) {
        Max = num1;
    }
    Else {
        Max = num2;
    }

    // Display the maximum value
    cout << "The maximum value is: " << max << endl;

    Return 0;
}
```



```
Microsoft Visual Studio Debu  X + v
Enter the first integer: 45
Enter the second integer: 67
The maximum value is: 67

C:\Users\Misbah\source\repos\bushra2\x64\Debug\bushra2.exe (process 18228) exited with code 0.
Press any key to close this window . . .|
```

Task#4

#include <iostream>

Using namespace std;

int main () {

 Double score1, score2, score3;

 // Input three exam scores from the user

 cout << "Enter the score for the first ,second ,third: "

 cin >> score1;

 cin >> score2;

 cin >> score3;

 // calculate the average score

 Double average = (score1 + score2 + score3) / 3.0;

 // Check if the average is above a passing grade (e.g., >= 60)

 If (average >= 60) {

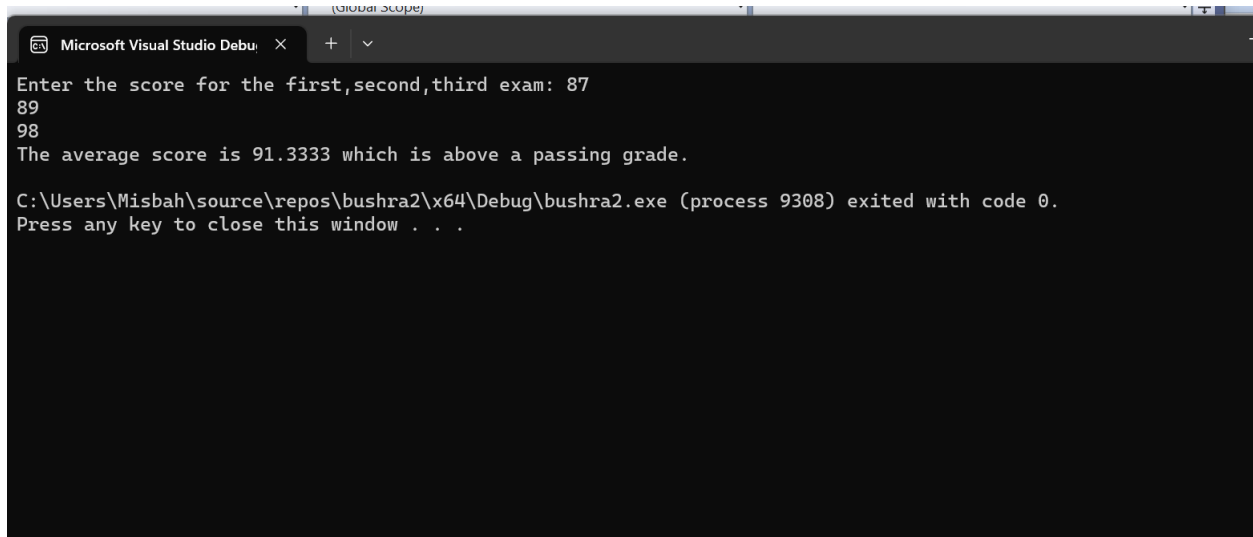
 cout << "The average score is" << average << "which is above a passing grade." << endl;

 } else {



Edit with WPS Office

```
    cout << "The average score is" << average << "which is below a passing grade." << endl;  
}  
  
return 0;  
}
```



The screenshot shows a Microsoft Visual Studio Debug Console window. The title bar indicates it is a 'Global Scope' window. The console output is as follows:

```
Enter the score for the first,second,third exam: 87  
89  
98  
The average score is 91.3333 which is above a passing grade.  
C:\Users\Misbah\source\repos\bushra2\x64\Debug\bushra2.exe (process 9308) exited with code 0.  
Press any key to close this window . . .
```

