

Computer Systems & Programming

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Home Tasks of Lab Manual 3

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ME-15-C

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Home Task # 1: Create a program that takes a student's score as input and assigns a grade based on predefined criteria using logical operators (e.g., A, B, C, D, F).

A-Grade: 90-100 Marks

B-Grade: 75-90 Marks

C-Grade: 60-75 Marks

D-Grade: 45-60 Marks

F-Grade: 0-45 Marks

```
Start here X Home Task #1(Manual 3).cpp X
1 //Library
2 #include<iostream>
3 using namespace std;
4
5 int main()
6 {
7     // Variable declaration
8     int marks;
9     char grade;
10
11     // Input marks
12     cout << "Enter your marks: ";
13     cin >> marks;
14
15     // Conditions to determine the grade based on marks
16     if (marks >= 90)
17     {
18         cout<<"Your grade is A";
19     }
20     else if (marks >= 75)
21     {
22         cout<<"Your grade is B";
23     }
24     else if (marks >= 60)
25     {
26         cout<<"Your grade is C";
27     }
28     else if (marks >= 45)
29     {
30         cout<<"Your grade is D";
31     }
32     else
33     {
34         cout<<"Your grade is F";
35     }
36     return 0;
37 }
```

```
"C:\Users\syedf\OneDrive\Do  × + v
Enter your marks: 98
Your grade is A
Process returned 0 (0x0)    execution time : 15.777 s
Press any key to continue.
|
```

Home Task # 2: Write a program that takes an integer as input and determines if it is both even and divisible by 5.

```
Start here x Home Task #2(Manual 3).cpp x
1 //Library
2 #include <iostream>
3
4 using namespace std;
5
6 int main() {
7     //Variable Decleration
8     int number;
9     //Input Number
10    cout << "Enter an integer: ";
11    cin >> number;
12
13    // Check if the number is both even and divisible by 5.
14    if (number % 2 == 0 && number % 5 == 0) {
15        cout << number << " is both even and divisible by 5." << endl;
16    } else {
17        cout << number << " is not both even and divisible by 5." << endl;
18    }
19    return 0;
20 }
21
```

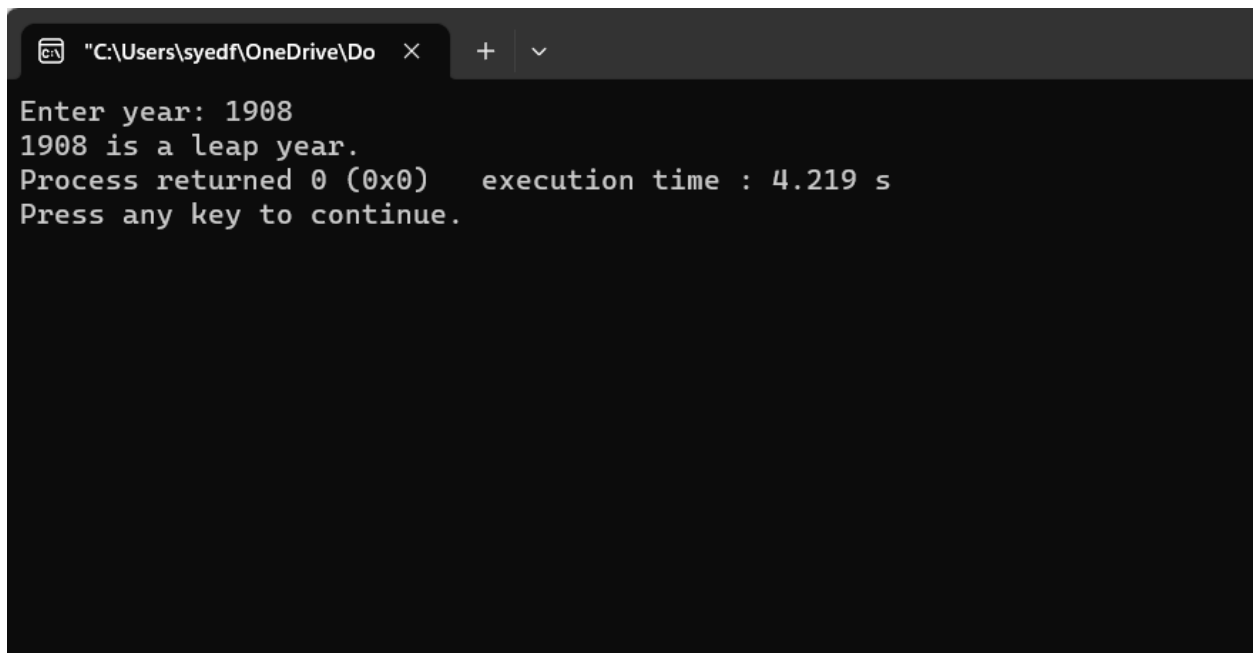
```
C:\Users\syedf\OneDrive\Do x + v
Enter an integer: 10
10 is both even and divisible by 5.

Process returned 0 (0x0)    execution time : 26.748 s
Press any key to continue.
```

Home Task #3:

Create a C++ program that checks if a user-provided year is a leap year.

```
Start here X Home Task #3(Manual 3).cpp X
1 //Libraray
2 #include <iostream>
3 using namespace std;
4 int main()
5 {
6     //Variable decleration
7     int year;
8     cout<<"Enter year: ";
9     cin>>year;
10    //Check if the year is divisible by 4
11    if(year%4 == 0)
12    {
13        //If the year is divisible by 100
14        if(year % 100 == 0)
15        {
16            //If the year is divisible by 400, it's a leap year
17            if(year % 400 == 0)
18                cout<<year<<" is a leap year.";
19            else
20                cout<<year<<" is not a leap year.";
21            //If not divisible by 100, but divisible by 4, it's a leap year
22        }
23        else
24            cout<<year<<" is a leap year.";
25    }
26    //If not divisible by 4, it's not a leap year
27    else
28        cout<<year<<" is not leap year.";
29    return 0;
30 }
31
```

A screenshot of a Windows terminal window with a dark background. The window's title bar shows a single tab with the file path "C:\Users\syedf\OneDrive\Do" and standard window controls. The terminal displays the following text: "Enter year: 1908", "1908 is a leap year.", "Process returned 0 (0x0) execution time : 4.219 s", and "Press any key to continue.".

```
"C:\Users\syedf\OneDrive\Do" × + ▾  
Enter year: 1908  
1908 is a leap year.  
Process returned 0 (0x0) execution time : 4.219 s  
Press any key to continue.
```

Home Task #4: Create a C++ program that determines if a student is eligible for a scholarship based on their GPA (must have $\text{GPA} \geq 3.5$) and attendance (must have attended at least 80% of classes).

Start here X Home Task #4(Manual 3).cpp X

```
1 //Library
2 #include <iostream>
3 //scope
4 using namespace std;
5
6 int main() {
7     // Variable declaration
8     float gpa;
9     float attendance;
10    // Prompt the user to enter the student's GPA.
11    cout << "Enter the student's GPA: ";
12    cin >> gpa;
13    // Prompt the user to enter the student's attendance.
14    cout << "Enter the student's attendance (in percentage): ";
15    cin >> attendance;
16    // Check if the student is eligible for a scholarship.
17    if (gpa >= 3.5 && attendance >= 80.0)
18    {
19        cout << "The student is eligible for a scholarship." << endl;
20    } else
21    {
22        cout << "The student is not eligible for a scholarship." << endl;
23    }
24    return 0;
25 }
26
```

```
"C:\Users\syedf\OneDrive\Do  × + v
Enter the student's GPA: 3.9
Enter the student's attendance (in percentage): 79
The student is not eligible for a scholarship.

Process returned 0 (0x0)    execution time : 9.470 s
Press any key to continue.
```

Home Task#5: Write a program that checks if a given character is a vowel (a, e, i, o, u) or a consonant using logical operators.

```
Start here X Home Task #5(Manual 3).cpp X
1 //Library
2 #include <iostream>
3 using namespace std;
4
5 int main()
6 //Declare a variable to store the input character
7 {
8     char name;
9     // Prompt the user to enter a character
10    cout<<"Type a character to check is it Vowel or not : ";
11    cin>>name;
12    // Check if the entered character is a vowel
13    // Using logical OR (||) to combine conditions
14    if( name=='a' || name=='A' || name=='e' || name=='E' || name=='i' || name=='I' || name=='o' || name=='O' || name=='u' || name=='U')
15    {
16        cout<<name<<" is Vowel." ;
17    }else
18    {
19        cout<<name<<" ; not Vowel." ;
20    }
21
22 }
23
```


"C:\Users\syedf\OneDrive\Do × + ▾

```
Type a character to check is it Vowel or not : i
i ; is Vowel.
Process returned 0 (0x0)    execution time : 3.987 s
Press any key to continue.
|
```