Computer Systems & Programming

Instructor: Dr. Talha Shahid

Home Tasks of Lab Manual 3

SYED FAKHAR ABBAS
ME-15-C
466960

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

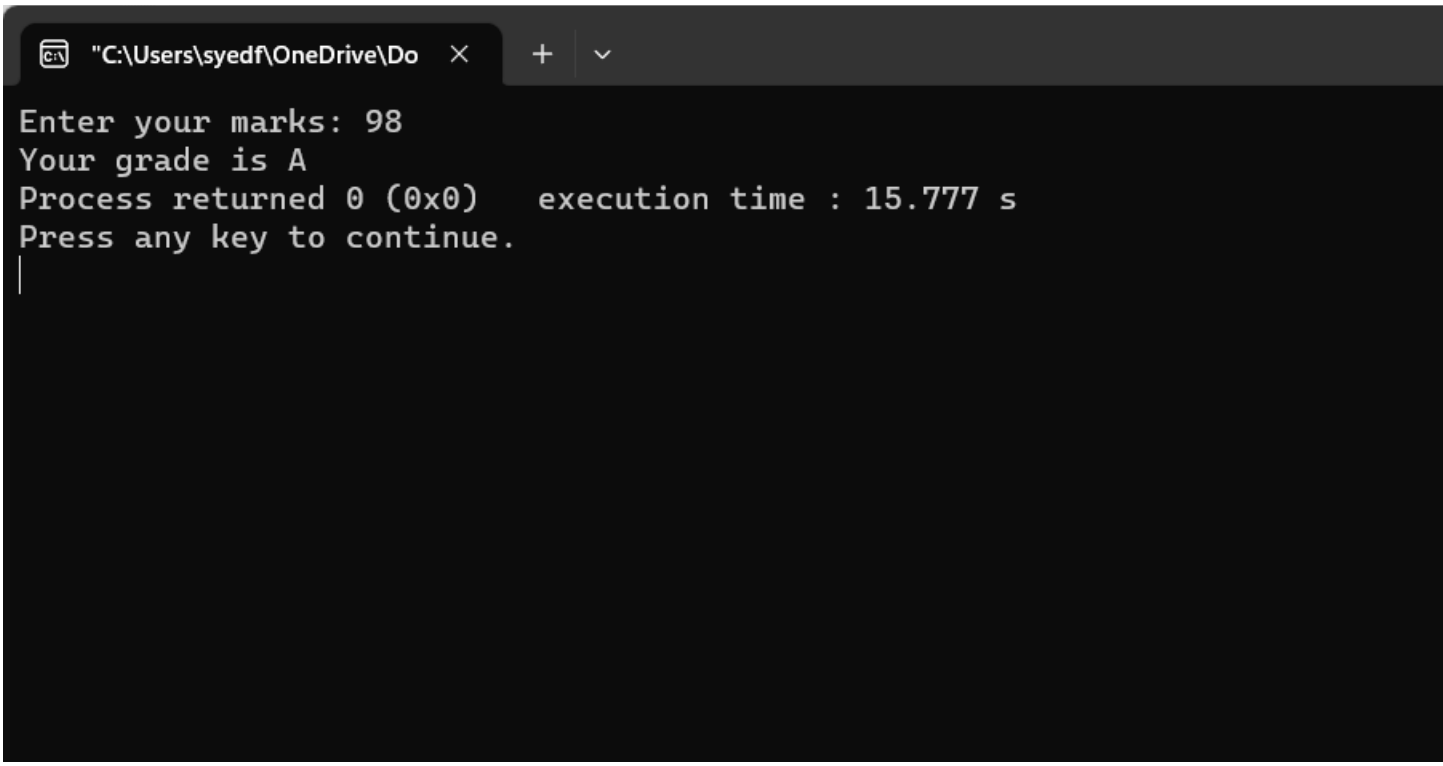
Start here | Home Task #1(Manual 3).cpp

```cpp
//Library
#include<iostream>
using namespace std;

int main()
{
// Variable declaration
int marks;
char grade;

// Input marks
cout << "Enter your marks: ";
cin >> marks;

// Conditions to determine the grade based on marks
if (marks >= 90)
{
cout<<"Your grade is A";
}
else if (marks >= 75)
{
cout<<"Your grade is B";
}
else if (marks >= 60)
{
cout<<"Your grade is C";
}
else if (marks >= 45)
{
cout<<"Your grade is D";
}
else
{
cout<<"Your grade is F";
}
return 0;
}
```



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

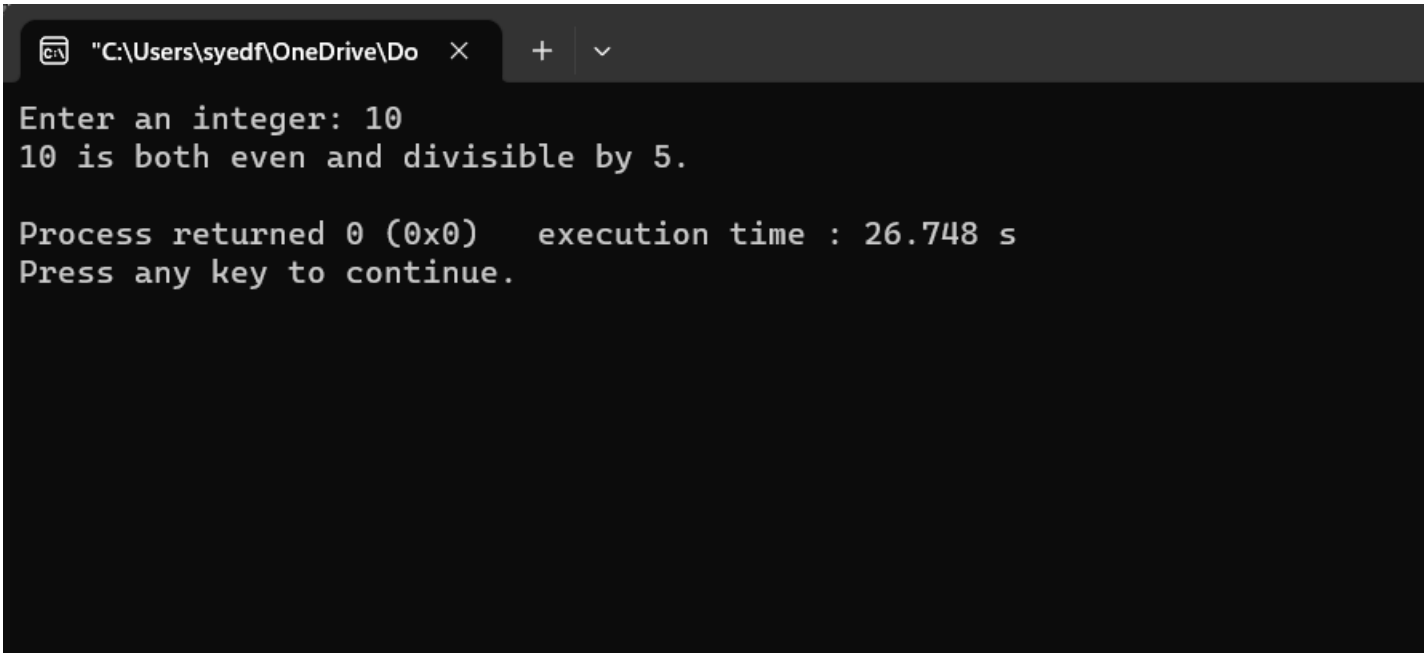
Start here | Home Task #2(Manual 3).cpp

```cpp
//Libraray
#include <iostream>

using namespace std;

int main() {
//Variable Decleration
int number;
//Input Number
cout << "Enter an integer: ";
cin >> number;

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

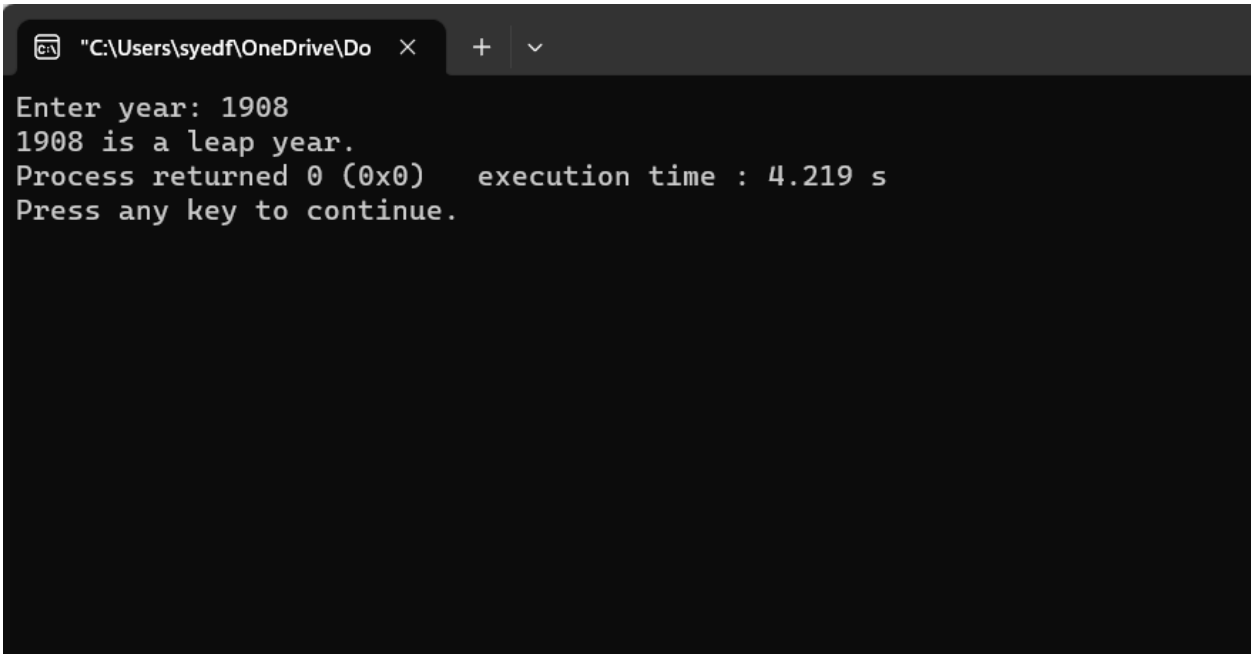


Home Task #3:

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

Start here | Home Task #3(Manual 3).cpp

```cpp
//Libraray
#include <iostream>
using namespace std;
int main()
{
//Variable decleration
int year;
cout<<"Enter year: ";
cin>>year;
//Check if the year is divisible by 4
if(year%4 == 0)
{
//If the year is divisible by 100
if(year % 100 == 0)
{
//If the year is divisible by 400, it's a leap year
if(year % 400 == 0)
cout<<year<<" is a leap year.";
else
cout<<year<<" is not a leap year.";
//If not divisible by 100, but divisible by 4, it's a leap year
}
else
cout<<year<<" is a leap year.";
}
//If not divisible by 4, it's not a leap year
else
cout<<year<<" is not leap year.";
return 0;
}
```

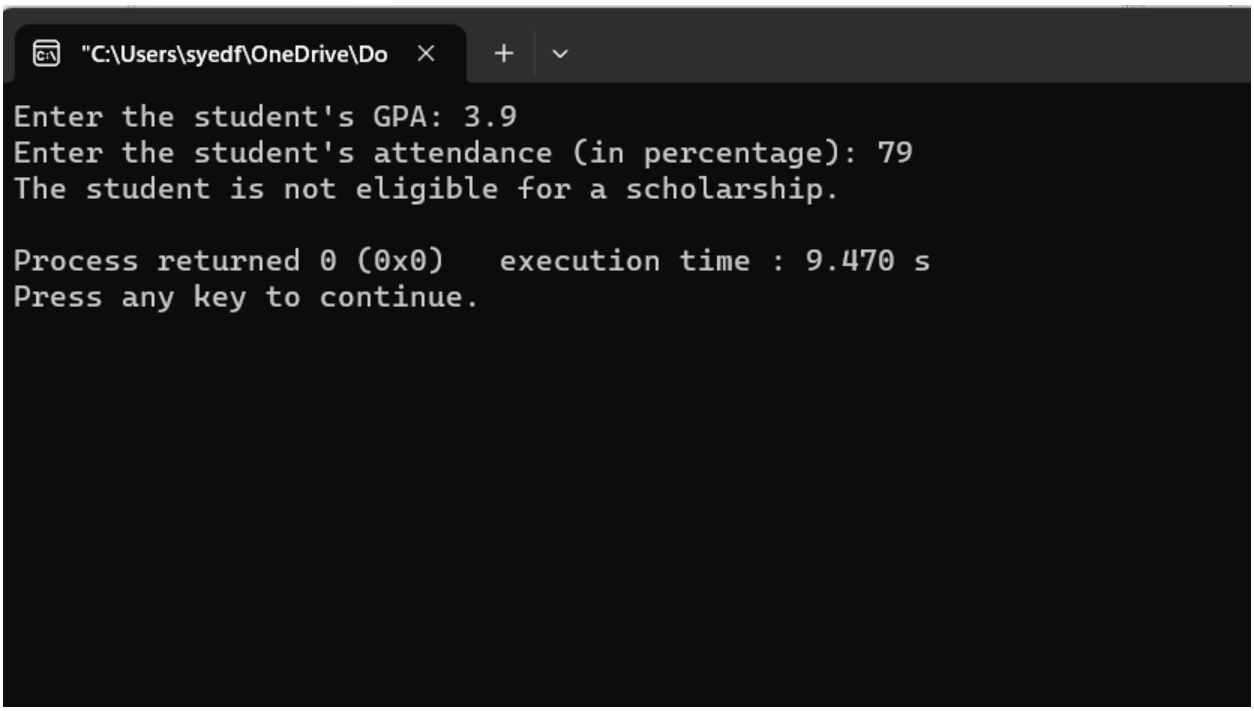


Home Task #4: Create a C++ program that determines if a student is eligible for a scholarship based on their GPA (must have GPA >= 3.5) and attendance (must have attended at least 80% of classes).

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

```cpp
//Library
#include <iostream>
//scope
using namespace std;

int main() {
// Variable decleration
float gpa;
float attendance;
// Prompt the user to enter the student's GPA.
cout << "Enter the student's GPA: ";
cin >> gpa;
// Prompt the user to enter the student's attendance.
cout << "Enter the student's attendance (in percentage): ";
cin >> attendance;
// Check if the student is eligible for a scholarship.
if (gpa >= 3.5 && attendance >= 80.0)
{
cout << "The student is eligible for a scholarship." << endl;
} else
{
cout << "The student is not eligible for a scholarship." << endl;
}
return 0;
}
```



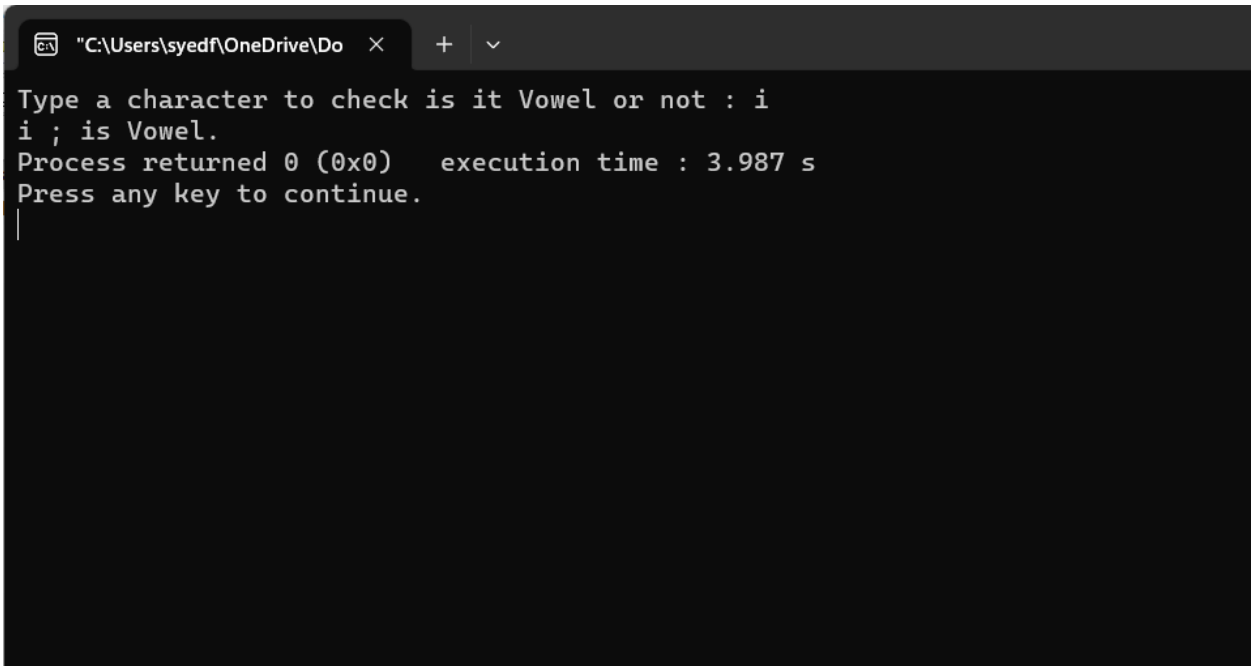
Home Task#5: Write a program that checks if a given character is a vowel (a, e, i, o, u) or a consonant using logical operators.

Start here | Home Task #5(Manual 3).cpp

```cpp
//Library
#include <iostream>
using namespace std;

int main()
//Declare a variable to store the input character
{
char name;
// Prompt the user to enter a character
cout<<"Type a character to check is it Vowel or not : ";
cin>>name;
// Check if the entered character is a vowel
// Using logical OR (||) to combine conditions
if( name&& 'a' || name && 'A' || name &&  'e' || name && 'E' || name && 'i' || name && 'I' || name && 'o' || name && 'O' || name && 'u' || name && 'U')
{
cout<<name<< " ; is Vowel." ;
}else
{
cout<<name<< " ; not Vowel." ;
}

}
```


"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.