

CS-114 – Fundamental of Programing

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LAB MANUAL #2

HOME TASK

ME 15 Section B

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TASK 1

Code:

```
#include<iostream>

using namespace std;

int main ()
{
    int m;

    cout<<"Enter your marks : "<<endl;

    cin>>m;    //taking input from user and storing in m


    //using else if loop to check in which range the marks fall and assigning grade

    if(m<=100 && m>=90)    //using Logical AND operator to check if the marks lie in the
range
        cout<<"Your grade is A";
    else if(m<90 && m>=75)
        cout<<"Your grade is B";
    else if(m<75 && m>=60)
        cout<<"Your grade is C";
    else if(m<60 && m>=45)
        cout<<"Your grade is D";
    else
        cout<<"Your grade is F";

    // curly brackets are not needed since there is only one line of code after each condition.

    return 0;
}
```

Output screen:

A screenshot of a terminal window with a dark background. The top bar is dark gray with a back arrow on the left, the word 'TAB' in the center, and a horizontal line and three vertical dots on the right. The terminal text is as follows:

```
Enter your marks :  
65  
Your grade is C  
[Program finished]
```

TASK 2

Code:

```
#include<iostream>  
  
using namespace std;  
  
int main()  
{  
  
    int a, r2, r5;  
  
    cout<<"enter a number";  
  
    cin>>a;  
  
  
    r2=a%2; //storing the remainder when a is divided by 2 in r2.  
  
    r5=a%5; //storing the remainder when a is divided by 5 in r5.
```

if(r2==0 && r5==0) //in order for the number to be even r2 must be zero and for it to be divisible by 5 r5 must be equal to zero.

```
cout<<"The number is even and is divisible by 5";      else if (r2==0)
```

```
cout<<"The number is even but not divisible by 5";
```

```
else if (r5==0)
```

```
cout<<"The number not even but is divisible by 5";
```

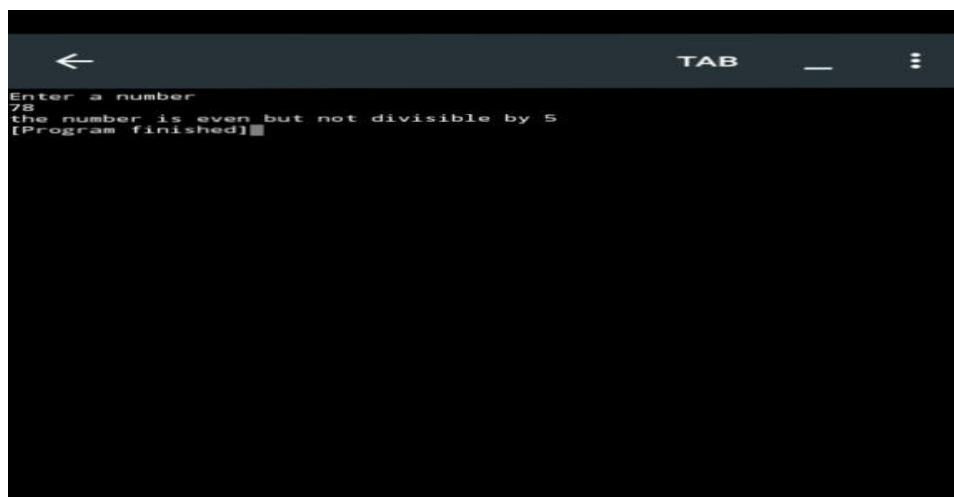
```
else
```

```
cout<<"The number is neither even nor divisible by 5";
```

```
return 0;
```

```
}
```

Output screen:

A screenshot of a terminal window with a dark background. At the top, there is a header bar with a back arrow on the left, the word "TAB" in the center, and a minus sign and three dots on the right. The terminal text shows the prompt "Enter a number", the input "78", and the output "the number is even but not divisible by 5". The final line of output is "[Program finished]" followed by a cursor.

```
Enter a number
78
the number is even but not divisible by 5
[Program finished]
```

TASK 3

Code:

```
#include<iostream>

using namespace std;

int main()

{
```

//this program is designed to check if a given year is a leap year or not. a leap year occurs every 4 years. So we check by dividing by 4. But if the year is a multiple of 100 then it must also be divisible by 400 as a leap year comes at the start of a century every 400 years.

```
    int y;

    cout<<"Enter a year "<<endl;

    cin>>y;

    if(y%4==0) //checking if the year is divisible by 4
    {
```

if(y%100==0)//if the year is divisible by 100 then it must also be divisible by 400 for it to be a leap year. we can check this by using another nested for loop inside of the nested for loop.

```
    {

        if(y%400==0)

            cout<<y<<" is a leap year.";

        else
```

```
        cout<<y<<" is not a leap year.";
    }

    else//if the year is divisible by 4 and not divisible by 100
    then it is a leap year.

        cout<<y<<" is a leap year.";

    }

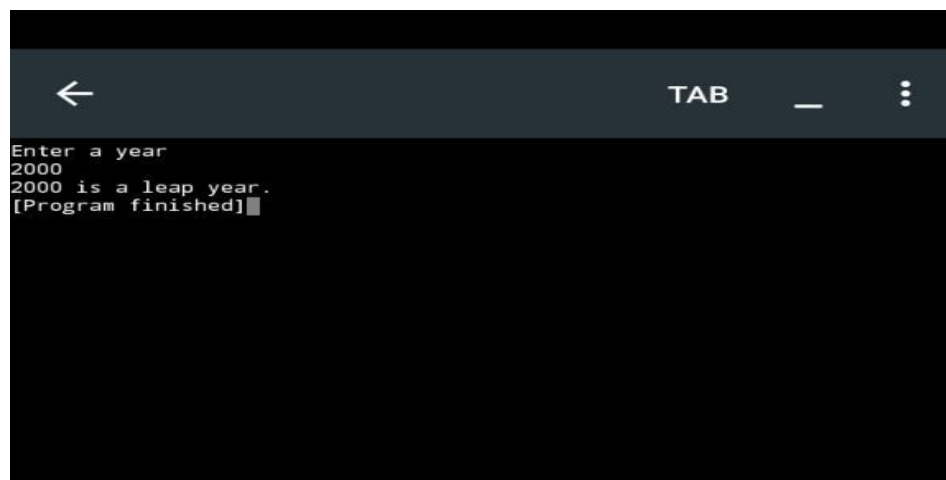
else

cout<<y<<" is not a leap year";

return 0;

}
```

Output screen:



```
Enter a year
2000
2000 is a leap year.
[Program finished]
```

TASK 4

Code:

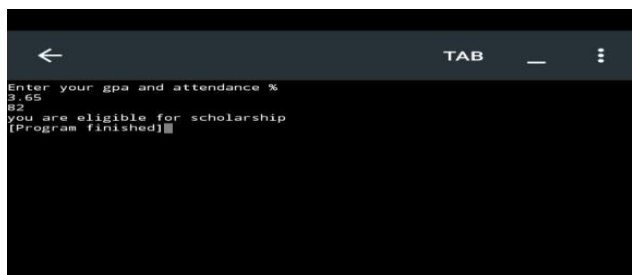
```
#include<iostream>

using namespace std;

int main()
{
    float gpa, att; //declaring two variables of float data type
    cout<<"Enter your gpa and attendance %"<<endl; cin>>gpa>>att;
    if(gpa>=3.5 && att>=80) //using Logical AND operator to check if
both conditions are met
    cout<<"you are eligible for scholarship";
    else
    cout<<"you are not eligible for scholarship";

    return 0;
}
```

Output:

A screenshot of a terminal window with a dark background. The window has a title bar with a back arrow, the word 'TAB', and a vertical ellipsis. The terminal text shows the program's execution: it prompts 'Enter your gpa and attendance %', the user enters '3.65' and '82' on separate lines, the program outputs 'you are eligible for scholarship', and finally shows '[Program finished]' with a cursor.

TASK 5

Code :

```
#include<iostream>
using namespace std;
int main()
{
    char letter; //declaring a character variable
    cout<<"enter any letter"<<endl;
    cin>>letter; //takking a char from user and storing in variable
    if(letter=='a' || letter=='e' || letter=='i' || letter=='o' ||
letter=='u') //condition to check if the char is  a vowel
        cout<<letter<<" is a vowel";
    else //to be displayed if the char is not a vowel
        cout<<letter<<" is a consonant";

    return 0;

}
```

Output screen :



TAB



enter any letter

y

y is a consonant

[Program finished]