



CS-114 - Fundamental of Programing

Assignment # 2

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1. Write a program in C++ that takes a student score as input and assigns a grade based on predefined criteria using logical operations .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 ?

Answer :

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

int main()
{
    float marks; //we use float here so that we can put marks in decimal
    cout<<"enter marks:"<<endl;
    cin>>marks; //this function takes input

    if(marks>=90&&marks<=100){ //using if so that input will be in certain range for which it gives output
        cout<<"your grade is A"<<endl;}

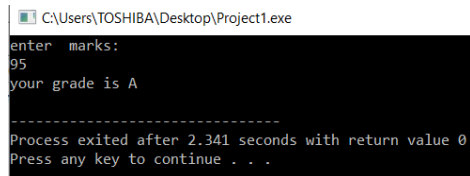
    else if(marks>=75&&marks<=90){
        cout<<"your grade is B"<<endl;}
        //using AND operation so that it follows both condition
    else if (marks>=60&&marks<=75){
        cout<<"your grade is C"<<endl;}

    else if (marks<=45&&marks<=60){
        cout<<"your grade is D"<<endl;}

    else if (marks<=0&&marks<=45){
        cout<<"your grade is F"<<endl;}

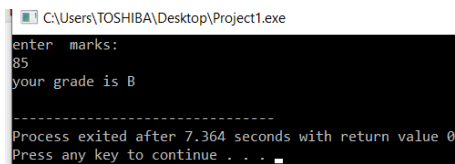
    return 0;}
```

Result:



C:\Users\TOSHIBA\Desktop\Project1.exe
enter marks:
95
your grade is A

Process exited after 2.341 seconds with return value 0
Press any key to continue . . .



C:\Users\TOSHIBA\Desktop\Project1.exe
enter marks:
85
your grade is B

Process exited after 7.364 seconds with return value 0
Press any key to continue . . .

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

Answer :

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

int main() {
    int number;
    cout<<"enter the number:"<<endl;
    cin>>number;
    //using if so that if input fulfills condition it displays output
    if (number%2==0&&number%5==0){
        cout<<"number is even and divisible by 5"<<endl;}

    else if (number%2==0&&(number%5)!=0){ //using AND operation so that it applies both condition
        cout<<"number is even but not divisible by 5"<<endl;}
```

```

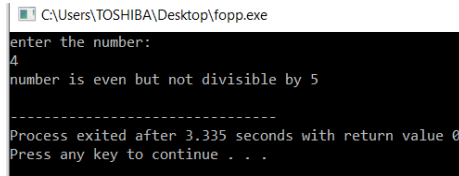
else if ((number%2)!=0&&number%5==0){
    cout<<"your number is not even but divisible by 5"<<endl;}

else if ((number%2)!=0&&(number%5)!=0){
    cout<<"your number is not even and not divisible by 5"<<endl;}

return 0;}

```

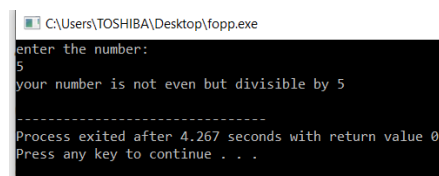
Result:



```

C:\Users\TOSHIBA\Desktop\fofp.exe
enter the number:
4
number is even but not divisible by 5
-----
Process exited after 3.335 seconds with return value 0
Press any key to continue . . .

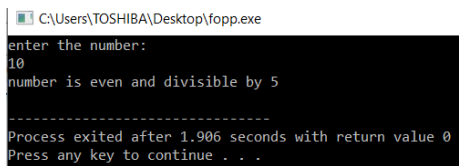
```



```

C:\Users\TOSHIBA\Desktop\fofp.exe
enter the number:
5
your number is not even but divisible by 5
-----
Process exited after 4.267 seconds with return value 0
Press any key to continue . . .

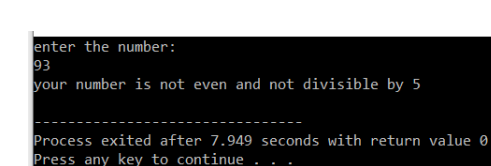
```



```

C:\Users\TOSHIBA\Desktop\fofp.exe
enter the number:
10
number is even and divisible by 5
-----
Process exited after 1.906 seconds with return value 0
Press any key to continue . . .

```



```

C:\Users\TOSHIBA\Desktop\fofp.exe
enter the number:
93
your number is not even and not divisible by 5
-----
Process exited after 7.949 seconds with return value 0
Press any key to continue . . .

```

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

Answer :

```

#include <iostream>
using namespace std ;

```

```

int main() {

    int year;
    cout<<"enter a year"<<endl;
    cin>>year;

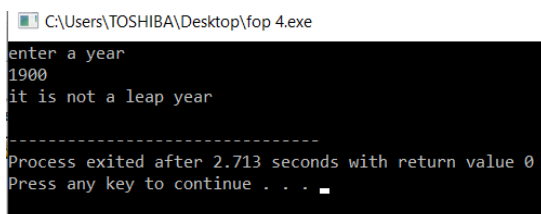
    // if a year is divided by 4 AND not divisible by 100 then it is leap year
    if (year%4==0&&(year%100)!=0||(year%400==0)){ //OR divided by 400 then it is leap year
        cout<<"it is a leap year"<<endl;}

    else{
        cout<<"it is not a leap year"<<endl;}

    return 0;}

```

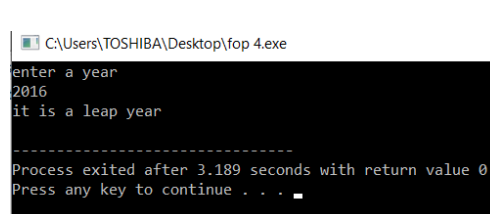
Result :



```

C:\Users\TOSHIBA\Desktop\fop 4.exe
enter a year
1900
it is not a leap year
-----
Process exited after 2.713 seconds with return value 0
Press any key to continue . . .

```



```

C:\Users\TOSHIBA\Desktop\fop 4.exe
enter a year
2016
it is a leap year
-----
Process exited after 3.189 seconds with return value 0
Press any key to continue . . .

```

4. Create a C++ program that determines if a student is eligible for a scholarship based on their GPA and attendance?

Answer :

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

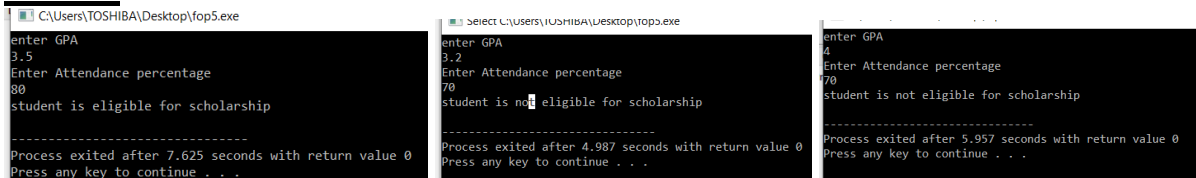
```
int main() {
    float GPA, Attendance;
    cout<<"enter GPA"<<endl;
    cin>>GPA;
    cout<<"Enter Attendance percentage"<<endl;
    cin>>Attendance;

    if(GPA>=3.5&&Attendance>=80){// using AND operation so that it fulfills both conditions
        cout<<"student is eligible for scholarship"<<endl;}

    else{
        cout<<"student is not eligible for scholarship"<<endl;}

    return 0;}
```

Result:



5. Write a program that checks if a given character is a vowel or a consonant using logical operators?

Answer :

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

```
int main() {

    char alphabet; // using character because it store a character
    cout<<"enter the alphabet:"<<endl;
    cin>>alphabet;
    // if the input is from these charcters then it is a vowel otherwise it is a consonant
    if(alphabet=='a'||alphabet=='e'||alphabet=='i'||alphabet=='o'||alphabet=='u'||alphabet=='A'||
    alphabet=='E'||alphabet=='I'||alphabet=='O'||alphabet=='U')
    {

        cout<<"it is vowel"<<endl;}

    else{

        cout<<"it is a consonant"<<endl;}
    return 0;}
```

result :

