NATIONAL UNIVERSITY OF SCIENCE & TECNOLOGY
SCHOOL OF MECHANICAL AND MANUFACTURING ENGINEERING

SEMESTER # 01
CLASS: - ME 15 [SEC A]

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Fundamentals of Programming

HOME TASK No. 02

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QUESTION No.#01

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

```cpp
#include<iostream>

using namespace std;

int main() {

    //declaring question number

    cout<<"Question no.01 "<<endl;

    int score;

    cout<<"enter students score ";

    cin>>score;

    if   (score<=100&&score>=90) //for A grade

    cout<<"the grade of student is A" <<endl;

    else if (score>=75&&score<90)//for B grade

    cout<<"the grade of student is B"<<endl;

    else if (score>=60&&score<75)//for C grade

    cout<<"The grade of student is C"<<endl;

    else if(score>=45&&score<60)//for D grade

    cout<<"The grade of student is D"<<endl;

    else //for F grade

    cout<<"The grade of student is F"<<endl;

    return 0;

}
```

```cpp
#include<iostream>
using namespace std;
int main() {
    //declaring question number
    cout<<"Question no.01 "<<endl;
    int score;
    cout<<"enter students score ";
    cin>>score;
    if  (score<=100&&score>=90) //for A grade
    cout<<"the grade of student is A" <<endl;
    else if (score>=75&&score<90)//for B grade
    cout<<"the grade of student is B"<<endl;
    else if (score>=60&&score<75)//for C grade
    cout<<"The grade of student is C"<<endl;
    else if(score>=45&&score<60)//for D grade
    cout<<"The grade of student is D"<<endl;
    else //for F grade
      cout<<"The grade of student is F"<<endl;
      return 0;
}
```

```
C:\Users\Dell\Desktop\C++\Home Tasks\Home Task No.02\Question No.01.exe

Question no.01
enter students score 90
the grade of student is A

---------------------------------
Process exited after 3.872 seconds with return value 0
Press any key to continue . . .
```

QUESTION No.#02

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

```cpp
#include<iostream>

using namespace std;

int main() {

        cout<<"Question NO 02"<<endl;

        //declaring a and res as two variables

        int a,res;

        cout<<"enter the value of a ";

        cin>>a;

        res=a%5;

        if (res!=0)        //show the reminder of number (a) when divided by 5

        cout<< "a is not divisible by 5"<<endl;

        else    if (res==0 && a%2!=0)            //show the reminder of number (a) when divided by 5 and 2

        cout<<"a is not even and divisible by 5"<<endl;

        else //when number (a) is not devisible by 5 and 2

        cout<<"a is even and divisible by 5"<<endl;

        return 0;

        }
```

```cpp
#include<iostream>
using namespace std;
int main()
    cout<<"Question NO 02"<<endl;
    //declaring a and res as two variables
    int a,res;
    cout<<"enter the value of a ";
    cin>>a;
    res=a%5;
    if (res!=0)      //show the reminder of number (a) when divided by 5
    cout<< "a is not divisible by 5"<<endl;
    else  if (res==0 && a%2!=0)      //show the reminder of number (a) when divided by 5 and 2
    cout<<"a is not even and divisible by 5"<<endl;
    else //when number (a) is not devisible by 5 and 2
    cout<<"a is even and divisible by 5"<<endl;
    return 0;
    }
```

```
C:\Users\Dell\Desktop\C++\Home Tasks\Home Task No.02\Question No.02..exe

Question NO 02
enter the value of a 55
a is not even and divisible by 5


--------------------------------
Process exited after 1.359 seconds with return value 0
Press any key to continue . . .
```

QUESTION No.#03

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

```cpp
#include<iostream>

using namespace std;

int main() {

        cout<<"Question NO 03"<<endl;

        int year;    //declaring year

        cout<<"enter year ";

        cin>>year;

        if (year%4==0) //if given year is divisible by 4

        cout<<"the given year is a leap year"<<endl;

        else //if given year is not divisible by 4

        cout<<"the given year is not a leap year"<<endl;

        return 0;

}
```

```cpp
#include<iostream>
using namespace std;
int main() ▮
    cout<<"Question NO 03"<<endl;
    int year;  //declaring year
    cout<<"enter year ";
    cin>>year;
    if (year%4==0) //if given year is divisible by 4
    cout<<"the given year is a leap year"<<endl;
    else //if given year is not divisible by 4
    cout<<"the given year is not a leap year"<<endl;
    return 0;
}
```

```
Question NO 03
enter year 2016
the given year is a leap year


-----------------------------------
Process exited after 3.473 seconds with return value 0
Press any key to continue . . .
```

QUESTION No.#04

```cpp
#include<iostream>

using namespace std;

int main(){

    cout<<"Question No.04"<<endl;

    float GPA;    //Declaring GPA

    cout<<"Enter GPA of student ";

    cin>>GPA;

    float attendance; //declaring attendance in percentage

    cout<<"enter attendace of student in percentage ";

    cin>>attendance;

    if (GPA>=3.5&&attendance>=80)

    cout<<"the student is eligible for scholarship"<<endl;

    else //If student has less GPA than 3.5 and 80% attendance then

    cout<<"the student is not eligible for scholarship"<<endl;

    return 0;

}
```

```cpp
#include<iostream>
using namespace std;
int main()
    cout<<"Question No.04"<<endl;
    float GPA;  //Declaring GPA
    cout<<"Enter GPA of student ";
    cin>>GPA;
    float attendance; //declaring attendance in percentage
    cout<<"enter attendace of student in percentage ";
    cin>>attendance;
    if (GPA>=3.5&&attendance>=80)
    cout<<"the student is eligible for scholarship"<<endl;
    else //If student has less GPA than 3.5 and 80% attendance then
    cout<<"the student is not eligible for scholarship"<<endl;
    return 0;
    }
```

```
Question No.04
Enter GPA of student 3.4
enter attendace of student in percentage 90
the student is not eligible for scholarship

----------------------------------
Process exited after 9.067 seconds with return value 0
Press any key to continue . . .
```

QUESTION No.#05

```cpp
#include<iostream>

using namespace std;

int main() {

        cout<<"Question No.05"<<endl;

    char character; //declaring character

    cout<<"Enter character ";

    cin>>character;

    if (character=='a'||character=='e'||character=='i'||  character=='o'||character=='u')  //if character is vowel

    cout<<"The given character is a vowel";

    else//if entered character does not belong to vowel

    cout<<"the given character is consonant";

    return 0;

}
```

```
#include<iostream>
using namespace std;
int main()
    cout<<"Question No.05"<<endl;
    char character; //declaring character
    cout<<"Enter character ";
    cin>>character;
    if (character=='a'||character=='e'||character=='i'|| character=='o'||character=='u') //if character is vowel
    cout<<"The given chharacter is a vowel";
    else//if entered caharacter does not belong to vowel
    cout<<"the given charcter is consonant";
    return 0;
```

```
Question No.05
Enter character e
The given chharacter is a vowel
--------------------------------
Process exited after 0.9793 seconds with return value 0
Press any key to continue . . .
```