

National University of Sciences and Technology (NUST)
Department of Mechanical Engineering (SMME)



Fundamentals of Programming

LAB MANUAL # 2

HOME TASKS

By

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Home Task # 1

```
#include <iostream>

using namespace std;

int main() {
    int marks;

    cout<<"Enter student marks:-"<<endl;

    cin>>marks;

    if(!(marks>44))
    {
        cout<<"Your grade is F";
    }
    else if(marks>44&&marks<60)
    {
        cout<<"Your grade is D";
    }
    else if(marks>59&&marks<75)
    {
        cout<<"Your grade is C";
    }
    else if(marks>74&&marks<90)
    {
        cout<<"Your grade is B";
    }
    else
    {
        cout<<"Your grade is A";
    }

    return 0;
}
```

Home Task # 2

```
#include <iostream>

using namespace std;

int main() {
    int x,r1,r2;

    cout<<"Enter an integer:"<<endl;

    cin>>x;

    r1=x%2;
    r2=x%5;

    if(r1==0&&r2==0)
    {
        cout<<"integer is even and divisible by 5";

    }
    else
    {
        cout<<"wrong number";

    }

    return 0;
}
```

Home Task # 3

```
#include <iostream>

using namespace std;

int main() {
    int y,r;

    cout<<"Enter a year:";

    cin>>y;
```

```

r=y%4;
if(r==0)
{
    cout<<"This year is a leap year";
}
else
{
    cout<<"not a leap year";
}
return 0;
}

```

Home Task # 4

```

#include <iostream>
using namespace std;
int main() {
    float GPA,a;
    cout<<"Enter GPA:"<<endl;
    cin>>GPA;
    cout<<"Enter Attendance";
    cin>>a;
    if(GPA>=3.5&&a>=80)
    {
        cout<<"student is eligible for scholarship";
    }
    else
    {
        cout<<"student does not meet the qualifications";
    }
}

```

```
        return 0;
    }
```

Home Task # 5

```
#include <iostream>

using namespace std;

int main() {
    char x,a,e,i,o,u;
    cout<<"Enter a letter:";
    cin>>x;
    if(x=='a' || x=='e' || x=='i' || x=='o' || x=='u')
    {
        cout<<"The alphabet entered is a vowel";
    }
    else
    {
        cout<<"The alphabet entered is a consonanat";
    }
    return 0;
}
```

Task 1 Explanation: if marks are not greater than 44 then grade **F**. Marks from 45 to 59 is **D**. From 60 to 74 is **C**. From 75 to 89 is **B**. from 90 to 100 is **A**.

Task 2 Explanation: We will rake remainder of the number divided by 2 and 5 using different remainder variables if both r1 and r2 are 0, then number is even and divisible by 5.

Task 3 Explanation: taking remainder of year divided by 4, since leap year comes every 4 years the remainder will be then it will be leap year.

Task 4 Explanation: If student GPA and attendance are greater than equal to required then he is eligible for scholarship.

Task 5 Explanation: If letter entered a,e,i,o,u then condition will be satisfied otherwise it will be consonant.

Task 1 Explanation: if marks are not greater than 44 then grade **F**. Marks from 45 to 59 is **D**.
From 60 to 74 is **C**. From 75 to 89 is **B**. from 90 to 100 is **A**.