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

```cpp
#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

```cpp
#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

```cpp
#include <iostream>

  using namespace std;

  int main() {

        int y,r;

        cout<<"Enter a year:";

        cin>>y;
```

```cpp
        r=y%4;

        if(r==0)

                {

                        cout<<"This year is a leap year";

                }

        else

        {

                cout<<"not a leap year";

                }

        return 0;

}
```

Home Task # 4

```cpp
#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

```cpp
#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.