



National University of Science and technology
(NUST)

CS-114 - Fundamental of Programing

Lab Manual # 03

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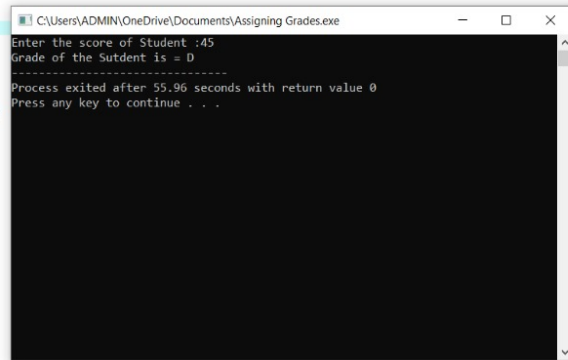
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TASK 1:

```
1 #include <iostream>
2 using namespace std;
3 int main()
4 {
5     int score;
6     cout<<"Enter the score of Student :";
7     cin>>score; //taking the score as input
8     char grade;
9     if (score>= 90 && score<100){
10         grade = 'A'; //Assigning grade 'A' if score greater or equal to 90 and less than 100
11         cout<<"Grade of the Sudent is = "<<grade;
12     }
13     else if(score>= 75 && score<90){
14         grade = 'B'; //Assigning grade 'B' if score greater or equal to 75 and less than 90
15         cout<<"Grade of the Sudent is = "<<grade;
16     }
17     else if( score>= 60 && score<75){
18         grade = 'C'; //Assigning grade 'A' if score greater or equal to 60 and less than 75
19         cout<<"Grade of the Sudent is = "<<grade;
20     }
21     else if( score>= 45 && score<60){
22         grade = 'D'; //Assigning grade 'A' if score greater or equal to 45 and less than 60
23         cout<<"Grade of the Sudent is = "<<grade;
24     }
25     else if(score>= 0 && score<45){
26         grade = 'F'; //Assigning grade 'A' if score greater or equal to 0 and less than 45
27         cout<<"Grade of the Sudent is = "<<grade;
28     }
29     else {
30         cout<<"ERROR!"<<endl; //If the score values are not between 0 to 100 then there will be no result but an error
31         cout<<"Please Enter a Valid Score(Between 0 to 100)"<<endl;
32     }
33     return 0;
34 }
```

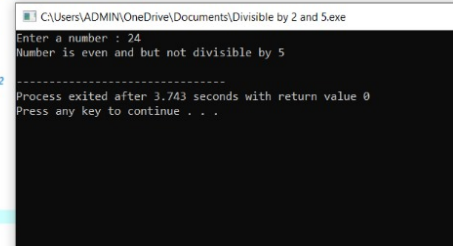


C:\Users\ADMIN\OneDrive\Documents\Assigning Grades.exe

```
Enter the score of Student :45
Grade of the Sudent is = D
-----
Process exited after 55.96 seconds with return value 0
Press any key to continue . . .
```

TASK 2:

```
1 #include <iostream>
2 using namespace std;
3 int main()
4 {
5     int a;
6     cout<<"Enter a number : ";
7     cin>>a; // Taking the integer as input fro user
8     if(a % 2== 0 && a % 5 == 0){ //using the if statement to check if the number is divisible by 2 and 5 and if it does then printing statement
9         cout<<"Number is both Even and divisible by 5"<<endl;
10     }
11     else if(a % 2==0 && !a % 5 == 0) //using else if statement to check if number divisible by 2 and not divisible by 5
12     {
13         cout<<"Number is even and but not divisible by 5"<<endl; //then printing this statement
14     }
15     else if(! a % 2== 0 && a % 5 == 0){ //using elseif to check if the number is divisible by 5 and not divisible by 2
16         cout<<"Number is not even but divisible by 5"<<endl; //Then printing this statement
17     }
18     else{
19         cout<<"Number is not even and divisible by 5"<<endl; //using 'else' statement to print this statement
20     }
21
22
23
24     return 0;
25 }
```



C:\Users\ADMIN\OneDrive\Documents\Divisible by 2 and 5.exe

```
Enter a number : 24
Number is even and but not divisible by 5
-----
Process exited after 3.743 seconds with return value 0
Press any key to continue . . .
```

TASK 3:

```
1 #include <iostream>
2 using namespace std;
3 int main(){
4     float GPA;
5     int a;
6     cout<<"Enter Student's GPA : ";
7     cin>>GPA; //Taking 'GPA' as input from user
8     cout<<"Enter Student's Attendance(in percentage) : ";
9     cin>>a; //Taking 'attendance' as input from user
10    if (GPA >= 3.5 && a >= 80){
11        cout<<"Student is Eligible for Scholarship"<<endl; // using and Logic to check if GPA
12    }
13    else if (GPA > 4.0 || a > 100){ //using if statement and or Logic to draw out invalid values
14        cout<<"ERROR!"<<endl;
15        cout<<"Invalid values"<<endl;
16        cout<<"Please enter GPA from 0-4 "<<endl;
17        cout<<"and Attendance from 0-100 percent"<<endl;
18    }
19    else if ((GPA >= 3.5 && a >= 80)){ // checking if GPA is less than 3.5
20        cout<<"Student is not Eligible for Scholarship due to low GPA "<<endl;
21    }
22    else{ //Checking if attendance is Lower than 80%
23        cout<<"Student is not Eligible for Scholarship due to low attendance"<<endl;
24    }
25    return 0;
26 }
```

```
C:\Users\ADMIN\OneDrive\Documents\Attendance.exe
Enter Student's GPA : 2.78
Enter Student's Attendance(in percentage) : 56
Student is not Eligible for Scholarship due to low attendance

-----
Process exited after 20.17 seconds with return value 0
Press any key to continue . . .
```

TASK 4:

```
1 #include <iostream>
2 using namespace std;
3 int main(){
4     char al; // determining al by char
5     cout<<"Enter a character :"; //taking alphabet as input from user
6     cin>>al;
7     if (al == 'a' || al == 'e' || al == 'i' || al == 'o' || al == 'u' || al == 'A' || al == 'E' || al == 'I' || al == 'O' || al == 'U' ){ //using or Logic to check if al resembles a,e,i,,o,u
8         cout<<"The Character is a Vowel"<<endl;
9     }
10    else if ((al >= 'a' && al <= 'z') &&! (al == 'a' || al == 'e' || al == 'i' || al == 'o' || al == 'u' || al == 'A' || al == 'E' || al == 'I' || al == 'O' || al == 'U' ) ){
11        cout<<"The Character is a Consonant"<<endl; // declaring limit from a to z and using 'not' to exclude vowels
12    }
13    else if ((al >= 'A' && al <= 'Z') &&! (al == 'a' || al == 'e' || al == 'i' || al == 'o' || al == 'u' || al == 'A' || al == 'E' || al == 'I' || al == 'O' || al == 'U' ) ){
14        cout<<"The Character is a Consonant"<<endl; //again declaring limit from A to Z and using 'or', 'and' and 'not' Logic to exclude vowels
15    }
16    else{ cout<<"Error!"<<endl; // incase of input other than 'a' to 'z' or 'A' to 'Z' error is displayed
17        cout<<"Enter a Valid Character"<<endl;
18    }
19
20    return 0;
21 }
22 }
```

```
Select C:\Users\ADMIN\OneDrive\Documents\Consonants and vowels L-2.exe
Enter a character : r
The Character is a Consonant

-----
Process exited after 6.36 seconds with return value 0
Press any key to continue . . .
```

TASK 5:

```
1 #include <iostream>
2 using namespace std;
3 int main(){
4     int year;
5     cout<<"Enter the Year : ";
6     cin>>year; //taking 'year' as input from user
7     if (year % 4 == 0){ //using if Logic to check if provided year is divisible by '4'
8         cout<<"It is a Leap Year"<<endl; //if year is divisible by 4 then printed this
9     }
10    else{ //if the year is not divisible by 4 then
11        cout<<"It is not a leap year"<<endl; //printed this statement
12    }
13    return 0;
14 }
15 }
```

```
C:\Users\ADMIN\OneDrive\Documents\Leap Year.exe
Enter the Year : 43
It is not a leap year

-----
Process exited after 13.26 seconds with return value 0
Press any key to continue . . .
```