

CSE102L Computer Programming Lab

LAB # 2



2020

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Registration No :

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Semester: 2nd

Class Section: C

“On my honor, as student of University of Engineering and Technology,

I have neither given nor received unauthorized assistance on this academic work.”

March 16 , 2020

Department of Computer Systems Engineering

University Of Engineering And Technology

Objectives:

To be familiar with Relational & Logical Operators

To understand the programming knowledge using Decision Statements (if, if-else, if-else ladder, Nested if-else)

Task # 1

Title: Display the largest among three numbers using if else statement?

Code:

```
#include<iostream>

using namespace std;

main()
{
    int x,y,z;

    cout<<"Enter 1st Num = \n\n";
    cin>>x;

    cout<<"Enter 2nd Num = \n\n";
    cin>>y;

    cout<<"Enter 3rd Num = \n\n";
    cin >> z;

    if (x>y && x>z)
    {
        cout<<x<<" is greater";
    }

    else if (y>x && y>z)
    {

        cout<<y<<" is greater";
```

```

    }

    else
    {
        cout<<z<< " is greater";
    }
}

```

Output (Compilation, Debugging & Testing):

```

"C:\Users\Pc\Documents\CPP Lab pactice\largest_bw_3_num.exe"
Enter 1st Num =
34
Enter 2nd Num =
678
Enter 3rd Num =
4
678 is greater

Process returned 0 (0x0)   execution time : 7.234 s
Press any key to continue.

```

Task # 2

Title: Check whether a number is even or odd?

Code:

```

#include<iostream>

using namespace std;

main()
{
    int n;

```

```
cout<<"Enter a number";
```

```
cin>>n;
```

```
    if (n>0)
```

```
{
```

```
        if(n%2==0)
```

```
        {
```

```
            cout<<"Number is even and greater than zero \n\n";
```

```
        }
```

```
        else
```

```
        {
```

```
            cout<<"Number is odd and greater than zero \n\n";
```

```
        }
```

```
    }
```

```
    else if (n<0)
```

```
    {
```

```
        if (n%2==0)
```

```
        {
```

```
            cout<<"Number is even and smaller than zero \n\n";
```

```
        }
```

```
        else
```

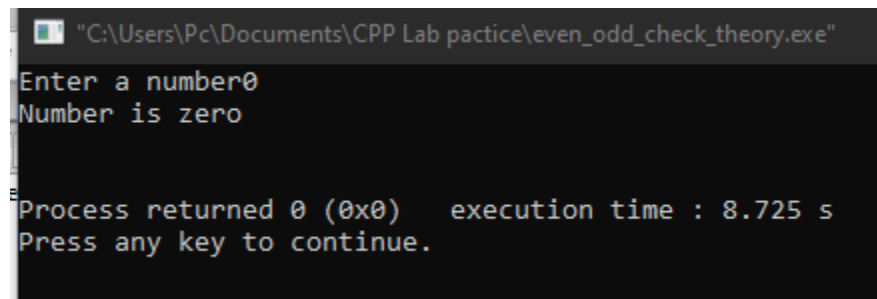
```
        {
```

```
            cout<<"Number is odd and smaller than zero \n\n";
```

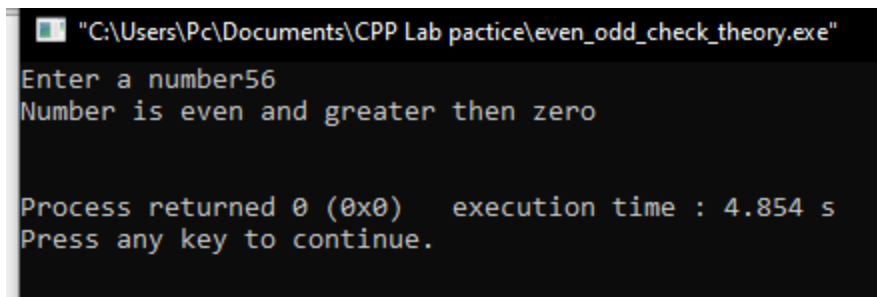
```
        }
```

```
    }  
    else  
    {  
        cout<<"Number is zero \n\n";  
    }  
}
```

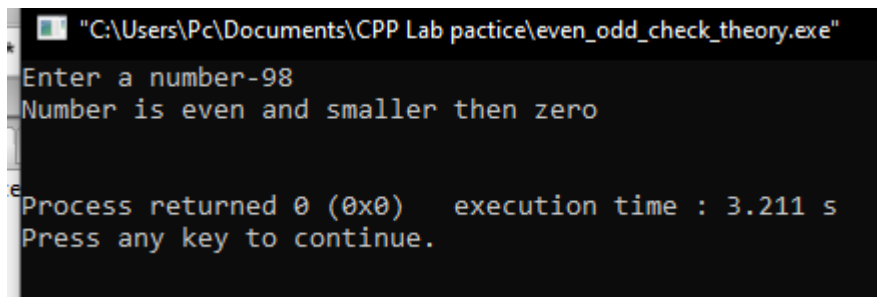
Output (Compilation, Debugging & Testing):



```
"C:\Users\Pc\Documents\CPP Lab pactice\even_odd_check_theory.exe"  
Enter a number0  
Number is zero  
  
Process returned 0 (0x0)   execution time : 8.725 s  
Press any key to continue.
```



```
"C:\Users\Pc\Documents\CPP Lab pactice\even_odd_check_theory.exe"  
Enter a number56  
Number is even and greater than zero  
  
Process returned 0 (0x0)   execution time : 4.854 s  
Press any key to continue.
```



```
"C:\Users\Pc\Documents\CPP Lab pactice\even_odd_check_theory.exe"  
Enter a number-98  
Number is even and smaller than zero  
  
Process returned 0 (0x0)   execution time : 3.211 s  
Press any key to continue.
```

Task # 3

Title Check the greater of two numbers using ternary operator?

Code:

```
#include<iostream>

using namespace std;

main()
{
    int x,y;

    cout<<"Enter 1st Number = ";

    cin>>x;

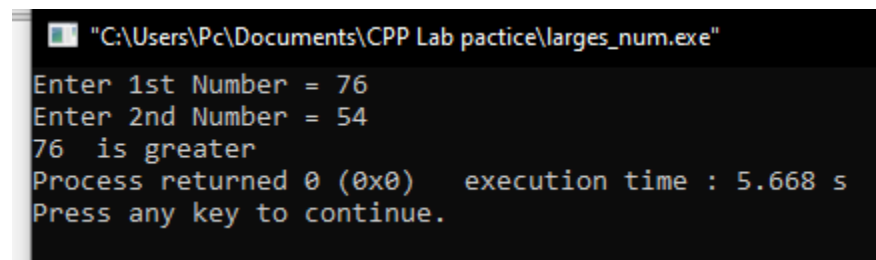
    cout<<"Enter 2nd Number = ";

    cin>>y;

    x>y ? cout<<x<<" is greater" : cout<<y <<"is greater";

    return 0;
}
```

Output (Compilation, Debugging & Testing):



```
"C:\Users\Pc\Documents\CPP Lab pactice\larges_num.exe"
Enter 1st Number = 76
Enter 2nd Number = 54
76 is greater
Process returned 0 (0x0)   execution time : 5.668 s
Press any key to continue.
```

Task # 4

Title Write a MarksSheet program, input 5 subject marks from user and show data on screen, with percentage, grade and average marks (Assume total marks = 100).

Code:

```
#include<iostream>

using namespace std;

//bool has by default 0 or false value

main()

{

int maths,eng,cpp,cs1,isl;

cout<<"Enter the Maths marks = ";

cin>>maths;

cout<<"Enter the English marks = ";

cin>>eng;

cout<<"Enter the CPP marks = ";

cin>>cpp;

cout<<"Enter the CS1 marks = ";

cin>>cs1;

cout<<"Enter the Islamiyat marks = ";

cin>>isl;

cout<<"\n\nEnglish marks = "<<eng<<endl;

cout<<"Maths marks = "<<maths<<endl;

cout<<"CPP marks = "<<cpp<<endl;
```

```
cout<<"CS1 marks = "<<cs1<<endl;

cout<<"Islamiyat marks = "<<isl<<endl;

float tmarks;

tmarks=(eng+maths+cpp+cs1+isl);

cout<<"\n\nTotal marks = "<<tmarks;

if (tmarks>=90)

{

    cout<<"\n\n A grade \n\n";

}

else if (tmarks>=80)

{

    cout<<"B grade \n\n";

}

else if(tmarks>=70)

{

    cout<<"C grade \n\n";

}

else{

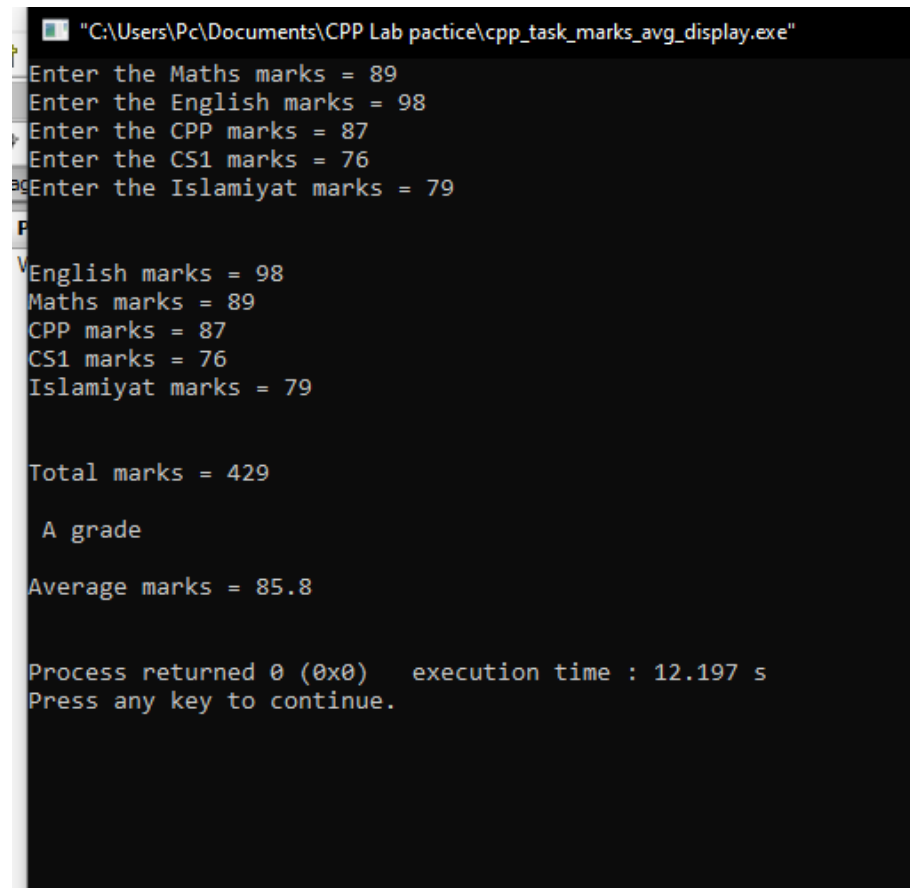
    cout<<" Fail \n\n";

}

cout<<"Average marks = "<<(tmarks / 500)*100<<"\n\n";

}
```


Output (Compilation, Debugging & Testing):



```
"C:\Users\Pc\Documents\CPP Lab pactice\cpp_task_marks_avg_display.exe"
Enter the Maths marks = 89
Enter the English marks = 98
Enter the CPP marks = 87
Enter the CS1 marks = 76
Enter the Islamiyat marks = 79

English marks = 98
Maths marks = 89
CPP marks = 87
CS1 marks = 76
Islamiyat marks = 79

Total marks = 429

A grade

Average marks = 85.8

Process returned 0 (0x0)   execution time : 12.197 s
Press any key to continue.
```

Task # 5

Title Write a C++ program that takes two operands and one operator from the user, the program should implement basic arithmetic operations – sum, average, product, difference, quotient, remainder, and, or and not of given numbers etc.

Code:

```
#include<iostream>

#include<cmath>

using namespace std;
```

```
main()

{

int x,y;

string z;

cout<<"Enter 1st Number = ";

cin>>x;

cout<<"\nEnter operand = ";

cin>>z;

cout<<"\n Enter 2nd Number = ";

cin>>y;

if (z == "+")

{

    cout<<x<<" + "<<y<<" = "<< x+y;

}

else if(z == "-")

{

    cout<<x<<" - "<<y<<" = "<< x-y;

}

else if(z == "*")

{

    cout<<x<<" * "<<y<<" = "<< x*y;

}

else if(z == "/")

{
```

```
cout<<x<<" / "<<y<<" = "<<x/y;

}

else if(z == "%")

{

cout<<x<<" % "<<y<<" = "<<x%y;

}

else if(z == "avg")

{

cout<<x<<" average "<<y<<" = "<<(x+y)/2;

}

else if(z == "&")

{

cout<<x<<"&&"<<y<<" = "<<x&&y;

}

else if(z == "|")

{

cout<<x<<"||"<<y<<" = "<<x||y;

}

else if(z == "~")

{

cout<<~y<<" = "<<~y;

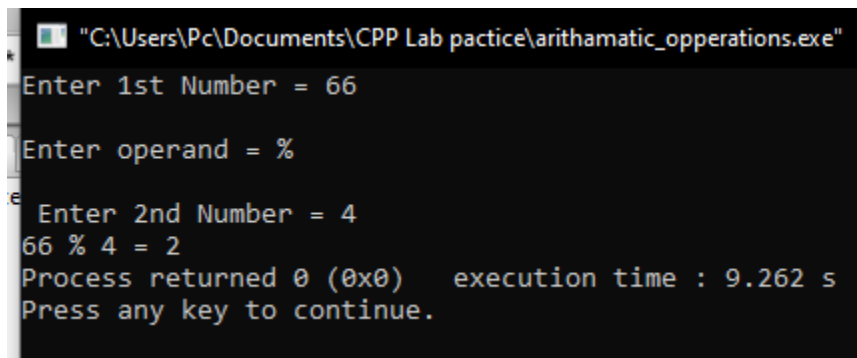
}

else

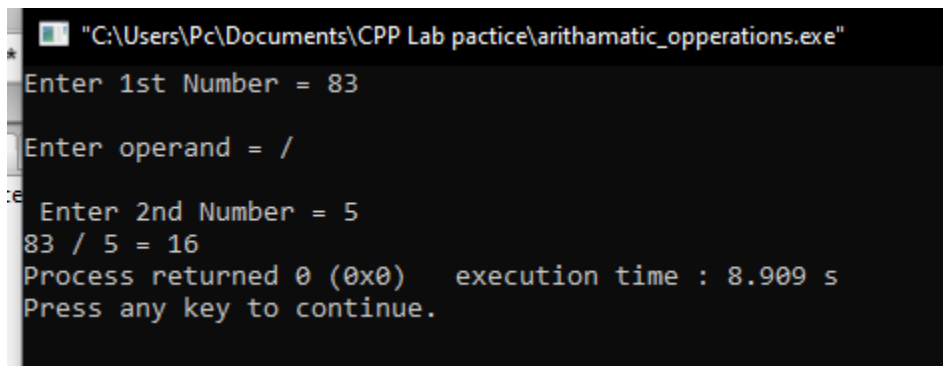
{
```

```
        cout<<"Wrong selection...";  
    }  
}
```

Output (Compilation, Debugging & Testing):



```
"C:\Users\Pc\Documents\CPP Lab pactice\arithamatic_operations.exe"  
Enter 1st Number = 66  
Enter operand = %  
Enter 2nd Number = 4  
66 % 4 = 2  
Process returned 0 (0x0)   execution time : 9.262 s  
Press any key to continue.
```



```
"C:\Users\Pc\Documents\CPP Lab pactice\arithamatic_operations.exe"  
Enter 1st Number = 83  
Enter operand = /  
Enter 2nd Number = 5  
83 / 5 = 16  
Process returned 0 (0x0)   execution time : 8.909 s  
Press any key to continue.
```

Task # 6

Title Write a program that asks a number and test the number whether it is multiple of 5 or not, divisible by 7 but not by eleven. (all three conditions should match)

Code:

```
#include<iostream>
```

```
#include<cmath>

using namespace std;

main()

{

int x;

cout << "ENTER a number = ";

cin>>x;

if( x%5 == 0)

{

    cout<<"\n\nMultiple of 5.\n\n";

}

else{

    cout<<"Not a Multiple of 5.\n\n";

}

if(x%7 == 0)

{

    cout<<"Divisible of 7.\n\n";

}

else

{

    cout<<"Not a Divisible of 7.\n\n";

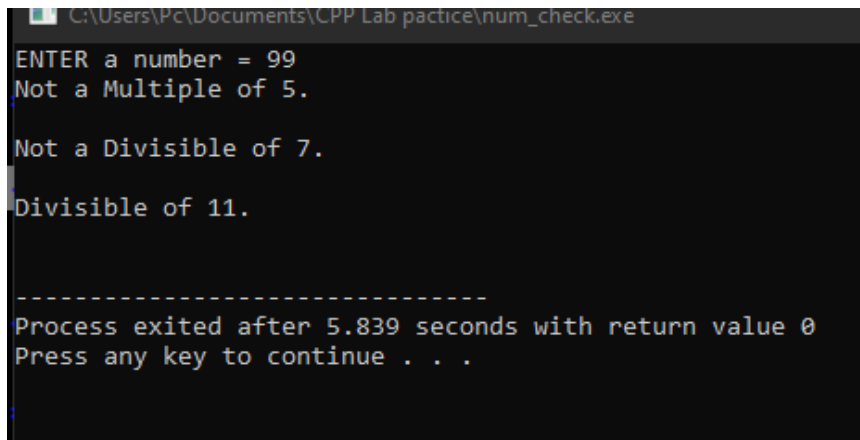
}

if(x%11 == 0)

{
```

```
        cout<<"Divisible of 11.\n\n";
    }
    else{
        cout<<"Not a Divisible of 11.\n\n";
    }
    return 0;
}
```

Output (Compilation, Debugging & Testing):



```
C:\Users\PC\Documents\CPP Lab pactice\num_check.exe
ENTER a number = 99
Not a Multiple of 5.
Not a Divisible of 7.
Divisible of 11.

-----
Process exited after 5.839 seconds with return value 0
Press any key to continue . . .
```

Task # 7

Title Check whether the entered character is vowel or consonant?

Code:

```
#include<iostream>
```

```
#include<cmath>
```

```
using namespace std;

main()

{

char x;

cout << "ENTER a Character = ";

cin>>x;


if(x == 'a')

{

    cout<<"Entered character is a vowel.";

}

else if(x == 'e')

{

    cout<<"Entered character is a vowel.";

}

else if(x == 'i')

{

    cout<<"Entered character is a vowel.";

}

else if(x == 'o')

{

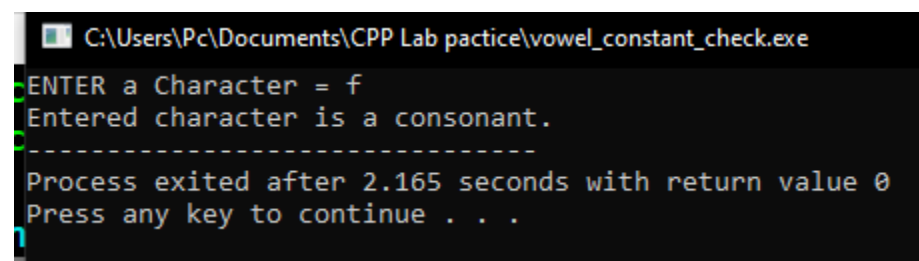
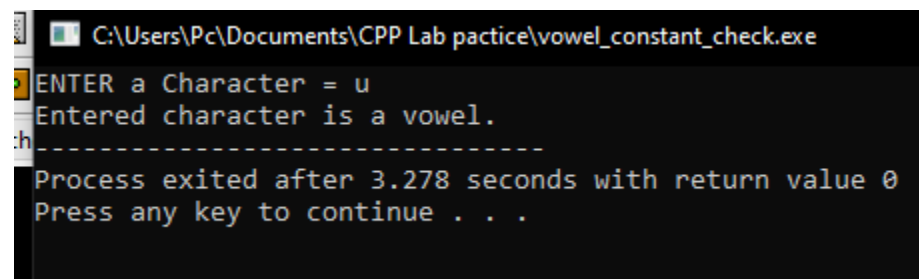
    cout<<"Entered character is a vowel.";

}
```

```
else if(x == 'u')
{
    cout<<"Entered character is a vowel.";
}
else
{
    cout<<"Entered character is a consonant.";
}

}
```

Output (Compilation, Debugging & Testing):



Task # 8

Title Write a program that takes the week day number as input from user and print the day name of week. E.g., Print Monday if week day number is equal to 1. Similarly, check condition for all 7 days and print the corresponding day name. Print an error message if an invalid number is entered.

Code:

```
#include<iostream>

#include<cmath>

using namespace std;

main()

{

int x;

cout << "ENTER the number of week's day = ";

cin>>x;

if(x == 1)

{

    cout<<"IT's Monday.";

}

else if(x == 2)

{

    cout<<"IT's Tuesday.";

}
```

```
else if(x == 3)
{
    cout<<"IT's Wednesday.";
}

else if(x == 4)
{
    cout<<"IT's Thursday.";
}

else if(x == 5)
{
    cout<<"IT's Friday.";
}

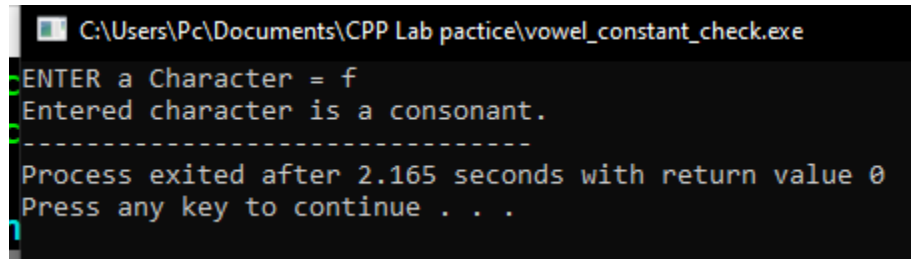
else if(x == 6)
{
    cout<<"IT's Saturday.";
}

else if(x == 7)
{
    cout<<"IT's Sunday.";
}

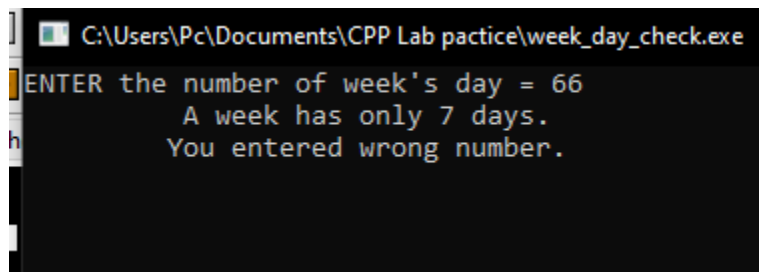
else
{
    cout<<"    A week has only 7 days. \n    You entered wrong number.\n\n\n";
```

```
}  
  
}
```

Output (Compilation, Debugging & Testing):



```
C:\Users\Pc\Documents\CPP Lab pactice\vowel_constant_check.exe  
ENTER a Character = f  
Entered character is a consonant.  
-----  
Process exited after 2.165 seconds with return value 0  
Press any key to continue . . .
```



```
C:\Users\Pc\Documents\CPP Lab pactice\week_day_check.exe  
ENTER the number of week's day = 66  
A week has only 7 days.  
You entered wrong number.
```

Task # 9

Title Write a C++ program to enter month number between (1-12) and print number of days in month

Code:

```
#include<iostream>
```

```
#include<cmath>
```

```
using namespace std;
```

```
main()
```

```
{

int x;

cout << "ENTER the number of Month = ";

cin>>x;

if(x == 1)

{

    cout<<"IT's January.";

    cout<<"IT has 31 days.";

}

else if(x == 2)

{

    cout<<"IT's Februry.";

    cout<<"\nIT has 28 days.\n But if it's a leap year it has 29 days\n\n\n";

}

else if(x == 3)

{

    cout<<"IT's March.";

    cout<<"\nIT has 31 days.";

}

else if(x == 4)

{

    cout<<"IT's April.";
```

```
        cout<<"\nIT has 30 days.";
    }

    else if(x == 5)
    {

        cout<<"IT's May.";

        cout<<"\nIT has 31 days.";

    }

    else if(x == 6)
    {

        cout<<"IT's Jun.";

        cout<<"\nIT has 30 days.";

    }

    else if(x == 7)
    {

        cout<<"IT's July.";

        cout<<"\nIT has 31 days.";

    }

    else if(x == 8)
    {

        cout<<"IT's August.";

        cout<<"\nIT has 31 days.";

    }

    else if(x == 9)
```

```
{  
  
    cout<<"IT's September.";  
  
    cout<<"\nIT has 30 days.";  
  
}  
  
else if(x == 10)  
  
{  
  
    cout<<"IT's October.";  
  
    cout<<"\nIT has 31 days.";  
  
}  
  
else if(x == 11)  
  
{  
  
    cout<<"IT's November.";  
  
    cout<<"\nIT has 30 days.";  
  
}  
  
else if(x == 12)  
  
{  
  
    cout<<"IT's December.";  
  
    cout<<"\nIT has 31 days.";  
  
}  
  
else  
  
{  
  
    cout<<"\n\n    A year has only 12 months. You Entered wrong number.";  
  
}
```

}

Output (Compilation, Debugging & Testing):

```
C:\Users\Pc\Documents\CPP Lab pactice\month_days_check.exe
ENTER the number of Month = 2
IT's Februry.
IT has 28 days.
But if it's a leap year it has 29 days

-----
Process exited after 1.156 seconds with return value 0
Press any key to continue . . .
```

```
C:\Users\Pc\Documents\CPP Lab pactice\month_days_check.exe
ENTER the number of Month = 33

A year has only 12 months. You Entered wrong number.
-----
Process exited after 3.106 seconds with return value 0
Press any key to continue . . .
```

Task # 10

Title Write a program to calculate and print the Electricity bill of a given customer. The customer id and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer. The charges are as follow :

Unit	Charge/unit
------	-------------

upto 199	@ 1.20
200 and above but less than 400	@ 1.50
400 and above but less than 600	@ 1.80
600 and above	@ 2.00

If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/-

Test Data:

1001

800

Expected Output:

Customer IDNO: 1001

Units Consumed: 800

Amount Charges @Rs. 2.00 per unit: 1600.00

Surcharge Amount : 240.00

Net Amount Paid By the Customer : 1840.00

Code:

```
#include<iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```



```

float ID,Unit,ans,ans2,ans3;

cout<<"Enter the Customer I.D"<<endl;

cin>>ID;

cout<<"Enter the Units Consumed"<<endl;

cin>>Unit;

if (Unit <= 199)
{
    ans=(1.20*Unit);

    if (ans>400)
    {
        ans2=(ans*0.15);

        ans3=(ans2+ans);

        cout<<"Customer I.D:"<<ID<<endl;

        cout<<"Units Consumed:"<<Unit<<endl;

        cout<<"Amount Charges @ Rs.1.20 per unit:"<<ans<<endl;

        cout<<"Surcharge Amount:"<<ans2<<endl;

        cout<<"Net Amount Paid by Customer:"<<ans3;

    }
    else

        cout<<"Customer I.D:"<<ID<<endl;

        cout<<"Units Consumed:"<<Unit<<endl;

        cout<<"Amount Charges @ Rs.1.20 per unit:"<<ans<<endl;

        cout<<"Net Amount Paid by Customer:"<<ans;

    }

    if (Unit <= 400)

```

```
{  
  
    ans=(1.50*Unit);  
  
    if (ans>400)  
  
    {  
  
        ans2=(ans*0.15);  
  
        ans3=(ans2+ans);  
  
        cout<<"Customer I.D:"<<ID<<endl;  
  
        cout<<"Units Consumed:"<<Unit<<endl;  
  
        cout<<"Amount Charges @ Rs.1.50 per unit:"<<ans<<endl;  
  
        cout<<"Surcharge Amount:"<<ans2<<endl;  
  
        cout<<"Net Amount Paid by Customer:"<<ans3<<endl;  
  
    }  
  
    else  
  
        cout<<"Customer I.D:"<<ID<<endl;  
  
        cout<<"Units Consumed:"<<Unit<<endl;  
  
        cout<<"Amount Charges @ Rs.1.50 per unit:"<<ans<<endl;  
  
    }  
  
    if (Unit <= 600)  
  
    {  
  
        ans=(1.80*Unit);  
  
        if (ans>400)  
  
        {  
  
            ans2=(ans*0.15);  
  
            ans3=(ans2+ans);  
  
            cout<<"Customer I.D:"<<ID<<endl;
```

```

        cout<<"Units Consumed:"<<Unit<<endl;

        cout<<"Amount Charges @ Rs.1.80 per unit:"<<ans<<endl;

        cout<<"Surcharge Amount:"<<ans2<<endl;

        cout<<"Net Amount Paid by Customer:"<<ans3<<endl;
    }

    else

        cout<<"Customer I.D:"<<ID<<endl;

        cout<<"Units Consumed:"<<Unit<<endl;

        cout<<"Amount Charges @ Rs.1.80 per unit:"<<ans<<endl;

    }

    if (Unit > 600)

    {

        ans=(2.00*Unit);

        if (ans>400)

        {

            ans2=(ans*0.15);

            ans3=(ans2+ans);

            cout<<"Customer I.D:"<<ID<<endl;

            cout<<"Units Consumed:"<<Unit<<endl;

            cout<<"Amount Charges @ Rs.2.00 per unit:"<<ans<<endl;

            cout<<"Surcharge Amount:"<<ans2<<endl;

            cout<<"Net Amount Paid by Customer:"<<ans3<<endl;

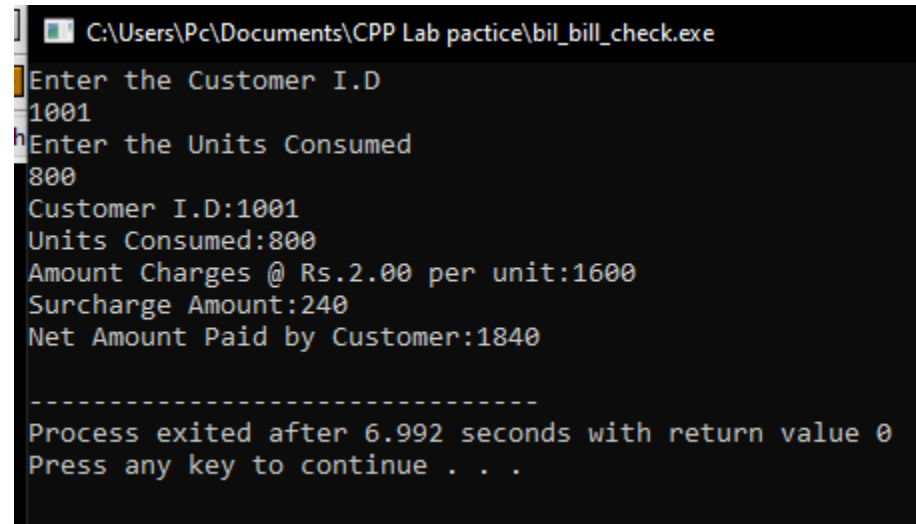
        }

    }
}

```

```
return 0;  
  
}
```

Output (Compilation, Debugging & Testing):



```
C:\Users\Pc\Documents\CPP Lab pactice\bil_bill_check.exe  
Enter the Customer I.D  
1001  
Enter the Units Consumed  
800  
Customer I.D:1001  
Units Consumed:800  
Amount Charges @ Rs.2.00 per unit:1600  
Surcharge Amount:240  
Net Amount Paid by Customer:1840  
-----  
Process exited after 6.992 seconds with return value 0  
Press any key to continue . . .
```