SUPERIOR UNIVERSITY

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BSCS 1A

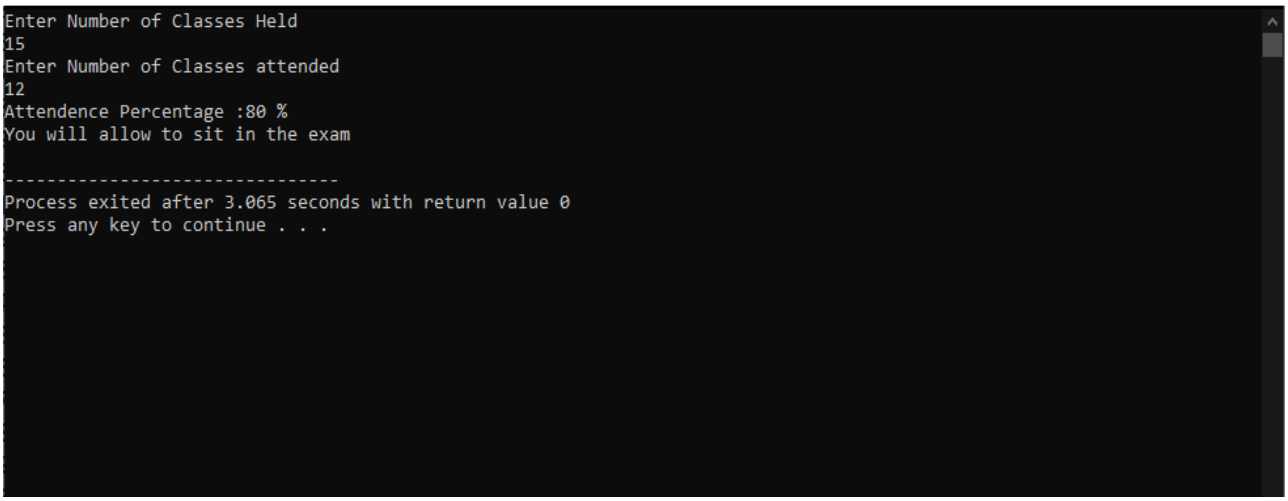
PF LAB

SIR BILAL

Task 05:

```cpp
#include<iostream>
using namespace std;
int main()
{
  float classheld,classattend;
  cout<<"Enter Number of Classes Held"<<endl;
  cin>>classheld;
  cout<<"Enter Number of Classes attended"<<endl;
  cin>>classattend;
  float attendencepercentage=(classattend)/(classheld)*100;
  cout<<"Attendence Percentage :"<<attendencepercentage<<" % "<<endl;
  if(attendencepercentage>=75)
  {
    cout<<"You will allow to sit in the exam"<<endl;
  }
  else{cout<<"You will not allow to sit in the exam"<<endl;
  }
  return 0;
}
```

Output:



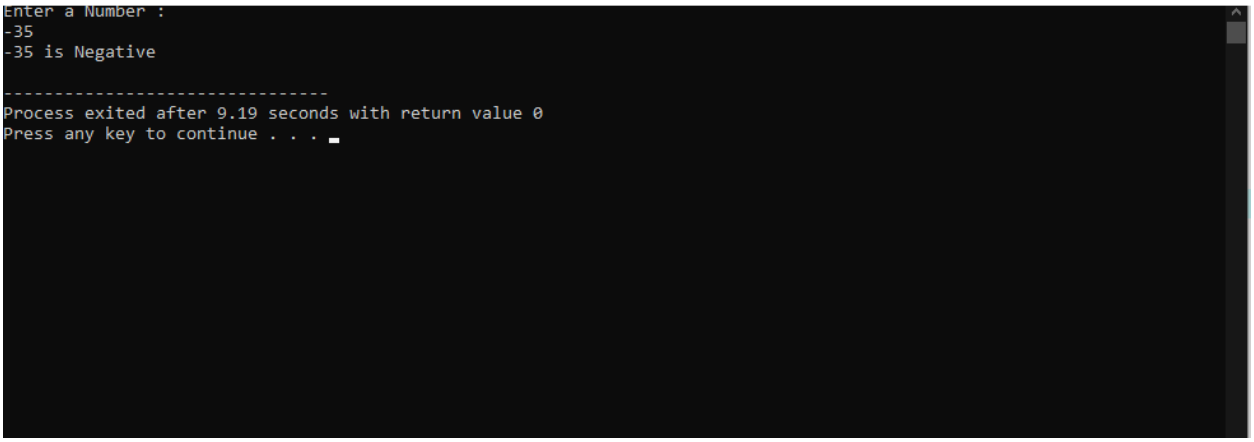
- Write a program that takes a number as input from user and check whether number is odd or even enter by user.

```cpp
//Write a program that takes a number as input
//from user and check whether number is odd or even enter by user.
#include<iostream>
using namespace std;
int main()
{
  int num;
  cout<<"Enter a number :"<<endl;
  cin>>num;
  if(num%2==0)
  {
    cout<<num<<" is even"<<endl;
  }
  else
  {
    cout<<num<<" is odd"<<endl;
  }
  return 0;
}
```

Output:

```cpp
//Write that takes a number as input from user
//and check whether a number is negative, positive.
#include<iostream>
using namespace std;
int main()
{
  int number;
  cout<<"Enter a Number :"<<endl;
  cin>>number;
  if(number>0)
  {
    cout<<number<<" is Positive"<<endl;
  }
  else if(number<0)
  {
    cout<<number<<" is Negative"<<endl;
  }
  else
  {
    cout<<"The number is zero"<<endl;
  }
  return 0;
}
```

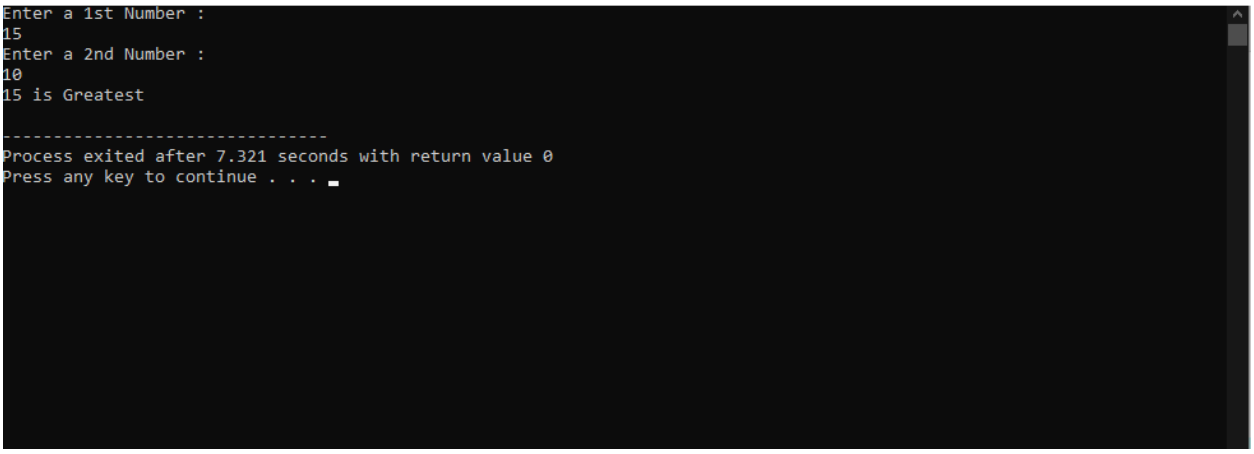
Output:



- Write a program that takes two Numbers as input from user, and print greatest number among them and display on screen.

```cpp
//"Write a program that takes two Numbers as input from user
//and print greatest number among them and display on screen.
#include<iostream>
using namespace std;
int main()
{
  int num1,num2;
  cout<<"Enter a 1st Number :"<<endl;
  cin>>num1;
  cout<<"Enter a 2nd Number :"<<endl;
  cin>>num2;
  if (num1>num2)
  {
    cout<<num1<<" is Greatest"<<endl;
  }
  else if (num2>num1)
  {
    cout<<num2<<" is Greatest"<<endl;
  }
  else
  {
    cout<<"Both Number are Equall"<<endl;
  }
  return 0;
}
```

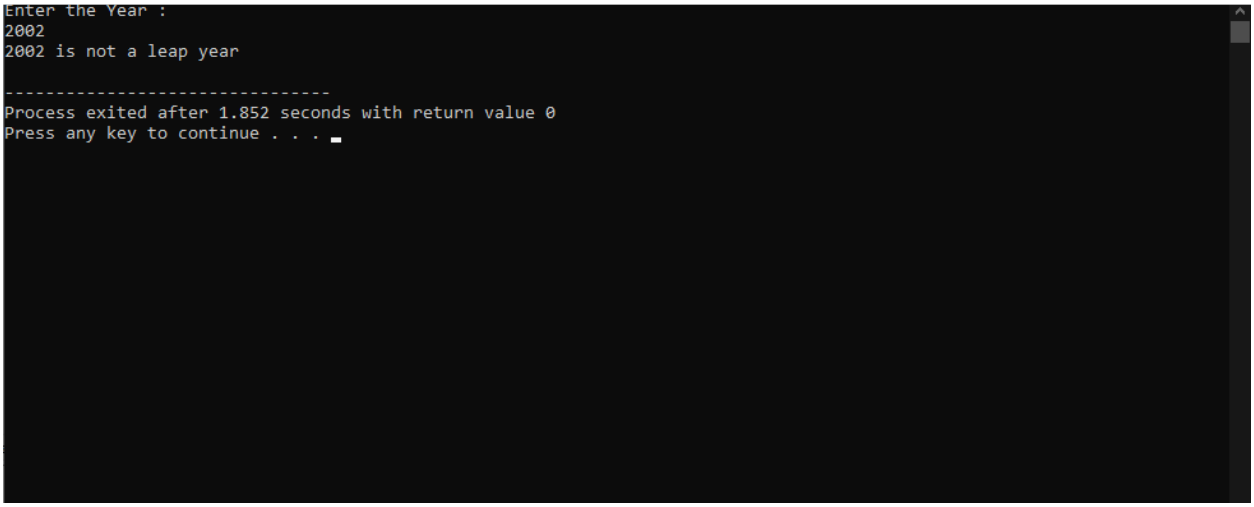
Output:



- Write a program to check if a year is leaping year or not. If a year is divisible by 4 then it is leaping year but if the year is century year like 2000, 1900, 2100 then it must be divisible by 400.

```cpp
//" Write a program to check if a year is leap year or not.
//If a year is divisible by 4 then it is leap year but
//if the year is century year like 2000, 1900, 2100 then it must be divisible by 400.

#include<iostream>
using namespace std;
int main()
{
  int year;
  cout<<"Enter the Year :"<<endl;
  cin>>year;
  if(year%4==0||year%400==0)
  {
    cout<<year<<" is a leap year"<<endl;
  }
  else
  {
    cout<<year<<" is not a leap year"<<endl;
  }
  return 0;
}
```

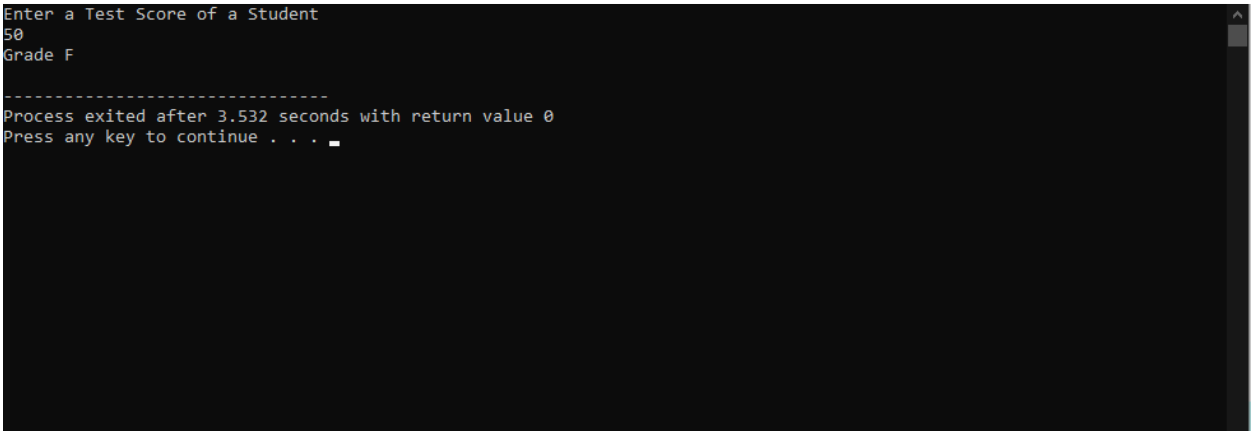
Output:



Task 06 :

```cpp
//Write a program that input test Score of a Student and
//display his grade according to the following criteria:
//Test Score    Grade
//>=90      A
//80-90     B
//70-79     C
//60-69     D
//Below 60    F
#include<iostream>
using namespace std;
int main()
{
  int score;
  cout<<"Enter a Test Score of a Student"<<endl;
  cin>>score;
  if(score>=90)
  {
    cout<<"Grade A"<<endl;
  }
  else if(score>=80 && score<90)
  {
    cout<<"Grade B"<<endl;
  }
  else if(score>=70 && score<80)
  {
    cout<<"Grade C"<<endl;
  }
  else if(score>=60 && score<70)
  {
    cout<<"Grade D"<<endl;
  }
  else
  {
    cout<<"Grade F"<<endl;
  }
  return 0;
}
```

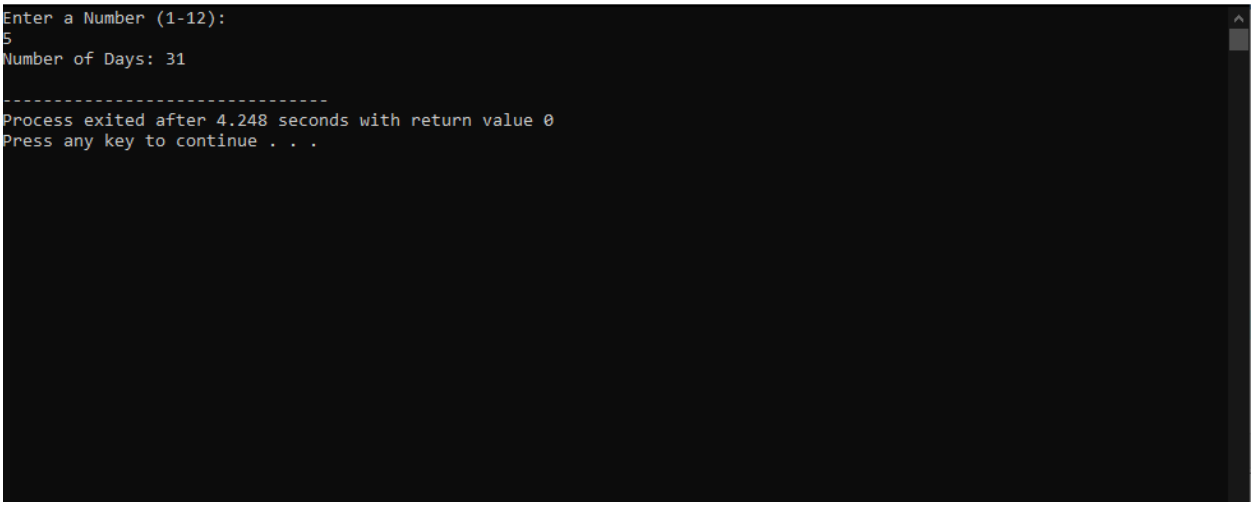
Output:



- Write a C++ Program to take a value from the user as input the month number and print number of days in that month. Using if-else-if.

```cpp
//" Write a C++  Program to take a value from the user as input the month number
//and print number of days in that month. Using if-else-if.
#include<iostream>
using namespace std;
int main()
{
  int month;
  cout<<"Enter a Number (1-12):"<<endl;
  cin>>month;
  if (month==1 || month==3 || month==5 || month==7 || month==8 || month==10 || month==12)
  cout<<"Number of Days: 31"<<endl;
  else if (month==4 || month==6 || month==9 || month==11)
  {
  cout<<"Number of Days: 30"<<endl;}
  else if(month==2)
  {
    cout<<"Number of Days: 28"<<endl;
  }
  else
  {
    cout<<"Invalid number of month !"<<endl;
  }
  return 0;
}
```

Output:

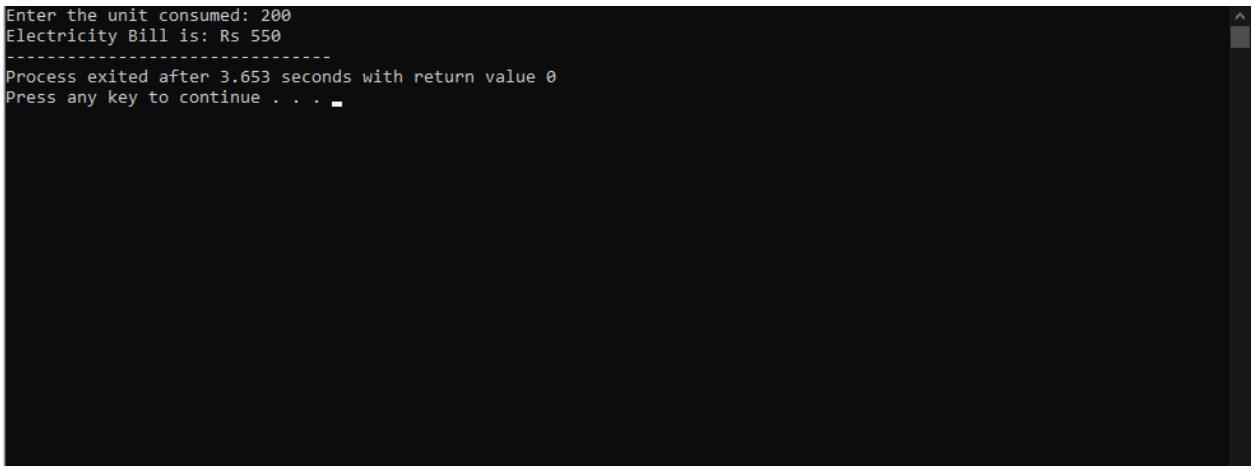


- Write a Program that input electricity unit from user and calculate the electricity bill. The rates per unit are as follow:
    1. If the units consumed are <=300 the cost per unit is Rs 2 per unit
    2. If the units consumed are > 300 and <=500 the cost per unit is Rs 5 per unit
    3. If the units consumed are >500 the cost per unit is Rs 7 per unit

  A line rent Rs 150 is also added to total bill and surcharge of 5% extra if bill is more than 2000.

```cpp
#include<iostream>
using namespace std;
int main()
{
  int units;
  float costPerUnit,totalbill,subcharge;

  cout<<"Enter the unit consumed: ";
  cin>>units;
  if(units<=300)
  {
    costPerUnit =2;
  }
  else if (units>300 && units<=500)
  {
    costPerUnit =5;
  }
  else if( units>500)
  {
    costPerUnit =7;
  }
  totalbill=units*costPerUnit;
  totalbill+=150;
  if(totalbill>2000)
  {
    subcharge=totalbill*0.05;
    totalbill+=subcharge;
  }
  cout<<"Electricity Bill is: Rs "<< totalbill;
  return 0;
}
```

Output:



- Write a program that input three numbers and display whether all numbers are equal or not using nested if condition or might be nested if-else.

```cpp
#include <iostream>
using namespace std;

int main()
{
  int num1,num2,num3;
  cout<<"Enter a 1st Number :";
  cin>>num1;
  cout<<"Enter a 2nd Number :";
  cin>>num2;
  cout<<"Enter a 3rd Nuber :";
  cin>>num3;
  if (num1==num2)
  {
    if(num2==num3)
    {
      cout<<"All number are equall"<<endl;
    }
    else
    {
      cout<<"Not All number are equall"<<endl;
    }
  }
  else
  {
    cout<<"Not All number are equall"<<endl;
  }
    return 0;
}
```

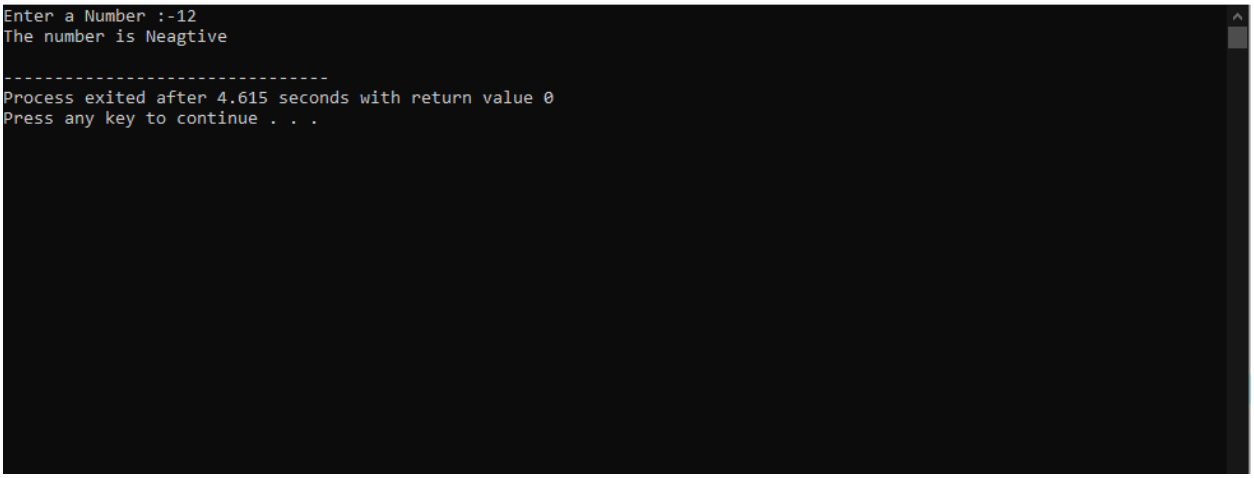
Output:

```
Enter a 1st Number :10
Enter a 2nd Number :10
Enter a 3rd Nuber :10
All number are equall

--------------------------------
Process exited after 3.552 seconds with return value 0
Press any key to continue . . .
```

- Write a program that input a number from user and check whether number is Negative, Positive or Zero using nested if or might be nested if-else.

```cpp
//" Write a program that input a number from user and
//check whether number is Negative, Positive or Zero using nested if  or might be nested if-else.
#include <iostream>
using namespace std;

int main()
{
  int number;
  cout<<"Enter a Number :";
  cin>>number;
  if(number>0)
  {
    cout<<"The number is Positive"<<endl;
  }
  else if(number<0)
  {
  cout<<"The number is Neagtive"<<endl;
  }
  else
  {
    cout<<"The number is Zero"<<endl;
  }
    return 0;
}
```

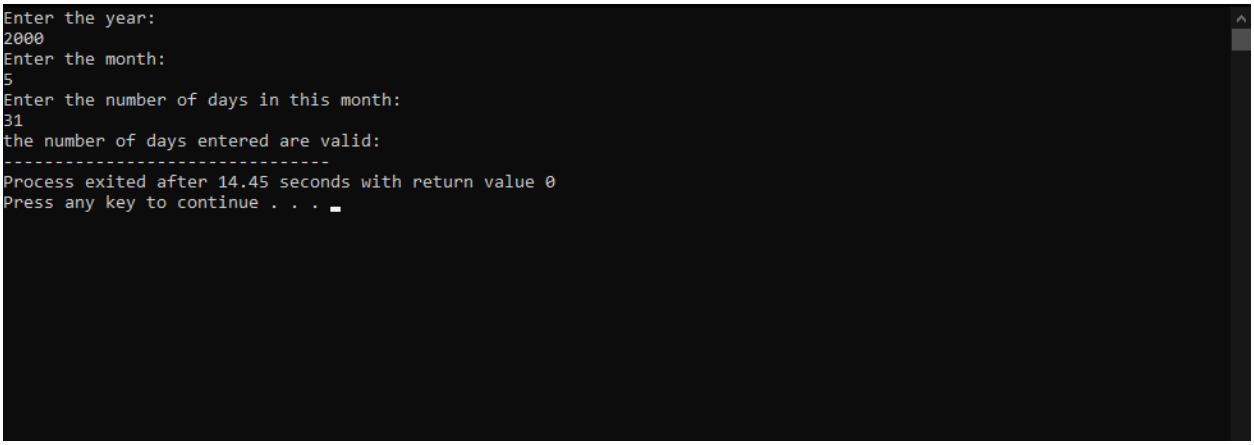
Output:



- Write a program that ask the user to enter a year and checks if it is a Leap year, ask the user to enter a month and then checks if the number of days entered for that month is valid. Consider numbers of days in each month according to Leap year, like 29 for February. Done this by using nested if-else statement.

```cpp
//Write a program that ask the user to enter a year and checks if it is a Leap year,
//ask the user to enter a month and then checks if the number of days entered for that
//month is valid. Consider numbers of days in each month according to Leap year ,
//like 29 for February. Done this by using nested if-else statement
#include<iostream>
using namespace std;
int main()
{
  int year,month,days;
  cout<<"Enter the year: "<<endl;
  cin>>year;

  if(year%4==0||year%400==0)
  {
    cout<<"Enter the month: "<<endl;
    cin>>month;

    if(month==1||month==3||month==5||month==7||month==8||month==10||month==12)
    {
      cout<<"Enter the number of days in this month: "<<endl;
      cin>>days;
      if(days==31)
      {
        cout<<"the number of days entered are valid: ";
      }
    }
    else
    {
     if(month==4||month==6||month==9||month==11)
      {
        cout<<"Enter the number of days in this month: "<<endl;
        cin>>days;
        if(days==30)
        {
        cout<<"the number of days entered are valid: ";
      }
      }

      else
      {
       if(month==2)
        {
          cout<<"Enter the number of days in this month: "<<endl;
          cin>>days;
          if(days==29)
          {
          cout<<"the number of days entered are valid: ";
          }
        }
      }
    }
  }
   return 0;
}
```

Output:

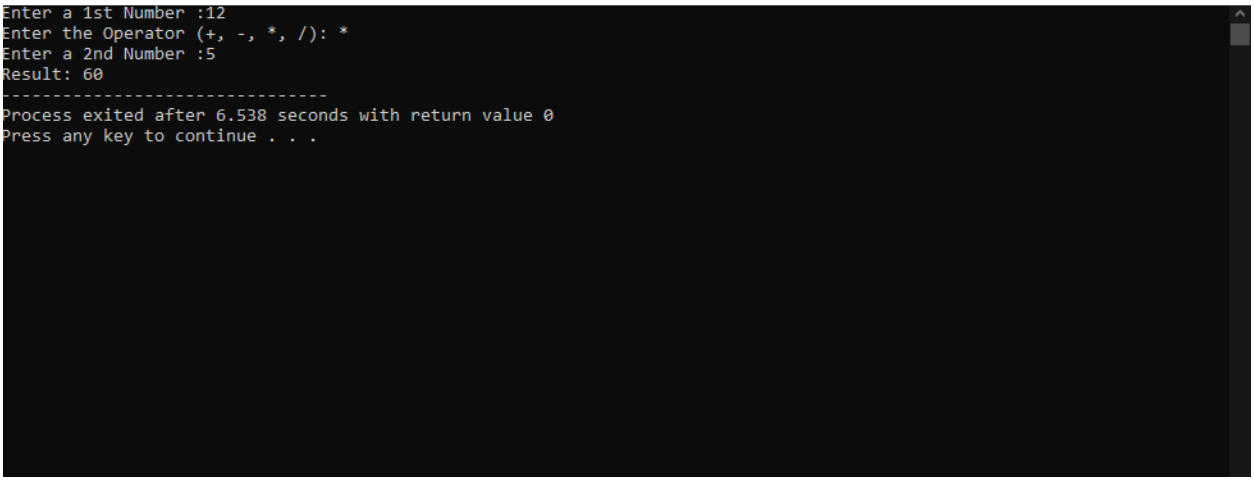


Task 7

- Write a program that input a floating-point number, and operator and another floating-point number from keyboard. Its display the result by performing the operation on given numbers. If the operator is a division, it should check to make sure that the divisor is not equal to zero. if the operator is not +, -, *, / then program print an Error message on screen.

```cpp
//Write a program that input a floating point number, and operator and another
//floating point number from keyboard. Its display the result by performing the operation
//on given numbers. If the operator is a division, it should check to make sure that the
//divisor is not equal to zero . if the operator is not +,-,*,/ then program print an
//Error message on screen.
//Write a program that input a floating point number, and operator and
//another floating point number from keyboard. Its display the result by performing
//the operation on given numbers. If the operator is a division, it should check to make
//sure that the divisor is not equal to zero . if the operator is not +,-,*,/ then
//program print an Error message on screen.
#include <iostream>
using namespace std;
int main()
{
  float num1,num2,result;
  char op;
  cout<<"Enter a 1st Number :";
  cin>>num1;
  cout<<"Enter the Operator (+, -, *, /): ";
  cin>>op;
  cout<<"Enter a 2nd Number :";
  cin>>num2;
  if(op=='+')
  {
    result=num1 + num2;
  }else if(op=='-')
  {
    result=num1 - num2;
  }else if(op=='*')
  {
    result=num1 * num2;
  }else if(op=='/')
  {
    if(num2!=0)
    {
      result=num1 / num2;
    }else
    {
      cout<<"Error: Divisor is not Equall to Zero"<<endl;
    }
  }else
  {
    cout<<"Error: Invalid Operator"<<endl;
  }
  cout<<"Result: "<<result;
    return 0;
}
```

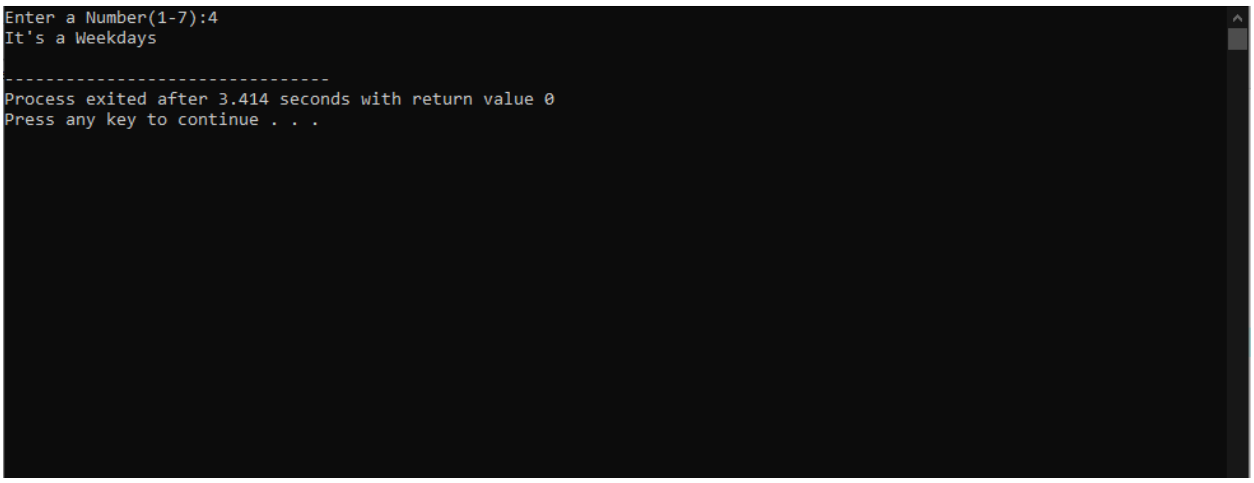
Output:



- Write a program that input a number 1-7 from user and using switch statement to determine whether it's a weekday or weekend (e.g., 1 for Monday, 2 for Tuesday etc.)

```cpp
//Write a program that input a number 1-7 from user and using switch statement  to
//determine whether it's a weekday or weekend (e.g., 1 for Monday, 2 for Tuesday etc.)
#include <iostream>
using namespace std;
int main()
{
  int day;
  cout<<"Enter a Number(1-7):";
  cin>>day;
  switch(day)
  {
  case 1:
    case 2:
      case 3:
        case 4:
          case 5:
            cout<<"It's a Weekdays"<<endl;
            break;
            case 6:
              case 7:
                cout<<"It's a Weekend"<<endl;
                break;
default:
                cout<<"Invalid Number !"<<endl;
                break;
              }
    return 0;
}
```

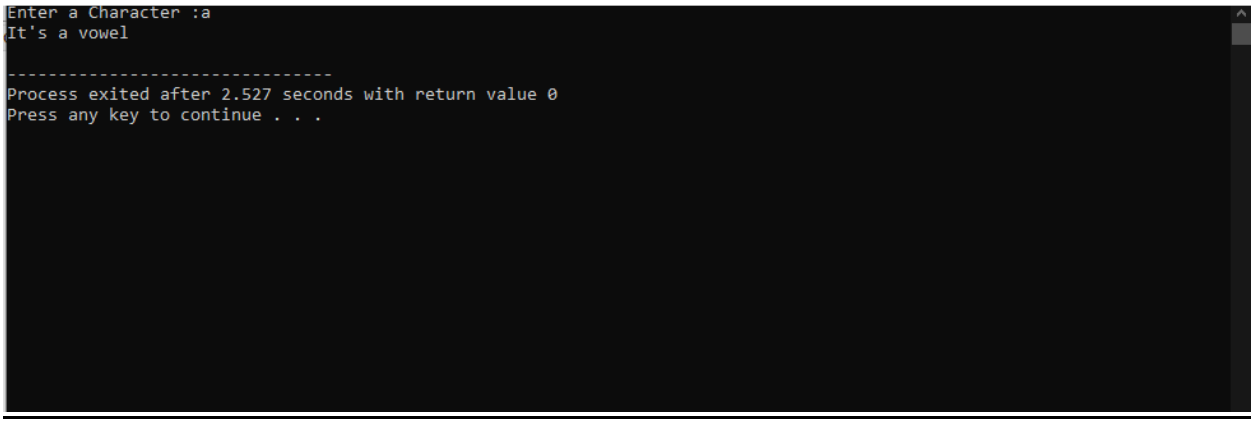
Output:



- Write a program that input a character from keyboard and checks whether it is a vowel or consonant using switch statement. Character enters by must can be in capital or small case, your code must be perfect for both.

```cpp
//Write a program that input a character from keyboard and checks whether
//it is a vowel or consonant using switch statement. Character enter by must can
//be in capital or small case , your code must be perfect for both.
#include <iostream>
using namespace std;
int main()
{
  char ch;
  cout<<"Enter a Character :";
  cin>>ch;
  switch(ch)
  {
    case 'a':
      case 'e':
        case 'i':
          case 'o':
            case 'u':
              case 'A':
                case 'E':
                  case 'I':
                    case 'O':
                      case'U':
              cout<<"It's a vowel"<<endl;
              break;
              default:
                cout<<"It's a consonant"<<endl;
                break;

  }
    return 0;
}
```

Output:



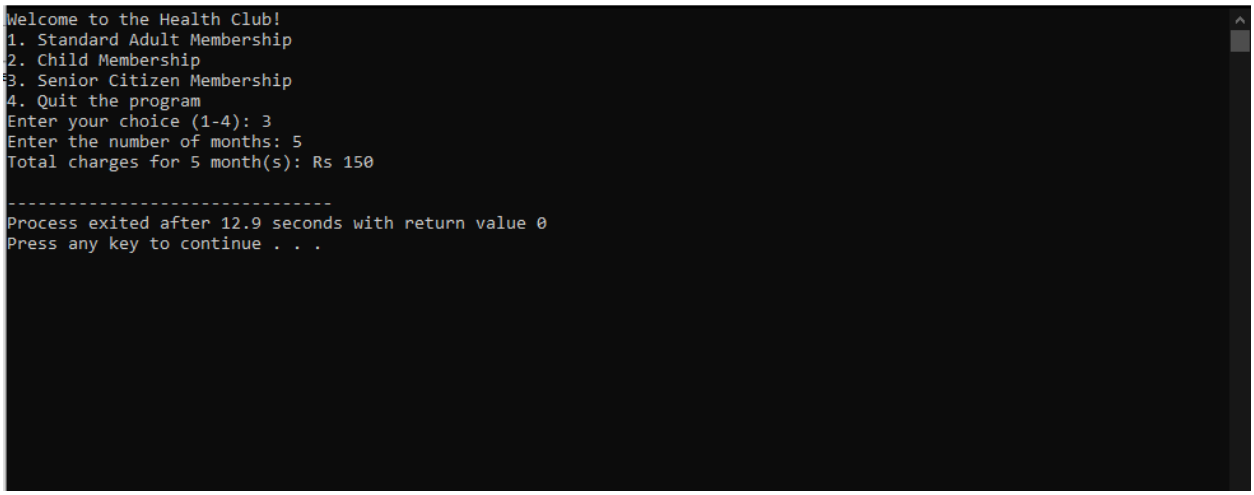
- Write a program that display the following menu of health club:
    1. Standard Adult Membership
    2. Child Membership
    3. Senior Citizen Membership
    4. Quit the program

  This program input the choice from user and Number of month and calculate Membership charges as following:

Choice	**Charges per Month**
Standard Adult Membership	Rs 50
Child Membership	Rs 20
Senior citizen Membership	Rs 30

```cpp
//" Write a program that display the following menu of health club:
//1.  Standard Adult Membership
//2.  Child Membership
//3.  Senior Citizen Membership
//4.  Quit the program
//This program input the choice from user and Number of month and calculate Membership charges as following:
//  Choice          Charges per Month
//Standard Adult Membership     Rs 50
//Child Membership          Rs 20
//Senior citizen Membershi          Rs 30
#include <iostream>
using namespace std;
int main() {
    int choice, months;
    float chargesPerMonth, totalCharges;

    cout << "Welcome to the Health Club!" << endl;
    cout << "1. Standard Adult Membership" << endl;
    cout << "2. Child Membership" << endl;
    cout << "3. Senior Citizen Membership" << endl;
    cout << "4. Quit the program" << endl;
    cout << "Enter your choice (1-4): ";
    cin >> choice;

    if (choice >= 1 && choice <= 3) {
        cout << "Enter the number of months: ";
        cin >> months;

        switch (choice) {
            case 1:
                chargesPerMonth = 50;
                break;
            case 2:
                chargesPerMonth = 20;
                break;
            case 3:
                chargesPerMonth = 30;
                break;
        }

        totalCharges = chargesPerMonth * months;

        cout << "Total charges for " << months << " month(s): Rs " << totalCharges << endl;
    } else if (choice == 4) {
        cout << "Thank you for using the program. Goodbye!" << endl;
    } else {
        cout << "Invalid choice!" << endl;
    }

    return 0;
}
```

Output:


Welcome to the Health Club!
1. Standard Adult Membership
2. Child Membership
3. Senior Citizen Membership
4. Quit the program
Enter your choice (1-4): 3
Enter the number of months: 5
Total charges for 5 month(s): Rs 150

Process exited after 12.9 seconds with return value 0
Press any key to continue . . .