Task 1:

1. Construct a class *CDate* which includes 3 member variables: a day, a month, and a year. Implement a default constructor that initializes an object with today's date (use *time* and *localtime_s* functions for this purpose) and an ordinary constructor with 3 arguments (day, month and year).

2. Implement functions *LeapYear* (checks whether a year is a leap year) and *MonthDays* (calculates the number of days in a month). Redefine the operators ==, !=, >, <, >=, <=, << (display), >> (input), - (difference in days between two dates – may be either positive or negative), ++ e -- (both *postfix* and *prefix* versions). When implementing the *operator* !=, make use of the operator ==. When implementing the operators <= e >= try to recur to other operators available.

3. Redefine the operators required to add a date and an integer *n* (which can be negative). As a result, a new date should be produced.

4. Test the developed class with the aid of the following *main* function:

```
int main(int argc, char* argv[])
{
      using namespace std;

      CDate today;
      cout << "Today: " << today << endl;

      CDate t1 (7, 11, 2004);
      CDate t2 (29, 02, 2004);

      CDate d0(20, 3, 2100);
      CDate d1(20, 3, 2000);
      cout << "d0: " << d0 << " Is this a leap year? " <<
               d0.LeapYear() << endl;
      cout << "d1: " << d1 << " Is this a leap year? " <<
               d1.LeapYear() << endl << endl;

      CDate NewYear(1, 1, 2015);
      cout << "Number of days until the new year: " <<
               today - NewYear << endl;
      cout << "Number of days until the new year: " <<
               NewYear - today << endl << endl;

      CDate d2(31, 12, 1955);
      cout << "d2: " << d2 << endl;
      cout << "d2++ " << d2++ << endl;
      cout << "d2: " << d2 << endl;

      CDate d3(1, 3, 1960);
      cout << "d3: " << d3 << endl;
      cout << "d3-- -> " << d3-- << endl;
      cout << "d3: " << d3 << endl;
      cout << "--NewYear -> " << --NewYear << endl;

      CDate d4;
      cin >> d4;
      cout << "d4: " << d4 << endl;

      cout << "d4 + 4: " << d4 + 4 << endl;
      cout << "2 + d4: " << 2 + d4 << endl;
      cout << "-9 + d4: " << -9 + d4 << endl;

      return 0;
}
```