Lab 5

Object Oriented Programming

Instructions:

- **Attempt the following tasks exactly in the given order.**
- You are required to create a **multi-file project** for each task.
- Indent your code properly.
- Use meaningful variable and function names. Follow the naming conventions.
- Use meaningful prompt lines and labels for all input/output.
- Make sure that there are **NO dangling pointers** or **memory leaks** in your program.

Task-1:

Include the following functions in your CString class; (5)

CString* split(char c , int & newCount);

This function is used to **split** the calling **cstring** on character **'c'** into an array of substrings, and returns the new array. It will aslo return count of array through newCount parameter which is passed as a reference.

For example: If a calling CString contains

"Self-belief and hard work will always earn you success"

and we call **split** function with **c=" "(space)** and a variable for newCount than it should return an array of CStrings with size 9 in newCount and whereas the first element of array will contain **"Self-belief"**, second will contain **"and"** third will contain **"hard"** and last will contain **"success"**.

Also include following function

CString* split(char *c , int & newCount); (5)

It will split on given string c.

Task-2: (12)

Design a class called 'Date'. The class should store a date in three integers: month, day, and year. There should be member functions to print the date in the following forms:

- 05/10/2018
- October 05, 2018
- 05 October, 2018

Your setter functions should make sure following:

- A valid year is between 1900 and 2100
- A valid month is between 1-12
- A valid day can be between 1-31 according to the respective month.

Make following daysInMonth array as class's private data member to know the number of days in each month.

static const int daysInMonth[13] =[0,31,28,31,30,31,30,31,31,30,31,30,31]

Note:

A leap year is exactly divisible by 4 except for century years (years ending with 00). The century year is a leap year only if it is perfectly divisible by 400.

```
class Date
{
private:
        int year;
        int month;
        int day;
        //declare static const array
public:
        Date();                                         (0.25)
        Date(int,int,int);                              (0.25)
        void setDate(int, int, int);                    (0.25)
        void setYear(int);                              (0.25)
        void setMonth(int);                             (0.25)
        void setDay(int);                               (0.25)
        int getYear()const;                             (0.25)
        int getMonth()const;                            (0.25)
        int getDay()const;                              (0.25)
        void incYear(int = 1);                          (0.5)
        void incMonth(int = 1);                         (0.5)
        void incDay(int = 1);                           (0.5)

        void displayFormat1()const;                     (1)
        void displayFormat2()const;                     (1)
        void displayFormat3()const;                     (1)

        CString getDateInFormat1()const;                (1.5)
        CString getDateInFormat2()const;                (1.5)
        CString getDateInFormat3()const;                (1.5)

};

                // leap year  check                     (0.75)
```

If an object contains day=5, month=10 and year=2018 then getDateInFormat1() function returns a CSting object containing "05/10/2018" and same for other two formats.