Department of Electrical and Electronic Engineering

EEE102 C++ Programming and Software Engineering

Assignment3 Functions, Arrays and Pointers[1]

SDP Report

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I certify that I have read and understood the University's *Policy for dealing with Plagiarism, Collusion and the Fabrication of Data* With reference to this policy, I certify that:

- My work does not contain any instances of plagiarism and/or collusion.
- My work does not contain any fabricated data.

By handing in my assignment for marking, I formally declare that all the above information is true to the best of my knowledge and belief.

Signature: Zheng Sun

[1]Last updated on April 3th, 2017

1. Problem Statement:

The assignment aims to test the basic concepts about class inheritance and operator overloading and to reinforce the understanding of OOP. Overall, the object of the assignment is clear and lucid.

a) Two classes are there to be designed to hold two different types of data(attributes) – the Month type and the Date type.

b) Methods of the two classes will need to be designed to satisfy the behaviours of each class.

2. Analysis:

a) Inputs:

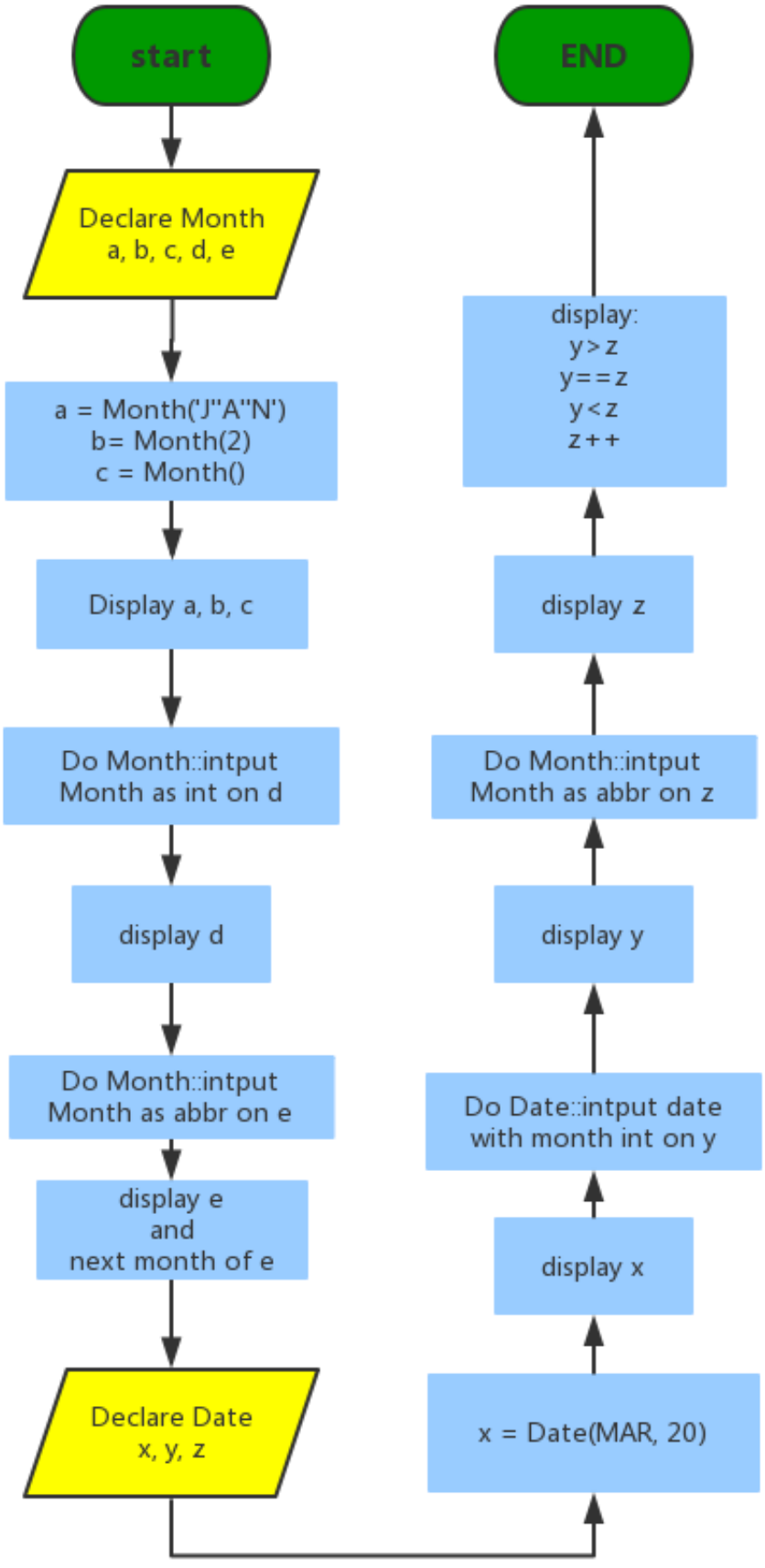
Accept two main types of data from the keyboard as to achieve the implementation stipulated by the requirements, namely, ***restricted int(to represent date and months)*** type and ***3-character string(to represent month)*** type. The implementation on restriction on the 3-character string type is easy to realize, so it is incorporated directly in the Month input member function. On the other hand, an integer parser was developed to satisfy the versatile **domain** requirements on input integers (e.g. month: 1-12, limited days in months: 1-31,30,28).

b) Output:

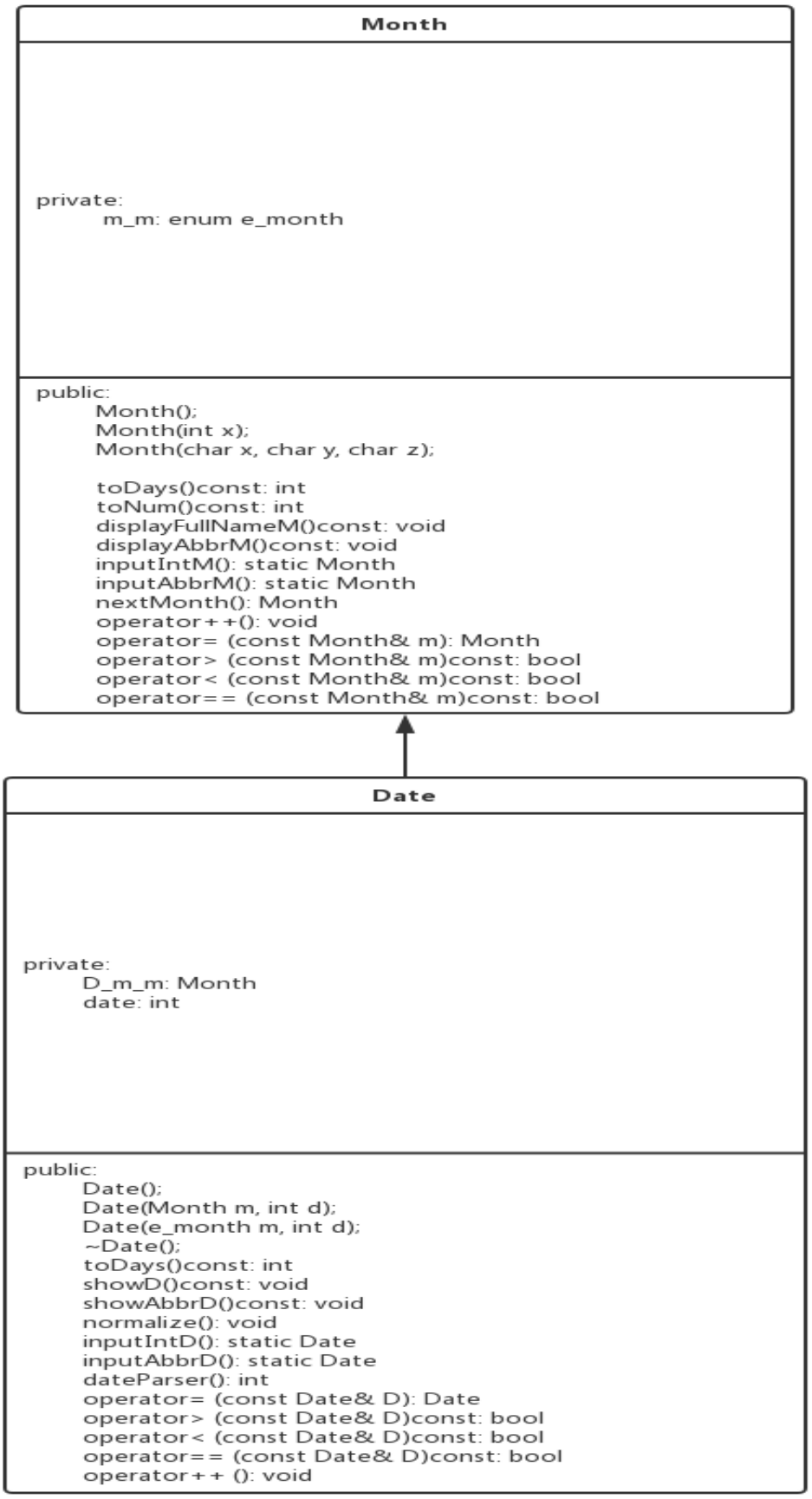
The demonstration of the behaviours of the class Month and Date as required by the assignment, such as construct, comparison (by overloading), etc**.** Another focus should be the **normalization of the output data**. For instance, the day after the last day of Jan should be the first day of Feb, the month after Dec should be Jan.

3. Design

a) main() function design: flow chart shown as below


start
Declare Month
a, b, c, d, e
a = Month('J''A''N')
b= Month(2)
c = Month()
Display a, b, c
Do Month::intput
Month as int on d
display d
Do Month::intput
Month as abbr on e
display e
and
next month of e
Declare Date
x, y, z
x = Date(MAR, 20)
display x
Do Date::intput date
with month int on y
display y
Do Month::intput
Month as abbr on z
display z
display:
y > z
y = = z
y < z
z + +
END

b) Class Design: class Date is based on class Month

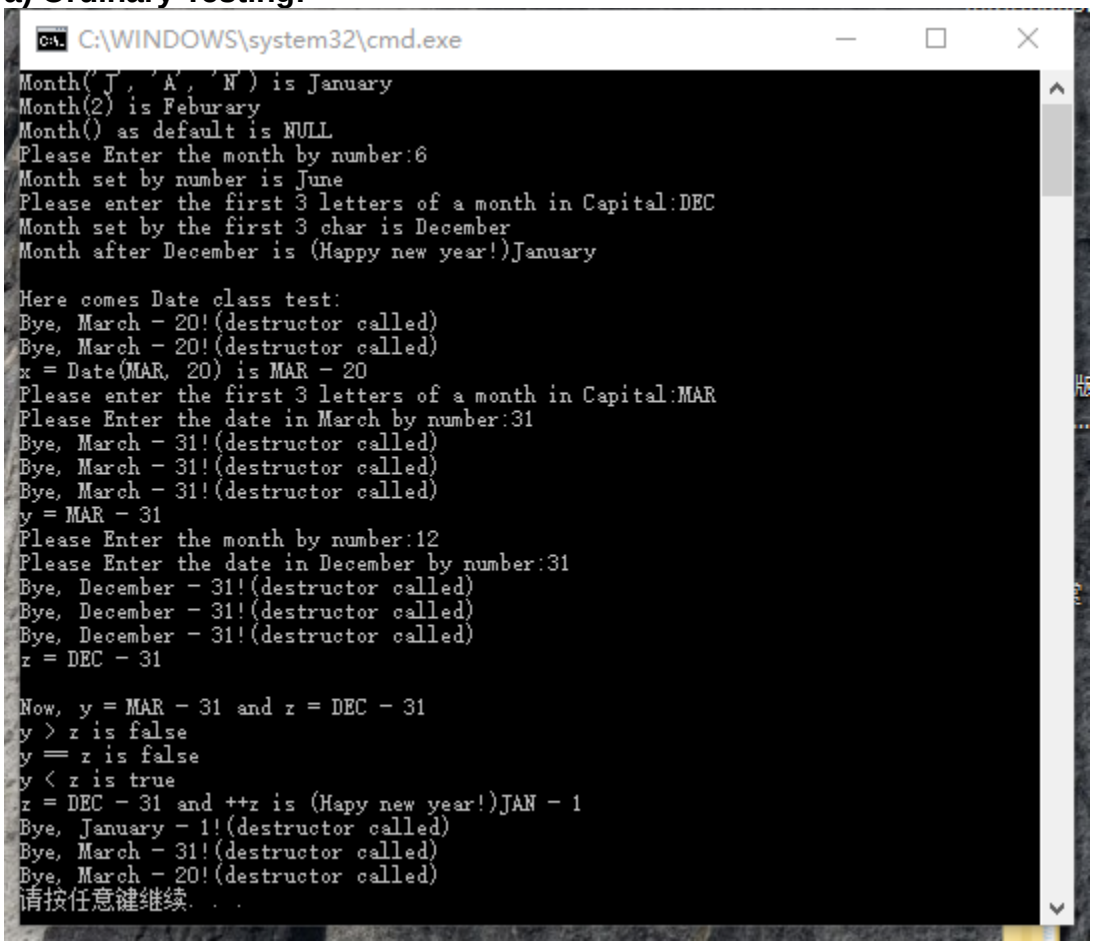


4. Implementation:

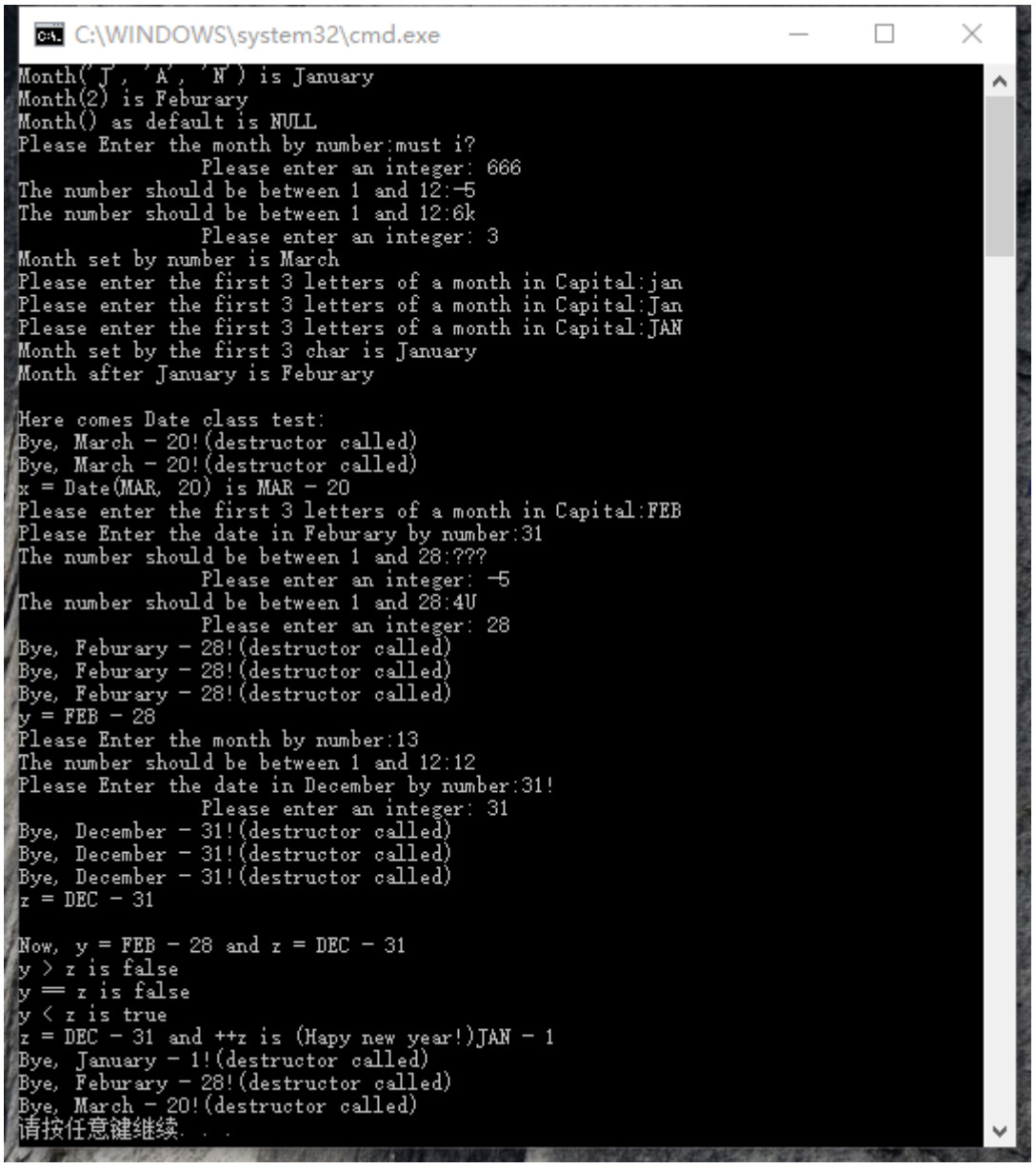
EEE102_Assgnmet_3 _Zheng.Sun15_1507820\Month_Date.h
EEE102_Assgnmet_3 _Zheng.Sun15_1507820\MemberFunction.cpp
EEE102_Assgnmet_3 _Zheng.Sun15_1507820\MainFunction.cpp

5. Testing

a) Ordinary Testing:



b) Erroneous Input Testing


C:\WINDOWS\system32\cmd.exe
Month('J', 'A', 'N') is January
Month(2) is Feburary
Month() as default is NULL
Please Enter the month by number:must i?
Please enter an integer: 666
The number should be between 1 and 12:-5
The number should be between 1 and 12:6k
Please enter an integer: 3
Month set by number is March
Please enter the first 3 letters of a month in Capital:jan
Please enter the first 3 letters of a month in Capital:Jan
Please enter the first 3 letters of a month in Capital:JAN
Month set by the first 3 char is January
Month after January is Feburary
Here comes Date class test:
Bye, March - 20!(destructor called)
Bye, March - 20!(destructor called)
x = Date(MAR, 20) is MAR - 20
Please enter the first 3 letters of a month in Capital:FEB
Please Enter the date in Feburary by number:31
The number should be between 1 and 28:???
Please enter an integer: -5
The number should be between 1 and 28:4U
Please enter an integer: 28
Bye, Feburary - 28!(destructor called)
Bye, Feburary - 28!(destructor called)
Bye, Feburary - 28!(destructor called)
y = FEB - 28
Please Enter the month by number:13
The number should be between 1 and 12:12
Please Enter the date in December by number:31!
Please enter an integer: 31
Bye, December - 31!(destructor called)
Bye, December - 31!(destructor called)
Bye, December - 31!(destructor called)
z = DEC - 31
Now, y = FEB - 28 and z = DEC - 31
y > z is false
y == z is false
y < z is true
z = DEC - 31 and ++z is (Hapy new year!)JAN - 1
Bye, January - 1!(destructor called)
Bye, Feburary - 28!(destructor called)
Bye, March - 20!(destructor called)
请按任意键继续. . .