

**School of Computing
Faculty of Engineering, UTM**

SKILL-BASED TEST 1

Semester I 2018/2019

SUBJECT CODE	: SCSJ1023
SUBJECT NAME	: PROGRAMMING TECHNIQUE II
YEAR/PROGRAME	: 1 & 2 (SCSB/SCSJ /SCSP/SCSR / SCSV)
TIME	: 4:30 PM (1 Hour 30 Minutes)
DATE	: 22 OCTOBER 2018
VENUE	: VETL, Level 2, Block N28, SC

INSTRUCTIONS TO THE STUDENTS:

- This is a **CLOSED-BOOK** test. References to any resources by any means are strictly prohibited.
- This test consists of only **ONE** question.
- You must remain seated throughout the test session regardless of you finish early. You cannot leave until everyone has submitted.

MATERIAL FOR THE TEST:

- You are provided with a template source code file named **sbt1.cpp**.
- Download the material file (**sbt1.zip**) from **e-learning**. The file is a password-protected and will be disclosed later.
- Only the printed version is provided for the question script (**No PDF version**).
- The question script must be returned.

SUBMISSION PROCEDURE:

- You must stop doing the test once the time is up.
- Only the source code file is required for the submission, i.e. **sbt1.cpp**.
- You will do the submission by batch (2 to 4 students at a time).
- The submission must be done via the **e-learning** system.

Notes: You may use VS Code to answer this test. However, if the IDE in your PC is not working properly, switch to Dev C++.

Question

Write a complete C++ program that determines the youngest person from a list of persons. The date of birth (DOB) needs to be recorded for each person. However, only the month and year is stored for each DOB.

An incomplete class named `Date` has been provided in the program **sbt1.cpp** which declares all the private member variables (attributes) needed for the class, i.e., `month` and `year`.

1. Complete the class with the following public methods:
 - a. A constructor which can be used as a default constructor or a constructor that takes parameters.
 - b. All the necessary mutator methods.
 - c. An overloaded operator for the “greater than” (`>`) operator, which is used for determining whether a date is greater than the another. It returns true if the first date is greater the second. The comparison is done on the year. However, if the year is the same, then the comparison is done one the month.
 - d. An overloaded operator for the minus (`-`) operator, which is used for subtracting a date to another date. For example, if **date1** is (month:12, year: 1997) and **date2** is (month:10, year: 2018), then **date2 – date1** results in a new date, (month: 10, year: 20)
2. Define a **friend function** to the class `Date` that prints the DOB and age of a person (in terms of years and months old). The function must take a `Date` object as its parameter. Use an appropriate operator of the class `Date` within this function to calculate the age.
3. Complete the main function by taking into account the following requirements:
 - a. The DOB of each person is read from the keyboard and stored into an object variable.
 - b. Use an appropriate operator of the class `Date` for determining the youngest person.
 - c. Use the friend function to display the DOB and age of the youngest person.

Figure 1 shows an example run of the program.

```

How many person you want to enter => 4

Enter the date of birth (month and year) => 3 1996
Enter the date of birth (month and year) => 3 1995
Enter the date of birth (month and year) => 11 1996
Enter the date of birth (month and year) => 4 1994

The youngest person
DOB: 11 1996
Age: 21 years and 11 months old

```

Figure 1: An example run of the program with user inputs (indicated by the bold texts) and the screen output.

Assesement

The test is assessed based on the criteria shown in Table 1 . Do check your program to ensure that it fulfills the criteria before submitting it.

Table 1: Assessment Criteria

Item	Criteria	Marks
A	The program can run with appropriate input and output.	2
	The code is neatly written including proper use of indentations and follow the naming convention.	1
B	Class definition:	
	The constructor	3
	Mutator Methods	4
	The “greater than” operator	4
	The minus operator	4
C	Definition of the friend function	4
D	Main function:	
	Reading user inputs	3
	Storing user inputs into object	4
	Deterimining the youngest person	4
	Printing the output	2
	Total	35