The University of the West Indies, St. Augustine

COMP 1602 Computer Programming II

Summer, 2020/2021

**Tutorial 1**

1. You are given the following struct declaration for Date

```
struct Date{
    int day;
    int month;
    int year;
};
```

   (a) Write a program `q1.cpp` to create two dates `d1`: 25th, January 2017 and `d2`: 16th, February 2017. A sample c++ file can be found on GitHub.

   (b) Modify the program to prompt the user for three dates and store them in variables `d3`, `d4` and `d5`.

   (c) Write a function `void printDate(Date date)` that prints all the data in a Date struct argument separated by "/". Test your function in main with date `d1`.

   (d) Write a function `Date makeDate(int day, int month, int year)` that creates and returns a new Date struct when provided with a day, month and year. Test your function in main to create a Date struct `d6` from the date 5th, October 1990.

   (e) Write a function `int getDiffInYears(Date d1, Date d2)` that accepts two date structs and returns the number of years between `d1` and `d2`. Test your function in main with dates `d1` and `d6`.

   (f) Write a function `int compareDate(Date d1, Date d2)` that when given two Date structures returns:

1. -1 if `d1` comes before `d2`
2. 0 if `d1` is the same as `d2`
3. 1 if `d1` comes after `d2`

Test your function in main with dates `d1` and `d2`.

2. You were contracted by the University of Atlantis to develop a program to process student data. Each student has an id number, level (year) and date of birth.

   (a) In another program `q2.cpp`, define a struct `Student` that holds student information. Question: Since you are creating a nested struct, do you need to define the Date struct in the new `q2.cpp` file as well?

   (b) Write a function `Student makeStudent(int id, int level, Date dateOfBirth)` that creates and returns a Student struct when provided with a student's id number, level and date of birth. Test your function in main to create a student `s1` with id number 8123456789, level 2 and date of birth 9th June, 2000. You can use the `makeDate` function from the question 1.

   (c) Write a function `void printStudent(Student student)` that print all the data in a Student struct, each on a new line. Test your function in main with student `s1`.

   (d) Write a function `int getAge(Student student)` that returns the age of a student in years. You can use `makeDate` and `getDiffInYears`. Test your function in main with student `s1`.