**COMP1161 – Introduction to Object-Oriented Programming**

**PROJECT 2 – Due Saturday July 5, 2014 @ 11:55 p.m.**

**PROJECT DESCRIPTION**

You will need to develop a system that can track organization information for two organizations (School and Bank).

The organization information you must track is as follows:

* Registration number
* Name
* Type ( must be any of the following – Public or Private)
* List of Branches

As for the Branch for each organization, you must also track this information:

* Branch number
* Location
* Contact number

The system must be able to properly compare any two branches against each other to determine if they are the same Branch. The system should not add a branch that already exists. This means that if you compared two branches with the same location and same Branch number, the system should think that they are equals to one another. If any of these properties are different, then the two branches are not the same.

The same rules apply to comparing Organizations to one another. Organizations with the same Organization registration number are to be thought of as equal, different registration numbers means different organizations.

A School stores additional information on the number of students and the number of staff, while Bank stores information on the number of customers and the number of employees.

The system should track the number of Banks and the number of Schools.

**SPECIFIC INSTRUCTIONS:**

1. Create the **abstract class** called “Organization”. The following methods are required:
   1. Write a constructor that accepts as parameter the registration number, name and type of business to initialize the relevant attributes.
   2. Write a method called “addBranch” to accept a Branch object as parameter, and adds it to the list of branches.
   3. Write a “equals” method that returns whether or not two organizations are the same.
   4. The sub-classes of this class are to define their own “toString” method.
   5. Declare TWO variables – “countBank” and “countSchool” to keep a track of the number of Banks and Schools created.
   6. Write a method for each variable in (e) above to increment each by one.
   7. Write a “compareTo” method that will return:
      * 1 if the registration number of the *this* variable comes before the *other*
      * -1 if the registration number of the *this* variable comes after *other*
2. Create a class called “Branch”.
   1. Write a constructor that accepts as parameter the branch number, location and contact number and initialize the relevant attributes.
   2. Write a “equals” method that returns whether or not two branches are the same.
   3. Write a “toString” method for this class.
3. Create a class for “Bank” and “School”.
   1. Create a constructor for each that accepts the necessary input as parameter.
   2. Define any other necessary methods.
4. Create a Sorting class with the following method:
5. Create a Driver Class called “Application”.
   1. Declare an array of no more than FIVE Organizations.
   2. Create TWO banks and the other THREE are schools. Only ONE school has one branch, other objects have more than one branch.

*NB: Before creating the branches, accept the number of branches to be added for the organization.*

* 1. Display the data for EACH organization after it has been sorted, then the total for each type of organization