

# Programming Assignment: Arrays & Collection

*Remember:*

*Follow proper programming conventions, stepwise refinement and commenting when creating your programs.*

*All input and output should be implemented through the console. You may use your Prompt class if you wish, but make sure you hand your code for Prompt in with your solution*

## **Class 1: Course List (contains main)**

In this assignment you will complete a program that creates an order list of students (using Student class below) in a course. This class include the main method and provide the following functions:

1. Initialize an ordered collection class of Students using initializeArray provided in the template
2. For the options for the User Menu provided in the template add code to:
  1. For a specific student index entered by the user, Show Student name, Individual Marks sorted low to high.
  2. Delete Student based on the index enter by user
  3. Show entire Class List including Index, First Name, Last Name, Student Number, Average, Pass/Fail & Unsorted Student marks in a nicely formatted output manner

## **Class 2: Student**

This java class will contain the variables & methods related to an individual student in a class.

The following has been provided in the template:

Variables First Name, Last Name, Student No & % marks array

A constructor method has been provided. Note each student is assigned 10 random marks between 30 & 100%

You must provide the following Methods

- Assessor (get) Methods for all instance variables.
- isPassing – returns a String (value of Yes or No) indicating if the student is passing the course based on their average  $\geq 50\%$

### Array Methods

- getAverage – returns the average of all the student's marks
- getSortedMarks – returns a copy of the student marks array sorted from low to high using a bubblesort (keep the original mark array in its unsorted order). You may copy code from the Sort Class you created.

You can assume the user will enter a valid integer value when prompted for input, so no validation is required.