**Worksheet 4:**

**Data Structures and Algorithms**

###### Log onto the student share or Moodle to retrieve the programs for this week. They will be under the directory

###### *STUDENT SHARE/ Arnold Hensman/ BN002-DataStructuresAndAlgorithm/ Week1-Queues/Week 4*

###### All the files you require for this program are there. You will need to compile all of these files.

###### You are then asked to perform the following operations:

* Write a small driver program that demonstrates the ADT Queue. This program should print results to the screen in some simple manner.
* Write a method called *isPal(),* that takes a string as its parameter and returns a Boolean value. It should use both a stack and a queue to determine whether or not the string passed to it is a palindrome. (A palindrome is a word that reads the same from left to right as it does from right to left). Test this method in the main program.
* Create an ADT Queue implemented over a Circular Array.
* Use the Circular Queue ADT to test you Palidrome program.
* Compare the implementations of the Queue in terms of speed by timing each one when processing a very large number of objects (e.g. 1000000) Write down your observations.