# Problem Set #5 - Due 03/12/03                    Total 50

The purpose of this problem set is to:

- Help you become familiar with material covered in week 5 of class.

Please turn in each problem on a separate page. Each page should have your Name, email id, and the problem number clearly printed/written on it. Keep track of how long time it takes to complete each problem. The time taken for each problem should be printed on the first page. If you use more than one page for one problem, please STAPLE the pages together. You will lose points if you do not document the time taken for each problem, which at the same time means that you will get points for documenting "time taken" A template (in PDF form) is available on the web.

## Problem 1          - 25 points

Part 1: What is the merge sort algorithm. Write the pseudo code to merge sort an array.

Part 2: Define your own package, with functions/procedures to

a. Create an array.
b. Merge sort the array.
c. Display the contents of the array.

Write a program to use your package to create an array, display the contents of the array to the user, merge sort the array and display the contents of the sorted array to the user. Turn in a **hard copy** of your **code listing** and an **electronic copy** of your **code**. Please zip the related files (1 .ads and 2 .adb files) into a zip file as detailed in Gerry's email.

Hint: Use the package used in lab as the starting point.

## Problem 2          - 25 points

Part 1: What is a Queue ADT. What are the functions/ procedures associated with the queue ADT. Write the pseudo-code for performing each of the functions/ procedures.

Part 2: Define an Ada95 package (specification and implementation) for the Queue ADT. Use an array for implementing your queue. Turn in a **hard copy** of your **code listing** and an **electronic copy** of your **code**. Please zip the related files (1 .ads and 1 .adb file) into a separate zip file (not the one used for Problem 1) as detailed in Gerry's email.