This is the first part of the course project. The goal of the project is to compare different implementations of similar algorithms, which is often referred to as “benchmarking.” This contrasts with using “nitty gritty” or Big-O analysis to compare algorithms (which is generally a more “theoretical” exercise). For this part of the project, you are primarily forming a group and together creating a project proposal. Towards the end of the semester, your group will present your results to the class and hand in a project report.

Instructions: As part of your project proposal, you should do the following.

a. Form a group consisting of 3 people.

b. Pick a general type of problem from class. Examples are “searching”, “sorting”, “insertion”, “removal”, and “traversal”.

c. Select three different implementations of the type of problem you selected from part b. For example, for sorting you might pick treesort, heapsort, and mergesort. For searching, you might select an array-based implementation, a linked list implementation, and a binary search tree implementation. Note you are not limited to the specific approaches we discussed in class. For instance, you might choose radix sort or implement tree traversal using a stack (i.e., without recursion). You should look through the textbook and/or wikipedia to get a feel for the different possible implementations for your problem type, and pick three that you think would be interesting to compare. List the problem type you selected, the implementations you are going to compare, discuss why you picked these implementations, and give at least two others you considered.

d. Pick a name for your group.

Write a document (at most 2 pages) describing your project that addresses the points above. Your proposal should be written using complete English sentences. Turn in a single document for your group by the due date. Be sure your document contains the names of each member of your group and your group name.