Programming Project, Part II

General Description:
In this second part of the project, you will implement the linear worst case selection algorithm described in our textbook in section 9.3. You will analyse the overhead time of the algorithm.

Detailed Description:
Implement the recursive selection algorithm described in section 9.3 of our textbook. You can implement the algorithm on the computer of your choice, and using the language of your choice. But since you will have to combine this program with the program you wrote in part I, you should use the same language and machine (or if you have to change, then you will have to redo part I when you do part III).

The recursive program has the following recurrence for the time: \( T(n) = T(\lceil n/5 \rceil) + T(i) + \Theta(n) \), where \( i \) is the size of the problem in the second recursive call. You must design a timing experiment to find out a best estimate for the \( \Theta(n) \) function, which you may assume to be of the form \( an + b \).

Turn in:

- A listing of your program
- Some sample runs
- A report that explains how you made the analysis and the results

Turn in by sending an e-mail to longpre@utep.edu. Please use the subject line “CS5350 Program Assignment part 2 submission”.

Due date: October 20. The penalty is 10% for each day late up to one week late. No homework accepted after one week.