EE 453/717: Advanced Computing for Electrical Engineers
Instructors: Saravanan Vijayakumaran, Sachin Patkar
Indian Institute of Technology Bombay
Autumn 2011

Assignment 1 : **15 points**   **Due date**: August 5, 2010

Each of the following exercises is worth 5 points.

1. Implement Kadane's algorithm for the maximum subarray problem in C++. The algorithm is described in the Wikipedia page for the problem `http://en.wikipedia.org/wiki/Maximum_subarray_problem`.

   - **Input**: A file containing two lines. The first line contains the number of integers in the array and the second line contains the integers separated by spaces.

   - **Output**: Two lines output to the console. The first line contains the maximum sum and the second line contains the left index and the right index of the maximum subarray separated by a space. Assume that the indexing starts from 0 and that the right index points to the last element in the subarray.

2. Implement a C++ program which reverses the words in a given sentence.

   - **Input**: A single sentence to be entered by the user containing words separated by spaces. There may or may not be a period at the end of the sentence. There may be multiple spaces or tab characters between the words.

   - **Output**: The sentence with the words in reverse order separated by single spaces. A comma is not part of a word. It should retain its position in the sentence, i.e. if it is present after three words in the input then it should be present after three words in the output.

3. Register in the Timus Online Judge `http://acm.timus.ru/`. Use C++ to solve problem 1005 (Stone Pile) `http://acm.timus.ru/problem.aspx?space=1&num=1005`. You should verify your solution using the online judge.