ÖZYEĞİN UNIVERSITY

CS333 – Spring 2018
Homework 2

NO PLAGIARISM!: work and program yourself; do not get help from the Internet.

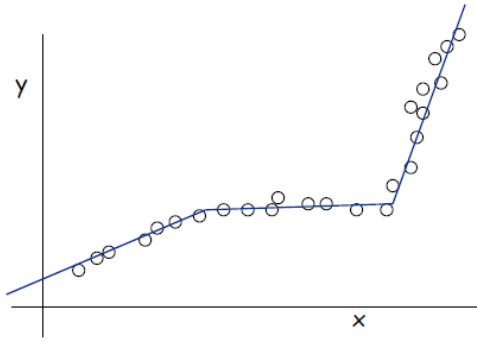
1) (7 pts) This part of the assignment asks you to implementation the dynamic programming solution of Segmented Least Squares you have seen in the class. For this, write a Java program that reads a file named *Points.txt* that contains a set of points (in the format of two real numbers per line with space in between), and from the user reads c, the coefficient that determines the tradeoff between number of lines and total fitting error. Output the solution as follows:

SEGMENT 1: start_index$_1$ end_index$_1$ a_1 b_1
SEGMENT 2: start_index$_2$ end_index$_2$ a_2 b_2
…
SEGMENT m: start_index$_n$ end_index$_n$ a_n b_n

Where line segment *i* lies on the line **y= a_i x+ b_i**

Segmented least squares.

- Points lie roughly on a sequence of several line segments.
- Given n points in the plane $(x_1, y_1), (x_2, y_2), \ldots, (x_n, y_n)$ with
- $x_1 < x_2 < \ldots < x_n$, find a sequence of lines that minimizes:
  - the sum of the sums of the squared errors E in each segment
  - the number of lines L
- Tradeoff function: E + c L, for some constant c > 0.



2) (3 pts) Display the solution graphically as in the above information box.

HOW TO SUBMIT: Upload a single java file to LMS. Write your name and follow proper coding standards.