1997 Paper 10 Question 5

Data Structures and Algorithms

You are given two sets of numbers X_i and Y_j, where i and j run from 1 to N.

Devise an algorithm to find the M largest values of $X_i - Y_j$. This algorithm should not be quadratic in N, though it is permitted to be quadratic in M.

You should regard N as being of the order of 20,000 and M as being of the order of 1,000.

[20 marks]