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]