Points on a Line

• Sketch an $O(n \log n)$ time algorithm to find closest points on a line, given an array that contains the $x$-coordinate of each point.
Points on a Line

ClosestPtsLine

**Input**: Array $A$ of point positions  
**Output**: Shortest distance between any two points

1 Sort;
2 $\text{minDist}=\infty$;
3 **for** $i=1$ **to** $\text{length}(A)-1$ **do**
4   **if** $A[i+1] - A[i] < \text{minDist}$ **then**
5     $\text{minDist}=A[i+1] - A[i]$
6   **end**
7 **end**