1. (10 points) You are given an (unsorted) array $A[1 : n]$ of distinct elements. A local minimum of the array is an element that are smaller than the adjacent elements. (Still, boundary elements $A[1]$ and $A[n]$ only need to be smaller than the only adjacent element.) Find a local minimum using $O(\log(n))$ time; if there are many local minimum, you only need to return one. You should give a (very high-level) pseudo-code and an informal description of your algorithm, and a brief justification of its correctness.