You are given a set of n arcs on the unit circle. For a pair of arcs a_i and a_j, assume that you can decide if the intersection of a_i and a_j is empty in $O(1)$ time. Describe an $O(n^2)$ algorithm to return the size of the largest set of non-intersecting arcs.

Hint. *Reduce the problem to the straight line version.*

Rubric.

- You must justify the correctness of the algorithm and argue its time complexity.
- This task will form part of the portfolio.
- Ensure that your argument is clear and keep reworking your solutions until your lab demonstrator is happy with your work.