Frenemy Closest Distance

- Breadth first search
- let V = # of vertices in the graph
- let E = # of edges in graph

$$O(V+E)$$

K-Clique

- verify that all anticipated connections exist
- $1+2+\ldots+(k-1) = \frac{(k-1)(k)}{2}$ $O(k^2)$
- $\binom{k}{2} = \frac{k!}{2!(k-2)!} = \frac{k(k-1)}{2}$
- This is a decision problem

Largest Clique

{a, b, c}

V vertices

# of possible subsets is 2^V $O(2^V)$

Eulerian Circuit

- Connected graph $O(V+E)$
- all vertices have an even degree $O(V)$
- This is a decision problem

Largest Clique

- Add oracle
- At most, I ask $\log V$ questions
- In the worst case, a verification of one question takes V^2 time $\binom{V}{2}$
- $O(\log V \cdot V^2)$