Lab 10

B.

Define: |V| - number of vertices

|E| - number of edges

Time Complexity:

1. sort edges in descending order – O (|E|log |E|)

For every edge in the edgeList: O(|E|)

Delete the edge + remove certain elements from the list of the vertex -> O(|V|)

Check Did we break the cycle + These two vertices are still connected (By using BFS) -> O (|V| + |E|)

If two vertices are disjoint -> insert the edge back -> O(|V|)

→ Overall, the total time complexity will be $O(|V|^2)$ in sparse graph (where$|V| \approx |E|$)

- Space Complexity: O(|E|), for creating a new temp edge array to store the remaining edges

C.

	Time Complexity	Space Complexity	Data Structure
Kruskal	O(|E|log|V|)	O(|E|)	Adjacency List
Prim	$O(\|V\|^2)$	O(|V|)	Adjacency Matrix
Reverse-Kruskal	$O(\|E\|^2)$	O(|E|)	Adjacency List