Data Structures and Algorithms

Lab 8 – Sort & Graph

1. Write a program implementing the quick sort algorithm (the pivot is the leftmost element).

2. Write a program implementing the depth-first traversal in one graph **using stack**.

3. In a weakly connected graph, it may not be possible to start at one vertex and reach another. Write a program that given the graph, a source vertex, and a destination vertex determines whether there is at least one path from the source to the destination.

4. Write a program finding cycles in one directed graph.

5. An Eulerian cycle is a path in a graph which visits every edge exactly once so that it starts and ends on the same vertex (one any vertex can be visited many times). Write a program checking whether one graph contains the Eulerian cycle. Reference https://en.wikipedia.org/wiki/Eulerian_path in more detail.