

## Lab11 Assignment – DFS, Sorting

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### Problem 1: DFS

Write a program that reads in a directed graph and a source vertex and performs a DFS on the graph. Print the timestamps for each vertex. Also print the tree edges, the back, forward and cross edges in the resulting DFS tree.

### Problem 2: Merge-Sort

Write a program to implement the Mergesort algorithm.

### Problem 3: Quicksort

Write a program to implement the in-place Quicksort algorithm.

### Problem 4:

Implement the non-recursive (bottom-up) Mergesort algorithm. (Refer <http://www.mathcs.emory.edu/~cheung/Courses/171/Syllabus/7-Sort/merge-sort5.html>)