COT 4400: Design and Analysis of Algorithms

Spring 2023

Programming assignment 1 (30 points)

Due: March 13 2023 (Monday), 11:59PM

Use **Quicksort** algorithm to sort the following sequences:

a. 10, 80, 3, 19, 14, 7, 5, 12

b. Choose your sequence with 100 different (random) integer numbers

c. Choose your sequence with 1000 different (random) integer numbers

Submission: A single PDF with your code (use any programming language), results and analysis.

1. Please include your pseudocode, input sequence and output in the report.

2. Also, you need to analyze the computational running time for _your_ partition methods (e.g., best/worst/average cases) _theoretically_. You may use the sequences *b* and *c* as the example to illustrate.

3. Report template: Introduction (aims/motivation), Background (review/research), Project Specification (program analysis, solution design), Implementation (evaluation), Summary (conclusions), Reference.