CPSC 5003: Programming Boot Camp III

Course Description:
Principles of programming, algorithmic and procedural problem solving. Recursion, data structures, and run-time analysis using big-O notation.

Prerequisites:
CPSC 5002

Course Topics:
• Recursion
• Big-O notation
• Binary search
• Binary trees
• Heap & priority queues
• Hash tables

Graded Activities:
Lab exercises, programming assignments, and exams

Course Learning Outcomes:
• Implement recursive algorithms.
• Describe the use of stack frames for recursive function calls.
• Determine the worst case run-time behavior, using big-O notation for data structure operations.
• Implement a binary search algorithm.
• Implement recursive algorithms used in binary trees (insertion, traversals).
• Identify heap property and heap operations
• Use heap to implement priority queues
• Identify hash table operations and different collision resolution strategies.
• Use hash tables appropriately in computer programs.