

CP 213 DATA STRUCTURES AND ALGORITHMS ANALYSIS

FINAL GROUP ASSIGNMENT

Discuss all questions. Prepare a hardcopy document for marking and a folder of programs for presentation.

Question One

- a. Using C++ write a code segment to implement a linked list of five nodes using integer data type.
- b. Show how the three first nodes of your linked list were linked.

Question Two

- a. Using C++ write a code to build a queue of five nodes of characters.
- b. Show how the two three nodes of your queue are built and linked.

Question Three

- a. Using C++ write a code segment to implement a stack of five nodes of strings.
- b. Using RAM diagrams show how data is pushed and popping are carried out.

Question Four

- a. Using C++ write a code to implement a binary tree of integers for at least one level of branching of characters.
- b. Show how the first left-side node is created and how it gets its data.

Question Five

- a. Using C++ Write a code to traverse the tree in an post-order pattern.
- b. Using RAM diagrams show how the traversal is accomplished.

Question Six

- a. Given an array of integers of size six. write a code segment to implement a bubble sort algorithm on it.
- b. RAM diagrams show how data is exchanged between variables.

Question Seven

- a. Write a code segment to implement a Quick Sort algorithm on an array size of 6.
- b. Using RAM diagrams how the first partition is performed.

Question Eight

- a. Write a code segment to implement a Q-Sort algorithm on an array size of 6.
- b. Using RAM diagrams how the first merge is performed.