COMP 221-01 Quiz 2

Due: Wednesday, March 8, by 11:59 pm

1 Guidelines

Please either type up or write *neatly* your solutions to the questions.

Do your own work: Quizzes should be individual work - do not discuss with others in your class or preceptors. You may ask clarifying questions to me. You may use: the textbook, Moodle, Notion, and other resources that are shared on those sites. Please do not Google for solutions. That's just not giving yourself enough credit.

Make sure you have your name on your quiz!

- **Question 1: Data Structures**

  Use pseudocode to implement a Linked List class. Like the BST class you were provided, you need to think about what private variables and public methods you will need. Bare minimum, have pseudocode implementations of insert, find, and delete, plus the constructor.

- **Question 2: RegEx and DFAs**

  Given the description of what strings will be accepted, write the regular expression and draw the DFA for it.

  A string of a's, b's, and c's that starts with any combination of b's and c's, ends with any combination of a's and b's, and must have the string abc in the middle.

- **Question 3: Hashing**

  TinyURL is a website that will shorten a long URL into a shorter one (tinyurl.com/xxxxxxxxxxxxx). Using words, describe how you would implement a similar function. Assume the input is a string, and assume the output will be an at most 13 character string that will map on to the original URL.

  What are things you considered when thinking about this problem? (Note: this is purposefully very open ended)