CS 301 Data Structures and Algorithms

Homework 5

This homework is ***NOT*** a programming homework. The submission ***MUST*** be in PDF or JPG format. You can handwrite it then take a photo of it (both writing and image need to be sufficiently clear). You can also use Google Docs to plot the figures online. It is also OK if you choose to use PowerPoint, Visio, draw.io or similar tools to plot figures. You need to put your name and email address on your submission.

Question 1:

Suppose we have the following numbers, 1, 2, 3, 4, 5, 6, and 7 (order does not matter here). Build

1) a binary search tree that has the minimum height

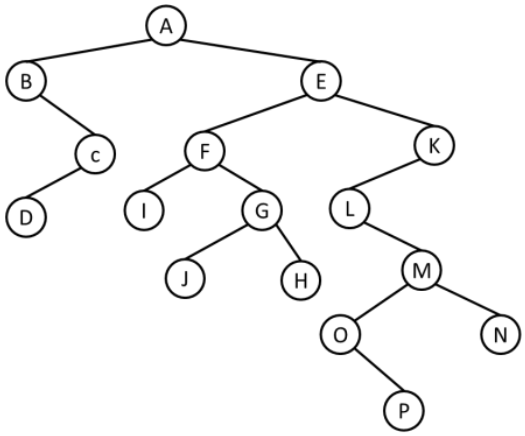
2) the binary search trees that has the maximum height (two cases)

Question 2:

There is a sequence of numbers: {50,76,21,4,32,64,15,52,14,100,83,2,70,87,80}. Suppose you have an empty binary search tree then add the numbers one by one from the sequence in order.

Questions 3:

Print this tree using preorder, inorder, and postorder Traversal on this tree, give all three traversals



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Usage of Google Docs

1. Go to docs.google.com and log in with your csueastbay email account.
2. Start a new document
3. In the started document, File-> New->Drawing
4. Then you can draw the tree. The nodes of the tree should be a rectangle or cycle from Shape. The nodes must be linked by using lines
5. When you are done, you need to File->Download->PDF to download it as a PDF file.
6. Finally, submit the PDF file to Canvas.

Requirements:

1. [5%] The Following identification information must be included at the beginning of your cpp file.
   //Name: XXXXXXX
   //NetID: XXXXXXX
   //Email: XXXX@csueastbay.edu
2. [30%] Question 1
3. [30%] Question 2
4. [30%] Question 3