Joe Del Rocco

jdelrocco [at] stetson [dot] edu

Professor of Practice, Computer Science

Stetson University

421 N Woodland Blvd, DeLand, FL, 32723

www.stetson.edu

Assignment 4

Due: Monday 3/22/2021 11:59pm

Contents

Directions

In this assignment, you will answer various questions about specific instances of tree ADTs. You will record your answers into a single .csv file (comma-separate-values text file), named `results.csv`. See the Example below for the format. See the Submission section for details on submitting your assignment.

Submission

All of your answers will be entered into a single .csv file named, `results.csv`. Once finished, you will submit your single `results.csv` to Blackboard by the due date. Your file must meet the format shown in the Example below. This is important for grading purposes. **Failure to follow these directions will result in a loss of points.**

Example

Here is an example tree with traversal questions:
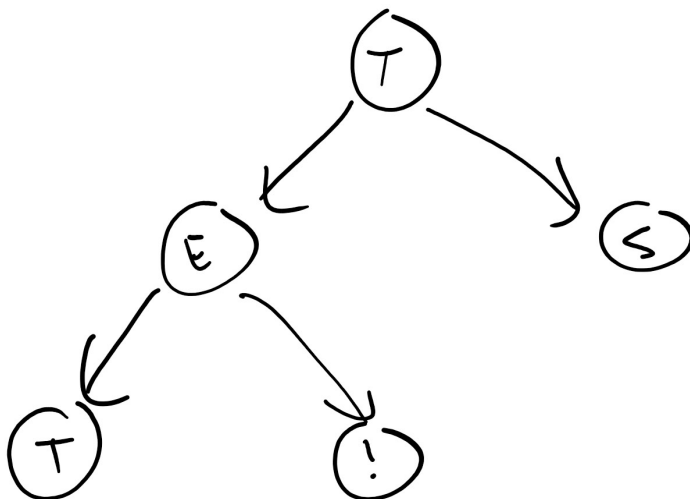
1) Height?
2) Edges?
3) Leaves?
4) Degree of root?
5) Pre-order traversal
6) In-order traversal
7) Post-order traversal
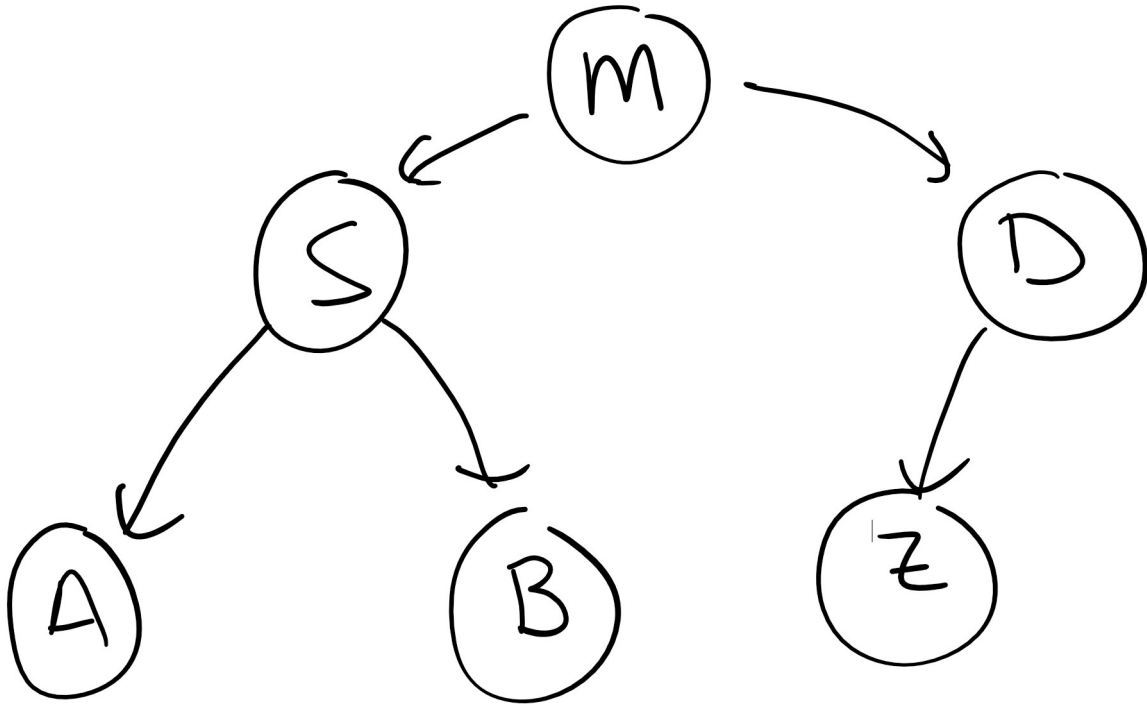**8) Breadth-first traversal**

Here is a correctly formatted `results.csv` file for the above tree and questions. Each line of the file is one question. If there are 29 questions in this assignment, you will have 29 lines in your result file. The first column of each line denotes the question number. The remaining columns are parts of the answer to that question.
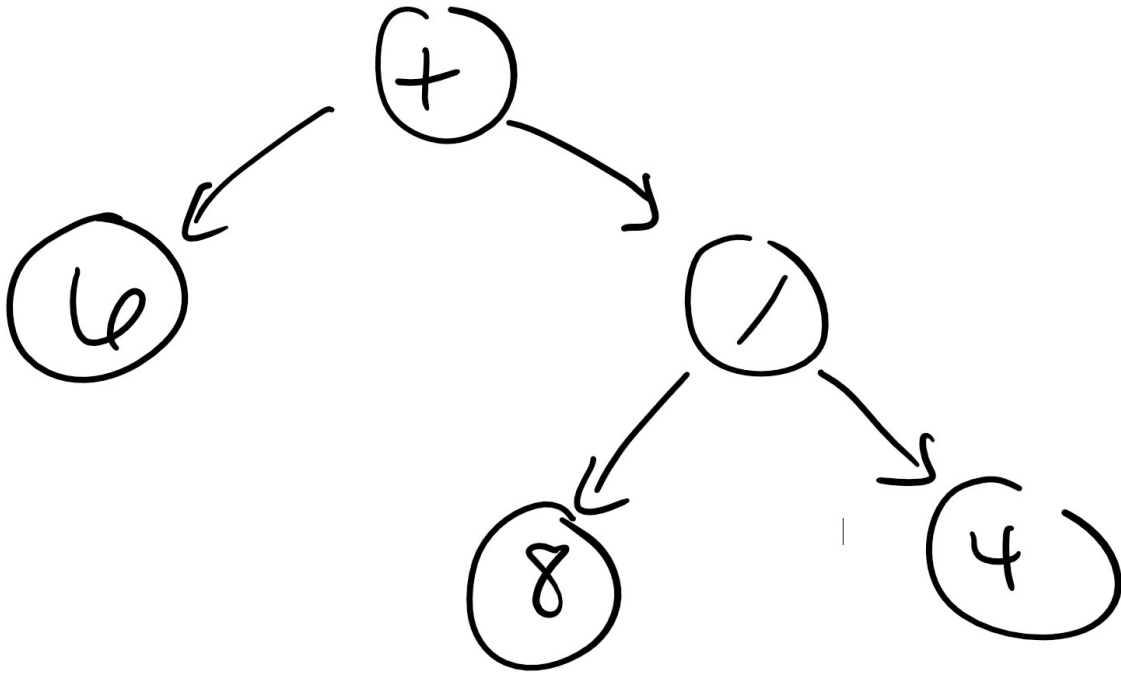
```
results.csv
1,3
2,4
3,3
4,2
5,T,E,T,!,S
6,T,E,!,T,S
7,T,!,E,S,T
8,T,E,S,T,!
```
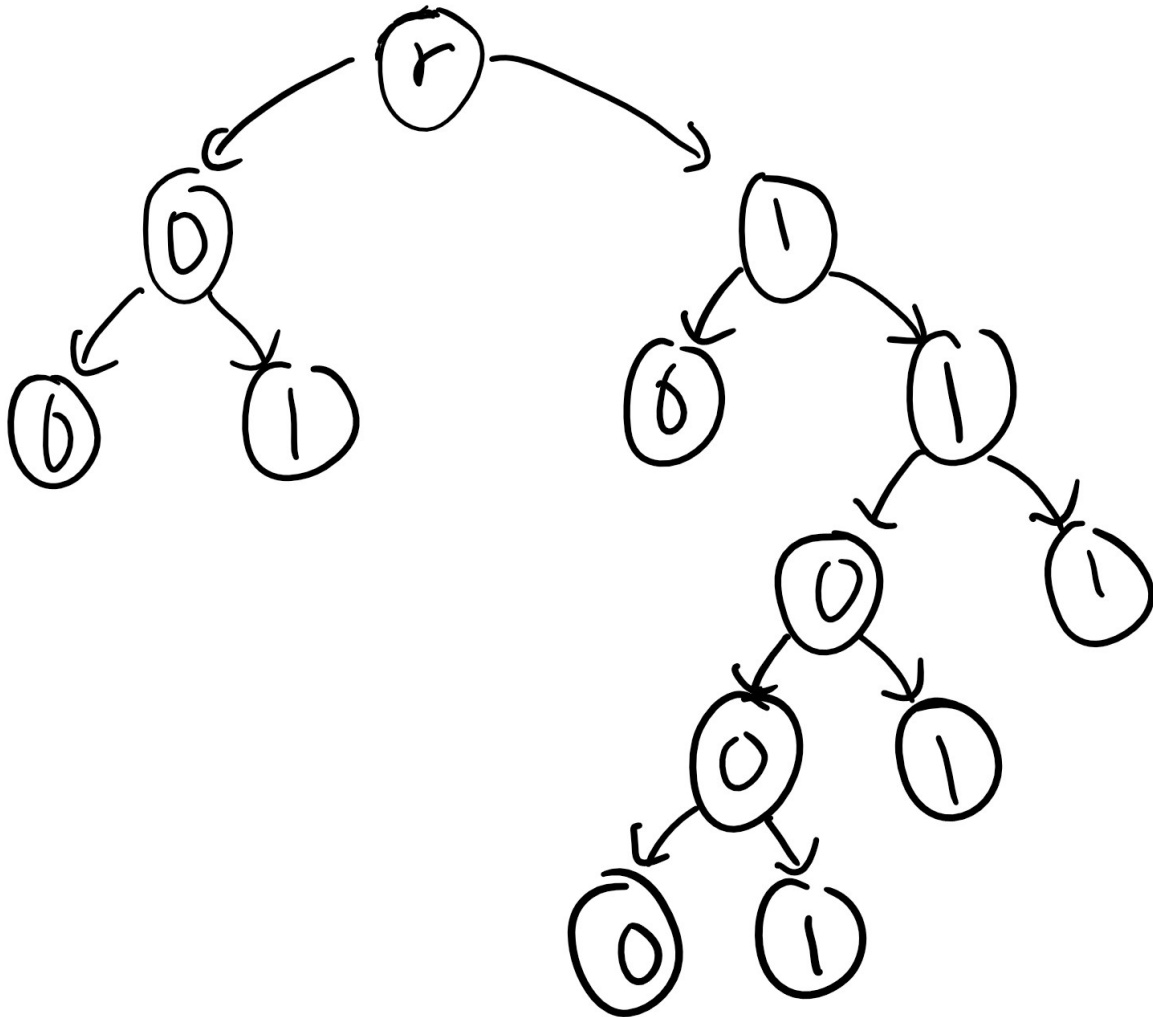
Trees

(a) First tree

1) Height?
2) Edges?
3) Leaves?
4) Degree of root?
5) Pre-order traversal
6) In-order traversal
7) Post-order traversal
8) Breadth-first traversal

(b) Second tree

9) Nodes?
10) Balanced? (1 for yes, 2 for no)
11) Complete? (1 for yes, 2 for no)
12) Full? (1 for yes, 2 for no)
13) Pre-order traversal
14) In-order traversal
15) Post-order traversal
16) Breadth-first traversal

(c) Third tree

17) Balanced? (1 for yes, 2 for no)
18) Pre-order traversal
19) In-order traversal
20) Post-order traversal
21) Breadth-first traversal

(d) Fourth tree

Ignore the <u>direction</u> of the arrows in this tree; they are not important. However, pay close attention to the height and levels of this tree.
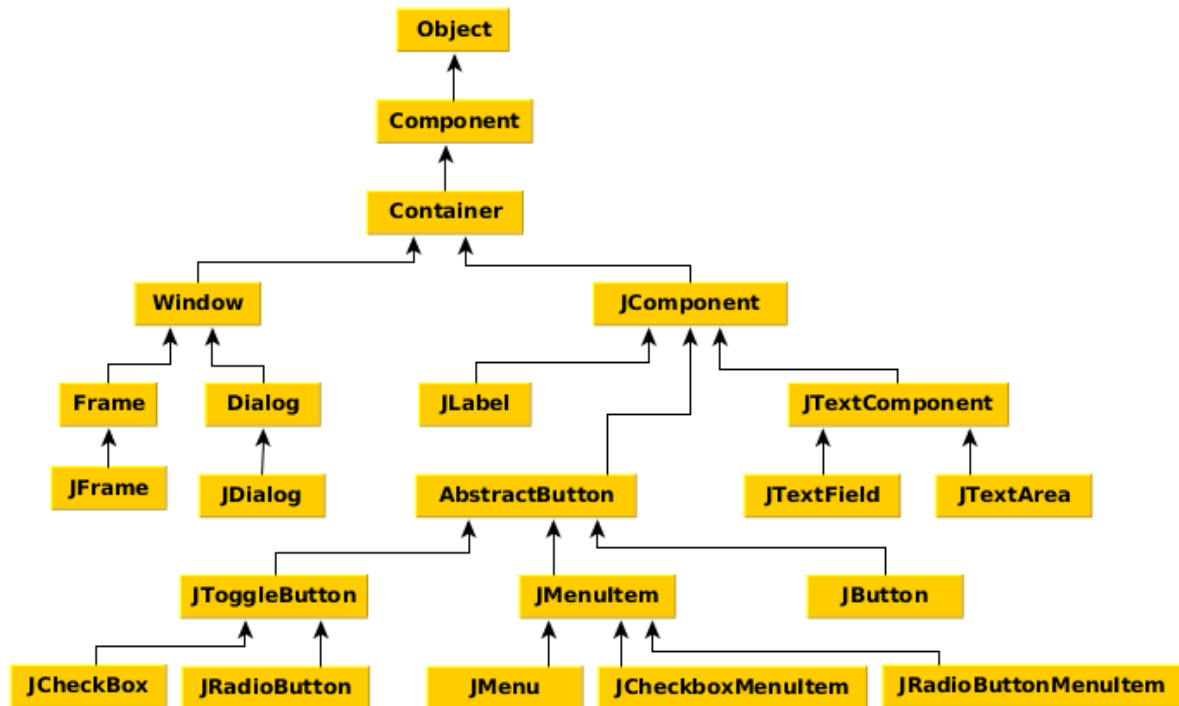
22) Height?
23) Edges?
24) Leaves?
25) Degree of root?
26) Degree of node: JComponent?
27) At what level is the node: Object?
28) At what level is the node: JTextField
29) Balanced? (1 for yes, 2 for no)