More Practice with Structs and Pointers, Intro To Function Pointers

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Goals

The goals of this lab are practice more with structs and pointers in C and to learn about function pointers.

1 Concepts

Just like you can have a pointer to any kind of variable, you can have a pointer to functions. An example of the declaration and use of a function pointer is shown in *ex6.c*.

Assignment

Your assignment for this lab consists of writing the code to implement parts of a **Binary Tree**. You are provide the code in the two files - *main.c* and *bt.c*. Your assignment consists of:

1. modify the file *bt.h* with the appropriate **typedefs**.
2. write the functions **createBinaryTree()**, **insertInBinaryTree**, **toStringBinaryTree**, **BinaryTreePreOrder**, **BinaryTreeInOrder** and **BinaryTreePostOrder**. You will also have to add the declaration of *ftable* as an array of 3 elements - each element is a pointer to a function returning void with 2 parameters, BTNode* and char*. The variable *ftable* is used in the function **initializeBinaryTree**

The BinaryTree struct has the following fields:

- **root** - points to the root node, NULL if empty tree
- **size** - number of nodes in the tree, initially 0

Each node of the BinaryTree has the following fields:

- a **left** field that points to left child
- a **right** field that points to the right child
- a **data** field (int) that holds an int data