

COSC2430: Programing and Data Structures

Binary Tree

1 Introduction

You will create a C++ program that can determine whether a binary tree is a heap or not given a pre-order and in-order traversals of the tree.

2 Input and Output

The input are two regular text files, one contains the pre-order traversal of a tree and another contains the in-order. In the file, positive integers (less than 1000 integers) are separated with one or more space characters. **You cannot assume the tree is balanced. You cannot assume the binary tree is a binary search tree. But you can assume no duplicated numbers are in the files.**

Input example: preorder1.txt

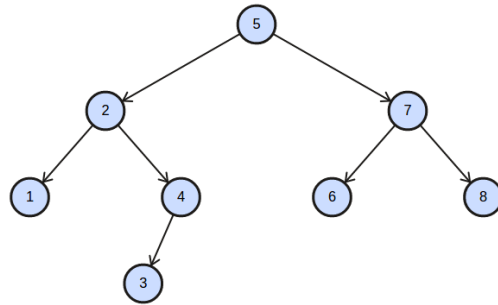
5 2 1 4 3 7 6 8

Input example: inorder1.txt

1 2 3 4 5 6 7 8

output example:

no



3 Program input specification

The main program should be called "heap". The output should be written to the console (e.g. printf or cout), but the TAs will redirect it to create some output file.

Call syntax at the OS prompt:

```
heap preorder=<filename> inorder=<filename>
```

Example of program call:

```
./heap preorder=preorder1.txt inorder=inorder1.txt
```

4 Requirements

- Your program should get the result within 2 seconds.