Dana Vrajitoru
C243 Data Structures

Homework 6

Due date: Tuesday, October 21, 2014.

Ex. 1. a. Download the following file:
bin-trees-A.cc

a. For this homework, you must supply the code for six of the functions present in this file.

The file contains the implementation of a binary tree structure and of some functions to manipulate it. Moreover, the file contains some functions to test this structure and the manipulation functions. To compile this program you should use the command:

```
g++ bin-trees-A.cc -o btree
```

This will create an executable named "btree" (you can change this name if you want) which can be run with the command btree.

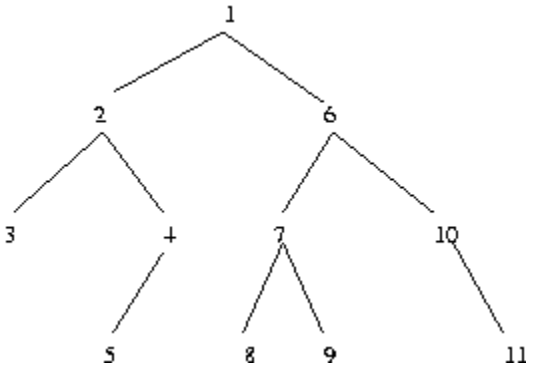
b. To feed data to this program without having to type it every time, you can use the Unix-Linux redirection option "<". For example, we'd like to run the program by taking the input from the following file:

tree.txt

For this, download the file into the same directory as your program and run the program again with the following command:

```
btree < tree.txt
```

This should create a tree that looks the following way:



Modify this file to test the functions that you have implemented after it builds the tree. Thus, after printing the tree, it should

- count and print the number of zero data values in the tree,
- sum all the negative values in the tree and print the result,
- then determine its height,
- then increment all the values by one and print the tree again,
- then replace the tree with its mirror image and print it,
- then destroy the tree

and then quit.

If the result of the program is too long and you wish to see the entire content of the output, you can also redirect the output into a file with the following command:

```
btree < tree.txt > res.txt
```

Thus, once the program has finished its execution, you can examine the file "res.txt" to see what has happened in your program.

Upload to Oncourse: the source file and the modified input file.