

Ankara University
Computer Engineering
COM2067 LAB 5
2024-2025 Fall

Suppose you receive an input from the user such as below.

47 32 58 4 38 55 -1 18 -1 36 45 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 44 -2

Input values will end in -2. The entered value -1 indicates "NULL".

Place the given values into a binary tree according to their index. After placing the values (without rotation), calculate the balance factor of each node in the resulting tree. Print the balance factors on the screen according to the level order of the nodes.

Hint: The left child of a node at the i th index is at the $(2*i)$ th index, its right child is at the $(2*i+1)$ th index, and its parent is at the $(i/2)$ th index.

Submission:

Name your source file as <StudentID>.c. For example, if your ID is 22290777, then you will submit **22290777.c** file. For the correct output format, carefully examine the sample input and output files provided to you. You can perform the following operations to check the correctness of your program.

Testing:

We provide a sample input/output text file pairs for you to test your codes at Ubuntu. Please carefully review the sample input and output files given to you for the correct output format.

We recommend you to use input redirection mechanism of your operating system to test your programs. For example, if your executable is called as Lab3, redirect the input.txt file to standard input using < operator and redirect your outputs to a file using > operator such as:

```
> ./Lab5 < input1.txt > output1.txt
```

This kind of execution enables your programs to read inputs from a file without writing any file related functions. In other words, scanf reads data from the redirected files instead of the std. input in this way (e.g. keyboard).

Automatically compare your own output with the expected output by using the **diff myOutput1.txt output1.txt** command. If a warning as shown below does not appear on the screen after executing this command, this means that your program is working correctly. If you see a warning in the command system after executing the command, this indicates that there is a problem with your output.

Test your program for different inputs that you will create yourself. Please note that the input files given to you and the input files used during the evaluation may differ from each other.