

DATABASE SYSTEMS

ASSIGNMENT 2

Deadline: 8th Oct 2019 11:55 PM.

PART 1 (60%)

Implement a B+ tree to handle the following type of queries

1. INSERT x - insert x into the B+ tree
2. FIND x - print YES if x is already inserted, else NO
3. COUNT x - print number of occurrences of x in B+ tree
4. RANGE x y - print number of elements in range x to y (both x and y included)

Constraints

1. $-10^9 \leq x \leq 10^9$ and $-10^9 \leq y \leq 10^9$.
2. The number of queries will be less than 10^6 .

Input: Filename

1. Filename must be taken as a command-line argument.
2. Each line in the filename consists of one of the above-mentioned queries.

Output:

1. Print output of each command in a separate line.

PART 2 (40%)

Implement Linear Hashing (paper explained in class) to handle duplicate elimination (explained in Output section).

Input: Filename

1. Filename must be taken as a command-line argument.
2. Each line in the filename consists one of single integer (x) ($-10^9 \leq x \leq 10^9$).

Output:

After reading every line (call it record), If record is not already present in the data structure, print it and insert it into data structure.

Languages Allowed: Python, C++

Upload Format :

1. Create a folder with your RollNumber.
2. Put all the code files & ReadMe into the folder created in 1.
3. Zip the folder and name the archive as rollnumber_assign2.zip

Any kind of plagiarism will be severely punished.

You are not allowed to use inbuilt data structures to handle these queries.