DS Lab (CSN 261)

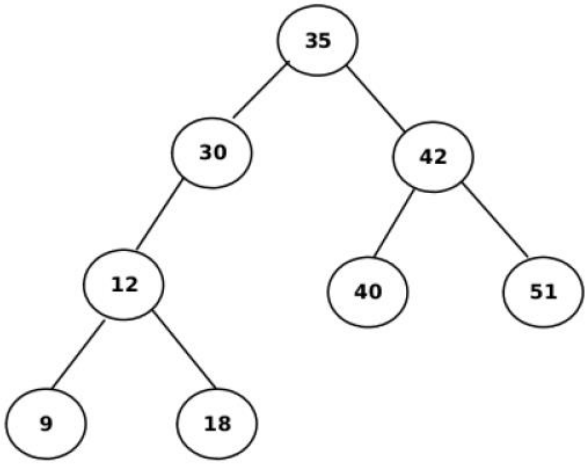
Assignment 9

Question1:
Narcissistic number is a number that is the sum of its own digits each raised to the power of the number of digits. In the process of generation of the said numbers, recursion is used. WAP to optimize recursion (in terms of time taken to execute) and print first 30 numbers in an array.eg...371 = $3^3 + 7^3 + 1^3$.
The first few numbers are given as 1, 2, 3, 4, 5, 6, 7, 8, 9, 153, 370, 371…

Question 2:
You are given two values *p* and *q* in a Binary Search Tree. WAP to find the Highest Common Ancestor (HCA) between *p* and *q*. HCA between two nodes *p* and *q* is defined as the highest node in a given rooted tree *T* that has both *p* and *q* as descendants. You could also consider a node to be descendant of itself.

Note: Root of the tree should not be considered while computing HCA except for the direct connected nodes of the root. If no HCA node found then print string "**Not found**".

Example:



HCA of **9** and **18** is **30**
HCA of **40** and **51** is **42**
HCA of **12** and **30** is **30**
HCA of **30** and **42** is **35**

Input:
35 30 12 9 18 42 40 51

9 12

Output:
30

First line of input is space separated numbers, which will construct the tree. Second line of input is two node values whose HCA is to be found.
Output is the HCA.