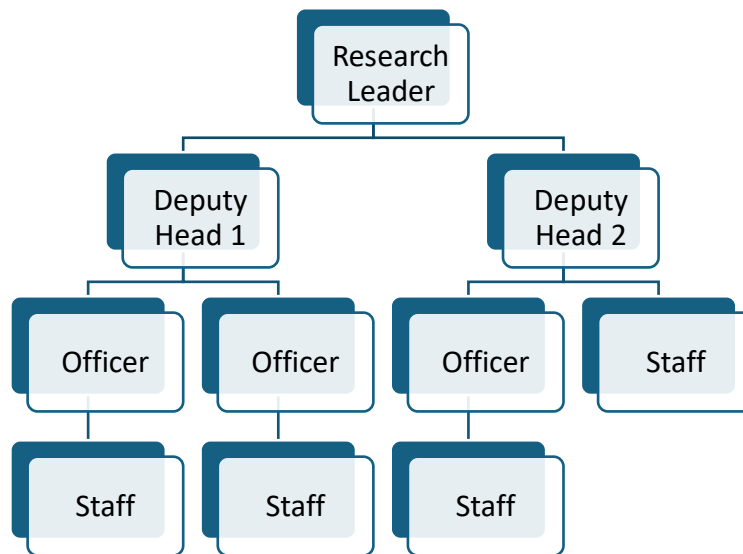


QUIZ 2

File format: **Class_NIM_NAMA.C** (Ex: LA05_2702200000_Dature.C)

VLA Company

VLA, a research company, wanted to use AVL as a model to create its organizational structure. They use the **AVL Tree** as a structural model and determine the position. First, they will enter all researcher's name and years of experience in the AVL Tree system. Then the AVL Tree will determine who is the Research Leader, Deputy Head 1, Deputy Head 2, Officer and Staff.



Note:

1. The position of Research Leader is always given to the person at the top of the tree
2. The researcher on the left of Research Leader will be Deputy Head 1 if he has another researcher as his subordinate and will be Staff if he doesn't have one.
3. The researcher on the right of Research Leader will be Deputy Head 2 if he has another researcher as his subordinate and will be Staff if doesn't have one.
4. Other position will become officer if they have subordinate and will be Staff if doesn't have one.
5. If there is researcher with same years of experience then the first inputted will have more value than the later.

Input:

1. The first input will be:

X

Where:

- **X** is an integer for the number of researchers in the company.

2. The second input will be:

N_1E_1

N_2E_2

N_xE_x

Where:

- **N** is a string for researcher name,
- **E** is an integer for the researcher's year of experience

3. The third input will be:

$Del\ T$

Where:

- **T** is a researcher name that resigned, and will be deleted from AVL Tree

Output:

1. Print the AVL Tree using InOrder before deletion
2. Print the AVL Tree using InOrder after deletion

Examples:

Sample input	Sample output
3 Sasuke 5 Naruto 6 Sakura 4 Del Sasuke	Staff : 4 Years Exp Sakura Research Leader : 5 Years Exp Sasuke Staff : 6 Years Exp Naruto Research Leader : 4 Years Exp Sakura Staff : 6 Years Exp Naruto

Explanation:

- Because Sakura doesn't have subordinates, she can't be Deputy Head 1 and given Staff Position.
- Because Naturo doesn't have subordinate, so she can't be Deputy Head 2 and given Staff Position
- After Deletion Sakura became the Research Leader

Sample input	Sample output
6 Sasuke 5 Naruto 6 Sakura 4 Madara 14 Orochimaru 20 Kakashi 15 Del Sasuke	Staff : 4 Years Exp Sakura Deputy Head 1 : 5 Years Exp Sasuke Staff : 6 Years Exp Naruto Research Leader : 14 Years Exp Madara Staff : 15 Years Exp Kakashi Deputy Head 2 : 20 Years Exp Orochimaru Deputy Head 1 : 4 Years Exp Sakura Staff : 6 Years Exp Naruto Research Leader : 14 Years Exp Madara Staff : 15 Years Exp Kakashi Deputy Head 2 : 20 Years Exp Orochimaru

Explanation:

1. Because Sakura, Naruto and Kakashi, doesn't have subordinates, then they became Staff.
2. After Sasuke deletion, Sakura became Deputy Head 1.

Sample input	Sample output
10 Sasuke 5 Naruto 6 Sakura 4 Madara 14 Orochimaru 20 Kakashi 15 Tsunade 19 Hiruzen 2 Jiraya 24 Lee 3 Del Sasuke	Staff : 2 Years Exp Hiruzen Officer : 3 Years Exp Lee Staff : 4 Years Exp Sakura Deputy Head 1 : 5 Years Exp Sasuke Staff : 6 Years Exp Naruto Research Leader : 14 Years Exp Madara Staff : 15 Years Exp Kakashi Deputy Head 2 : 19 Years Exp Tsunade Officer : 20 Years Exp Orochimaru Staff : 24 Years Exp Jiraya Staff : 2 Years Exp Hiruzen Officer : 3 Years Exp Lee Deputy Head 1 : 4 Years Exp Sakura Staff : 6 Years Exp Naruto Research Leader : 14 Years Exp Madara Staff : 15 Years Exp Kakashi Deputy Head 2 : 19 Years Exp Tsunade Officer : 20 Years Exp Orochimaru Staff : 24 Years Exp Jiraya