

# WEB Server

In this problem the algorithm and the structure I have used is the following:

I used the structures:

- **info\_t** to store all the information in the file,
- **name\_t** to set binary tree according to the name,
- **IP\_t** to set binary tree according to the IP address,
- **wrapper\_t** to combine the name\_t and IP\_t into a single structure, as the program should return a pointer to a single structure

Provided with the IP address we use IP\_t structure to look for the name of the user in logarithmic cost and go into name\_t with the found name and look for the concerning information again in logarithmic cost. Then, in total we will have  $2 \cdot \log(n) = \log(n)$ .

Provided with the name we directly go into name\_t to look for the concerning information in logarithmic cost. Then, we will have  $\log(n)$  complexity.

(set **CHECK** to 1 to see the result of binary search)