The problem can be formulated as follows: The directed graph is given, its vertices correspond to users' handles and edges — to requests. It consists of a number of chains, so every vertex ingoing and outgoing degree doesn't exceed one. One need to find number of chains and first and last vertices of every chain. The arcs of this graph can be stored in dictionary(one can use **std::map\unoredered_map** in C++ and **TreeMap\HashMap** in Java) with head of the arc as the key and the tail as the value.

Each zero ingoing degree vertex corresponds to unique user as well as first vertex of some chain. We should iterate from such vertices through the arcs while it's possible. Thus we find relation between first and last vertices in the chain as well as relation between the original and the new handle of some user.

You can see my solution for details.

Time complexity: $O(q \log q \times len)$