

27

The space between us

18 points

Introduction

Given the current pandemic situation the number of people permitted indoors must be controlled. This is especially critical in places such as an emergency room of a hospital. You are working in a team developing a system to measure the capacity of a room. It consists of a couple of sensors installed at the door that detects flow of people, particularly the entrance and the exit. At the end of the day the system sends the collected data for further analysis. So, let's code a program that analyses this data and finds out the maximum number of people in the room and the time they stay together also reporting a list of names ordered by arrival time. In case the maximum number of people is repeated several times a day it is important to report all the occurrences.

Hint: Note that if a person arrives at the same time that another one leaves, they are not considered to be in the room at the same time since they do not stay at the same time.

Input

The input consists of a variable number of lines:

- The first line contains an integer bigger than 0 that represents the number of people that entered into the emergency room.
- The next lines contain three fields separated by spaces: patient name, arrival and leaving times expressed in 24h format (HH:MM)

Output

The output should be a series of lines like this:

Max capacity of X people during Y minutes with following people: *list of names present in the room*

where X is the maximum number of people present in the room, Y is the number of minutes that the X persons stay in the room together and the list of the names of people present in the room ordered by arrival time and separated by commas.

Example 1

Input

3

Alexandra 09:30 10:30

Bob 09:50 10:20

Carol 09:45 10:15

Output

Max capacity of 3 people during 25 minutes with following people: Alexandra, Carol, Bob

Example 2

Input

6

Ann 07:31 09:36

Billy 07:53 09:19

Charles 07:45 09:15

David 10:20 13:45

Esther 11:30 19:33

Frances 10:55 11:52

Output

Max capacity of 3 people during 82 minutes with following people: Ann, Charles, Billy

Max capacity of 3 people during 22 minutes with following people: David, Frances, Esther