Distributed Systems.
Bachelor in Informatics Engineering. 2018/2019
Exercise 2

The Madrid city council wants to deploy a system that gathers the occupation of the parking lots of the city. It is desired to develop a system that allows to know the status of each parking lot. Each parking records its occupation and the average state of daily occupancy. The system works as follows:

1. Every morning at 9:00 am, the computer that controls each parking (regardless of whether it is open or closed) sends a message to a central computer of the town hall that records the activity of all the car parks in the city. The message must include, among others, the parking identifier, the number of free spaces at that time, and the average occupation of the previous day. You must also indicate if it is open or closed at that time.
2. Every time a vehicle arrives, the computer sends a message to the central computer indicating, among others, the parking identifier, the plate of the vehicle, and free spaces at that moment (once the vehicle has entered).
3. Each time a vehicle leaves the parking lot, the parking computer sends a message to the central computer indicating, among others, the identifier of the parking, the plate of the vehicle, and free spaces at that moment (once the vehicle leaves).
4. In case a parking closes, the local computer sends a message to the central computer of the town hall. In this case, the parking identifier is sent, the total number of vehicles that have been parked that day, the average number of minutes that each vehicle has parked, and a list of all the vehicles that have parked that day. For each vehicle, the plate, time of arrival and departure time will be indicated.
5. Each time a parking computer starts, it sends a message to the central computer of the town hall. The message must include, among others, the parking identifier, the number of free spaces at that time and the average occupation of the previous day.
6. At any time, the administrator of the central computer can monitor the status of each parking lot. In this case, the parking responds by indicating whether it is open or closed. If it is open, return the number of free spaces and a list of all the vehicles that have parked that day. For each vehicle, the plate, arrival time, and departure time will be indicated.

We want to design a distributed application that is responsible for managing the system described above using sockets.

State:

1. Complete a design of the distributed application, describing the protocol of the application. Do all the points that you consider appropriate.

Submission content: File exercise2.pdf.

Submission will be made through Global Classroom. The deadline is 04/14/2019.