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# ASSIGNMENT 3

- SOFTWARE ENGINEERING
- PROFESSOR: ALDAMURATOV J.U.
- SERIKKANOV NURTAS

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KBTU - 2023

## CHAPTER 6. EXERCISE 6.1

### - WHEN DESCRIBING A SYSTEM, EXPLAIN WHY YOU MAY HAVE TO START THE DESIGN OF THE SYSTEM ARCHITECTURE BEFORE THE REQUIREMENTS SPECIFICATION IS COMPLETE

**Architectural design in software engineering** is the method of characterizing the structure, organization, and key components of a software system. It is a crucial phase in software development, as it lays the foundation for the entire project. Design in the system architecture has to be before the requirements specification complete because the architecture has a significant impact on the non-functional requirements and can also influence the functional requirements as well.

**The architecture may have to be designed** before specifications are written to provide a means of structuring the specification and developing different subsystem specifications concurrently, to allow manufacture of hardware by subcontractors and to provide a model for system costing. You may have to design the system architecture before the requirements specification is complete because the architecture has a significant impact on the non-functional requirements and can also influence the functional requirements as well. Specifically, in order to demonstrate to stakeholders that an application will meet its performance requirements a project manager or system architect may have to show how the architecture will aid in accomplishing this goal.

**According to Sommerville** the components affect the requirements and therefore an architecture that explains the components and their relationships may aid in the determination of the requirements. System architecture is to be designed first before describing the system itself simply because the architectural design serves as basis for the description. Since it involves identifying major system components, subsystems, and their communications, it will be easier in the description to specify which one goes to which subsystems. When subsystems are already made, it will be easier to determine what components are needed by hardware manufacturers. So, the architectural design provides a model for system costing.

## **Chapter 6. Exercise 6.6**

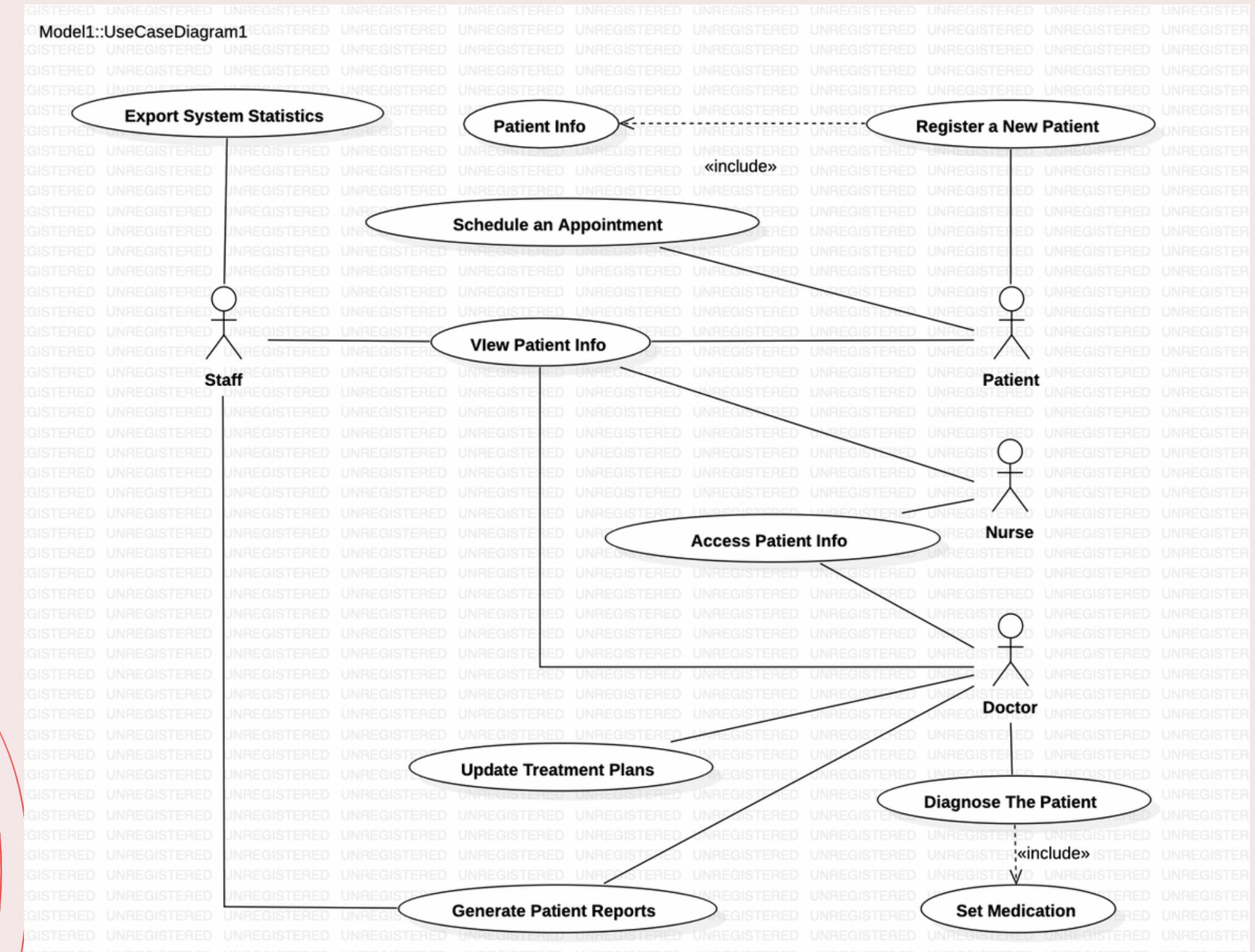
**- Suggest an architecture for a system (such as iTunes) that is used to sell and distribute music on the Internet. What Architectural patterns are the basis for your proposed architecture?**

**Client-server model** is the appropriate architectural pattern for such kind of system. iTunes stores all the music they sell in a database there the client can search these tracks by artist name, genre, etc.all via web based interface. also, tracks can be downloaded and paid accordingly. Then the server manages the music ordering also via web based interface. The architecture needed for this type of system is a client-server model. iTunes will have a database that has records on all the music that is available through their system. These music records can be searched for by the user by artist name, genre, etc., through a web based interface and downloaded for a certain price. The server handles music orders through the web based interface. The architectural pattern that is the basis for this is client-server pattern.

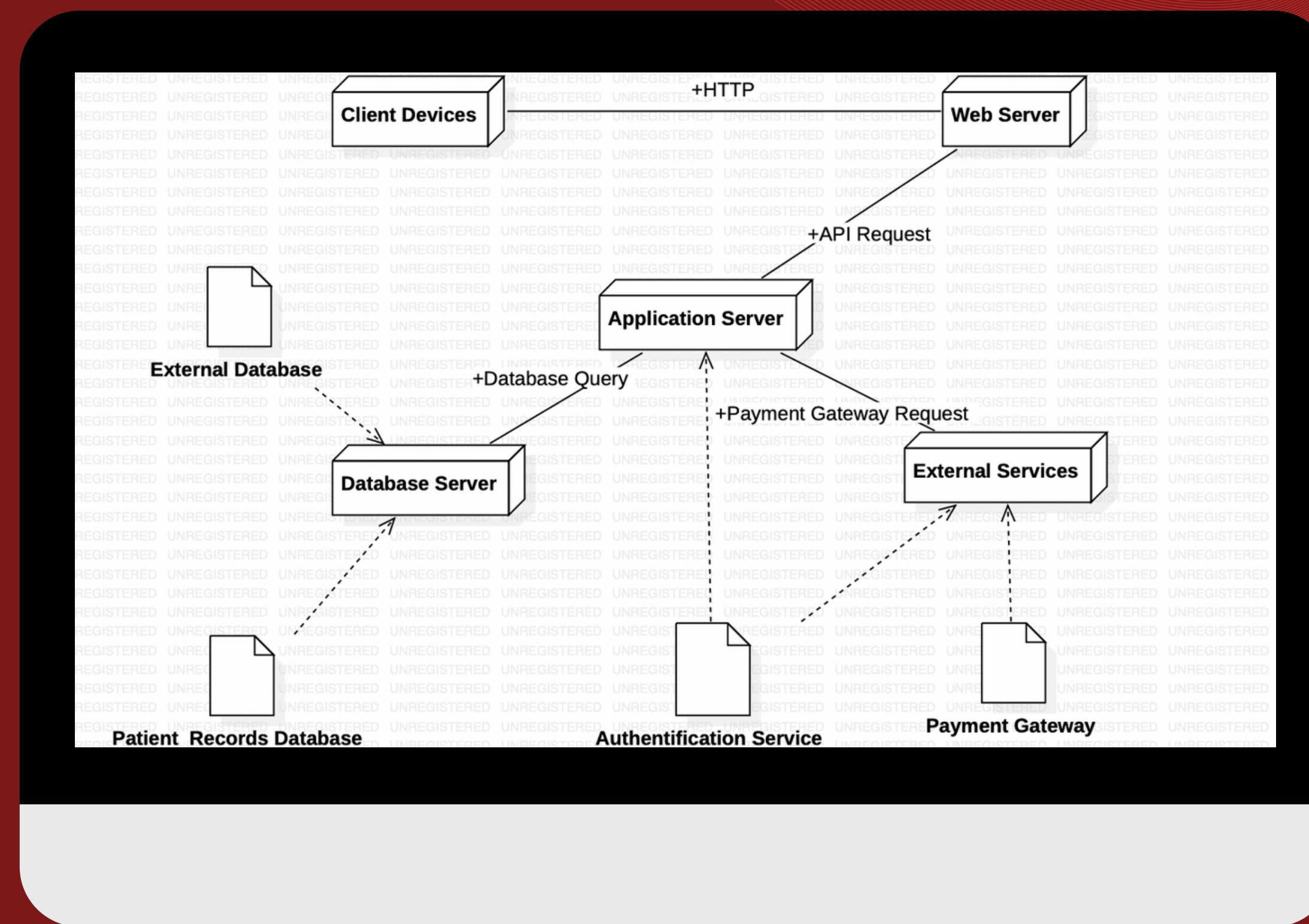


## Chapter 7. Exercise 7.2

- Assume that the Mentcare system is being developed using an object-oriented approach. Draw a use case diagram showing at least six possible use cases for this system.

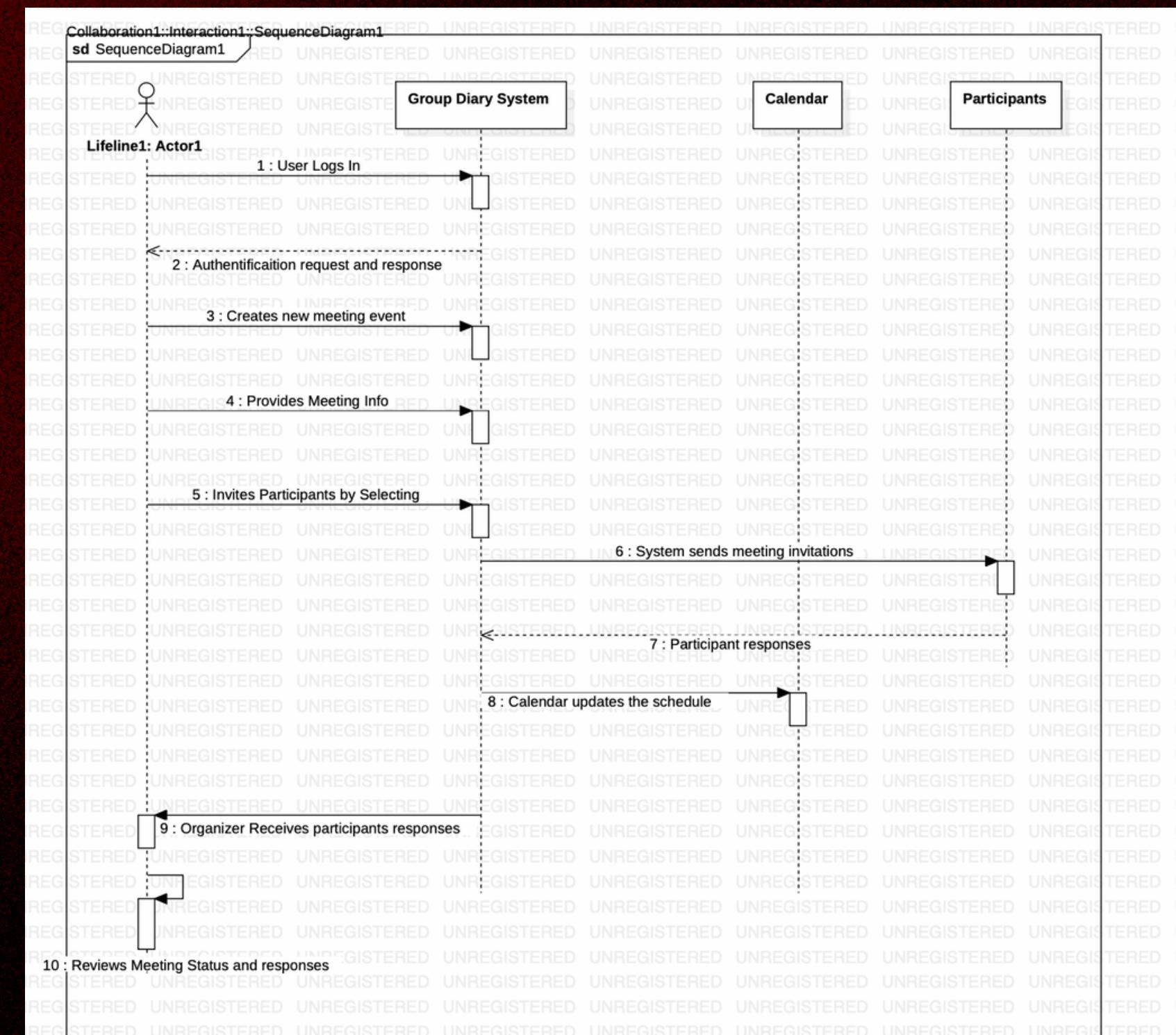


- Draw one Deployment diagram for the same Mentcare System.



# CHAPTER 7. EXERCISE 7.7

## - DRAW A SEQUENCE DIAGRAM SHOWING THE INTERACTIONS OF OBJECTS IN A GROUP DIARY SYSTEM WHEN A GROUP OF PEOPLE ARE ARRANGING A MEETING





A dark red background featuring two sets of thin, light red wavy lines. One set of lines originates from the top left, curves upwards and to the right, then downwards towards the center. The second set of lines starts from the bottom right, curves upwards and to the left, then downwards again. These lines create a sense of depth and motion.

THANK YOU FOR  
ATTENTION!

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