

ARCHITECTURAL DESIGN



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INTRODUCTION

Through this document we describe the architectural design of our web application “FindMyHospital”, we will have a clear idea of the components, subsystems, external systems, databases and the interactions between them in client-server architecture.

Here we will discuss different architectural styles such as: components that perform an application function, connectors that enable communication between components, and component constraints on how to integrate into the system and function as a whole.

"FindMyHospital" application consists of two main components: Client-side known as front-end and Server-side known as back-end.

The client-side part is worked with Html, Css and Javascript, for the server side we used MVC pattern with Spring Boot which is an open source Java-based framework.

Another important component is the database server from which the backend part receives information and sends it to the user's browser (client-side) which for this project is decided to be PostgreSQL.

CONCEPTUAL ARCHITECTURE

For conceptual architecture we are supposed to show how the system does its job what is supposed to do.

In the table below we have key concepts of our web-based application “FindMyHospital” assigned in one category.

Data	Function	System	Abstract	Stakeholder
Database	Access(users location)	Hospital external services	Nearest hospital	Users
Locations	Display	OpenStreetMap servers	Interactive Map	Developers
Users	Select		Hospital route	Hospitals
Comments	Comment			
Ratings	Rate			
	Calculate(proximity)			
	Call(emergency)			

In the fig. 1 we can see the basic conceptual architecture of the application that show some little details in order to communicate between structures to fulfill the main purpose of finding hospitals near user location. When the user access the web app automatically in the user smart-phone (or another device) displayed pop up message to allow the application for getting their location, then by clicking the search button the application calculate their location to location of hospitals which are taken from database and display those in users monitor starting from the nearest.

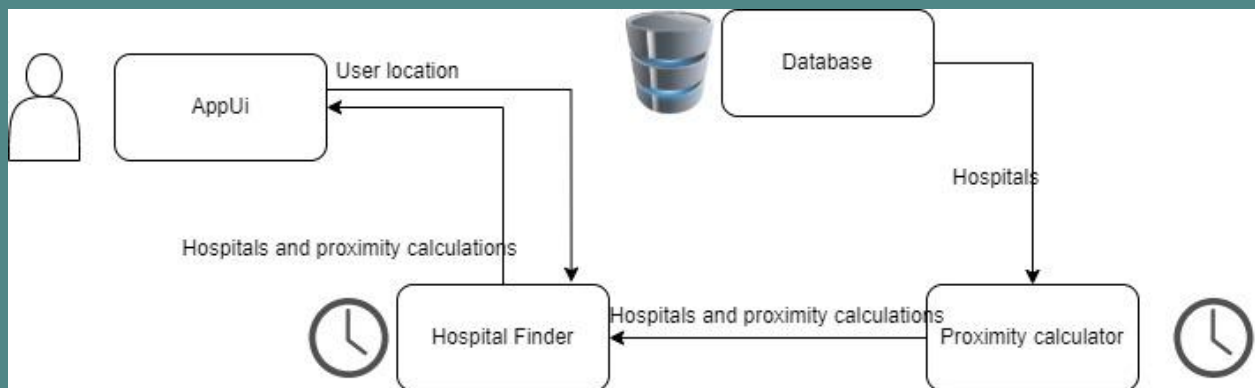


Figure 1 (Conceptual view)

EXECUTION ARCHITECTURE

For the execution architecture we will focus on the system runtime structure which can be subsystems , hardware components and also processes and threads.

Below we can see multiple execution architecture diagrams with different detail levels of abstraction and some explanations.

In the Fig. 2 we can see the execution view of two main (basic) components of our application such as client side which is user initiated, connected with synchronous call (always waits for response) with server side which is service because always waits for request to generate the response message to the client.

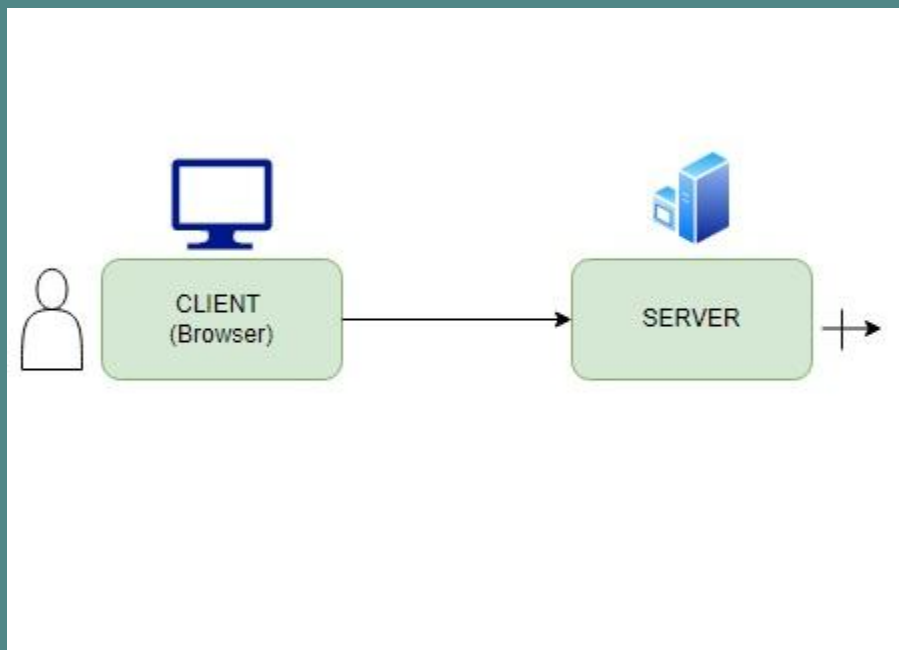


Figure 2.

In Fig. 3 we displayed the execution view of different processes, components and their connection when a user searches for a particular hospital or only presses the search button and waits for the list of hospitals starting from the nearest.

GUI is the application interface and it's user initiated, when the user only press the button search, the proxy calculator calculates and compares the latitude and longitude of the user location with hospital (gets information from the database) locations and shows them in user interface, or when the user search for certain hospital the proxy calculator doesn't need to be performed.

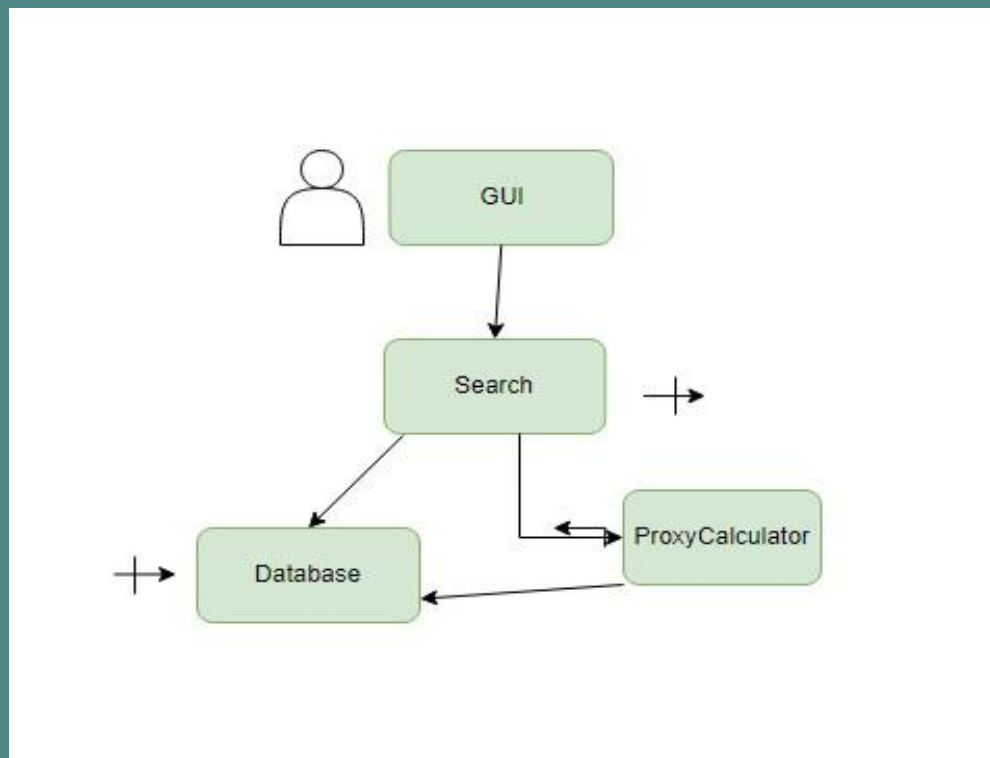


Figure 3.

IMPLEMENTATION ARCHITECTURE

The implementation architecture focuses on which technological elements are needed to implement the system. In **Fig. 4** we can see that the clients' web browser communicates with the server where the app is located using the HTTP network protocol.

For the application to access the map information that is needed (to get the users' location, find the best route etc.), it uses the HTTP network protocol.

The informations that the application itself uses are stored in the database server.

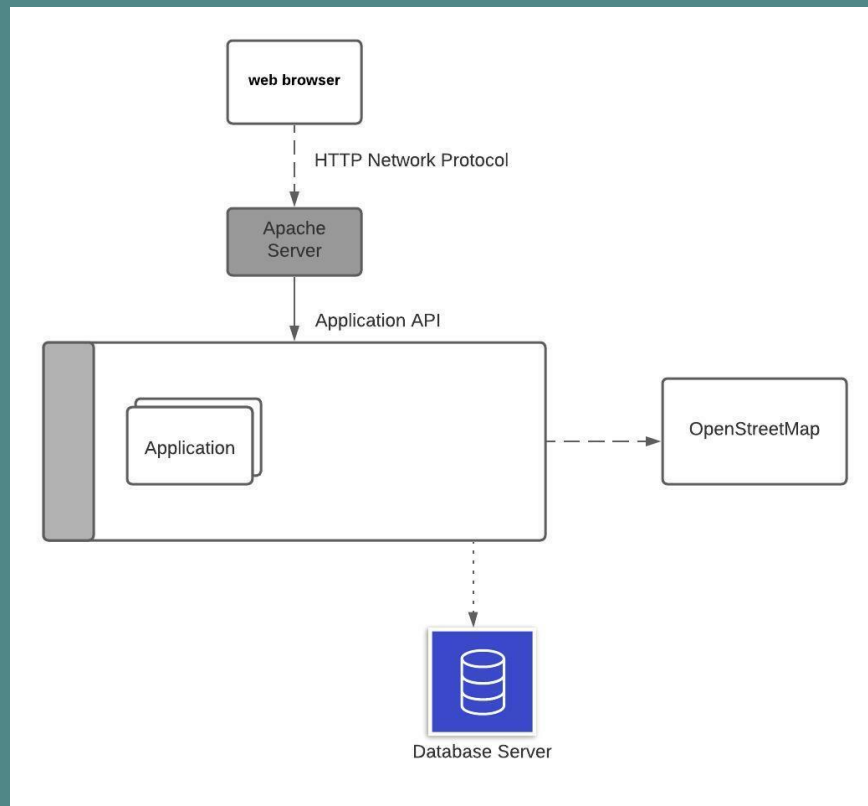


Figure 4.