**Chapter 6**

**Server Design**

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6.1 Introduction

A server [19] of computer technology consists of a computer program or device offering services for other programs or devices identified as "clients." The design, defined as the client-server paradigm, distributes one operation over a variety of processes or computers. Servers may offer different functionalities, also referred to as "properties," including data or resources sharing between multiple clients or computing a database. A client process may operate on the same computer or link to a server on another device via a network. Form servers include storage servers, file servers, mail servers, print servers, computer servers and web servers. Traditional servers are servers. [https://en.wikipedia.org/wiki/Server\_(computing)]

6.2 Database Design

The construction of a database [20] is the method of creating a comprehensive database model. In this model of data are all conceptual and physical architecture choices and physical storage parameters used to produce a specification that can be used to create a database in a system description language. For each entity, a fully assigned data model contains detailed attributes.

The word database architecture can be used in many different parts of the total database system design. The logical structure of the baseline data structures used for data store can be considered mainly and most correctly. These are the tables and views in the relationship model. The entities and relations map directly to the classes of objects and named relationships in an object database. The term database design could also be used to describe the whole design process, not only the database structures, but also forms and queries used as part of the overall DBMS application.

[<http://blog.sqldbm.com/purpose-of-relational-database-schema/>] [<https://wiki2.org/en/Database_design>]

6.2.1 MySQL Database

MySQL is a Relational Database (RDBMS) distributed database management framework. The term SQL stands for Structured Query Language. MySQL has the following features.

• MySQL is a web based framework of database.

• It is a server-based system.

• It is perfect both for large and small applications.

• It is very simple, reliable and easy to operate.

• It utilizes the structured SQL.

• It compiles on various platforms.

• It can be accessed free of charge.

• The Oracle Company creates, distributes and maintains the MySQL.

6.2.2 Database Table

We have designed three tables in the server database. These are given below.

* Patient Tables
* Messages Tables
* Users Tables
* Doctor Tables

Patient Tables:This table is used to store the patient’s physical data which is received from the sensor. A patient table will be created for a patient.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Patient\_ID | Heart Rate (bpm) | SpO2(%) | Temp(oC) | Time and date |
|  |  |  |  |  |
|  |  |  |  |  |

Messages Table:This table is used to store the messages between the doctor and the patient.

|  |  |  |  |
| --- | --- | --- | --- |
| PID | Name | Message | date |
|  |  |  |  |
|  |  |  |  |

Users Table: This table is used to store the FCM token of the doctor’s and the patient’s devices.

|  |  |
| --- | --- |
| D\_ID/P\_ID | Token |
|  |  |
|  |  |

**Doctor Table:** This table is used to store the information of the doctor and the assigned patient to the doctors

|  |  |  |
| --- | --- | --- |
| Doctor\_ID | Dname | Patient\_ID |
|  |  |  |
|  |  |  |

6.3 Web Server Design

A web service [21] is an electronic device service offered to other electronic devices that connect through the World Wide Web with one another. Network technologies such as HTTP is initiated for connectivity with humans and the network that is used in a web service for correspondence between computers, primarily exchanging computer-readable file formats, such as XML and JSON. For reality, a web service requires, for instance, another web server that provides the end-user with a user interface for an object-oriented Cloud-based system.

6.3.1 HTTP Methods

HTTP describes a series of protocol methods [ 22] that show which operation a specific resource will want to carry out. While these communication forms can also be nouns, they are also called HTTP verbs. Every one of them has a different semantic, but a number of them share common features: for example, a petition method can be secure, efficient or cacheable. The following HTTP methods are used in our work.

GET

The GET method requires the specified resource to be represented. GET request recovers data.

HEAD

The HEAD method requires the same solution as the GET question but without the responding part.

POST

The POST is responsible for transferring the requested resource to an entity which often causes a modification to the server state or side effects.

PUT

The PUT substitutes for the request payload for all existing versions of the desired resource

DELETE

To delete specified resource from database DELETE method is used.

CONNECT

The CONNECT method defines the database path to the goal asset.

OPTIONS

When defining contact choices for the desired resource the Choices method is used.

TRACE

A message loop check is carried out using the TRACE method on the route towards the desired resource.

PATCH

The PATCH is employed to make selective resource improvements.

6.3.2 HTTP Status Codes

The following lists the response status codes for Hypertext Transfer Protocol (HTTP) [23]. Status codes are obtained to a client by a server. This incorporates IETF Request for Comments (RFC) protocols, certain requirements, and certain additional codes that are used in certain popular Hypertext Transfer Protocol (HTTP) applications.

The Internet Assigned Numbers Authority (IANA) controls HTTP status codes.

|  |  |  |  |
| --- | --- | --- | --- |
| 1×× Informational | 2×× Success | 3×× Redirection | 4×× Client Error |
| 100 Continue | 200 OK | 300 Multiple Choices | 400 Bad Request |
| 101 Switching Protocols | 201 Created | 301 Moved Permanently | 401 Unauthorized  403 Forbidden |
| 102 Processing | 202 Accepted | 302 Found | 404 Not Found |