**PAPERLESS HOSPITAL SERVICE**

(12bce0007, 12bce0002, 12bce0027)

SOFTWARE DESIGN DOCUMENT

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**1) INTRODUCTION**

**1.1-PURPOSE**

This software design document aims to explain the scope, design architecture, design components, interactions and design issues (functional and non functional) of the web application Paperless Hospital Service. This document also includes the diagrams showing the high level architecture of the system and diagrams to explain the interaction between various components. The alternate design details will also be discussed.

**1.2-SCOPE**

Objective of this project is to leverage paperless hospital service where patient need not do any paper-work while getting admitted to the hospital by providing seamless application that will handle the thousands of patient information and provide efficient healthcare service. Through this application, the main aim is to digitize every operation of hospital and reducing the unnecessary burden of maintain physical records on paper which are not only cumbersome to manage but also do not provide a secure means to safe confidential data.

**1.3-OVERVIEW**

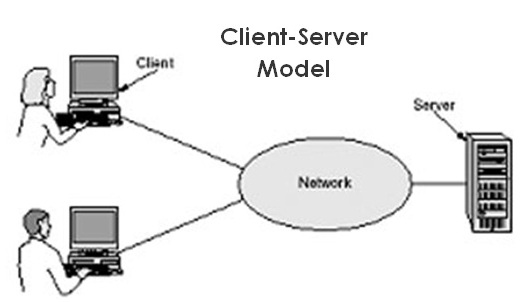
This application is being developed for the Healthcare/Medicine domain. The effectiveness of this application will be decided by its ability to provide secure access to all the users and also limiting the access to the confidential data. Depending on the role a particular user plays in the hospital, access will be granted. The main tasks involved are storing and updating patient’s information, calculating the expense, retrieving doctors information, doctors updating patient’s tests results and reports and checking whether patient has insurance or not.

**2) DESIGN OUTLINE**

**2.1- DESIGN DECISION**

Since the project aims to develop a web application, Modern Web based Client-Server Model is the most preferable and convenient option to handle this application. The Web-based system is composed of individual nodes, each performing different functions and often their roles can be dynamic. In such systems, the client component handles the user interface and the server provides back-end processing, such as database access, printing, and so on.

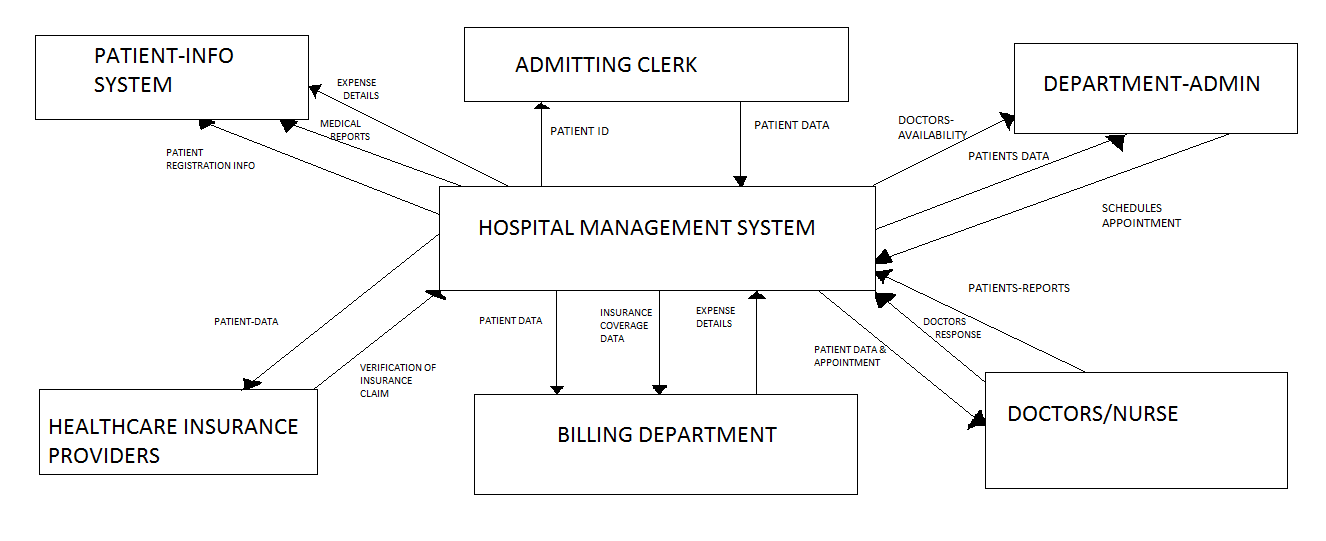
Having individual nodes allows splitting software systems into multiple components with each component running on a different computer and performing a specialized function. This approach simplifies development, management, administration, and often improved performance and robustness, since failure in one computer did not necessarily disable the entire system.

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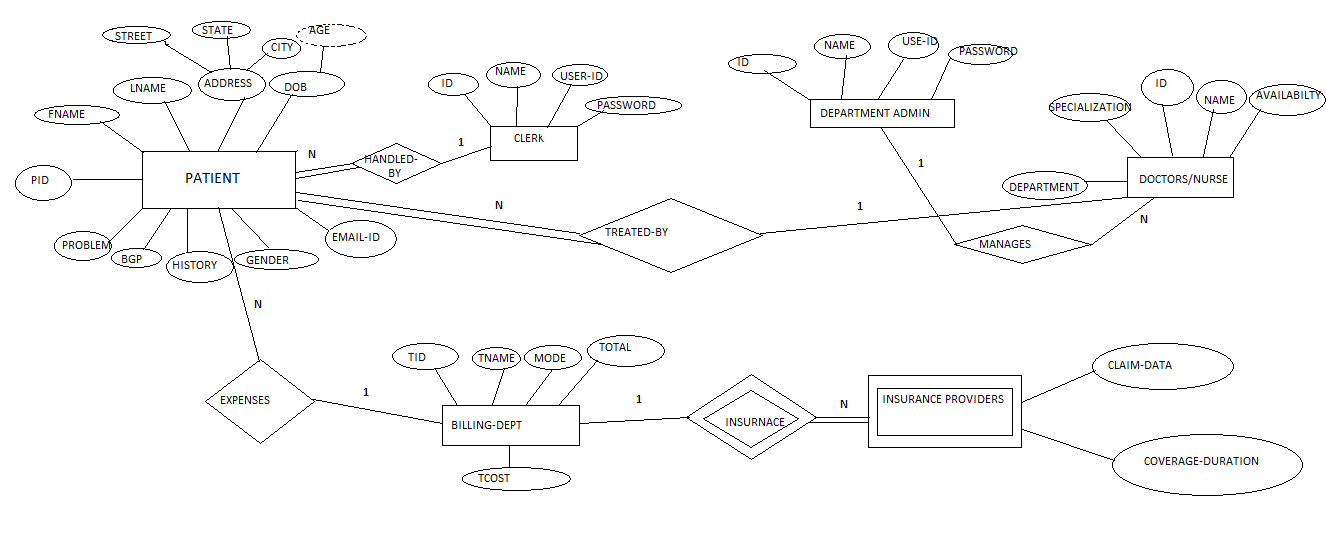
**Client –Server Model**

**2.2-SYSTEM ARCHITECTURE OVERVIEW**

**1- CONTEXT-MODEL**

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**2- ER-DIAGRAM**

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**2.3-DESIGN DETAILS**

*2.3.1-COMPONENTS/MODULES*

* + - PATIENT/RELATIVE
    - ADMITTING CLERK
    - DEPARTMENT ADMINISTRATOR
    - DOCTOR/NURSE
    - BILLING DEPARTMENT
    - INSURANCE PROVIDER

*2.3.2-PURPOSE OF EACH COMPONENT*

*PATIENT/RELATIVE*

Patient gets admitted by giving their information to the Admitting Clerk. If Patient is in serious state, relative will help in giving information about the patient to the Admitting Clerk. Also in case of emergency only essential details will be recorded. Patient will be requested to give the following details.

*ADMITTING CLERK*

The Admitting Clerk logs in the Web Portal by giving his unique username and password. Once he is logged in, he checks whether the patient is new or not. If the incoming patient is New, then Admitting Clerk will create a new record in Web Portal and store the patient information by collecting all necessary details and also about health history. Else, he just collects information about the type of his emergency. Also he will provide Patient ID which will be sent via sms to patient’s mobile number.

*DEPARTMENT ADMINISTRATOR*

Department Administrator checks and keeps track of all the doctors in various departments like ENT, Cardio, and General -Surgery etc. The department admin logs in the system by giving his unique username and password. The department admin after login gets to know the patient details. He can also see how many doctors are currently available or not. Accordingly, he checks their timings and the emergency of the patient and schedules their appointment.

*DOCTOR/NURSE*

Doctors will get patient information by querying on Patient ID and will conduct series of tests and will update their test report along with comments in the Application. The data about medical treatments and other diagnoses are a matter of privacy. Hence only patient and doctor can view this data and nobody else will have access to this data. All these details will be sent by mail to the patient to his email-id.

*BILLING DEPARTMENT*

Billing Department will calculate the expense and will be responsible to verify if Patient has Insurance Policy, if so then they will open a secure session to charge the cost to Insurance providers. If Patient doesn’t have Insurance Policy, then Billing Department Admin will send a message via sms to pay either in cash or credit/debit cards .The Billing Department will only get the names of the tests performed and essential patient-information and not any further details.

*INSURANCE PROVIDER*

Insurance Providers are external actors. They will get necessary patient-information for verifying the claim and will confirm whether the Insurance ID and policy coverage is valid or not.

2.3.3-INTERACTION BETWEEN COMPONENTS

(THROUGH SEQUENCE DIAGRAMS)

