**Project 11**

**St Vincent's Hospital Management System**

**Objectives**

This system enables user friendly for Doctor-Patients relationship. Doctor can easily diagnosis patient’s problem and find out the solution. Then clinic provide update details about patient’s problems.

The project objective is to create an application that uses AES encryption to prevent online fraud when a scammer attempts to log in through a key sharing.

## **Existing System:**

In today’s world if someone, wants to book a Doctor’s Appointment we need to call in clinic or personally go to that place and book the appointment. This consumes precious time of the patient. Also if the doctor cancels his / her schedule, the patient does not come to know about it unless he/she goes to the clinic.

## **Proposed Solution:**

The proposed system consists of four panels: Doctor, Patient, Hospital or clinic and Admin. The users will first have to download the application and install it in their mobile devices. Once installed, this application will remain into the device permanently until the user deletes it or uninstalls it. The patient will have to register into the application for the first time. On registering, the patient will receive a username and password. The patient can use this username and password for logging into the app each time he/she uses it. After logging in, the patient will have to select a filtration type. The filtration is done on two bases: Gender wise and Specialty wise. After selecting the filtration type, the doctors list will be displayed. The patient can select any particular doctor and view his profile. And patient give reviews on doctor profile. Also the patient can view the doctor’s profile and look for an appointment. The patient will then send a request for appointment. The doctor can either accept the appointment or reject it. The database will get updated accordingly and the patient will get a confirmation message. The add-on to this system is that the patient will receive a notification 2 hours before the actual appointment. As well as if doctor cancels the appointment patient received a message for appointment cancelation. This will be very useful in case the patient tends to forget the appointment. Also doctor can search patient history by using a unique ID. Adding AES encryption with a public key cryptosystem to the proposed methods is one possibility to eradicate security leaks.

# OVERALL DESCRIPTION OF THE PROPOSED SYSTEM

## **Module Description**

This system enables user friendly for Doctor-Patients relationship. Doctor can easily diagnosis patient’s problem and find out the solution. Then clinic provide update details about patient’s problems.

The share is encrypted using AES encryption with a public key selected by hospital server. The secret image (share 1) is converted to array of bytes using getImageBytes method. The converted image bytes are encrypted using AES encryption technique. The only request with the public key can be able to pass through the authentication process. After the share is encrypted using AES encryption LSB embedding is applied on the share.

**System Features**

In the life of the software development, problem analysis provides a base for design and development phase. The problem is analyzed so that sufficient matter is provided to design a new system. Large problems are sub-divided into smaller once to make them understandable and easy for finding solutions. Same in this project all the task are sub-divided and categorized.

**System Modules:**

* **ADMIN**
* Create Id & Password
* **DOCTOR**
* Login
* View Complaint
* Post Solution
* Clinic Register
* View AES key sharing
* **PATIENT**
* Register
* Login
* Find Doctor
* Post Complaint
* View Details
* View Profile
* Post AES key sharing
* **CLINIC**
* Login
* Update Patient Details
* **CASHIER**
* Login
* Payment Entry

**MODULES:**

* **ADMIN:**
* **Admin Dashboard**
* **Create id & Password:**

Admin can only create id and password to all doctor, cashier and clinic employees.

* **DOCTOR:**
* **View complaint:**

Doctor enters this system and view patient’s complaint details.

* **Post Solution:**

Doctor posts their solution report to patient.

* **Clinic Register:**

Doctor only can register the clinic details.

* **View AES key sharing:**

Doctor view AES encrypted key from patient’s share.

* **PATIENT:**
* **Find Doctor:**

Patient enters this system and find the doctor details about entire surrounding.

* **Post Complaint:**

Patient enters this system and post their complaint to doctor.

* **View Report:**

Patient view the report details for their corresponding diseases.

* **View Profile:**

Patient enters this system view and updates their own details.

* **Post AES key sharing:**

Patients can post the AES encrypted key to share the doctor.

* **CLINIC:**
* **Update Details:**

Here clinic updates the patients report details.

* **CASHIER:**
* **Payment Entry:**

UML Diagrams:

UML stands for Unified Modelling Language. UML is a language for specifying, visualizing and documenting the system. This is the step while developing any product after analysis. The goal from this is to produce a model of the entities involved in the project which later need to be built. The representation of the entities that are to be used in the product being developed need to be designed.

There are various kinds of methods in software design:

* Use case Diagram

**Usecase Diagrams**:

Use case diagrams model behavior within a system and helps the developers understand of what the user require. The stick man represents what’s called an actor. Use case diagram can be useful for getting an overall view of the system and clarifying who can do and more importantly what they can’t do.











Use case diagram consists of use cases and actors and shows the interaction between the use case and actors.

* The purpose is to show the interactions between the use case and actor.
* To represent the system requirements from user’s perspective.
* An actor could be the end-user of the system or an external system.

Functional requirements are product features or functions that developers must implement to enable users to accomplish their tasks. So, it’s important to make them clear for the stakeholders. Generally, functional requirements describe system behavior under specific conditions.

The developers of this system must enhance the performance and efficiency of the system by adding 15 to 20 more functional requirements. Students need to do their own research to find how they can improve the system and which FRs need to added. The group must need a prior approval from the stakeholders/project supervisor before finalizing these Functional Requirements.

These enhanced FRs must be reflected separately in Final SRS Report after the approval.

**Non Functional Requirements**

There are a lot of software requirements specifications included in the non-functional requirements of the system, which contains various processes, namely Security, Performance, Maintainability, and Reliability.

**Security:**

* Patient Identification: The system needs the patient to recognize herself or himself using the phone.
* Logon ID: Any users who make use of the system need to hold a Logon ID and password.
* Modifications: Any modifications like insert, delete, update, etc. for the database can be synchronized quickly and executed only by the ward administrator.
* Front Desk Staff Rights: The staff at the front desk can view any data in the system, and add new patients record to the HMS but they don't have any rights to alter any data in it.
* Administrator rights: The administrator can view as well as alter any information in the system.
* Cybersecurity Implementation: Identify ethical risks in database design and implement the actions of mitigation.
* Cybersecurity Implementation: Provide evidence that you have implemented the data encryption and anonymization of data.
* Cybersecurity Implementation: Perform ‘Data Protection Impact assessment’ to help ensure compliance, facilitate a privacy by-design approach and identify better practice.
* Cybersecurity Implementation: Implement the secure methods for data encryption, data security and data breach to maintain the privacy of end users.

**Performance:**

* Response Time: The system provides acknowledgment in just one second once the 'patient's information is checked.
* Capacity: The system needs to support at least 1000 people at once.
* User-Interface: The user interface acknowledges within five seconds.
* Conformity: The system needs to ensure that the guidelines of the Microsoft accessibilities are followed.

**Maintainability:**

* Back-Up: The system offers efficiency for data backup.
* Errors: The system will track every mistake as well as keep a log of it.

**Reliability:**

* Availability: The system is available all the time.

Project should aim at Business process automation.

* + In computer system the person has to fill the various forms & number of copies of the forms should be easily generated at a time.
  + In computer system, it is not necessary to create the manifest but we can directly print it, which saves time.
  + To assist the staff in capturing the effort spent on their respective working areas.
  + To utilize resources in an efficient manner by increasing their productivity through automation.
* The system should generate types of information that can be used for various purposes.
* It satisfy the user requirement
* Be easy to understand by the user and operator
* Be easy to operate
* Have a good user interface
* Be expandable
* Delivered on schedule within the budget.

**Hardware Requirement: Should be recommended by the developers.**

**Software Requirement: Should be recommended by the developers.**