

# BLOCKCHAIN BASED SECURE BILLING FOR HOSPITALS

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## Group Members:-

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## PROBLEM STATEMENT

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Develop a better and improved software than current Hospital Billing System that solves problems in field of security to avoid ongoing frauds in medicine sector. It is very important to maintain and handle important financial information of a hospital in a secure way. The new system will provide a secure platform for hospital bill management by using a very secure blockchain hashing mechanism

# OBJECTIVES

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- Blockchain is a system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system, and will help us to achieve a better security than current available medical billing systems.
- The purpose of the project is to build an application program to reduce the manual work and increase the speed and security for managing the Bills. It tracks and stores the medical data in more secure way.
- They may use improper medical billing to generate more profit. Often, hospitals that engage in medical billing fraud don't stop at just one they typically commit some combination of fraud practices.
- These frauds are increasing, our goal is to make a fully secure medical billing system which will stop these frauds as it is roots.

# SOFTWARE AND HARDWARE REQUIREMENT

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## **Software Requirements:**

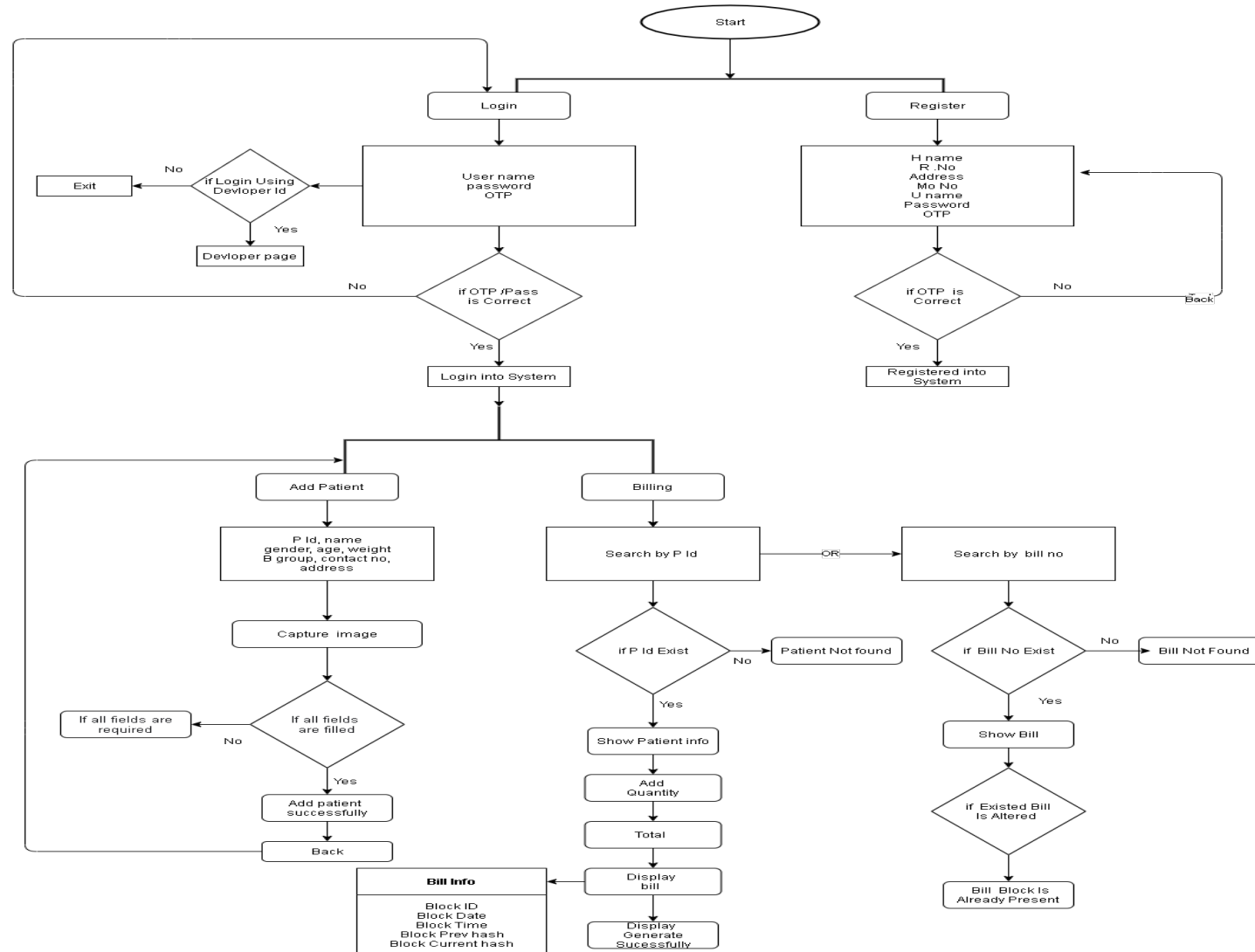
- Operating System: Windows 7, Linux, Mac OS.
- Front End: Python, Tkinter.
- Back End: MYSQL connector, Python IDE
- Tool: VS Code. 3.2

## **Hardware Requirements:**

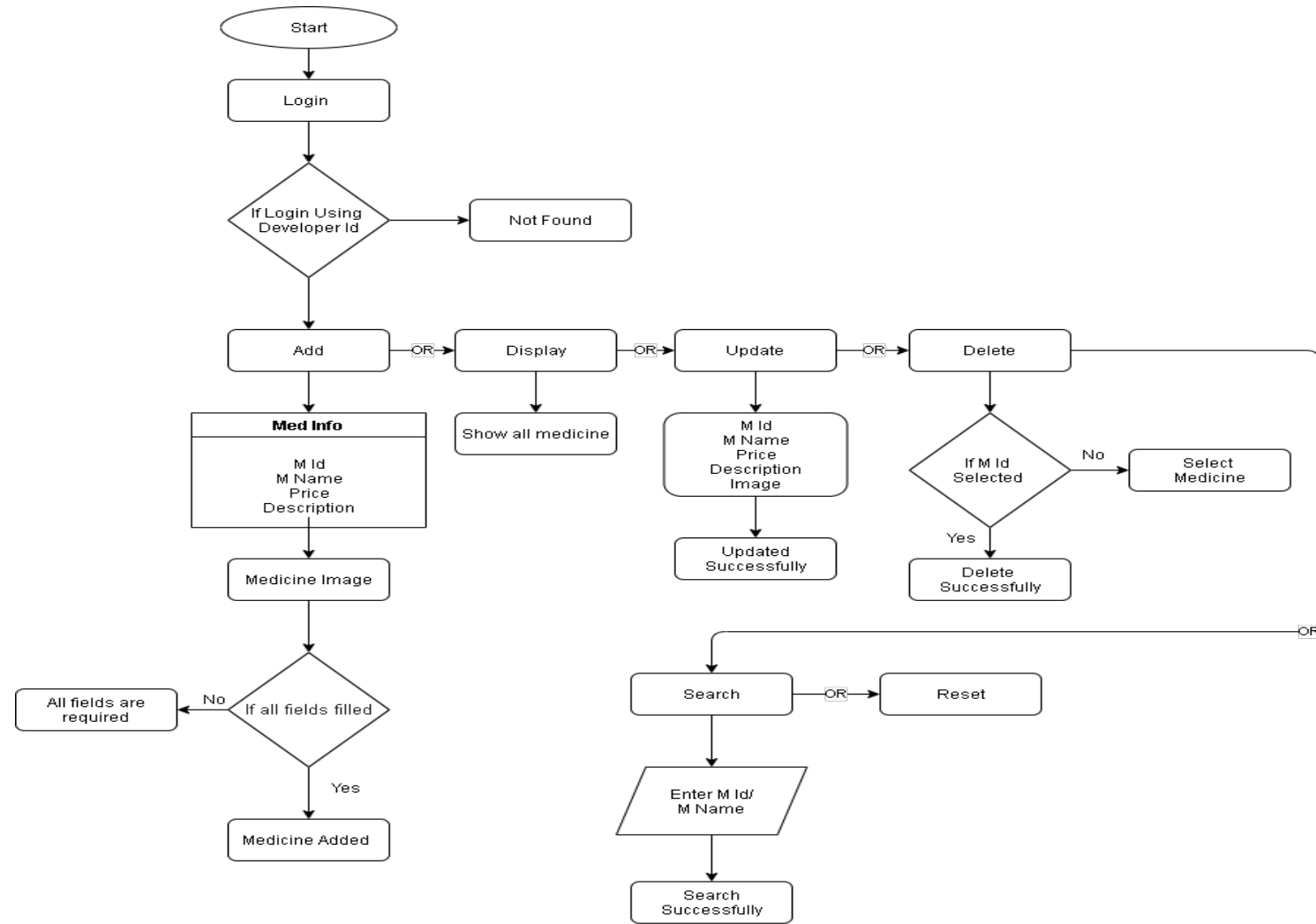
- System: Pentium IV 2.80 GHz, Core
- Hard Disk: 160 GB.
- Monitor: 15 VGA Colour.
- Ram: 4 GB.

# FLOW CHART

## USER SIDE:

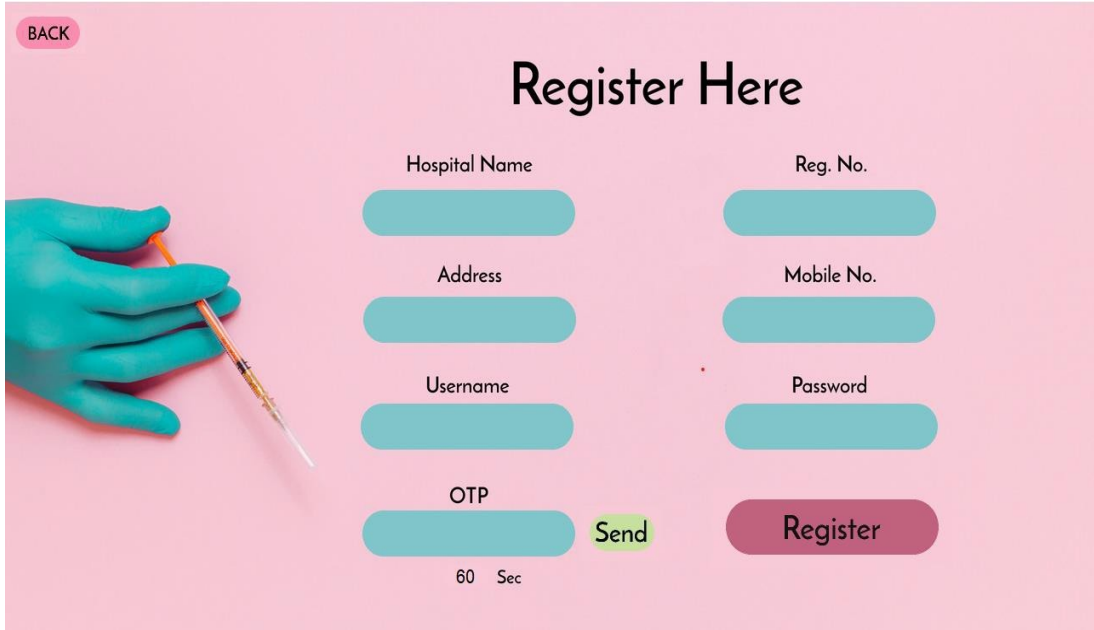


## DEVELOPER SIDE:



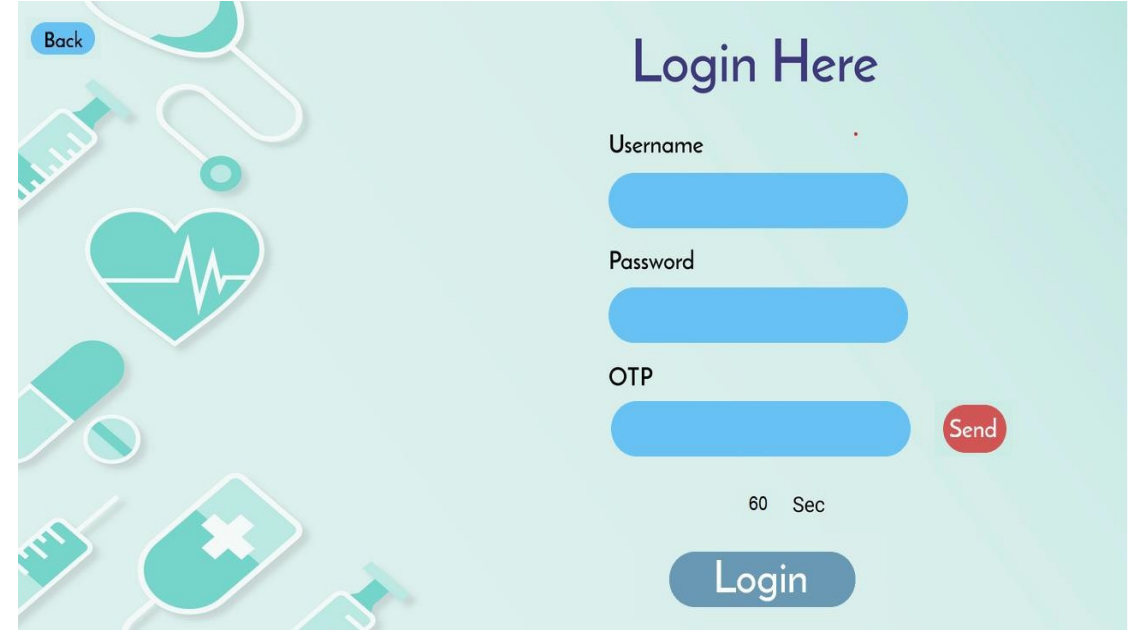
# MODULES AND THEIR FUNCTIONALITIES

## REGISTRATION MODULE

The registration module interface features a pink background. On the left, there is a graphic of a hand in a blue glove holding a syringe. At the top left, a pink button labeled 'BACK' is visible. The main heading 'Register Here' is centered. Below it, there are two columns of input fields: 'Hospital Name', 'Reg. No.', 'Address', 'Mobile No.', 'Username', and 'Password'. At the bottom, there is an 'OTP' field with a 'Send' button and a '60 Sec' timer. A large purple 'Register' button is positioned at the bottom right.

Registration module designed for new user, where new hospital can register and setup there individual billing system. Register module is kept convenient for new users and only essential information is taken.

## LOGIN MODULE

The login module interface has a light blue background with medical icons like a stethoscope, heart, and syringe on the left. A blue 'Back' button is at the top left. The heading 'Login Here' is centered. Below it are input fields for 'Username', 'Password', and 'OTP'. A red 'Send' button is next to the OTP field. A '60 Sec' timer is shown below the OTP field. A large blue 'Login' button is at the bottom.

Login module is developed for existing users where registered user can login to their individual billing system profile where they can manage their hospital billing system.



## DEVELOPER WINDOW

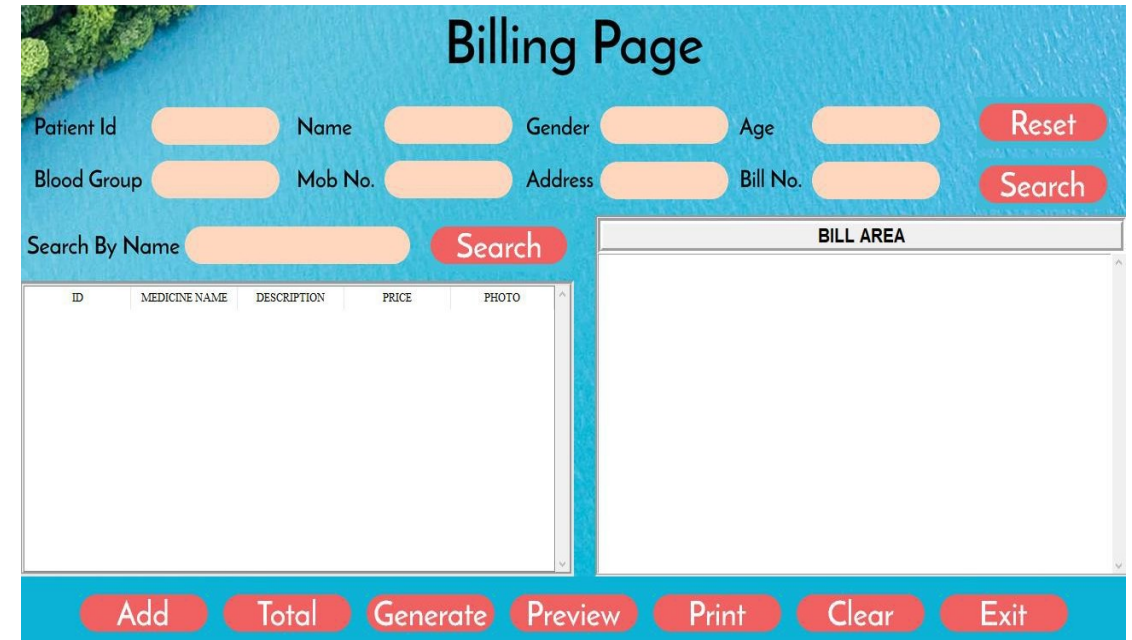


The Developer Window interface features a dark blue header with a home icon and the title "Developer Window". Below the header, there are four input fields: "Medicine ID", "Medicine Name", "Price", and "Description". To the right of these fields is an "Image Upload" button. A vertical column of action buttons is located on the right side: "Add", "Display", "Update", "Delete", "Search", and "Reset". At the bottom, there is a table with the following headers: ID, MEDICINE NAME, DESCRIPTION, and PRICE.

ID	MEDICINE NAME	DESCRIPTION	PRICE
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Developer module is the only side of project that can manage all the database of the project. Developer module is a well interpretation of database workstation. It is developed with a user-friendly UI where all the medicine related data can be added, deleted and replace.

## BILLING WINDOW

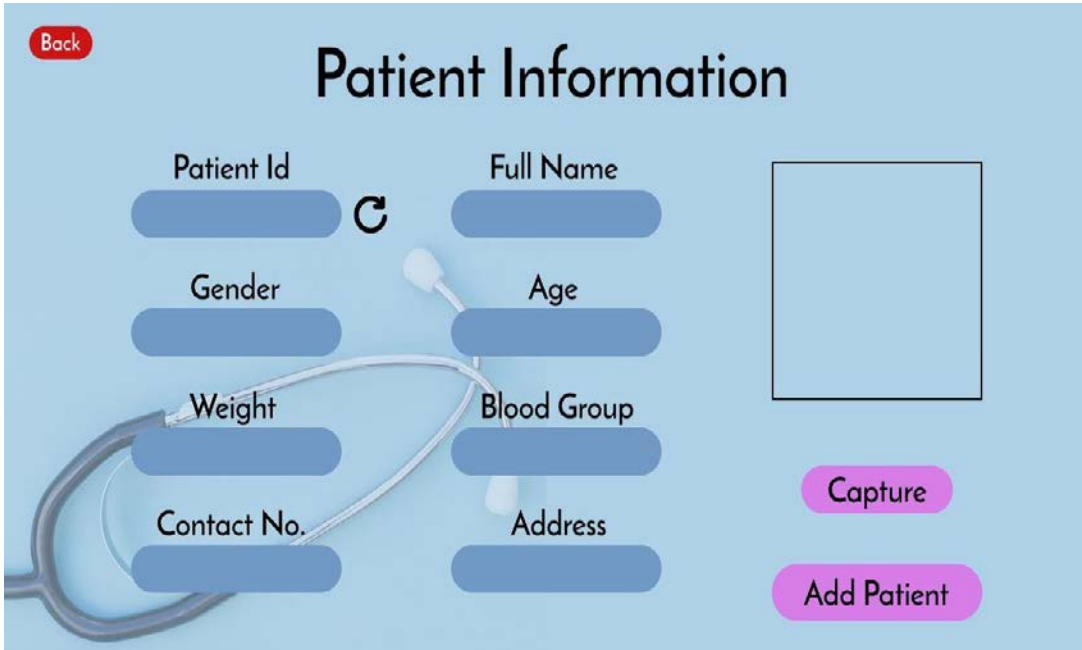


The Billing Page interface has a light blue header with the title "Billing Page". It contains several input fields for patient information: "Patient Id", "Name", "Gender", "Age", "Blood Group", "Mob No.", "Address", and "Bill No.". There are "Reset" and "Search" buttons next to the "Age" and "Bill No." fields respectively. Below these is a "Search By Name" field with a "Search" button. On the right side, there is a "BILL AREA" section. At the bottom, there is a row of buttons: "Add", "Total", "Generate", "Preview", "Print", "Clear", and "Exit".

ID	MEDICINE NAME	DESCRIPTION	PRICE	PHOTO
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This is the very important part of the system and it is developed with our focused blockchain technology to provide maximum security.

## ADD PATIENT MODULE



The screenshot shows a form titled "Patient Information" with a "Back" button in the top left corner. The form contains several input fields: "Patient Id", "Full Name", "Gender", "Age", "Weight", "Blood Group", "Contact No.", and "Address". There is a circular refresh icon next to the "Patient Id" field and a large empty square box for a patient photo. At the bottom right, there are two buttons: "Capture" and "Add Patient". A stethoscope graphic is overlaid on the left side of the form.

It is an easy way to keeping records of new patients and for that task multiple fields are asked, which are Patient Id, Full Name, Gender, Age, Weight, Blood Group, Contact No, Address and at last its Patient's image. All the required field are necessary and important so they properly and safely kept in database.

## WEBCAM MODULE



This module is used to capture the live image of patient so that we can use it for further uses.

# CONCLUSION

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- We have studied new technologies like python and blockchain while working on this project.
- This represents a typical real-world situation. Scheduling a project and adhering to that schedule creates a strong sense of time management.
- Sense of teamwork has developed and confidence of handling real life project has increased to a great extent.
- Initially, there were problem with the validation but with discussions, we were to implement validations Our understanding of database design has been strengthened this is because in order to generate the final reports of database designing has to be properly followed.
- By using the blockchain technology, we have implemented the immutable patient billing information.
- For implementing blockchain concept, we have used and implement SHA 256 for securing the billing system.

# FUTURE SCOPE

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- Diagnostics billing system.
- Creating patient's report card.
- Generating blockchain visually.
- Securing patient's information using blockchain.

# REFERENCES

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- Bitcoin: A Peer-to-Peer Electronic Cash System white paper by Satoshi Nakamoto.
- <https://www.figma.com> with <https://github.com/Proxlight/Proxlight>- Designer.
- <https://dev.mysql.com/doc/refman/8.0/en/>
- <https://pypi.org/project>
- Core Python Programming - Covers Fundamentals to Advanced Topics By Dr.Rao R. Nageswara

**Thank You**