Software Requirements Specification

Mechanism for prescribing drug in hospitals and its substitute availability in the medical shops of the Area/City.

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1. Introduction

The main aim of the project is to help the patients’ locate the nearest medical shop relative to their location as the patient has to visit many medical shops to collect the prescribed medicine , also the patient is unaware of the alternative drugs that are available in respect to the drug that has been prescribed by the doctor , this application also helps the patient to look for the alternative drugs if in case the prescribed medicine is unavailable at the nearest medical shop .Herein in this application , the prescription will be digitalized and will be directly transferred from the doctor to the patient  or the caretaker .

The work of the doctor of writing the prescription gets reduced and the time of the patient is saved as he has to no longer roam around looking for the prescribed medicine , either he would get the prescribed medicine at the nearest location or its alternative if the prescribed medicine is unavailable .

Also this product helps the pharmacists to keep a track record of their stock along with the expiry dates of the medicines .

1.1 Purpose of the system

The purpose of this application is simple and clear , it will provide a platform wherein the doctor and the patient can directly communicate with each other  , in addition wherever the patient goes he has the copy of the prescription , no need for additional hard copy of the prescription . Also the patient would get the prescribed medicine at the nearest location .

The application would help  the pharmacist in keeping a proper track record of the expiry dates of the medicines  which can mislead by the pharmacist as there are so many medicines in the stock . -

1.2 Intended audience

Going by the problem statement of our project , the project will be useful to all the people who visit a doctor , i.e the prior focus of the application will be on the patients’ (intended audience ) and also the caretaker of the patient can have an access to the medicines of the patient in case of emergency .

Also the other part of the application focuses on the doctors and pharmacist, as the doctor and pharmacist will use the application to provide the prescription and  the location of the store respectively .

2. Team Architecture

There are total of 11 modules in the project . The modules were divided amongst the teams mutually .

The work is broken down in teams:

* Member 1 - Registration, Login, Pharmacy verification (Website)
* Member 2 - Inventory, Transaction (Website)
* Member 3 - Registration, Login (Android App)
* Member 4 - Location, Prescription, Substitute (Android App)
* Member 5 - Medicine Database Management(Website)
* Member 6 – Medicine Database Management(Android App)

Team1 members are working on

* Registration
* Login
* Pharmacy Verification

FOR WEB APPLICATION

Registration :

Login :

FOR ANDROID APPLICATION

Registration :

Login :

Pharmacy Verification :-

The verification of the pharmacy will be done on the time         of registering the shop on the Web Portal. Verification can be done by using Drug License repository.

Drug License Repository contain the information of all the Pharmacist who are having a medical shop.

TEAM 2 members are working on

* + Inventory
  + Transaction

Inventory :

* + Direct Stock : Option for entering opening stock of company.Pharmacist can enter the stock of medicines after they login to the website. They need to provide the medicine name and the quantity on the time of entering stock.
  + Expired Stock : Keeps record of damaged entries and Pharmacist can see the list of medicine that are going to expire on the provided date.
  + Low stock: Reminder  for low stock and Product short expiry
  + Search : This feature help pharmacist to check whether the medicine is available in the shop .

Search of medicine filter by product group (medicine,syrup etc).

Search of medicine filter by and manufacture company .

Search of medicine filter by generic content(paracetamol etc) .

Transaction:

* Handle all transactions like purchase, sales,     purchase return, sales return
* Manages counter sale (petty sales)and generate bills,
* Keeps track of instant sale: collecting medicines from nearby medical shop and selling it directly.

TEAM 3 members are working on

* Location
* Prescription

Location:-

The Location of the nearest pharmaceutical stores will be provided to the patient. Only the stores having the prescribed medicine (or its substitute as provided by our application) in stock will be displayed.

Prerequisites:

* The owner of the stores are required to mention their precise address at the time of registration through our Web Application.
* Google Maps API

Prescription :-

Doctors will be able to generate prescriptions with all the necessary details required (Dose, What time of the Day, Which Day of the Week, etc).

* The patient will be required to provide the username (unique) to the Doctor in order to get his/her prescription (in-app).
* The Application is required to have all the necessary UI elements for building the prescription. The prescription so generated, must be able to answer the following questions:

1. What is the required quantity to be taken?
2. What Time of the Day should the medicines be taken?
3. What Days of the Week Medicines should be taken?

TEAM 4 members are working on

* Medicine
* Substitute

Medicine

1)This module will provides the fundamental information about medicines that will be available for the use of  both Doctor as well as Patient.

2) This module is categorized by their salt composition , weight by weight composition , brand , expiry date and cost. Here,

a) Salt is required to find alternatives.  
 b) Expiry date is required for maintaining stock.

c) Weight by Weight is required for describing effective medicine intake.

3)When doctor will prescribe the medicine to the patient , through this database doctor can fetch the whole information related to the prescribing medicine by searching   medicine name.

Substitute

* This module  serve the main purpose of the Application that is to provide the alternatives for a drug/salt if the patient doesn’t find the prescribed medicine.
* It also provides recommendations about medicines to the patient.
* The process of finding substitute for the medicine is based on it’s availability in the near-by stores according to the location of the patient .

Prerequisite

* Medicine Database(generic and patent medicine name with it’s composition)
* Base salt whose substitute is to be searched.

3.OVERALL DESCRIPTION

This medicine prescription system has to be architected which will be used as an Android application(used by patients and Doctors for getting the alternatives and the nearest medical shop address with the availability of medicines) and Website(used by the Pharmacist for online stock management which provides the availability detail of particular medicine and the address of that medical shop to the Android application).The project will use Object-Oriented architectural style.

For Website, this medicine prescription system leveraging the powers of the internet to increase its business to sell their medicines by the help of internet .

3.1 PRODUCT FUNCTIONS

For Website :-

Register Shop :

Login :

Stock Entry :

Damaged/Expired Stock :

Product Availability Search :

For Android Application :-

3.2 Assumptions and Dependencies

3.2.1. Input:

The  information entered by the user should be valid and legal.

3.2.2. Processing:

The processing of the system starts as soon as the input is provided. The system response time should be fast also the system should have capacity of supporting at least 10000 users at a time. The website as well as the android application should have less loading time and soon after a query is passed it should display feasible outputs.

3. Output:

  The output is displayed to the user. The user will not be able to edit the output.

4. Specific Requirements

Template for describing functional requirements

Below is the template we followed to describe each Functional Requirement:

|  |  |
| --- | --- |
| Purpose | Description of the functional requirement and its reason(s). |
| Inputs | What are the inputs; in what form/format will inputs arrive; from what sources input will be derived, legal domains of each input element |
| Processing | Describes the outcome rather than  the implementation; include any validity checks on the data, exact timing of each operation (if needed), how to handle unexpected or abnormal situations |
| Outputs | the form, shape, destination, and volume of the output; output timing; range of parameters in the output; unit measure of the output; process by which the output is stored or destroyed; process for handling error messages produced as output. |

4.1 User Interface

The user interface required to be developed for the system should be user friendly and attractive.

For Doctor:

|  |  |
| --- | --- |
| Purpose | To help Doctor build prescriptions with simple and clean User Interface once login is successful. |
| Inputs | The doctor is expected to provide:  -Medicine Name  -Quantity to be taken  -Time Of the Day medicines are to be taken  -Days of the Week  With the help of android UI elements (spinners, edit-texts, etc.) |
| Processing | All the provided data will be used to build prescription in a way patient can easy understand. |
| Outputs | The Output will be ready-to-send Prescription (digital) to the patient. |

For Patient:

|  |  |
| --- | --- |
| Purpose | To help user interact the prescription and find the location(s) of the nearest pharma stores having the prescribed medicines (or their generic alternatives). |
| Inputs | The patient is expected to:  -input click events(for medicines in prescription)  -search for medicines(explicitly)  -choose between various pharma stores provided in the maps. |
| Processing | The choices made by the patient for :  -Medicine –> will be used to either search the availability of the same or to find its substitute.  -Store Location –> will direct the user to reach to that location. |
| Outputs | The output is -- a clean user experience based on patient choices. |

For Pharmacist:

The interface between the user and the system will be WIMP (Windows, Icons, Menu, Pointers) keeping in mind that the system is to be run through web browser. All operations will be of point and click nature with all navigations performed through windows of the system specifically buttons and menus:

Buttons: The button is activated when the user will click with the left click of the mouse within the bounds of the button. And thus the action associated with it will be carried out.

Menu: All the available functionalities.

|  |  |
| --- | --- |
| Purpose | To help Pharmacists maintain their stock easily with the help of basic UI elements (add, update, delete). |
| Inputs | The pharmacist is expected to provide:  -Medicine name.  -Medicine ID.  -Medicine Generic name.  -Quantity  -Expiry Date. |
|  | All the entries provided by the pharmacists will be added to the MySQL database in the respective attributes. This updated database will then help finding :  -the alternative of the prescribed medicine.(Generic)  -the availability of the requested medicine.(Quantity) |
| Outputs | The output will be either :  -success(updated stock )  -failure(failed to enter the stock),  based on the processing performed. |

4.1.2 Hardware Interface

Here's What You Need to Use the :

* 20 GB HDD
* 256 MB RAM
* Pentium IV Processor
* Input Devices: Keyboard, Mouse
* Output Devices: Monitor, Printer
  + 1. Software Interface
* Programming Language HTML,CSS,Java Script,PHP
* Back Hand Tool National Medical Drug  reprository,  Global Positioning Services.
* Supporting Tools Brackets,MySql.

4.1.4 Communication Interface

The mechanism for prescribing drugs and finding substitute of it is four-tier architecture. The client is a thin client who just displays the HTML pages and forms to the user of the system. The database tier stores all the information (characters, lines, etc) in a table. The third tier does all the transactions and processing of the system. It does the communication between the thin client and the database. The fourth tier is going to take results from the database and provides the user with the locations of availability.

4.2 Performance Requirements

The system will process incoming data and send relevant feedback within a few milliseconds of receiving it. Web users may not be able to have such a fast response as this however  because of bandwidth limitations, especially during peak usage times. The system will also be capable of dealing with

large number of users (approx. 1000) simultaneously. Given that expanding nature of the World Wide Web, the above scenario would not be uncommon. The system will be able to maintain response times that are within the normal expectations of a user even during periods of heavy usage.

5. Non-functional Requirements

• Performance Criteria Time :-

The elapsed time for the following cases should be minimum

1) For the search of substitutes.

2) To search for nearest pharmacy shop’s location

• User friendly:

Our system is more user friendly and self explanatory.The user interface should be kept simple and uncluttered. Since different type of people will interact in this process so our project should be very easy to them to understand.

• Flexibility:

Our project is so flexible that changes can be done easily.

• Extensibility:

It should be able to accommodate the variations like:

-- Different medicines and their respective powers should be handled easily.

-- Generating the most optimal results for finding substitutes.

-- Providing with nearest locations.

• Portable:

Our project is platform independent as it is available on website and android  .

• Reusable:

The prescription provided by the doctor to the patient will be    stored in his account which can be reused later.

Security:

a) The Login for user i.e patient,doctor,pharmacists will have different Access levels

b) The pharmacists is equipped with Create, Read, Update, and Delete (CRUD) levels.

c) Access permissions for application data may only be   changed by the system’s data administrator

d) Password requirements for clients will be based on – length, special characters, expiry , 2FA

e)   Inactivity timeouts of an account will be traced by  – durations, actions.

Availability:The availability of the substitute is verified by checking

Modification : The data updated by the pharmacist will be modified in the database.

5. Software System Attributes

Reliability:

The medicine prescription system should be easy and without any mistakes so that user should take information about all the medicines alternatives and their availability in nearby medical shops.

Availability:

The project should be available 24 hours a day, 7 days a week. The availability can be measured in terms of MTTR (Mean Time To Repair) and MTBF (Mean Time Between failures). The system will be available to the user whenever the user needs it.

Maintainability:

Our project should be easy to maintain by administrators or by our company.

6. SOFTWARE PROCESS MODEL

Agile model

-  Enables clients to be happier with the end product by making improvements and involving clients with development decisions throughout the process.

-  Encourages open communication among team members, and clients.

-  Providing teams with a competitive advantage by catching defects and making changes throughout the development process, instead of at the end.

-  Speeds up time spent on evaluations since each evaluation is only on a small part of the whole project.

-  Ensures changes can be made quicker and throughout the development process by having consistent evaluations to assess the product with the expected outcomes requested.

 - It keeps each project transparent by having regular consistent meetings with the clients and systems that allow everyone involved to access the project data and progress.

6.4 Observation

We have observed that our system that is Inventory Management and Costing would be of immense help to the client as currently everything is done manually, which results in a lot of time consumption, is error prone and also increases economic burden in the form of salaries paid to the workers. Moreover such a manual system of managing inventory is quite unstructured. Our system would be efficient, accurate and easy to use and requires very less labor.

7.0 DETERMINING PROJECT FEASIBILITY

The feasibility study is not a full-blown systems study. Rather, the feasibility study is used to gather broad data to make a decision on whether to proceed with system study. System project feasibility is assessed in three principal ways:

* Economically
* Technically
* Operationally

Economical Feasibility:

The organization has evaluated cost of software and hardware required for the system including the storage of data. The benefits expected from the system are studied to assess the reduced cost due to the new system.

Technical Feasibility:

Organization has shown willingness to purchase all hardware and software tools which we recommend to successfully implement the system. Hence technically there are no limitations for the development of the system. As far as programming efforts are concerned, we are familiar with Android, WebDevelopment and MySql, Thus the project is technically feasible.

Operational Feasibility:

Operational feasibility is dependent on the humans who will be using the application once it’s ready and installed for use. The software will have a user friendly interface which will be much convenient as compared to the current manual procedure. Thus the project is operationally feasible.

