PHARMACY MANAGEMENT SYSTEM  
  
   
  
UIT2211 – SOFTWARE DEVELOPMENT PROJECT – I  
  
   
  
A PROJECT REPORT  
  
 Submitted by  
  
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SSN COLLEGE OF ENGINEERING,  
  
KALAVAKKAM  
  
 AUGUST 2022  
  
   
  
   
  
Sri Sivasubramaniya Nadar College of Engineering  
  
(An Autonomous Institution, Affiliated to Anna University)  
  
   
  
BONAFIDE CERTIFICATE  
  
   
  
Certified that this project titled PHARMACY MANAGEMENT SYSTEM is the bonafide work of BALAKUMAR.G -3122215002019, BHARATH KUMAR.G -3122215002020, BHUVANESWARRAN.T -3122215002021, DARRIEN XAVIER.P V-3122215002022, DEEPESH SUDHAN A-3122215002023, DENNIS ANDREW B-3122215002024, DHANUSHPRIYAN P-3122215002025 and is submitted for project viva-voce examination held on 25 August 2022.  
  
   
  
   
  
Signature of examiner(s)  
  
  
  
  
  
  
  
  
  
ABSTRACT   
  
PROBLEM DESCRIPTION :  
  
A small pharmacy wants to develop a system to maintain their stock of medicines and track the daily sales. A salesperson should be able to input the required medicines from a prescription and generate an invoice for the same. The system should indicate to the salesperson the bins where each required medicine is available. The management should be able to track their daily/weekly/monthly/annual sales and stock. The system should generate alerts when a medicine is about to expire. Alerts should be generated when a medicine is going to be out of stock.  
  
MOTIVATION:  
  
The pharmacy management system is built for effective management of pharmacy. This system is time efficient and all data can be accessed in constant time. This system is designed with a better GUI and also to generate statistical reports when compared to existing systems.  
  
OBJECTIVES:  
  
Improve performance and efficiency of a pharmacy  
  
Provide easy access to sales and stock reports  
  
Provide easy access of printing invoices for customers  
  
To minimize human errors  
  
High degree of minimization of time and resources  
  
To design a system that is better than manual recording system  
  
To design a system that can keep and track of medicines  
  
CLIENT DESCRIPTION:  
  
Client’s Pharmacy : SRI SARAVANA PHARMACY  
  
The client needed the system to generate invoice , to track stock and sales, and also to generate alerts when the medicines are about to expire  
  
  
  
INTRODUCTION:  
  
MOTIVATION:  
  
The project is developed using Python language and using Hashtable as it is Data Structure.The pharmacy management system is developed with an initiative of giving medicine details of the medicines when name is entered. The system is also designed user friendly and also performs tasks in quickest time.  
  
PROBLEM STATEMENT:  
  
A small pharmacy wants to develop a system to maintain their stock of medicines and track their daily lives. A salesperson requires the following functions - input medicines, generate invoice, bins location, track sales, alert medicines when expired or out of stock.  
  
PROJECT OBJECTIVES:  
  
 The user-friendly software reduces the burden for Pharmacists and helps in managing the tasks in Pharmacy like Billing, Alerts, Reports etc. also improving the processing efficiency. It supports fast and efficient searching and updating medicines. It supports generating reports in an easier way and the user-interface is also very handy , easy to use for anybody who has basic knowledge of computers, also improving the accuracy of the system.  
  
DELIVERABLES:  
  
PROJECT NAME: PHARMACY MANAGEMENT SYSTEM  
  
PROJECT STATUS: COMPLETED  
  
S.NO  
  
 DELIVERABLE   
  
 NAME  
  
 DESCRIPTION  
  
 STATUS  
  
1  
  
INVENTORY  
  
 Initial UI design for dashboard  
  
COMPLETED  
  
2  
  
REPORTS  
  
Final window design for daily statistics  
  
COMPLETED  
  
3  
  
ALERTS  
  
Window displaying medicines shortage and expired  
  
COMPLETED  
  
4  
  
INVOICE  
  
 Design/Format for bill/invoice generation  
  
  
  
  
  
COMPLETED  
  
5  
  
PMS APPLICATION  
  
 Fully developed final application with bug fixes  
  
COMPLETED  
  
REQUIREMENT ENGINEERING:  
  
  
  
CLIENT DETAILS:  
  
CLIENT NAME: Sri Saravana Pharmacy  
  
CLIENT LOCATION: No.1/248,Mariamman Temple Street, Mugalivakkam Main Road, Chennai-600125  
  
PHARMACY OWNER: Muthu  
  
CLIENT CONTACT: 044 2252 3525  
  
  
  
FUNCTIONAL MODULES:  
  
  
  
Storing available stock and information temporarily.  
  
Generating invoice depending on user’s requirement.  
  
Providing statistics about daily,weekly ,monthly and annual sales.  
  
Generating alerts when medicine is about to expire.  
  
Alerting when medicine is about to go out of stock  
  
  
  
SPRINT  
  
Epic  
  
User story#  
  
Requirement /user story  
  
Essential or desirable  
  
Description of the requirement  
  
Remarks  
  
 2  
  
Stock and Track  
  
1  
  
As a pharmacist, I want the system developed to maintain the stock of medicines and track the sales.  
  
Essential  
  
 Developing a software which can keep track of the whole stock of medicines available and also make a report and track the sales.  
  
Hashtable is being used to keep data related to medicines  
  
 1  
  
Expire alerts  
  
2  
  
   
  
 I also want the system to raise an indication when medicines about to expire and going out of stock  
  
   
  
  
  
Essential  
  
 The software should be able to generate alerts whenever a medicine is getting expired or out of stock .  
  
 Datetime module in Python time is used for extracting present date  
  
 1  
  
Invoice  
  
3  
  
I want my salesperson to be able to input the required medicines and generate invoice.  
  
Essential  
  
 The software should be able to generate an invoice after the customer buys the required medicines.  
  
 Text File is being used to generate invoice  
  
 1  
  
Statistics  
  
4  
  
I want the system to track daily, weekly, monthly, annual sales and stocks.  
  
Desirable  
  
 Tracking the whole sales daily , weekly,monthly and annually.  
  
 Matplotlib module is used to display reports as bar graphs  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
 USER ACCEPTANCE TESTING   
  
  
  
Number  
  
Acceptance Requirement  
  
Critical  
  
(Yes/No)  
  
Test Result  
  
(Accept/Reject)  
  
Comments  
  
1.  
  
Correct medicine names should be entered.  
  
Yes  
  
Accepted  
  
The invoice will not be generated until this requirement has been met.  
  
2.  
  
Medicines which are expired must be displayed  
  
Yes  
  
Accepted  
  
Medicines expired will be displayed in a separate window  
  
3  
  
Medicines are only delivered when it is within quantity range  
  
Yes  
  
Accepted  
  
Error message is generated when quantity is not satisfied  
  
4  
  
Medicines names are not case sensitive  
  
No  
  
Accepted  
  
Error message is generated if this requirement is not satisfied  
  
5  
  
Invoice and reports are not generated until purchase is not complete  
  
Yes  
  
Accepted  
  
Empty window is generated if this requirement is not satisfied  
  
  
  
  
  
  
  
  
  
  
  
  
  
IMPLEMENTATION AND RISK MANAGEMENT  
  
Name of the student: Balakumar G  
  
Register number: 3122215002019  
  
Role in the project: LEAD DEVELOPER   
  
Implementation  
  
  
  
Sprint#  
  
Epic  
  
User story#  
  
Requirement/User story   
  
Remarks on implementation  
  
2  
  
Creating a database  
  
1  
  
As a user I want to keep hold of the information related to the medicine  
  
Hashtable data structure   
  
is implemented to store data   
  
  
  
  
  
b. Risk Management  
  
Risk #  
  
Risk description  
  
Probability  
  
Impact  
  
Mitigation plan  
  
1  
  
Taking too much time to retrieve   
  
Information about medicine  
  
HIGH  
  
It would slow down the entire process which depends on the   
  
hashtable   
  
Using a hashtable as it has a amortized time complexity of O(1) for access   
  
Name of the student: Bharath Kumar G  
  
Register number: 3122215002020  
  
Role in the project: DEVELOPER   
  
Implementation  
  
Sprint#  
  
Epic  
  
User story#  
  
Requirement/User story   
  
Remarks on implementation  
  
1  
  
INVOICE  
  
1  
  
After the customer buys the medicines, invoice should be generated.  
  
Text File is used for generating invoice  
  
Risk Management  
  
Risk #  
  
Risk description  
  
Probability  
  
Impact  
  
Mitigation plan  
  
1  
  
Wrong medicine name and quantity to be printed in the invoice  
  
LOW  
  
Incorrect details provided to the customer  
  
Proper checks are made before writing onto the text file invoice  
  
Name of the student: Bhuvaneswarran T  
  
Register number: 3122215002021  
  
Role in the project: SCRUM MASTER   
  
 a.Implementation  
  
 Sprint#  
  
Epic  
  
User story#  
  
Requirement/User story   
  
Remarks on implementation  
  
2  
  
Creating a database  
  
1  
  
As a user I want to check if the medicine required by the customer is currently available.  
  
Created a member function inside the hash table which provide the keys and values i,e medicine name and its related information.  
  
 b.Risk Management  
  
Risk #  
  
Risk description  
  
Probability  
  
Impact  
  
Mitigation plan  
  
1  
  
Adding medicines after Hashtable is filled must not generate an error  
  
HIGH  
  
The user won’t be able to add new medicines once the hash table is filled  
  
Separate chaining is being used to avoid maximum number of collisions and to store many quantity of medicines  
  
Name of the student: Darrien Xavier P V  
  
Register number: 3122215002022  
  
Role in the project: DEVELOPER   
  
Implementation  
  
  
  
Sprint#  
  
Epic  
  
User story#  
  
Requirement/User story   
  
Remarks on implementation  
  
1  
  
Statistics  
  
4  
  
As a user, I need to receive a statistical report for tracking sales in a daily fashion  
  
Matplotlib module in Python is being used to generate bar graph of sales  
  
Risk Management  
  
Risk #  
  
Risk description  
  
Probability  
  
Impact  
  
Mitigation plan  
  
1  
  
Entry of large amounts of data leads to data cluster   
  
LOW  
  
It might lead to creating a wrong statistical report and make it in a   
  
Instead of using bar graph,pie chart is being used  
  
Name of the student: DEEPESH SUDHAN A  
  
Register number: 3122215002023  
  
Role in the project: DEVELOP ER  
  
Implementation  
  
  
  
Sprint#  
  
Epic  
  
User story#  
  
Requirement/User story   
  
Remarks on implementation  
  
1  
  
Alerts  
  
1  
  
Generate alerts when the medicines are about to expire or when there is shortage of medicine  
  
Datetime module in Python is being used to generate alerts based on today’s date  
  
Risk Management  
  
Risk #  
  
Risk description  
  
Probability  
  
Impact  
  
Mitigation plan  
  
1  
  
Medicines which are not expired may be considered as expired  
  
HIGH  
  
Expired medicines may lead to wrong medication  
  
Datetime module is used from Python to avoid such risks  
  
  
  
Name of the student: Dennis Andrew B   
  
Register number: 3122215002024  
  
Role in the project: PRODUCT OWNER  
  
Implementation  
  
Sprint#  
  
Epic  
  
User story#  
  
Requirement/User story   
  
Remarks on implementation  
  
1  
  
Inventory  
  
1  
  
As a user, I should be able to add medicines to the bill  
  
Implemented using tkinter entry boxes and buttons in a user-friendly manner.  
  
1  
  
Inventory  
  
2  
  
As a user, I should know the location of the added medicines using bin number  
  
Used HashTable to look up bin number of medicine and display it.  
  
  
  
Risk Management  
  
Risk #  
  
Risk description  
  
Probability  
  
Impact  
  
Mitigation plan  
  
1  
  
Expired/Out of stock medicines can be displayed  
  
HIGH  
  
Will pose a serious threat to the patient.  
  
Alert users regarding expired/out of stock medicines.  
  
Name of the student: Dhanushpriyan P   
  
Register number: 3122215002025  
  
Role in the project: Tester  
  
TEST LOG REPORT  
  
  
  
TC ID  
  
TEST CASE DESCRIPTION/CONDITION  
  
INPUT  
  
EXPECTED OUTPUT  
  
RESULT  
  
(PASS/FAIL)  
  
1.  
  
If we enter the negative value for the medicine quantity   
  
-5  
  
Invalid entry. Try again  
  
FAIL  
  
2.  
  
If medicine quantity is less than 5  
  
Getting maximum possible medicine quantity  
  
Medicine should be added to shortage list  
  
PASS  
  
3.  
  
Buying expired medicine  
  
Paracetamol  
  
Sorry medicine is expired  
  
FAIL  
  
4.  
  
If we enter the medicine quantity greater than the available quantity  
  
500  
  
Sorry the asked quantity is not available  
  
PASS  
  
5.  
  
If no medicine is entered  
  
No input  
  
No medicine is entered. Try again  
  
PASS  
  
6.  
  
Entering invalid inputs for medicine quantity like decimal numbers  
  
2.5  
  
Invalid entry. Try again  
  
FAIL  
  
7.  
  
If no medicines are added to the bill in inventory  
  
Message box displaying no added medicines   
  
Message box is successfully displayed  
  
PASS  
  
8.  
  
If no medicines are added to the bill in inventory for statistics.  
  
Message box displaying no added medicines   
  
Message box is successfully displayed  
  
PASS  
  
  
  
9.  
  
Getting quantity for expired medicines .  
  
No input  
  
Sorry <medicine name> not available  
  
FAIL  
  
10.  
  
Bin number for the medicines should be displayed  
  
dolo  
  
4  
  
PASS  
  
  
  
Project Management:  
  
  
  
SPRINT 1: Sprint 1 comprises Inventory, Alerts, Statistics modules  
  
BURNUP CHART:  
  
  
  
  
  
  
  
BURNDOWN CHART:  
  
  
  
SPRINT 2 : Sprint 2 comprises Data structure(Hash table) -Backend Module  
  
  
  
BURNUP CHART:  
  
  
  
  
  
BURNDOWN CHART:  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Generated From JIRA Tools:  
  
  
  
  
  
  
  
  
  
  
  
MEETING NOTES:  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Project Outcomes:  
  
  
  
Code snippets:  
  
  
  
#1 Getting input from the user:  
  
  
  
E\_med is an entry box which receives the name of the medicine from the user  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
#2 Checking for the availability of the medicine:  
  
  
  
If the medicine entered is not present a suitable message is displayed  
  
If the medicine is present ,the expiry date of the medicine is checked against current date  
  
When the check for the medicine and its availability is finished ,an entry box e\_quan receives the quantity of the medicine  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Case 1:Medicine entered not available  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Case 2 : Medicine entered is available but expired  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Case 3: Medicine entered is available   
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Updating the database:  
  
  
  
  
  
After performing the necessary checks the quantity user asked for is subtracted from the previously available stock  
  
To hold the data a hashtable is used  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Invoice related Code and Output:  
  
Case 1 : No medicines are added  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Case 2 : Medicines are added  
  
  
  
  
  
  
  
Statistics related Code and Output:  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Case 1: No medicines are added  
  
  
  
  
  
  
  
Case 2: Medicines are added  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Medicine Alerts related Code and Output:  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
CONCLUSION:  
  
It was very good to work with the project team  
  
There were many challenges while learning about Tkinter, Jira software  
  
Weekly targets were difficult to meet amidst the CATs and other assignments  
  
Initially we planned to use SQL for the database, later we were permitted to only implement on Data Structures which took us time  
  
FUTURE DIRECTIONS  
  
  
  
CHALLENGES FACED:  
  
1.Client :  
  
 Searching for a client was a primary task for us, which took us nearly 2 weeks.  
  
2.Deadline :  
  
 We had great issues with the deadlines which asked us to submit a weekly report of the progress   
  
3.Communication Problem:  
  
 It took some period to get along with the team  
  
4.Breakdown:  
  
 We had some issues with the time estimation since we didn’t break the tasks into smaller bits,then we sorted out that issue  
  
  
  
5.Data Storage:  
  
 We first decided to have a CSV file type database since the department asked us to work with a pure python background we decided to have a Hashtable data structure for storing information temporarily  
  
6.Learning:  
  
 As we are new to tkinter platform, it took us a while to cope up with it  
  
7.Templates:   
  
 Getting templates for our application was a big task as we surfed through the net 8.Time estimation:  
  
 As this is our first project to an actual client we had some rough time estimation that cost us a lot of time.  
  
What went right?  
  
We could collectively bring out every seven’s work into the project we have divided the work into a right matter which made all us to contribute and to force a lot of tasks on one’s back  
  
 2. We have done all the primary requirements that our client requested in a grandeur look.  
  
 3.Product have been delivered before the specified time given by the client which is a great achievement of our team.   
  
What went wrong?  
  
1.We couldn’t give a full screen size(1920\*1080) which wasn’t a primary requirement.  
  
2.We couldn’t give a pop up message which must contain the information regarding the which is about to expire and another pop up which contains information about the stock of the medicine which is about to go out of stock.  
  
 2.1We sorted out this issue by creating a terminal called Medicine shortage, which has two tables which contains information about medicines which are in shortage and expired medicines.This idea was confirmed by the client in the second scrum meeting.  
  
.  
  
3.We couldn’t generate the monthly ,yearly track record.But we have generated a daily sales track as it required a database to store the track record of monthly and yearly sales.  
  
  
  
Lessons learnt  
  
Learnt about the coworking environment.  
  
Learnt about Tkinter which we used in designing our software.  
  
Learnt about Agile and Scrum processes from Jira Software .  
  
Learnt about data structures in an elaborate manner.  
  
  
  
What courses that should be learnt to make this a better product (releasable in public domain):  
  
  
  
Database management system required for keeping a record of the information for a longer time which would help in keeping track of the daily,weekly,monthly,annual sales.  
  
  
  
Learning a more advanced GUI than tkinter for producing a better user interface.  
  
  
  
   
  
  
  
  
  
  
  
  
  
  
  
REFERENCES  
  
  
  
1.Youtube: We used Youtube to learn about tkinter which is the de facto way in Python to create Graphical User Interfaces (GUIs) and is included in all standard Python Distributions.  
  
Some channels we referred to were freecodecamp and codemy.  
  
  
  
2.Atlassian (Agile Coach): We used atlassian tutorials to deepen our agile knowledge with step by step tutorials that focus on a variety of topics related to Jira software.Basically ,Jira Software is an agile project management tool that supports any agile methodology, be it scrum, Kanban , or your own unique flavor.  
  
  
  
3.W3schools: We learnt more about python using this website i.e using the documentation. We used this as a reference to learn more about the Matplotlib module.  
  
  
  
4.GeeksforGeeks:We learnt more about date time modules,hashtables and how to use them in an effective manner on this website.  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
 CLIENT EVALUATION REPORT  
  
  
  
Name of the project: PHARMACY MANAGEMENT SYSTEM  
  
Team Members: BALAKUMAR G  
  
 BHARATH KUMAR G  
  
 BHUVANESWARRAN T  
  
 DARRIEN XAVIER P V  
  
 DEEPESH SUDHAN A  
  
 DENNIS ANDREW B  
  
 DHANUSHPRIYAN P  
  
Client details:   
  
CLIENT NAME: Sri Saravana Pharmacy  
  
CLIENT LOCATION: No.1/248,Mariamman Temple Street, Mugalivakkam Main Road, Chennai-600125  
  
CLIENT CONTACT: Muthu,044 2252 3525  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Rating System - 1: Strongly disagree 2: Disagree 3: Neutral 4: Agree 5: Strongly Agree  
  
  
  
Questions  
  
1  
  
2  
  
3  
  
4  
  
5  
  
The problem was well discussed and the requirements and goals were clear.  
  
   
  
   
  
   
  
   
  
  
  
The project plan was well defined and communicated from the start.  
  
   
  
   
  
   
  
  
  
   
  
The resources were adequate for achieving the goals.  
  
   
  
   
  
   
  
  
  
   
  
The original timeline was realistic and was followed.  
  
   
  
   
  
   
  
   
  
  
  
The teamwork was well demonstrated.  
  
   
  
   
  
   
  
   
  
  
  
The client was communicated on regular intervals and given updates on the progress of the project.   
  
   
  
   
  
   
  
  
  
   
  
The expected project requirements have been satisfied.