

WAREHOUSE++

IDP

A Project Report Submitted by

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in partial fulfilment for the award of the degree of

Bachelor of Engineering

in

Computer Engineering



**Faculty of Engineering
Marwadi Education Foundation, Rajkot**

**Gujarat Technological University, Ahmedabad
2017-2018**



Marwadi Education Foundation

Faculty of Engineering

Computer Engineering Department

2017-2018

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Head of the Department

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Computer Engineering



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During this period, we found him sincere, honest and diligent. We wish all success in his future endeavours.

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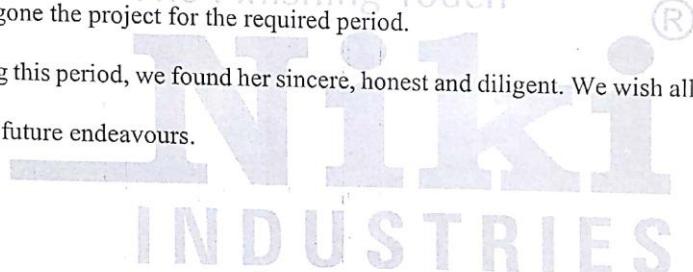
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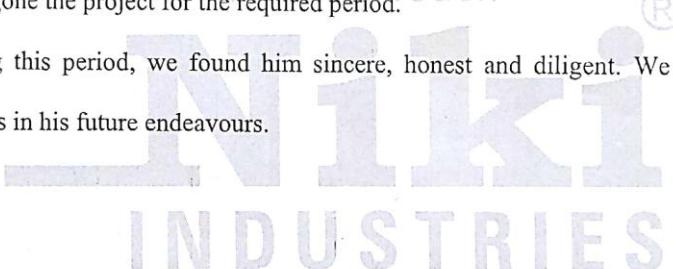


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140570107064	Gautam Parmar	
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Institute's Vision and Mission

Institute's Vision

Our vision is to address challenges facing our society and planet through sterile education that builds capacity of our students and empower them through their innovative thinking practice and character building that will ultimately manifest to boost creativity and responsibility utilizing the limited natural resources to meet with the challenges of the 21st century.

Institute's Mission

- To Produce creative, responsible and informed professionals
- To produce individuals who are digital-age literates, inventive thinkers, effective communicators and highly productive.
- To deliver cost-effective quality education
- To offer world-class, cross-disciplinary education in strategic sectors of economy though well devised and synchronized delivery structure and system, designed to tackle the creative intelligence and enhance the productivity of individuals.
- To provide a conducive environment that enables and promotes individuals to creatively interact, coordinate, disseminate and examine change, opinion as well as concept that will enable students to experience higher level of learning acquired through ceaseless effort that lead to the development of character, confidence, values and technical skills.

Department's Vision and Mission

Department's Vision

To impart quality technical education through research, innovation and teamwork for creating professionally superior and ethically strong manpower that meet the global challenges of engineering industries and research organization in the area of Computer Engineering.

Department's Mission

- Maintain a vital, state-of-the art ICT enabled teaching and learning methodologies, which provides its students and faculty with opportunities to create, interpret, apply and disseminate knowledge.
- Enable graduates in becoming digital age literates, innovators, efficient communicators and result oriented professionals.
- Dedicate itself to providing its students with the skills, knowledge and attitudes that will allow its graduates to succeed as engineers, leaders, professionals and entrepreneurs.
- Prepare its graduates for life-long learning to meet intellectual, ethical and career challenges.
- Inspire graduates for competitive exam higher education as well as research and development.

PEO, PO and PSO

Program Educational Objectives (PEO):

The program educational objectives for the Computer Engineering program describe accomplishments that graduates are expected to attain within four years after graduation. The Computer Engineering program educational objectives are to produce graduates who:

- Function and communicate effectively to solve technical problems.
- Advance professionally to roles of greater computer engineering responsibilities, and/or by transitioning into leadership position in business, government, and/or education.
- Participate in life-long learning through the successful completion of advanced degrees, continuing education, and/or engineering certification(s)/licensure or other professional development.
- Demonstrate a commitment to community by applying technical skills and knowledge to support various service activities.
- Assume positions of leadership and responsibility within an organization and progress through advanced degree or certificate programs in engineering, business, and other professionally related fields.

Program Outcomes (POs)

Engineering Graduates will be able to:

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

PSO1. Students shall demonstrate skills, the knowledge and competence in the analysis, design and development of computer based systems addressing industrial and social issues.

PSO2. Students shall have competence to take challenges associated with future technological issues associated with security, wearable devices, augmented reality, Internet of Anything etc.

Abstract

Nowadays, Industries are growing swiftly and to maintain their inventory in warehouses they are using various inventory management systems. According to our survey in different industries we found that many of hardware based industries are having trouble maintaining their stock. They are facing many similar problems like knowing availability of stock, exact location of product in warehouse, manual updating and management, stock entry and ordered stock , rearranging in warehouse, new worker will be lacking knowledge about particular warehouse, manual updating in stock maintaining excel sheets. These are the various problems that industries are facing. To provide a solution to this, we are introducing “WAREHOUSE++”- an advanced warehouse management system as a Desktop application and an android application.

Our system will provide such facilities that can be helpful in solving problems mentioned above. Our system will provide QR code-based warehouse in which by scanning, the database would be able to store item and its location and it can be updated easily when warehouse needs to be rearranged. It will provide functionalities like showing availability of stock placed in the warehouse, adding new stocks, storing customers and order records and expanding warehouse also with user friendly Interface. The system will also show highest selling and comparatively less selling products. The system will notify when out of stock or over stock situation are about to happen.

This system will provide very user friendly graphical user interface which can be understood by any common user easily. This system will provide replica of warehouse so that operator can know about stock placed in warehouse without dealing with complexities.

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1. Introduction

1.1 Problem Summary and Introduction

Nowadays, Industries are growing swiftly and to maintain their inventory in warehouses they are using various inventory management systems. According to our survey in different industries we found that many of hardware-based industries are having trouble maintaining their stock. They are facing many similar problems like knowing availability of stock, exact location of product in warehouse, manual updating and management, stock entry and ordered stock, rearranging in warehouse, new worker will be lacking knowledge about particular warehouse, manual updating in stock maintaining excel sheets. These are the various problems that industries are facing. To provide a solution to this, we are introducing “WAREHOUSE++” - an advanced warehouse management system as a Desktop application and an android application in which Dot Net Technology will be used.

1.2 Aim and Objectives

Our project aims to develop a product which will optimize the worker's work providing him with a ton of useful functionalities. It will be helpful to maintain all the records products, customers, sales and stock. It provides user with a mobile application with virtual warehouse feature wherein owner at different place can easily know about the warehouse statistics.

Benefits of using this application are easier stock management, Time efficiency, and Cost efficiency due to QR codes being used. It provides efficient warehouse management for the user to arrange/rearrange products in warehouse.

1.3 Problem Specifications

According to our survey in different industries we found that many of hardware-based industries are having trouble maintaining their stock because of their gigantic warehouses. They are facing many similar problems like knowing availability of stock, exact location of product in warehouse, manual updating and management, stock entry and ordered stock, rearranging in warehouse, new worker will be lacking knowledge about warehouse, manual updating in stock maintaining excel sheets. These are the various problems that industries are facing.

1.4 Literature Review and Prior Art Search (PAS)

1. ABC Inventory

- It gives independency of arranging inventory unit wise like dozen, inch, feet, kgs, and lbs.
- It provides another option- barcode based entry for registration.
- It helps user when user transfer the stock from one warehouse to another with accuracy.
- It provides billing facility , and user can have record of bills in the form of pdf file and also can print it.
- It provides general facilities like adding, updating and deleting.

2. In Flow

- It is RFID enabled.
- It is Barcode compatible.
- It has Search/Filter functionality for products.
- It has order management functionality.
- It has Shipping management functionality.

Books and Links of websites being referred:

1. Andrew Marder , “Top five free and open inventory management systems”, Internet: <https://blog.capterra.com/the-top-5-free-inventory-software-systems/>

2. Techtarget, "warehousemanagement", Internet: <https://searcherp.techtarget.com/definition/warehouse-management-system-WMS> August, 2009

Table 1.4.1 PSAR

No.	Title of invention	Patent Number	Description
PSAR1	Quality management and intelligent manufacturing with labels and smart tags in event-based product manufacturing	7035877	Providing quality management and intelligent manufacturing with labels and smart tags in event-based product manufacturing
PSAR2	Method of generating and maintaining a data warehouse	US7720804B2	An object of the invention to provide a packaged data warehouse solution system that obviates or mitigates at least one of the disadvantages of existing data warehouses.
PSAR3	Methods, devices and computer program products for generating, displaying and capturing a series of images of visually encoded data	US10956415	This invention relates to visually encoded data, and more particularly, relates to methods, devices and computer program products that provide for generating visually encoded data and displaying the decoded data and the image element on a digital device
PSAR4	Arrangement for managing notification preferences for notification delivery messages in an IP-based notification architecture	US6560318B1	A notification architecture utilizes multiple processes configured for managing notification operations based on reception of SMTP-based messages within IMAP based message stores.
PSAR5	Data warehouse which is accessed by a user using a schema of virtual tables	US08317437	A database warehouse includes a database having data arranged in data tables, e.g., fact tables and reference tables. A warehouse database hub interface is connected to

			the database
PSAR6	Method, system and software for inventory management	US20020165782A1	A computer implemented method, system, and software that tracks inventories of a time period sensitive item on a time period basis.
PSAR7	Qr code processing method and apparatus thereof	US20110085732A1	A QR code processing method includes an edge processing process, a QR code positioning process and a projection modification process
PSAR8	Virtual reality warehouse management system complement	US6744436B1	An image generator system with a warehouse database that is integrated to an image generator system human interface (virtual reality) and integrated to a warehouse management system's (WMS) stock location system
PSAR9	Computer-implemented process and mechanism for implementing an employee stock ownership plan	US6571219B1	A method for implementing an employee stock ownership plan by monitoring performance of an equity-issuing commercial entity
PSAR10	Virtual Vendor Shelf Inventory Management	US20090306820A1	A cooler system for providing goods. The cooler system may include a cooler with a refrigeration system and a shelf monitor, a data processing device remote from the cooler, and a vending bridge. The data processing device is in communication with the refrigeration system and the shelf monitor of the cooler
PSAR11	Warehouse Management System	US20130211977A1	A warehouse management system can include pick platibrms, each having an identifier associated therewith

PSAR12	Interfering smart shelf	US20060214792A1	A smart shelf system is disclosed. Objects are placed on a shelf that includes RFID tags. The objects prevent an RFID reader from reading certain RFID tags. The number of objects placed on the shelf may be determined by determining how many RFID tags are unreadable.
PSAR13	Data Center Inventory Management Using Smart Racks	US20120005344A1	A system for managing physical and virtual inventory in a data center is disclosed. The system includes a resource management system for managing computing resources of the data center,
PSAR14	Mall server with product search capability	US6125353A	A mall server with a product search function, in which each product category has a particular effective period during which it is presented to customers as a selectable search key
PSAR15	Peer-to-peer inventory management system	US20060195563A1	A software tool, message construction and peer-to-peer internet communication methodology by which otherwise independent retailers that sell the same product lines can cost-effectively equalize inventory
PSAR16	Virtual reality warehouse management system complement	US 6,744,436 B1	With the visualization capabilities of the invention, multiple warehousing capabilities can be performed in ways never before imagined.
PSAR17	Peer-to-peer file sharing	US10268043	In one embodiment of the file sharing system, the members receive from another member a notification that a file is to be shared with the members of the group

PSAR18	Private stock option account control and exercise system	5671363	For many years publically owned companies often provided payment to upper level executives in the form of options to purchase shares of company stock at discounts from market price.
PSAR19	Automated car wash system	4946513	The most important component of the present invention is a spray bar connected to a carriage which moves horizontally along a frame. The spray bar has a plurality of nozzles for directing water.
PSAR20	Surround sound loudspeaker system	7092541	The field of the invention pertains to audio loudspeakers used in plural to realistically recreate the direct and ambient sound of an audio only, or an audio visual work such as a movie or television program

1.5 Plan of the Work

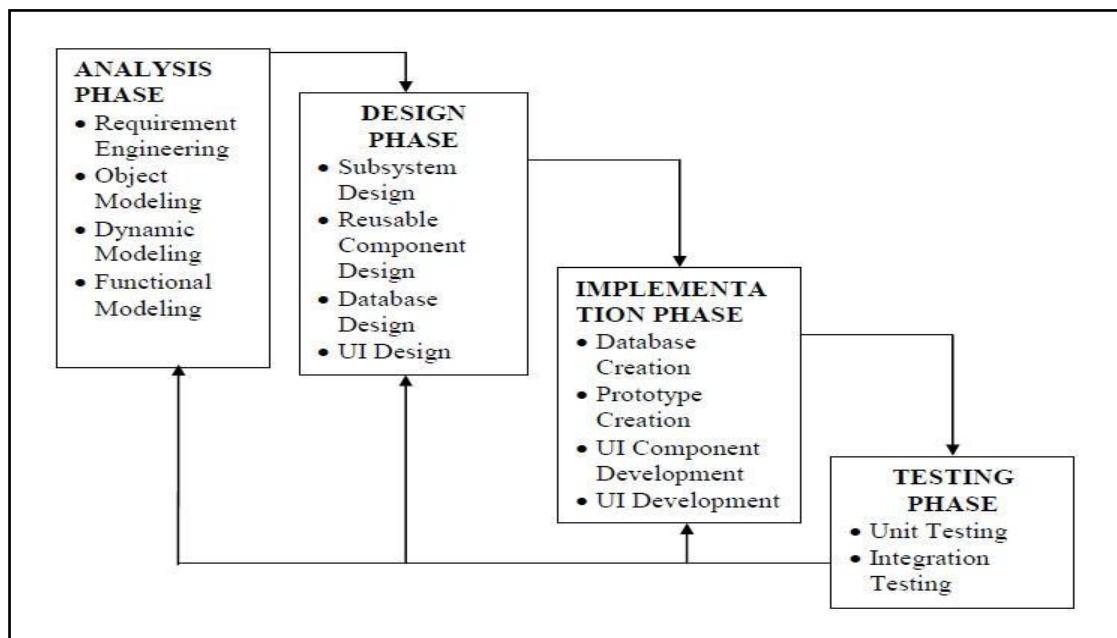


Fig. 1.5.1 Plan of the Work

1.6 Materials/Tools Required

Hardware requirements:

- Mobile / Tablet
- Laptop / Computer for development
- Printer

Software requirements:

- Operating system: Android, windows
- Language : Java / Android, Dot net
- Front End : Android / XML, windows form
- Back End : Java, c#

Features of Android Studio:

Android studio is based on IntelliJ IDEA, which does all the functionality that Eclipse with ADT plug-in do, with lot more additional features. The initial version of android studio offers:

- Gradle-based build support.
- Android-specific refactoring and quick fixes
- Lint tools to catch performance, usability, version compatibility and other problems
- ProGuard and app-signing capabilities
- Template-based wizards to create common Android designs and components.

Features of Java:

Here's a list of features provided by Java:

- Simple
- Object-Oriented
- Portable
- Platform independent
- Secured
- Robust

- Architecture neutral
- Dynamic
- Interpreted
- High Performance
- Multithreaded
- Distributed

Features of C#:

- Simple
- Object oriented
- Type safe
- Interoperability
- Scalable and Updateable

2. Analysis, Design Methodology and Implementation Strategy

2.1 Observation Matrix

The Observation Matrix contains a set of observations based on which we have decided upon our project. Using the Observation Matrix, we can decide based on all our observation what challenges are pertaining in the society, what underlying problems are causing them and accordingly, what is the most important problem that needs to be resolved.

Accordingly, we can proceed towards formulating a project which will provide an answer for the same.

Observation Matrix:

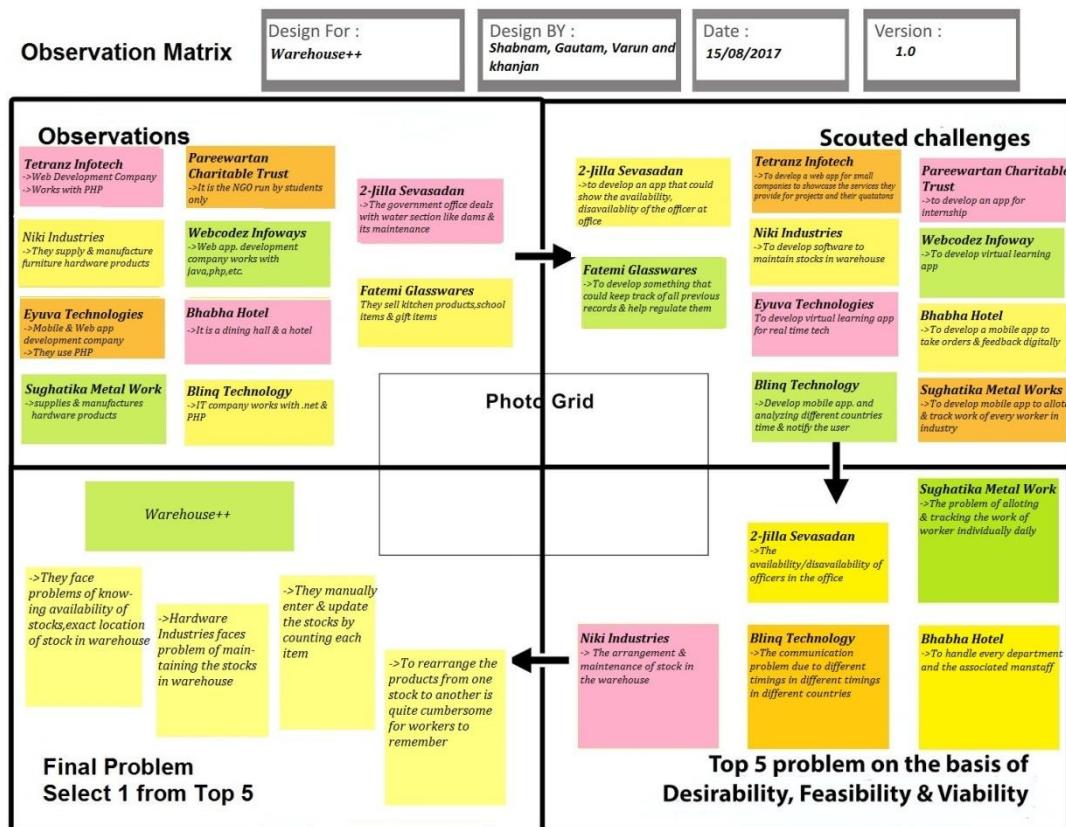


Fig. 2.1.1 Observation Canvas

2.2 Ideation Canvas

The Ideation Canvas contains a set of data including people, activities, locations and tools involved on the basis of which we have settled on the current project definition.

The set of people includes the users who are facing the particular issues stated in the observation matrix. Thus, these people will be the potential users when a solution is formulated.

The list of activities includes the situations in which the stated issue is being faced. The situation or location field states all the areas where the issue is faced.

The last field includes all the required equipment related to the users and the location.

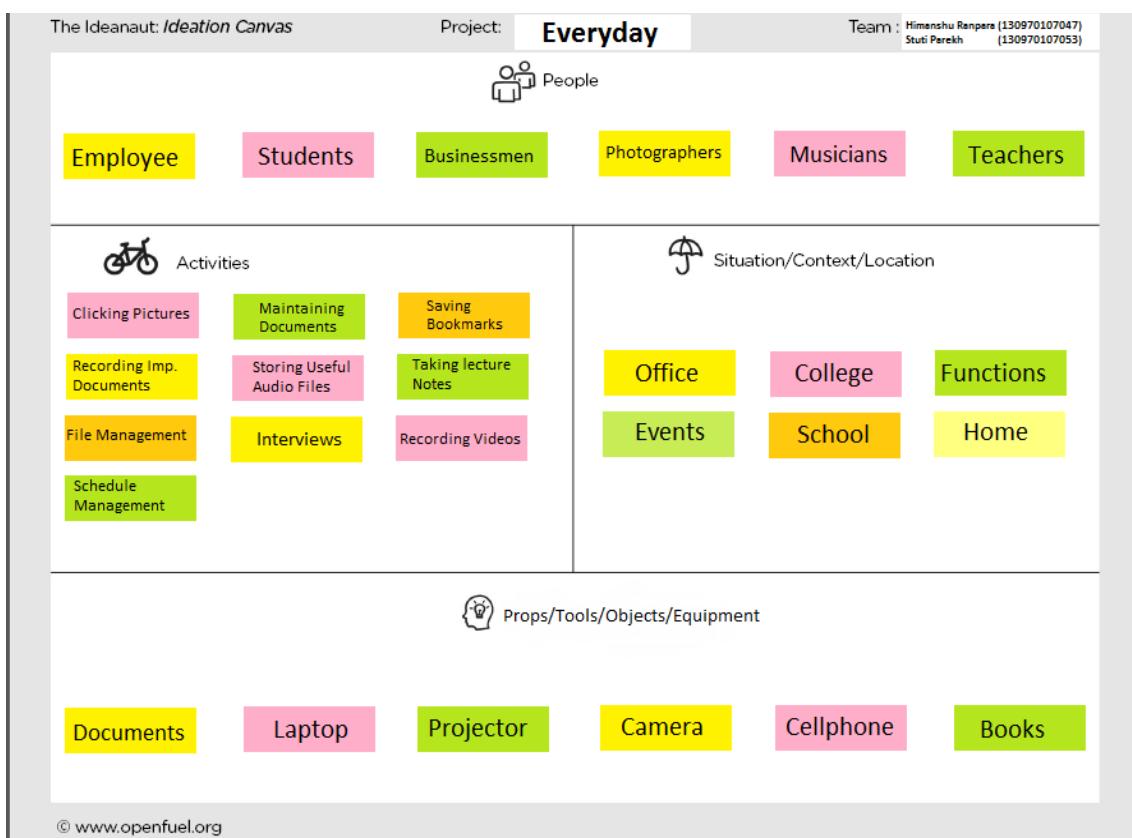


Fig. 2.2.1 Ideation Canvas

2.3 Product Development Canvas

The Product Development Canvas provides us an outline based on which we can know how is our project definition supposed to be implemented and what are the parameters to be kept in mind while making it.

It also includes a set of people who will be using it, the features and experience we will be providing these users and the components required for the same.

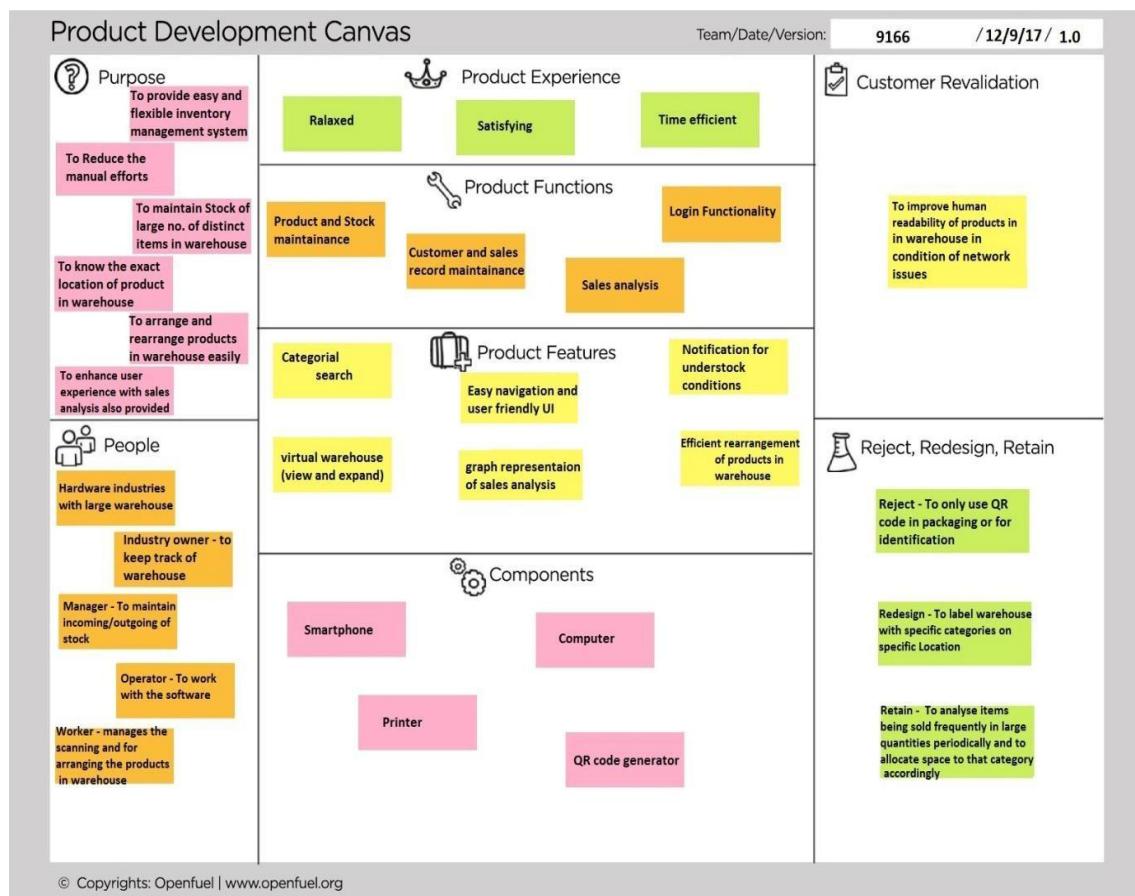


Fig. 2.3.1 Product Development Canvas

2.4 Database Design

Table 2.4.1 Customer

Columns	Datatype	Size	Constraints
c_id	integer		Primary key
C_name	varchar	50	Not null
Company_name	Varchar	50	Not null
Phone_no	nvarchar	50	Not null
Address	Varchar	50	Not null
Email	Varchar	50	Null
Website	Varchar	50	Null

Table 2.4.2 Location

Columns	Datatype	Size	Constraints
L_id	Integer		Primary key
Rname	Varchar	50	Not null
Iqr_id	Varchar	50	Not null
I_image	Varbinary	Max	Null

Table 2.4.3 Login

Columns	Datatype	Size	Constraints
User_id	Integer		Primary_Key
Username	Varchar	50	Not null
Password	Varchar	50	Not null
Name	Varchar	50	Not null
Phone_no	Varchar	50	Not null
Address	Varchar	50	Not null
userType	varchar	50	Not null

Table 2.4.4 Order

Columns	Datatype	Size	constraints
o_id	Integer		Primary key
co_id	Integer		Not null
c_id	Integer		Not null
date_time	Date		Not null
p_id	Nvarchar	50	Not null
Quantity	Integer		Not null

Table 2.4.5 Product

Columns	Datatype	Size	constraints
p_id	Nchar	50	Not null
model_no	Nchar	10	Not null
type	Nchar	10	Not null
size_id	Nchar	10	Not null
finish_id	Nchar	10	Not null
Rate	Integer		Not null
box_size	Nchar	10	Not null
per_box_quantity	Integer		Not null
total_quantity	Integer		Not null

Table 2.4.6 Product Qr

Columns	Datatype	Size	constraints
id	Integer		Primary key
p_id	varchar	50	Not null
q_id	Nchar	10	Null
q_image	Varbinary	Max	Null
I_id	Nchar	10	Null
qr_gen	Nchar	10	Null
qr_scanned	Nchar	10	Null
qr_removed	Nchar	10	Null

2.5 System Design

Our project is completely object oriented. Thus, all the required diagrams are presented below.

Activity Diagram:

Activity diagram is basically a flow chart to represent the flow from one activity to another activity. The activity can be described as an operation of the system. So, the control flow is drawn from one operation to another.

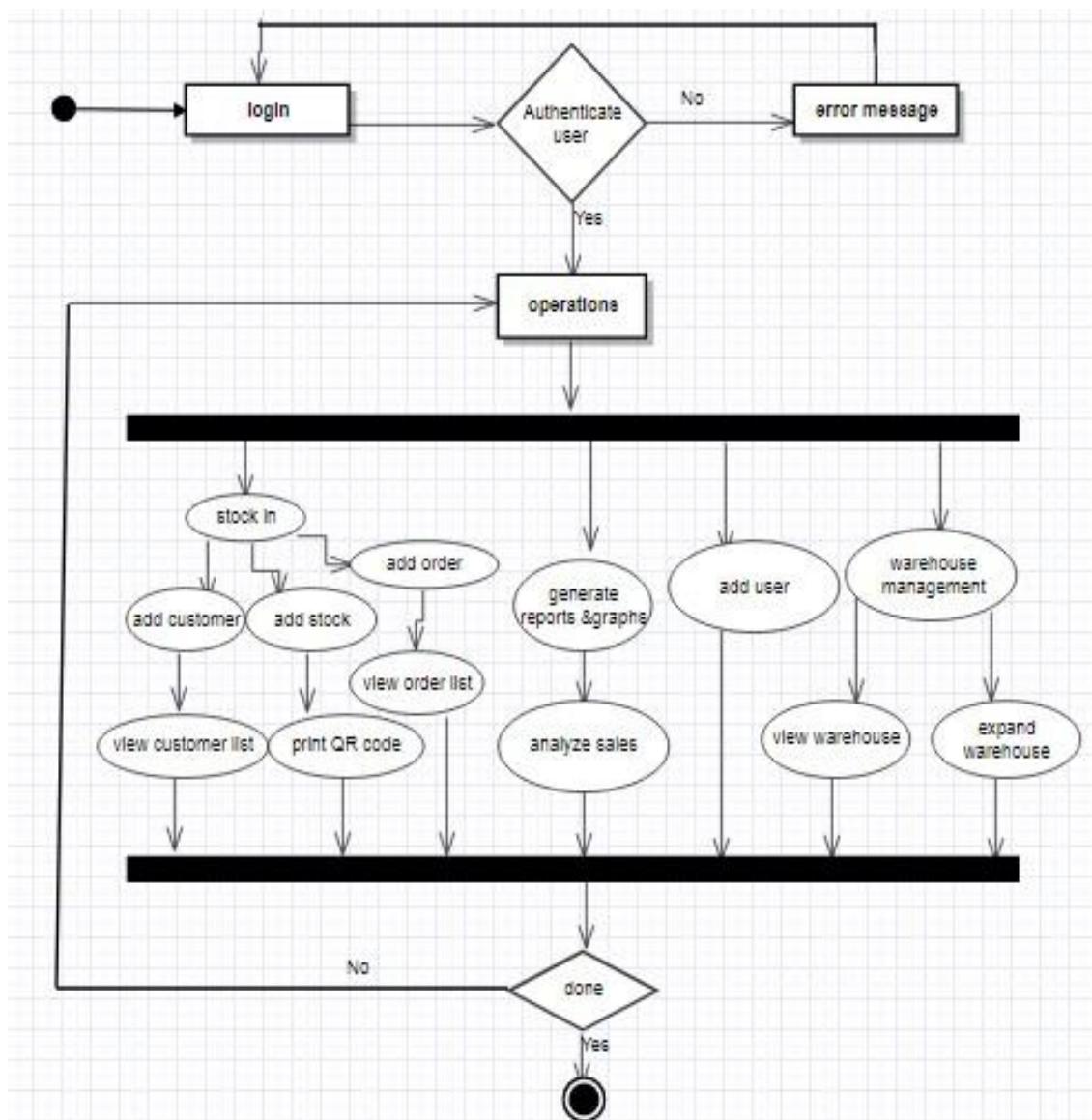


Fig. 2.5.1 Activity Diagram for Desktop based Application

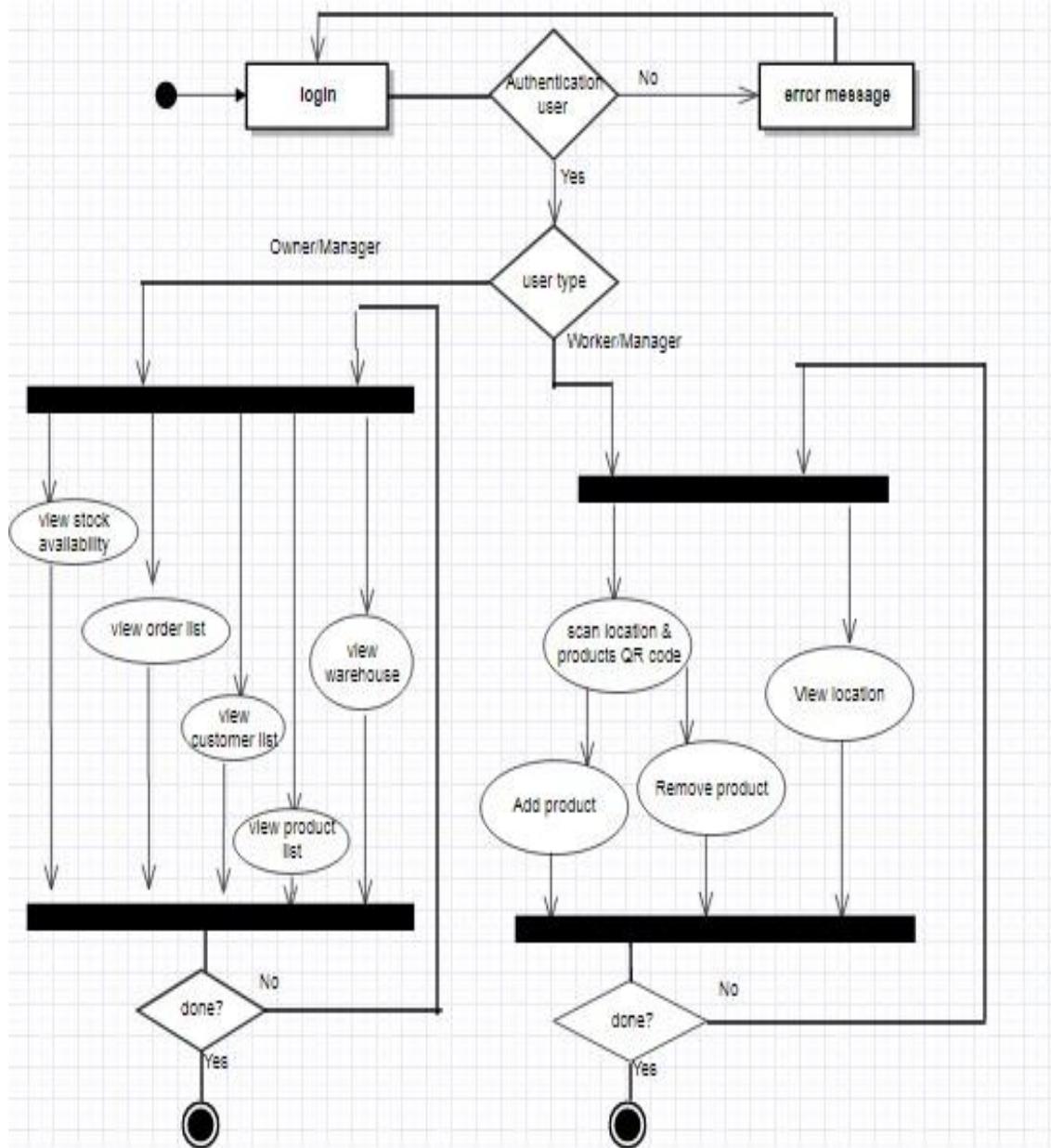


Fig. 2.5.2 Activity Diagram for Mobile based Application

Sequence Diagram:

A sequence diagram is an interaction diagram that shows how objects operate with one another and in what order. It is a construct of a message sequence chart. A sequence diagram shows object interactions arranged in time sequence. Sequence diagrams are sometimes called event diagrams or event scenarios

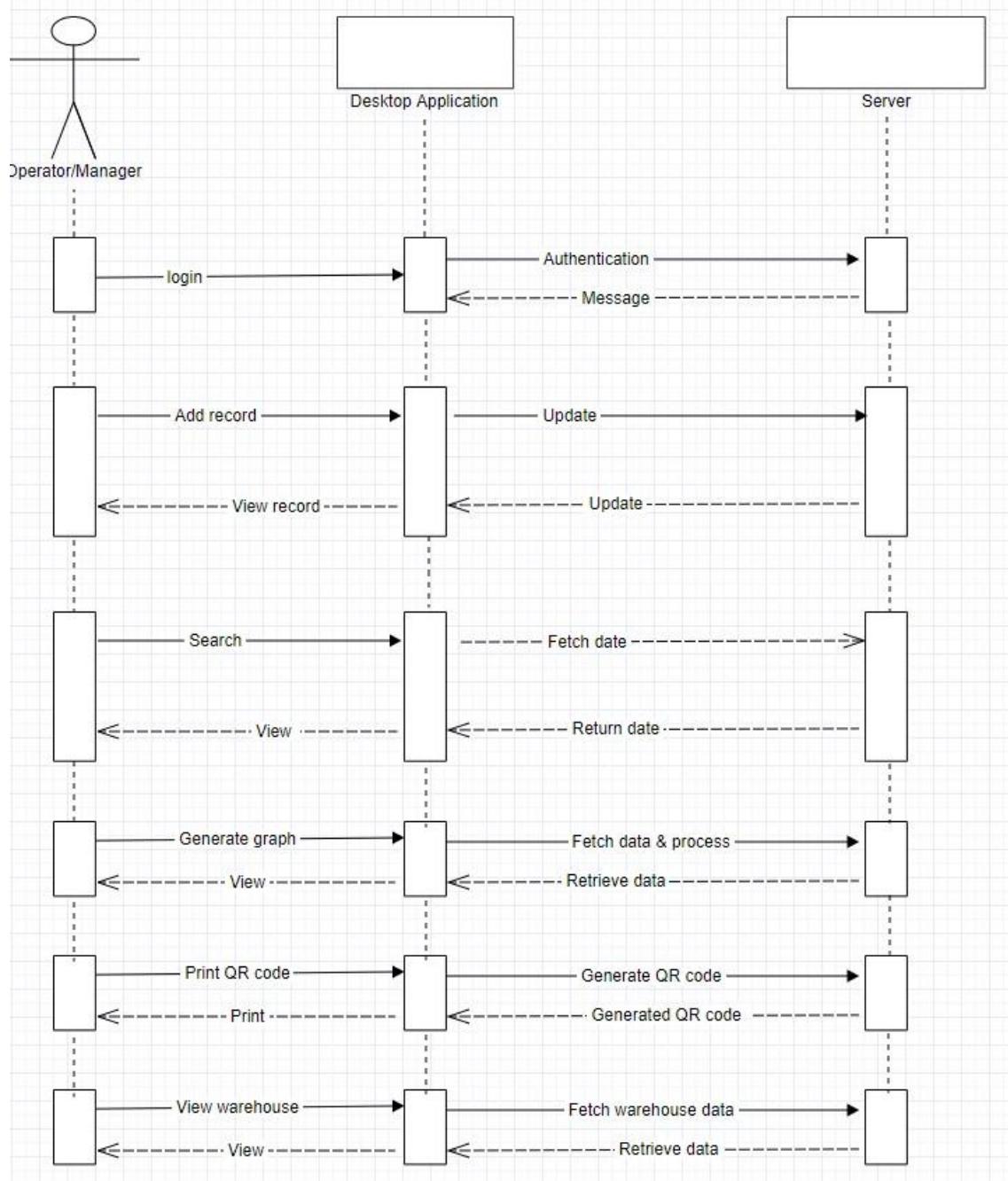


Fig. 2.5.3 Sequence Diagram for Desktop based Application

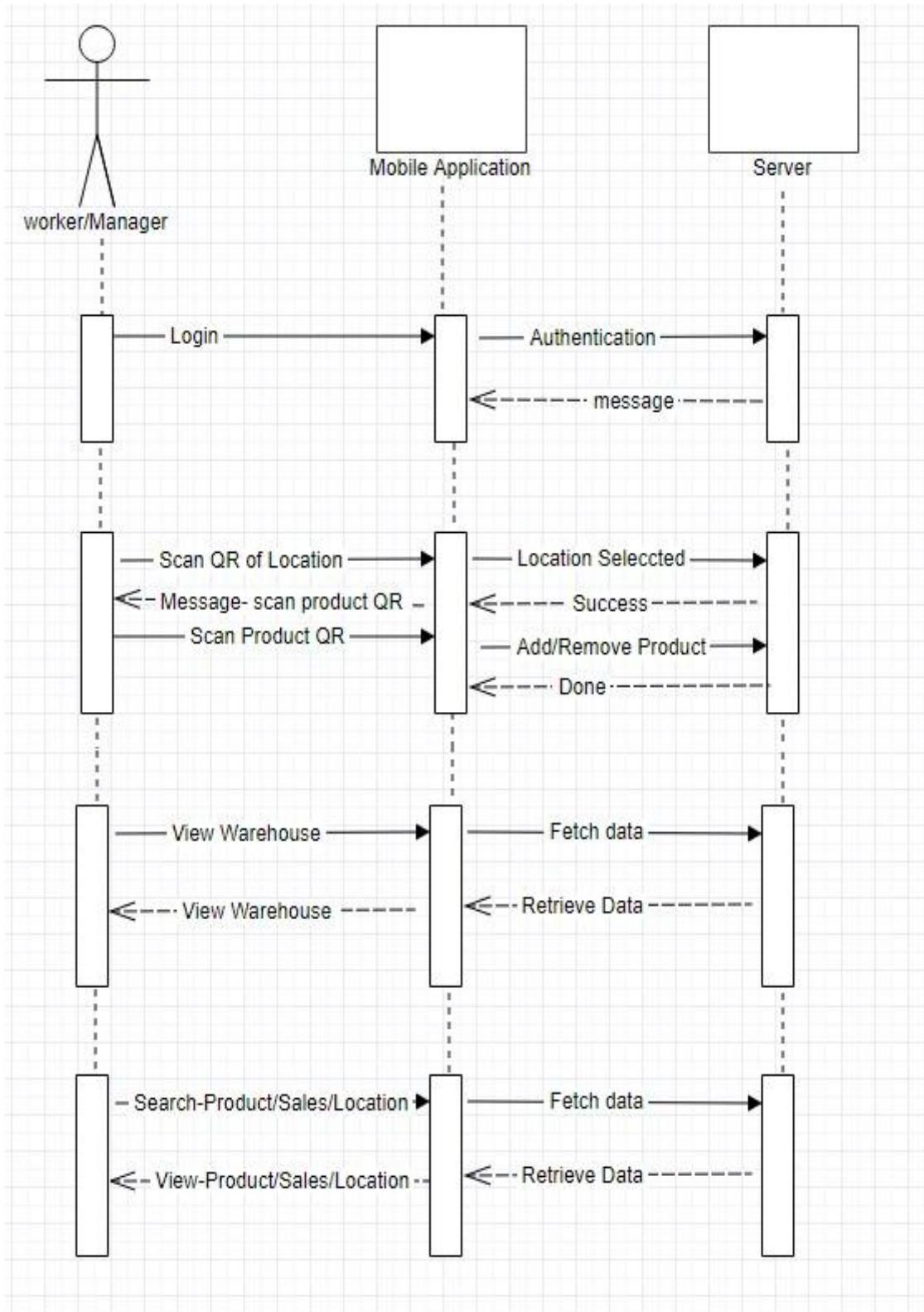


Fig. 2.5.4 Sequence Diagram for Mobile based Application

Class Diagram:

A class diagram is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.

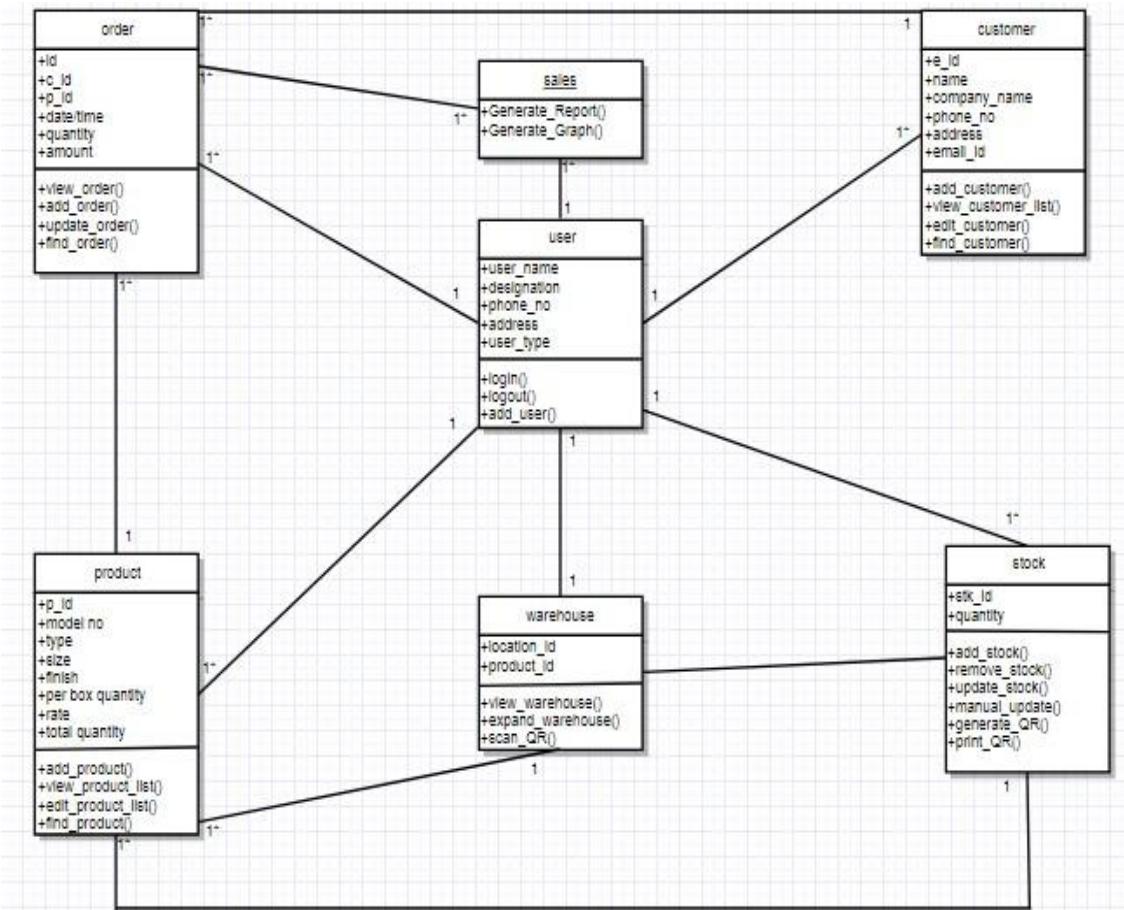


Fig. 2.5.5 Class Diagram

Use Case Diagram:

A use case diagram is a graphic depiction of the interactions among the elements of a system. A use case is a methodology used in system analysis to identify, clarify, and organize system requirements.

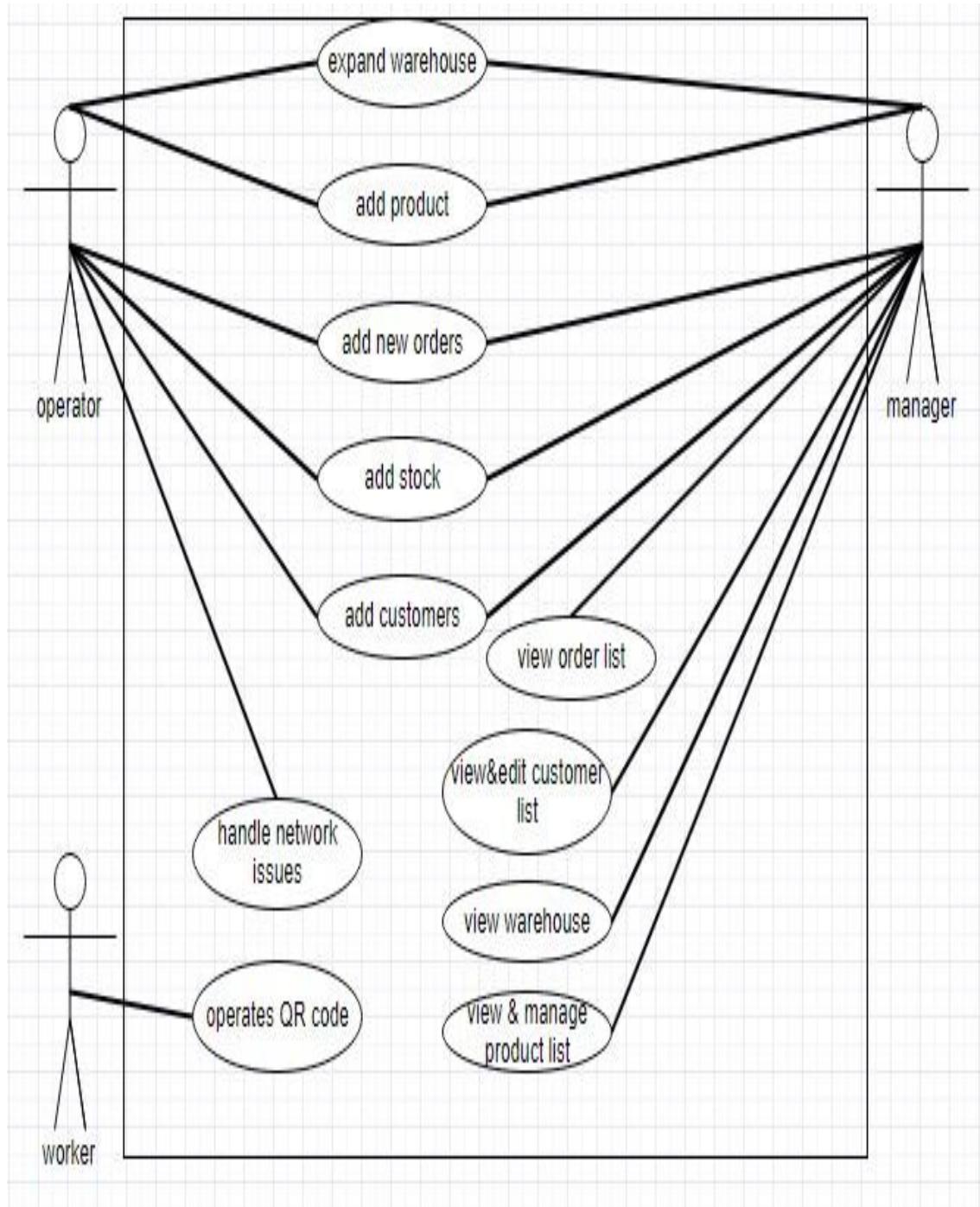


Fig. 2.5.6 Use Case Diagram for Desktop based Application

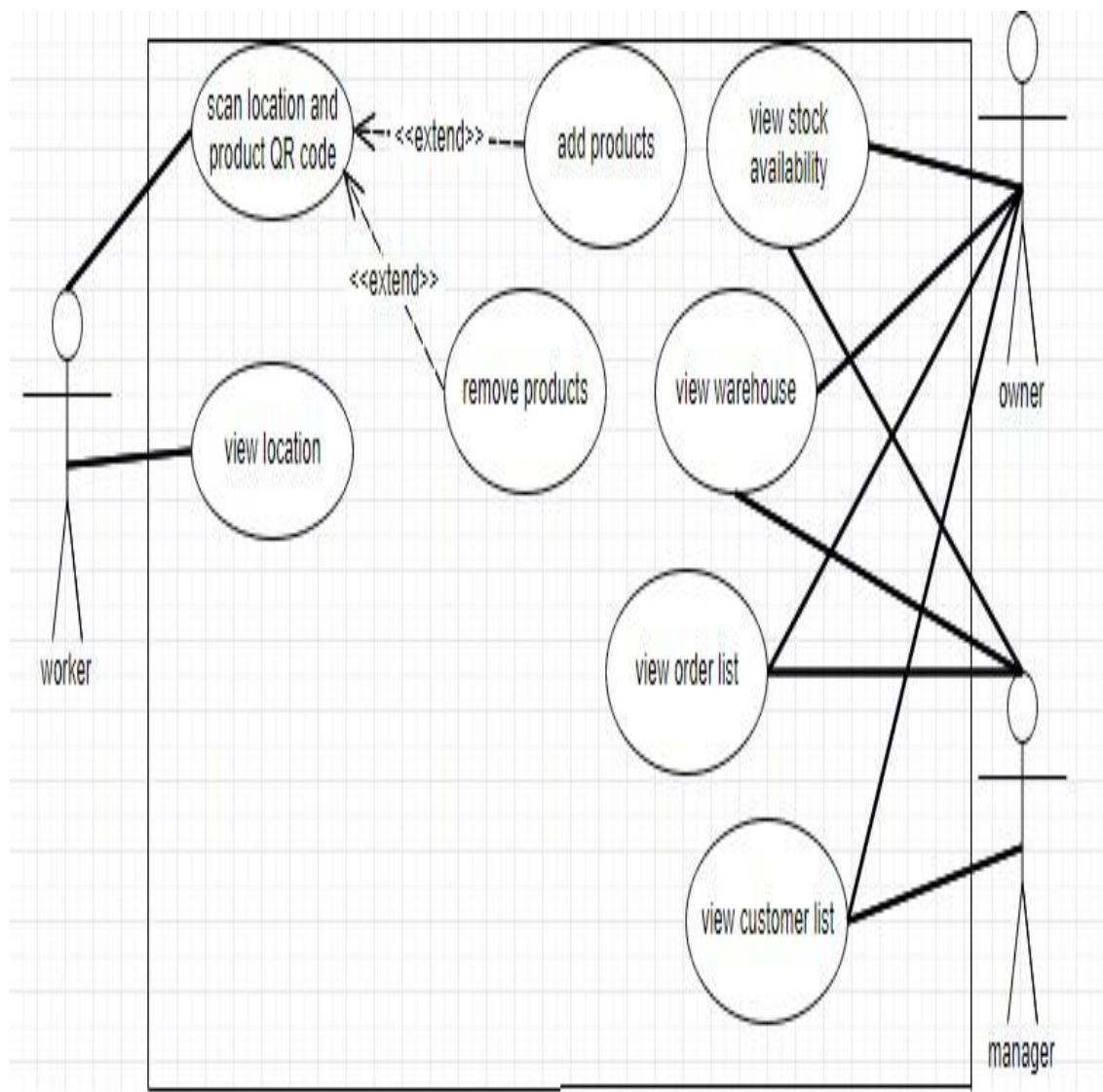


Fig. 2.5.7 Use Case Diagram for Mobile based Application

3. Implementation

3.1 Implemented Functionality

This system is having both android application as well as desktop application, both will have different login's and functionality.

Android Application:

Manager & Store keeper:

- Login into system
- Add & Remove product
- Re-arrange warehouse
- Search for product in warehouse

Owner:

- login into system
- View warehouse (Search for product in warehouse)
- View orders and sales
- View customer

Desktop Application:

Owner & Manager:

- Login into system
- View warehouse (Virtual view)
- Generate QR code for both product and location
- Print QR code
- Place new orders
- View orders & sales details
- Define new product and location
- Add new customer & view customer

3.2 Results and Reports

Authentication:

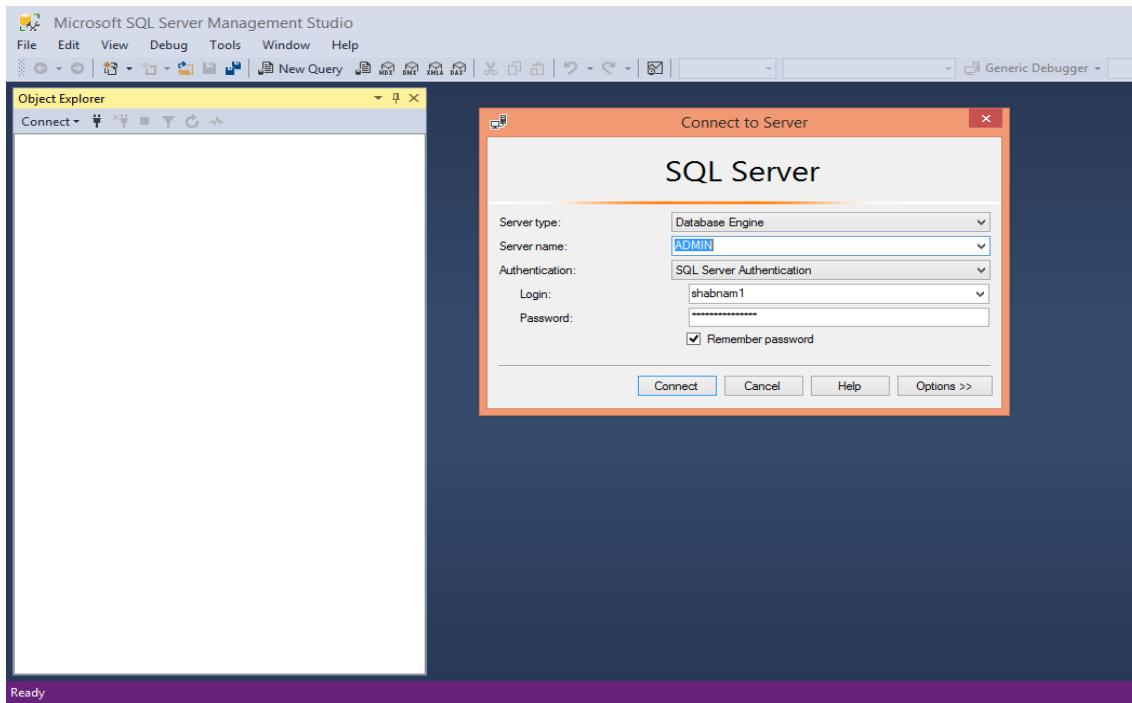


Fig. 3.2.1 (a) Authentication

SQL Database:

c_id	c_name	company_name	phone_no	address	email	website
1	Ramेन शाह	vivek.co	65	kalewad road		
2	saleeh shah	vivek.co	65	kalewad road		
3	ishan mehta	granite	65	bhadkinger circle		
4	5	Krishna Brothers	9856552365	pukul road, morbi	krishna@gmail.com	krishna.co.in
5	6	Gautambhai	854123689	Ahmedabad		
6	7	Roshan singh	9452145632	Palace Road, Morbi	roshansingh@gmail.com	roshannbrothers.co.in

Fig. 3.2.2 Customer details (a)

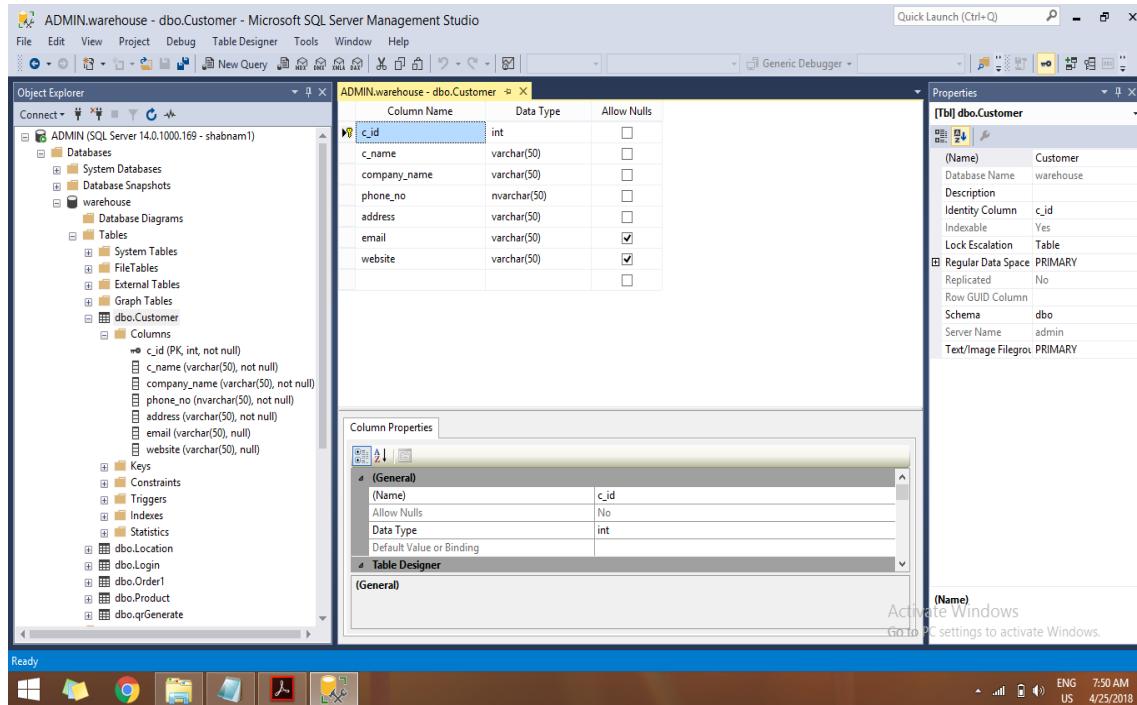


Fig. 3.2.3 Customer details (b)

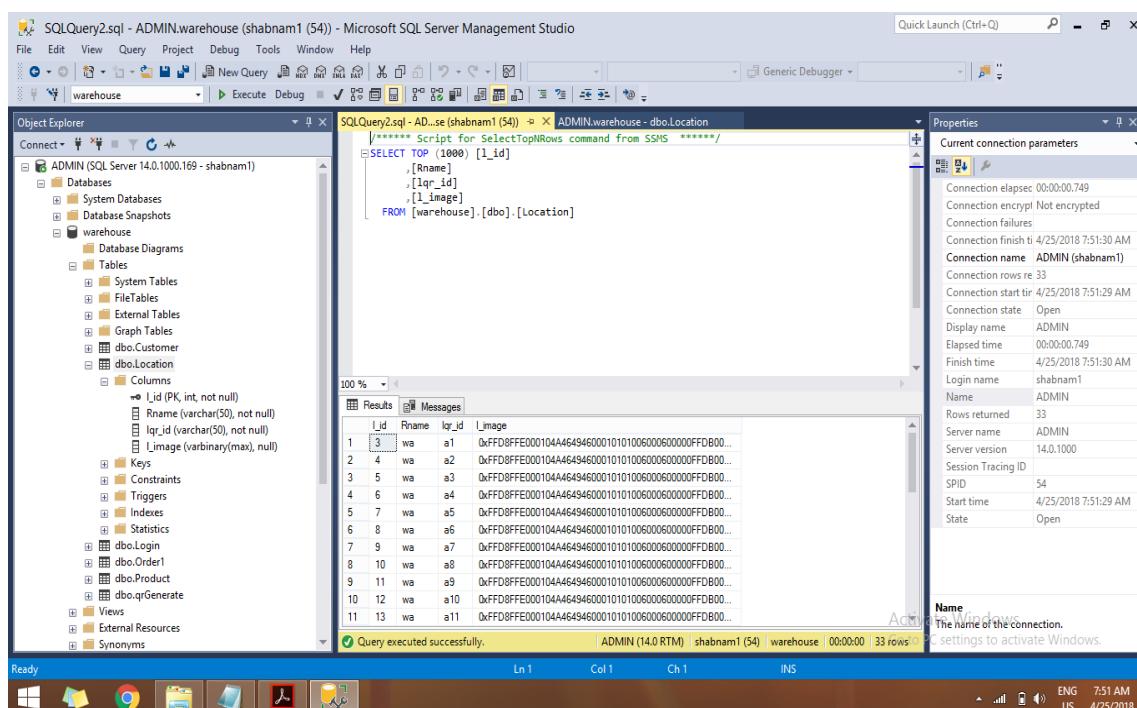


Fig. 3.2.4 Location details (a)

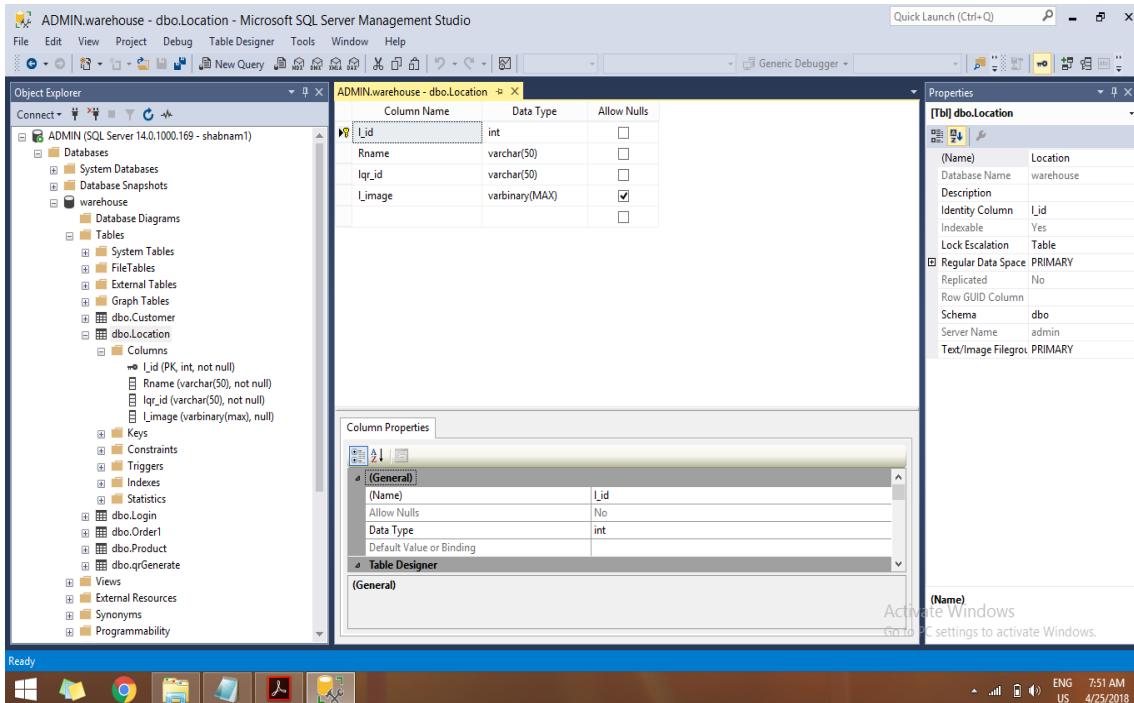


Fig. 3.2.5 Location details (b)

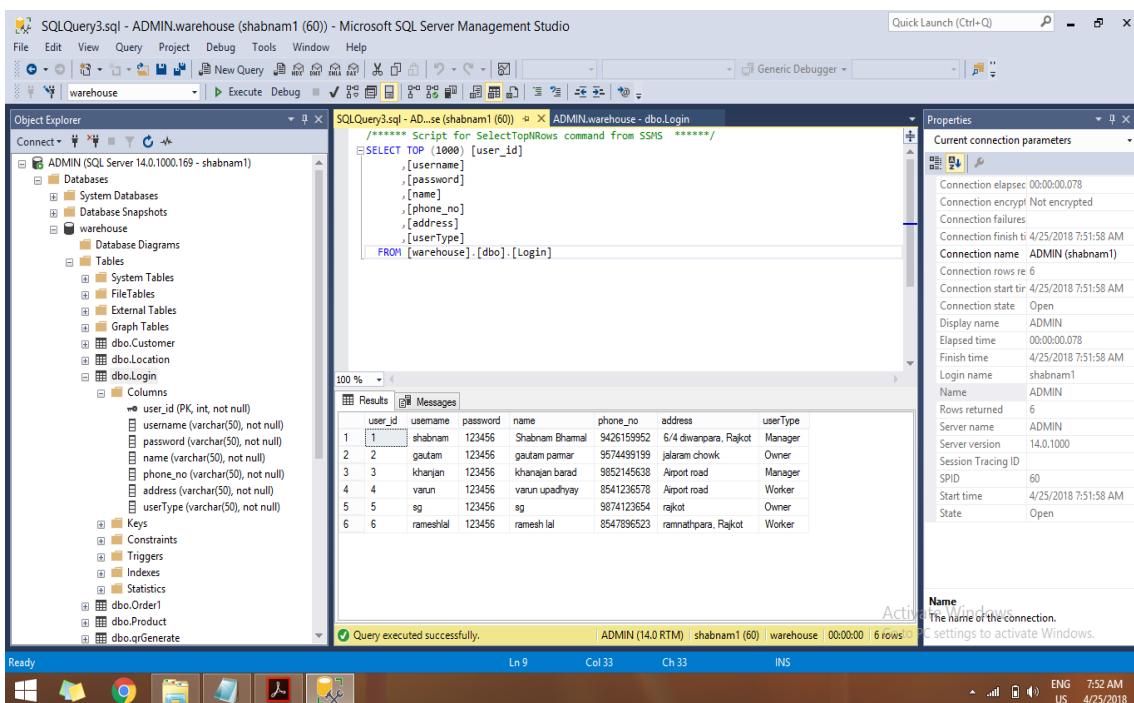


Fig. 3.2.6 Login details (a)

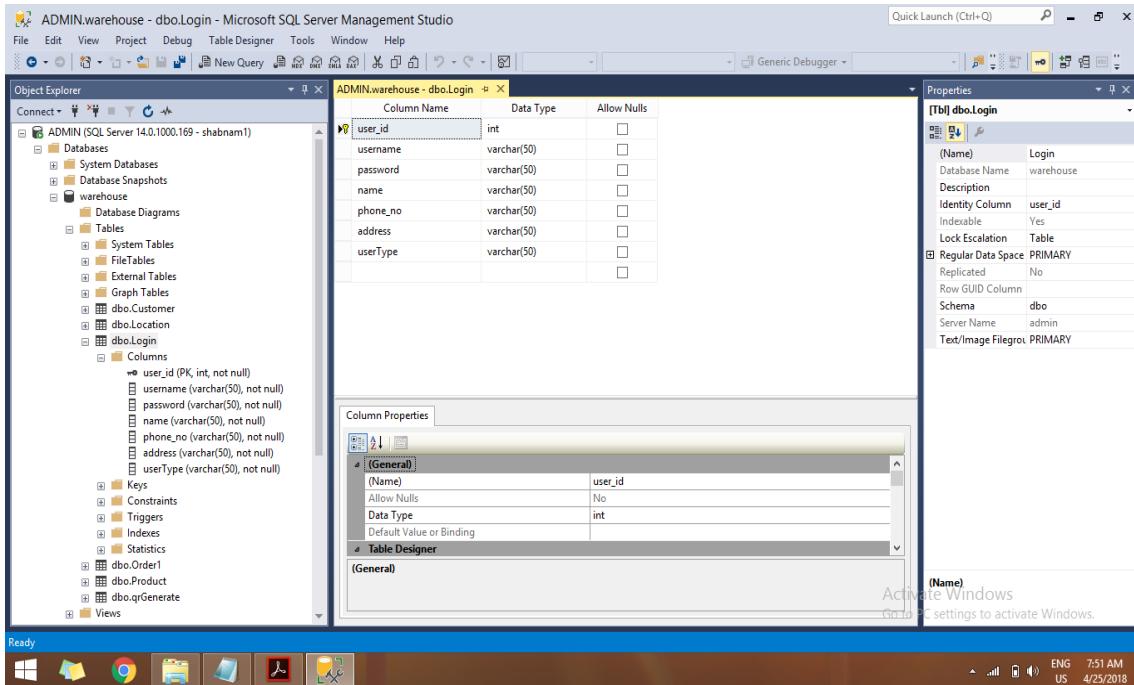


Fig. 3.2.7 Login details (b)

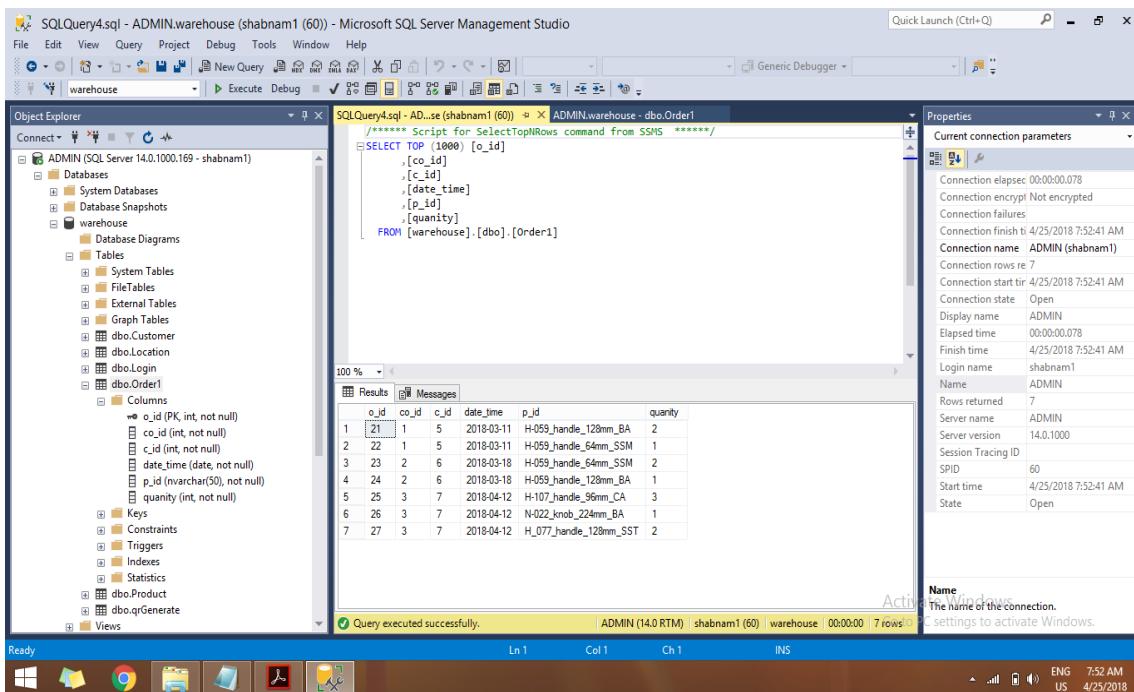


Fig. 3.2.8 Order details (a)

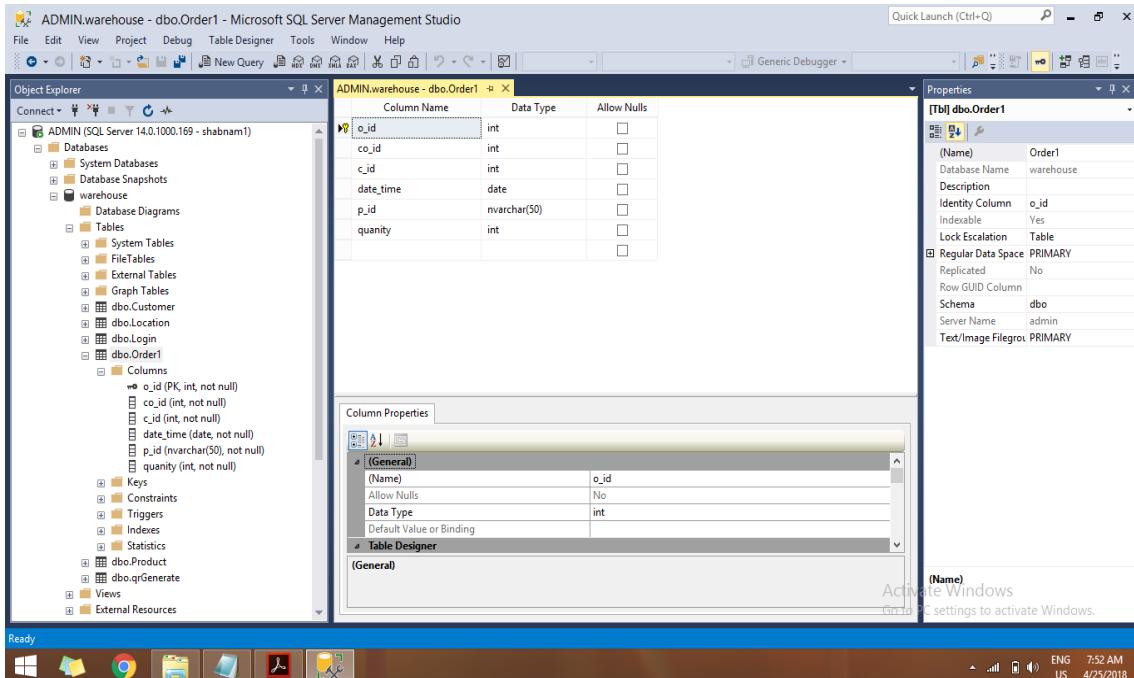


Fig. 3.2.9 Order details (b)

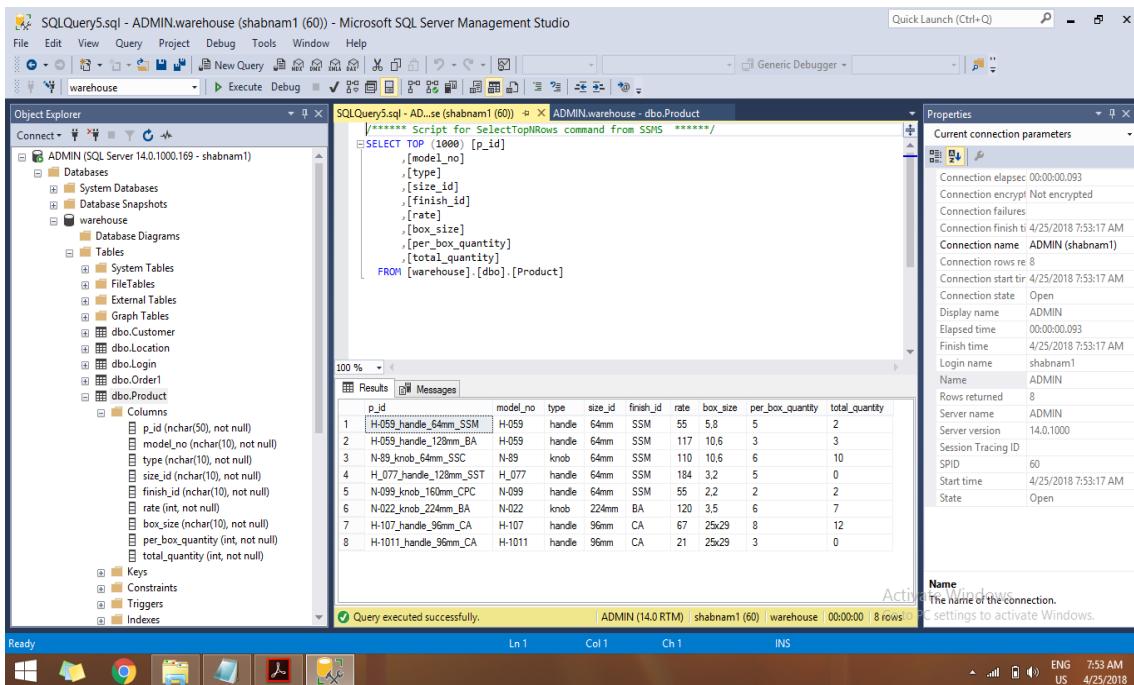


Fig. 3.2.10 Product details (a)

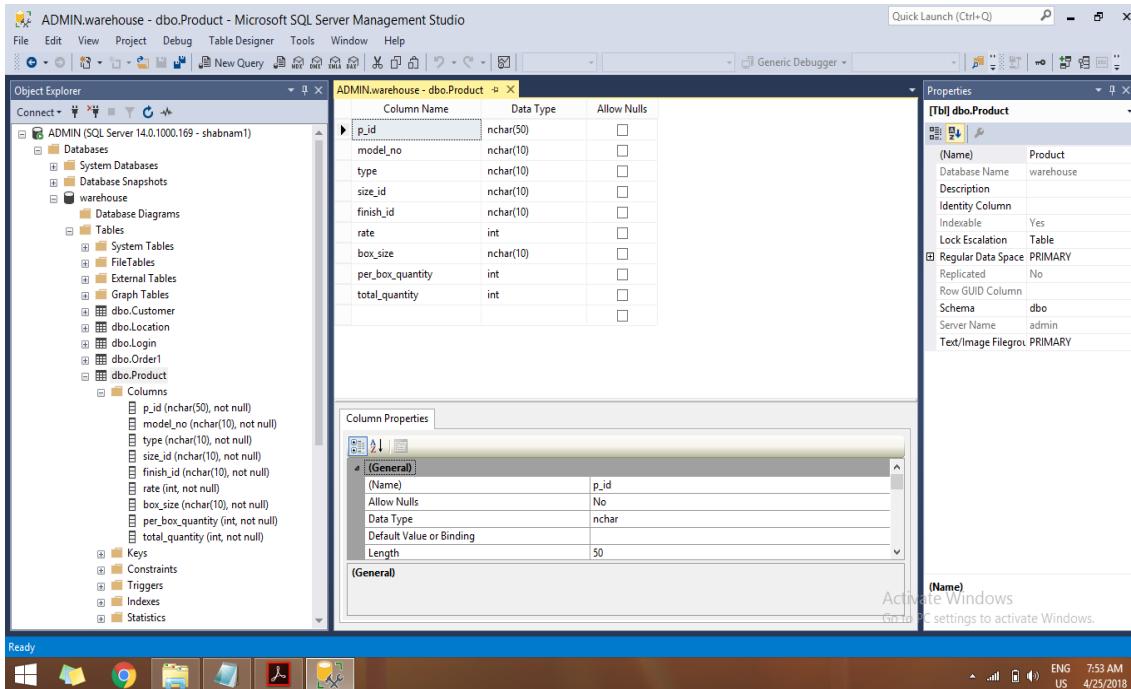


Fig. 3.2.11 Product details (b)

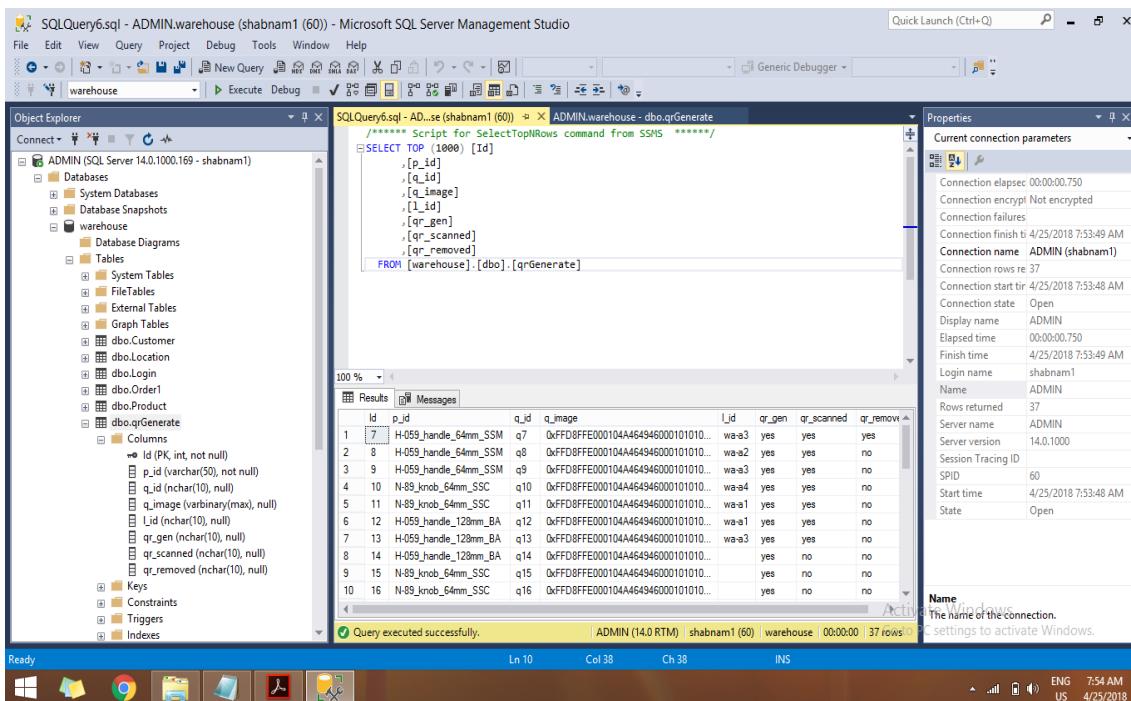


Fig. 3.2.12 QR code generate details (a)

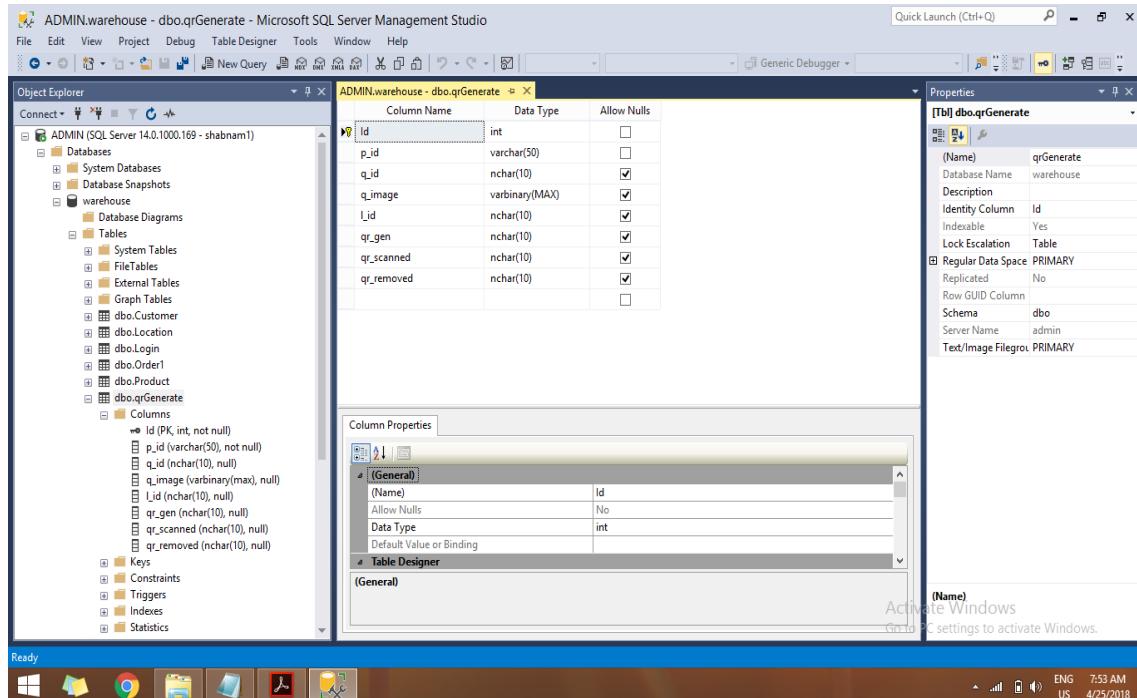


Fig. 3.2.13 QR code generate details (b)

3.3 Snapshots

3.3.1 Snapshots of Desktop Application

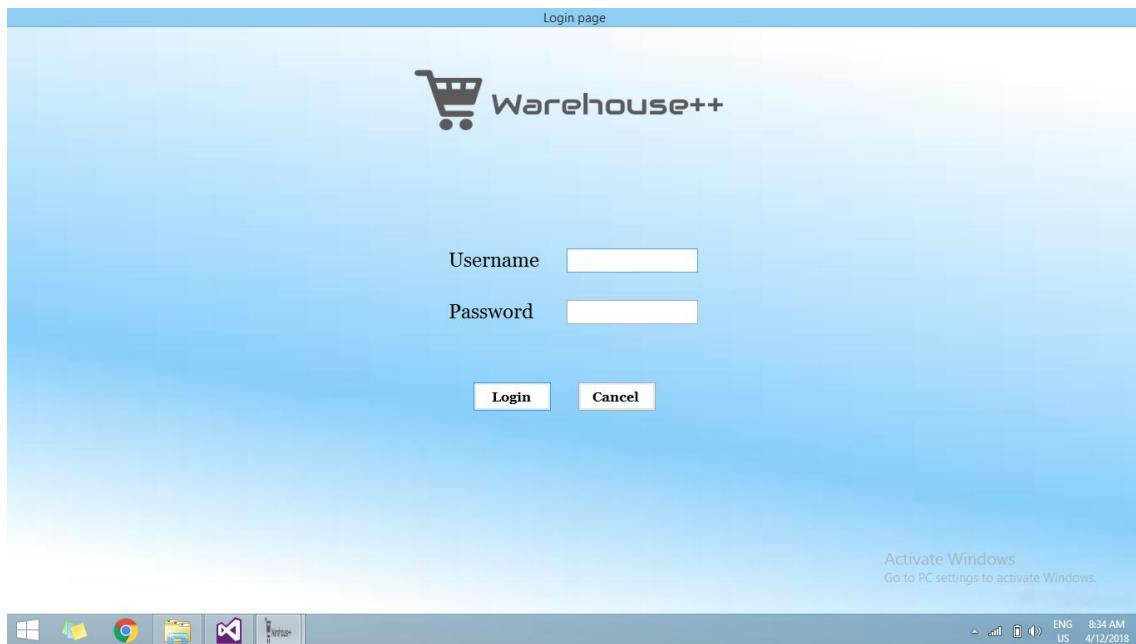


Fig.3.3.1.1 Login Page

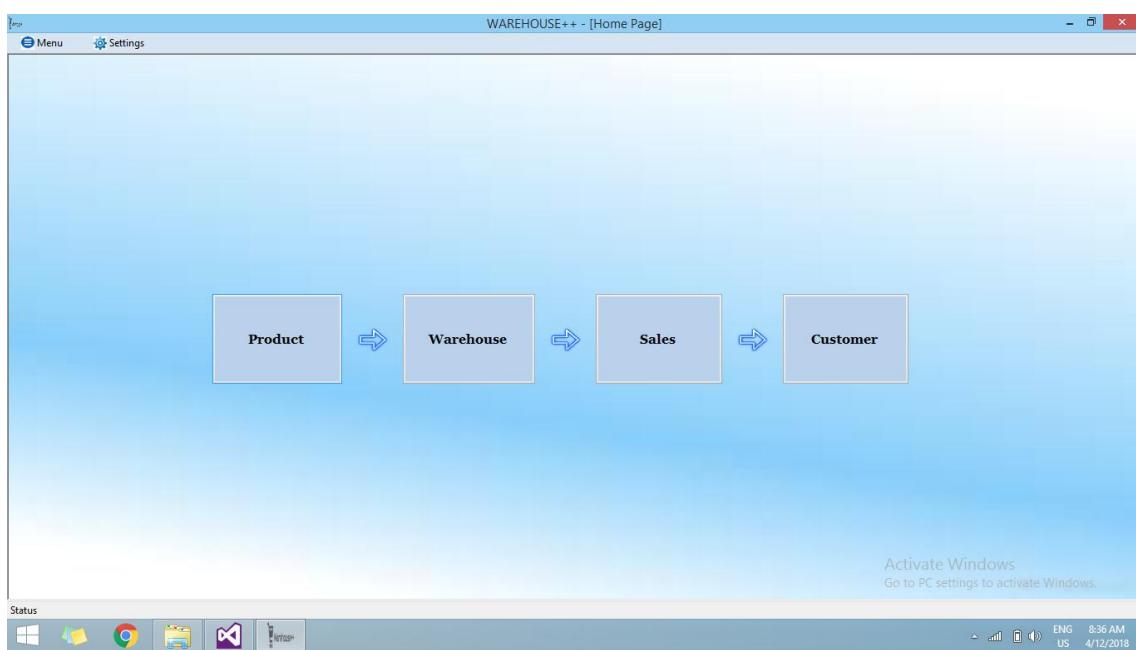


Fig.3.3.1.2 Home Page (a)

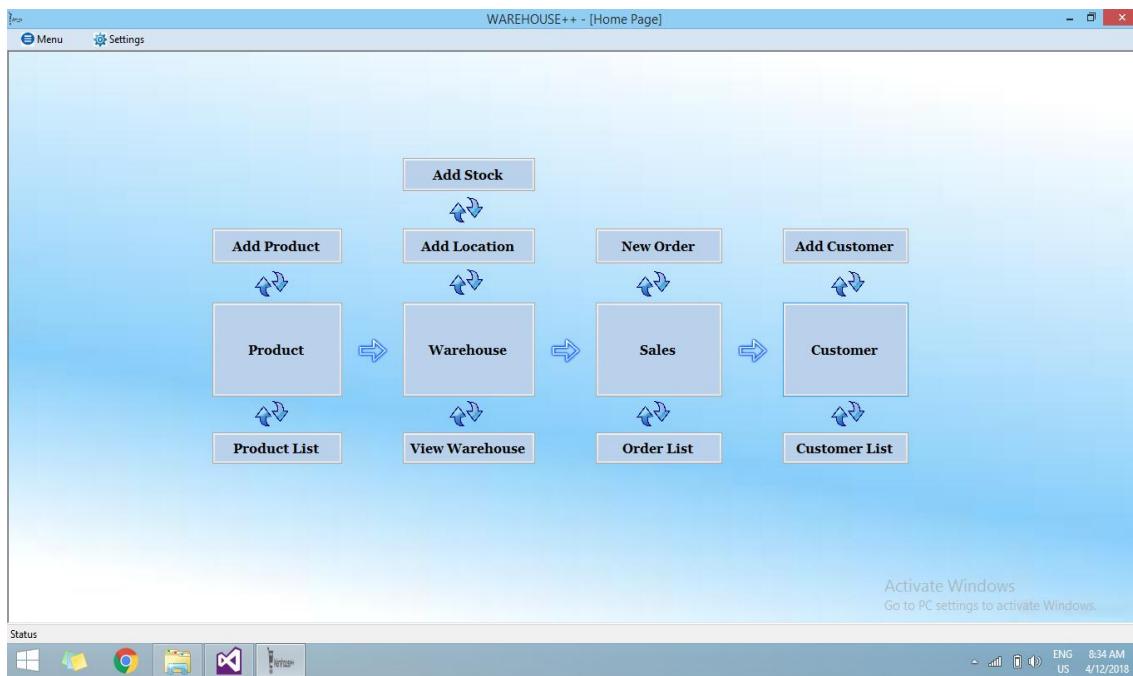


Fig.3.3.1.3 Home Page (b)

The screenshot shows the "New Product" page of the Warehouse++ application. The window title is "WAREHOUSE++ - [New Product]". The main content area contains a form with the following fields: "Model No.", "Type", "Size", "Finish", "Rate", "Box size", and "Quantity", each with its own input field. Below the form are two buttons: "Add" and "Reset". At the bottom right of the main area, there is a message: "Activate Windows Go to PC settings to activate Windows." The status bar at the bottom shows standard Windows icons for network, battery, and system status, along with the text "Status", "8:39 AM", "ENG US", and the date "4/12/2018".

Fig.3.3.1.4 Add Product Page

WAREHOUSE++ - [Product List]

Menu Settings

Search

Product List

p_id	model_no	type	size_id	finish_id	rate	box_size	per_box_quantity	total_quantity
H-059_Handle_64mm_SSM	H-059	handle	64mm	SSM	55	5.8	5	2
H-059_Handle_128mm_BA	H-059	handle	64mm	SSM	117	10.6	3	3
N-89_Knob_64mm_SSC	N-89	knob	64mm	SSM	110	10.6	6	10
H-077_Handle_128mm_SST	H-077	handle	64mm	SSM	184	3.2	5	0
N-099_Knob_160mm_CPC	N-099	handle	64mm	SSM	55	2.2	2	2
N-022_Knob_224mm_BA	N-022	knob	224mm	BA	120	3.5	6	3
H-107_Handle_96mm_CA	H-107	handle	96mm	CA	67	25x29	8	0

< >

Activate Windows
Go to PC settings to activate Windows.

Status

Windows File Explorer Google Chrome File Explorer Task View

ENG 8:44 AM US 4/12/2018

Fig.3.3.1.5 View Product List Page

WAREHOUSE++ - [New Customer]

Menu Settings

Company Name

Customer Name

Contact

Address

Email

Website

Add Reset

Activate Windows
Go to PC settings to activate Windows.

Status

Windows File Explorer Google Chrome File Explorer Task View

ENG 8:47 AM US 4/12/2018

Fig.3.3.1.6 Add Customer Page

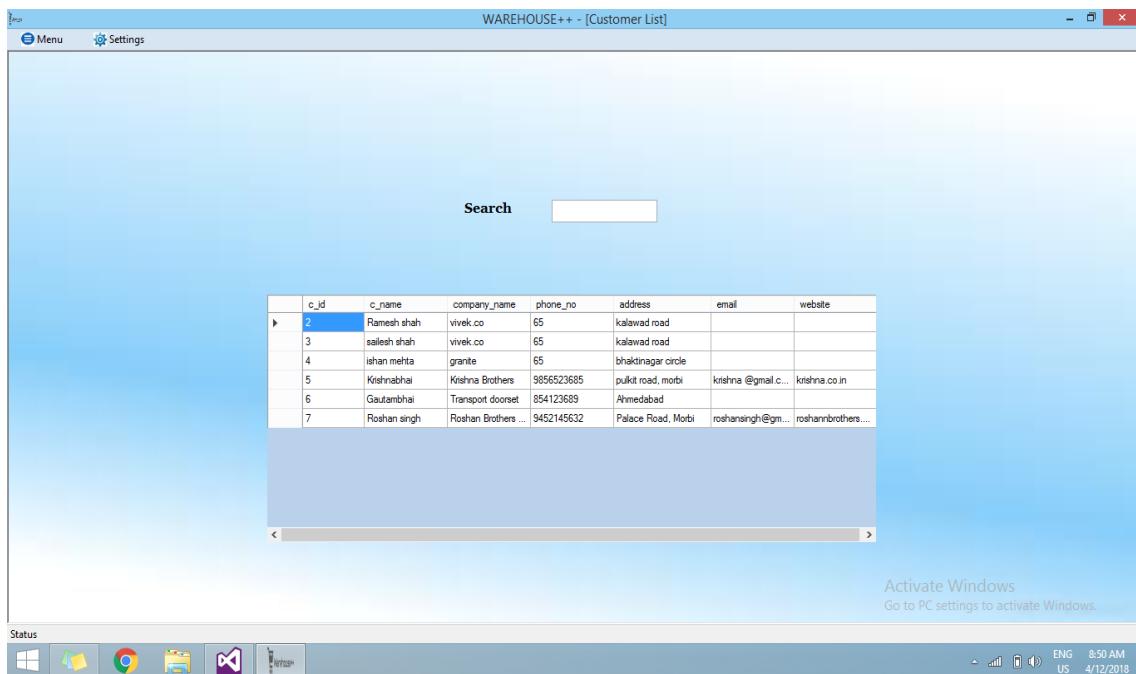


Fig.3.3.1.7 View Customer List Page

Product Name	Rate	Quantity	Amount
			0
			0
			0
			0
			0
			0
			0

Total Amount | 0

Place Reset Activate Windows
Go to PC settings to activate Windows.

Fig.3.3.1.8 Add Order

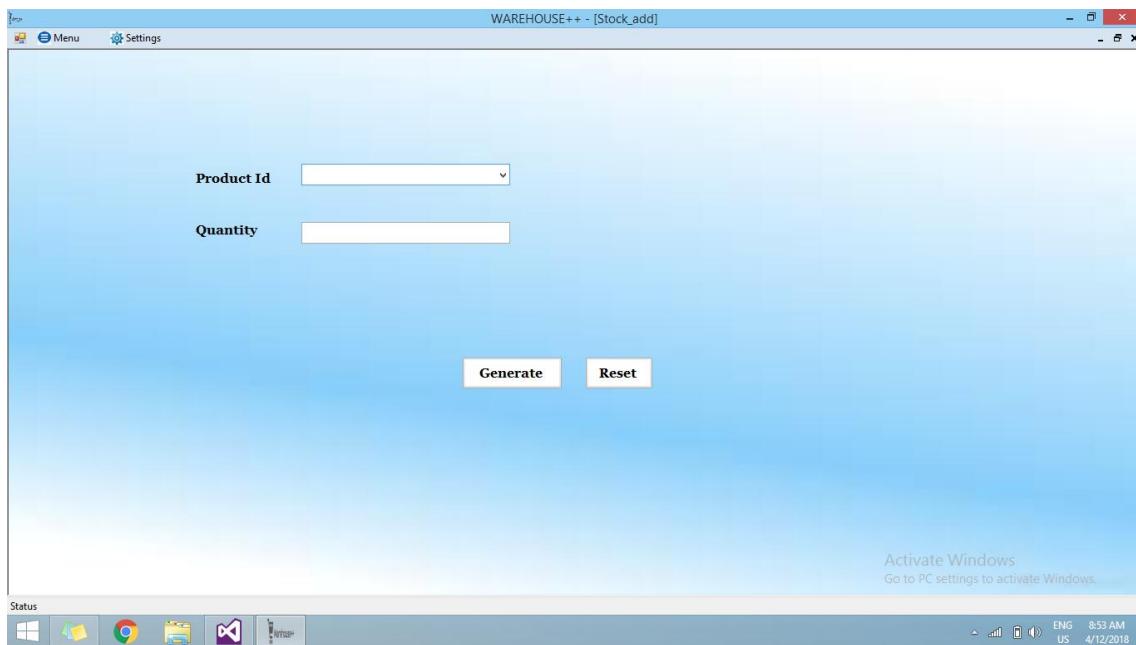


Fig.3.3.1.9 Add Stock Page

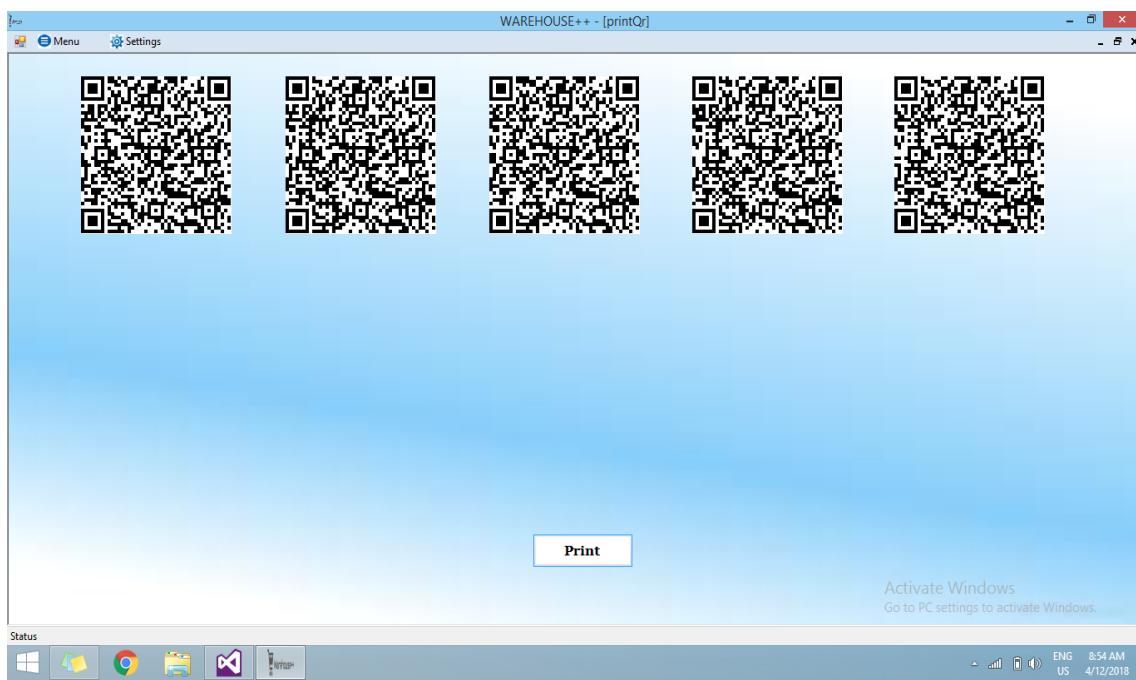


Fig.3.3.1.10 Print Product QR code Page

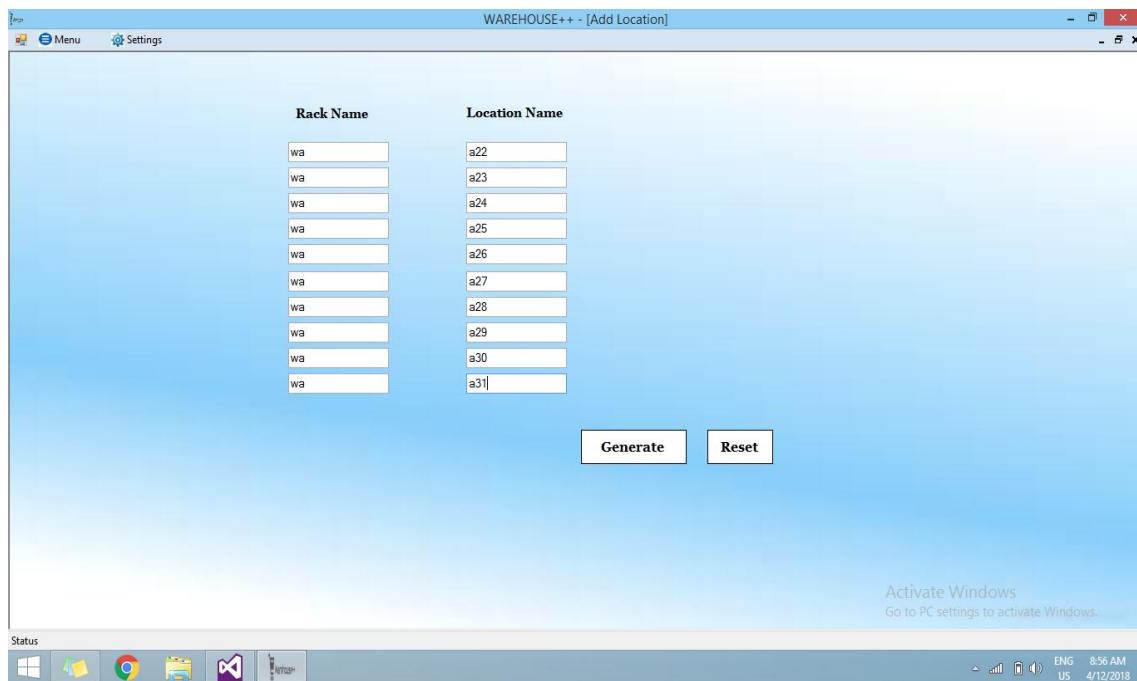


Fig.3.3.1.11 Add Location Page

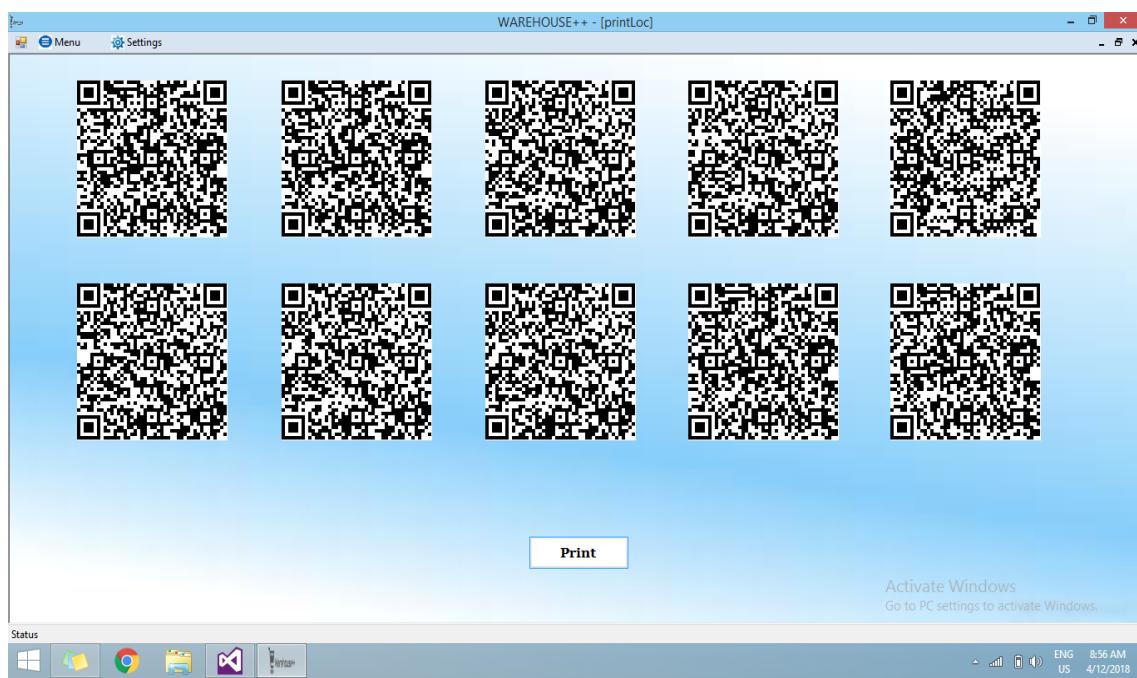


Fig.3.3.1.12 Print Location QR code Page

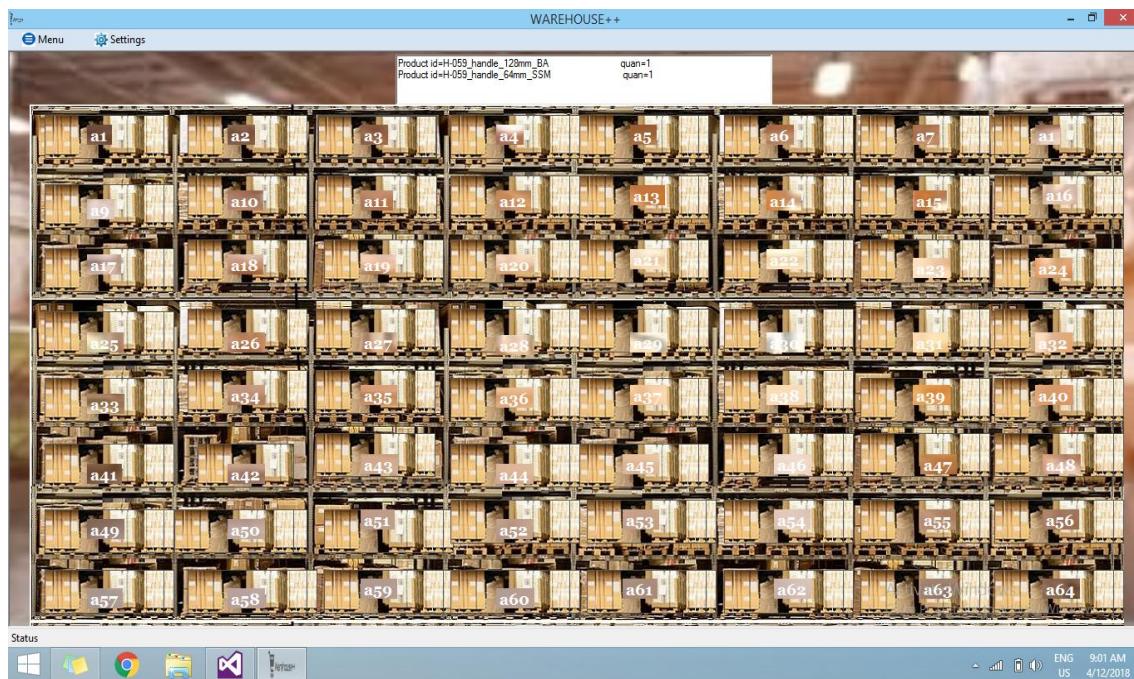


Fig.3.3.1.13 View Warehouse Page

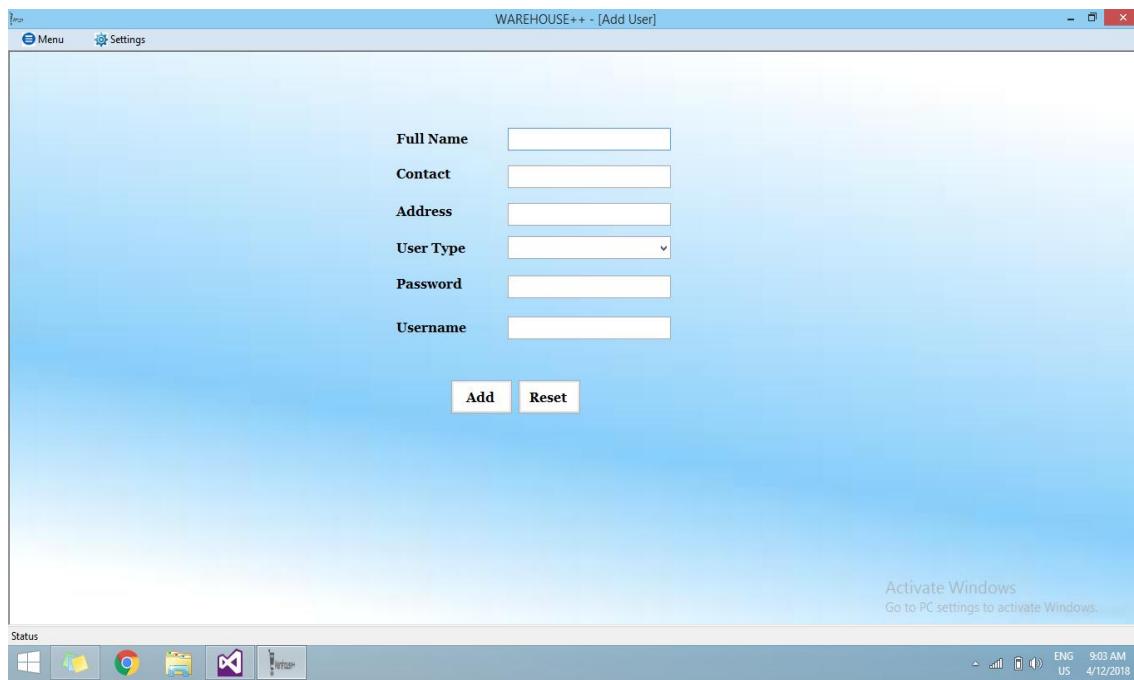


Fig.3.3.1.14 Add User Page

user_id	username	name	phone_no	address	userType
1	shabnam	Shabnam Bhamal	9426159952	6/4 diwarpura, Rajkot	Manager
2	gautam	gautam patmar	9574493199	jalaram chowk	Owner
3	khanjan	khanjan barad	9852145638	Airport road	Manager
4	varun	varun upadhyay	8541236578	Airport road	Worker
5	sg	sg	9874123654	rajkot	Owner
6	rameshlal	ramesh lal	8547896523	ramnathpara, Rajkot	Worker

Fig.3.3.1.15 View User List Page

3.3.2 Snapshots of Android Application

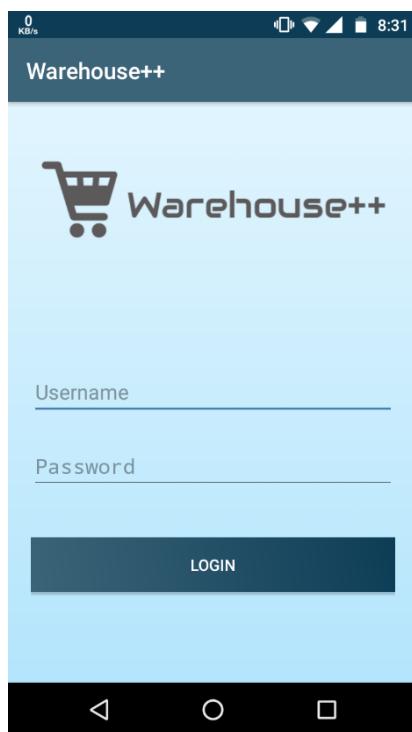


Fig. 3.3.2.1 Login Screen

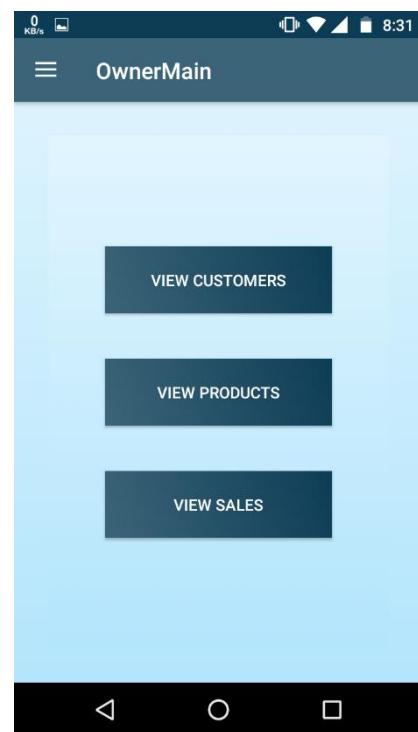


Fig.3.3.2.2 Owner Home Screen

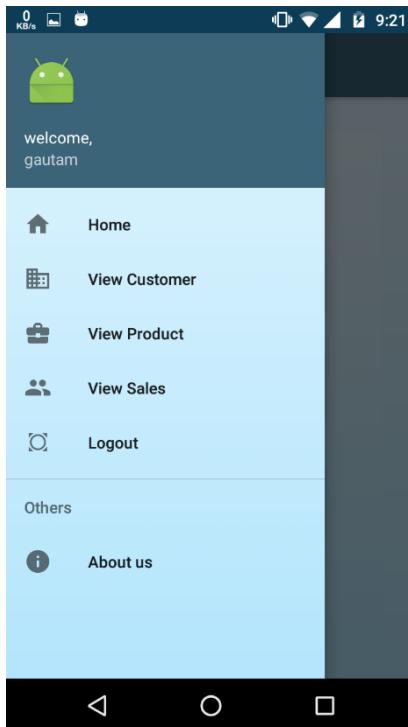


Fig. 3.3.2.3 Owner Navigation Screen



Fig.3.3.2.4 View Customer List



Fig. 3.3.2.5 View Order List

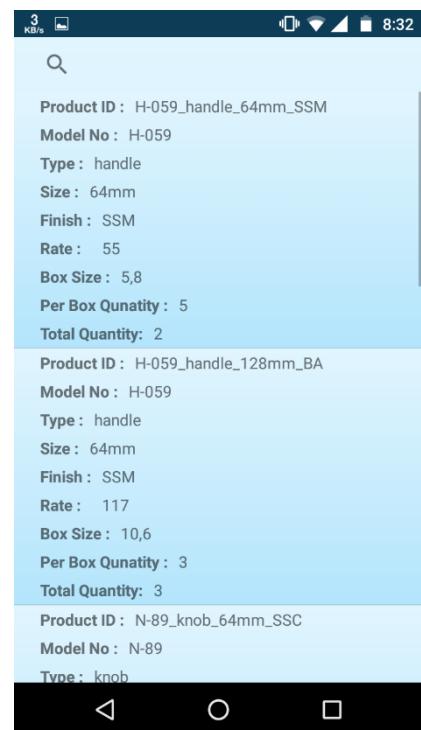


Fig. 3.3.2.6 View Product List

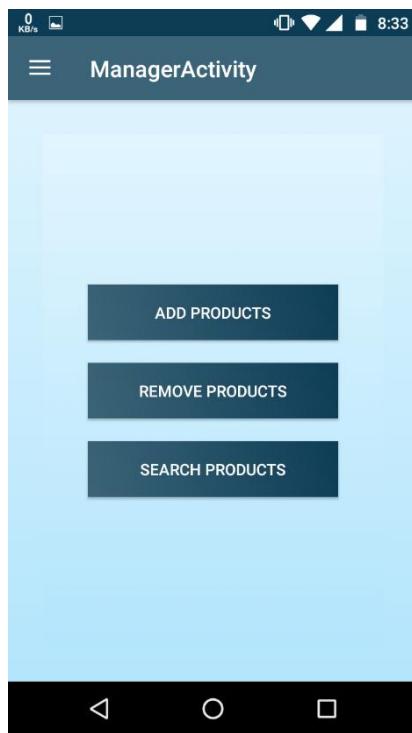


Fig. 3.3.2.7 Manager Home Screen

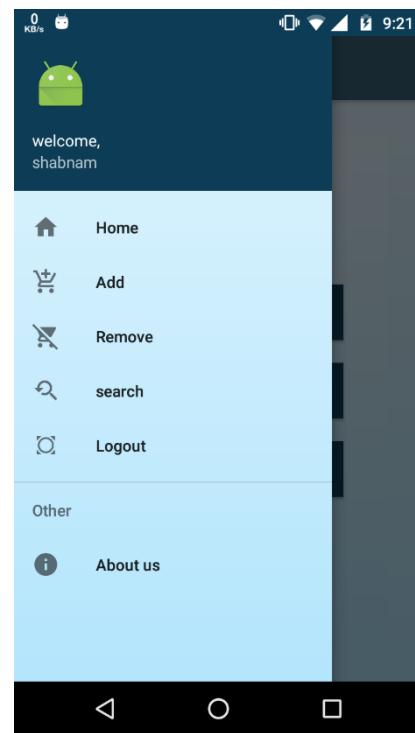


Fig. 3.3.2.8 Manager Home Navigation

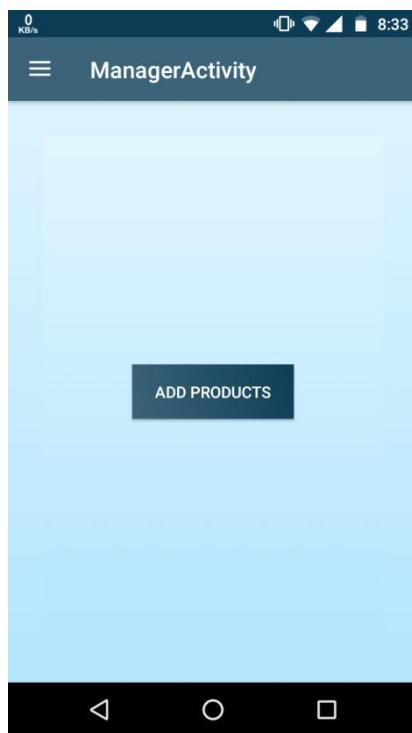


Fig. 3.3.2.9 Add Products



Fig. 3.3.2.10 Scan Location QR



Fig.3.3.2.11 Adding QR by Scanning

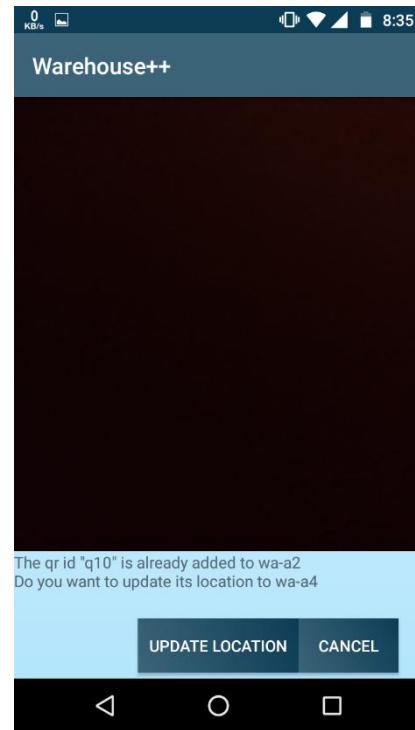


Fig.3.3.2.12 Update Existing Location



Fig.3.3.2.13 Remove Products



Fig.3.3.2.14 Scan QR to Remove Products



Fig.3.3.2.15 Search Product's Location

3.4 Testing and Verification

Software testing has a dual function:

It is used to establish the presence of defects in program and it is used to help judge whether or not the program is usable in practice. The software testing is used for validation and verification, which ensures that software, confirms to its specification meets the need o the software customer.

The testing is done by novice user and test the application with all possible way to find the bugs and error as well as check validation.

Testing Strategy

The primary objective for test case design is to derive a set of tests that has the highest livelihood for uncovering defects in software. To accomplish this objective too different categories of test case design techniques are used. They are:

White-box testing

White box testing focuses on the program control structure. Test cases are derived to ensure that all statements in the program have been executed at least once during testing and that all logical conditions have been executed.

Black-Box testing

Black box testing is designed to validate functional requirements without regard to the internal workings of a program. Black box testing mainly focuses on the information domain of the software, deriving test cases by input and output in a manner that provides partitioning through test coverage. Incorrect and missing functions, interface errors in the data structures, error in functional logic are the errors falling in this category.

Testing Methods

Unit Testing

Under the unit testing all the modules of the subsystem are tested individually. All the relevant type of combination of data tried entering in the system as input. The results of the System are then compared with the result got from the existing system. In our case, we have tested each of the modules separately. At initial stage, we found bugs with the system. which were cleared of through iterative process of development and testing.

Integration Testing

The testing was done for all the modules, the input and output details were found to be as per requirement and consistency with the specifications mentioned in the design.

System Testing

The testing proved that the system was compliant with the requirement as specified in the Use Case and S.R.S Integration of Web Pages Designing, Submission Forms, Send Emails, Login, Search, Project Management, Campaign Management, Contact

Management, Lead Management, and Reports Management were tested and found to be successful.

Acceptance Testing

After each module completion, the system tester tested the system to check user acceptance. When the tester and other user were not satisfied, changes were made to fulfill user requirements.

Test Cases

Test cases are derived to ensure that all statements in the program base been executed at least once during testing and that all logical conditions have been executed. Using White-Box testing methods, the software engineer can drive test cases that

- a. Guarantee that logical decisions on their true and false sides
- b. Exercise all logical decisions on their true and false sides
- c. Execute all loops at their boundaries and within their operational bounds
- d. Exercise internal data structure to assure their validity

The test cases specification for system testing has to be submitted for review before system testing commences.

Test Summary

Testing is a process of executing a program with intent of finding an error. Testing is a crucial element of software quality assurance and presents ultimate review of specifications, design and coding. System Testing is an important phase. Testing represents an interesting anomaly for the software. Thus, a series of testing are performed for the proposed system is ready for user acceptance testing. A good test case is one that has probability of finding an as undiscovered error. A successful test is one that uncovers an as undiscovered error.

4. Conclusion

4.1 Summary of the Results

The results of our project in terms of working are efficient. The pages and the interface are just fine and easy to use for any user.

The login functionality, the adding and removal of stock by scanning Qr code, adding customer, tracking orders and finding products with its location etc. functionalities work very well without any issues. Thus, any user can have a very smooth experience using the android application as well as desktop application.

4.2 Advantages of your Work/Result/Methodologies

The advantages of our work lie in the fact that we have created these mobile application and desktop application using the simplest of tools available, making both the app a simple app which will be easy to install and use. It will not even be too big in size considering the simple tools used in the making of the application.

Along with this, the system will be having the following advantages:

Ease of Access:

Users can easily access each functionality using the simple and minimal interface. Users can simply perform different tasks to manage inventory with the help of both mobile and desktop application.

User friendly:

This system provides totally user-friendly environment. The user can easily interpret with the mobile app and desktop application. The system provides very easy user interface to perform tasks like adding and removing stock, adding new user, manage orders, generating Qr-code as well scanning of previously generated Qr-code, view products with its location in inventory etc.

Reliable and Secure:

The system is reliable and gives quick responses. User can get ease of access and their account can be accessed only after providing the correct username and password, thus making it authenticated and privacy safe.

4.3 Scope of Future Work

The production business is growing very swiftly and as the production increases there will be increase in the numbers of warehouses and there will be also increase in the number of inventory. As inventory increases there will be a need of inventory management as well.

As per the current scenario there are lot of variety in the inventory and it requires a system that can manage huge number of items data. Workers working in the inventory will get benefits from the provided solution by the system.

This system will definitely help to manage large warehouses. Just scan location Qr-code and add the products to the respective scanned location and forget our system will take care of rest.

4.4 Unique Features of your Innovation/Project(UDP)

The project we have developed has a lot of unique features such as follows:

- Desktop as well as mobile application to perform necessary tasks.
- Qr-code generating and scanning.
- Adding new products data as well as new customers.
- Search facility to find availability of products.
- Online database synced with both mobile and desktop application.
- Re-arranging of inventory is also available.
- Order management.

4.5 Attainment of POs and PSOs

Table 4.5.1 Attainment of POs and PSOs

PO / PSO	Attainment Level	Justification
PO1	2	We have used the concepts of mathematics and software engineering to a great extent to make our application efficient.
PO2	3	We have done a lot of research regarding what all applications are available in the market currently and why they aren't as much popular.
PO3	2	Our application provides solution to a major problem which is inventory management of big warehouses.
PO4	3	We have researched through a lot of existing applications to understand their design, their working and their functionalities.
PO5	2	We have used a lot of modern techniques such as QR-code generation and its decoding which are areas in computer science that are still developing and are very new.
PO6	3	We have kept in mind all the parameters of assessment while developing our project as well as all the issues that may arise and the respective responsibilities that we hold.
PO7	3	We have understood our society and environment properly and have taken care of sustainable development in our project.
PO8	3	We have very ethically developed our project and commit not to use it for any unethical practice whatsoever in terms of engineering.
PO9	3	We have developed the application in a way that we serve our responsibilities as an individual as well as a team wherever required.
PO10	3	We have communicated the norms of our project, its features, the functionalities, etc. via reports, UML diagrams, etc.
PO11	2	We understand the principles of engineering and management and have made the project keeping in mind each one of these.
PO12	3	We have made the project currently keeping in mind the current scenario and will be very flexible to make any modifications required as per time and circumstances.
PSO1	3	We have demonstrated the skills, knowledge and competence in a way that it addresses industrial as well as social issues.

PSO2	3	We have enough competence to make the use of future and advanced technologies and their respective issues whenever required.
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Appendix A - Periodic Progress Reports (PPR)

Khanjan Barad:

PPR1:

4/23/2018

Periodic Progress Report (PPR) Details

[Print](#) [Back](#)

College : MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT
StudentName : Barad Khanjan Vijaybhai
EnrollmentNo : 140570107004 Department : Computer Engineering
MobileNo : 9586362601 Discipline : BE
Email : khanjanbarad@gmail.com Semester : Semester 8

PPR Details

Periodic Progress Report : First PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have completed some of the pages of desktop software which includes the main page, login page, new product page, new customer page, new order, new customer, order list, product list.

2. What challenge you have faced ?

We have faced some challenges in preparing proper database because there is lots of category in products and their properties.

3. What support you need ?

We needed support in understanding the proper format of the database which we are going to prepare.

4. Which literature you have referred ?

We have referred "BPB publication " for SQL database understanding.

Comments

Comment by Internal Guide :

None

Comment by External Guide :

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

PPR2:

4/23/2018 Periodic Progress Report (PPR) Details
[Print](#) [Back](#)
College : MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT
StudentName : Barad Khanjan Vijaybhai
EnrollmentNo : 140570107004 Department : Computer Engineering
MobileNo : 9586362601 Discipline : BE
Email : khanjanbarad@gmail.com Semester : Semester 8

PPR Details

Periodic Progress Report : Second PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have implemented the functionality of generating QR code for the given input.

2. What challenge you have faced?

We have faced some of the challenges in finding the proper library to implement QR code generation functionality. There are already many libraries available for QR code generation, so it was little tough to find the correct one and implement it.

3. What support you need ?

As we are able to generate QR code, we are now looking forward to finding some tool which also decodes~(read) the QR code. To implement that functionality we are searching for libraries which help us to perform decoding of generated QR code.

4. Which literature you have referred ?

We have referred various libraries for QR code generation like ZXING.NET and ZEN.NET for QR code generation.

Comments

Comment by Internal Guide :

None

Comment by External Guide:

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

PPR3:

4/23/2018 Periodic Progress Report (PPR) Details

[Print](#) [Back](#)

College : MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT
 StudentName : Barad Khanjan Vijaybhai
 EnrollmentNo : 140570107004 Department : Computer Engineering
 MobileNo : 9586362601 Discipline : BE
 Email : khanjanbarad@gmail.com Semester : Semester 8

PPR Details

Periodic Progress Report : Third PPR.

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have started designing the android app. We prepared the login pages and different pages according to the authorized login of manager and owner as it is going to be with the help of fragments.

2. What challenge you have faced ?

We were going to develop our projects android application in visual studio xamarin, but it was too heavy for our machines to work on and time was passing but the issues with it were not resolving.

3. What support you need ?

As the xamarin was not working properly for us, we shifted to android studio for our project and the main problem we had was that we were using the local sql database in visual studio and now as we had to also work with android studio with java , we need an alternative to store our database so we can connect smoothly our c# and java code with it.

4. Which literature you have referred ?

we have referred google articles and other blog posts for android pages designing especially topics like navigation drawer activity with fragments. Also, referred some content on web for our database storing on server. the links are as follow : <https://www.simplifiedcoding.net/android-navigation-drawer-example-using-fragments/> -<https://developer.android.com/guide/components/fragments.html> -
<https://azure.microsoft.com/en-in/resources/videos/mobile-get-started-with-data-android/>

Comments

Comment by Internal Guide :

None

Comment by External Guide :

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

PPR4:

4/23/2018 Periodic Progress Report (PPR) Details

[Print](#) [Back](#)

College : MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT
 StudentName : Barad Khanjan Vijaybhai
 EnrollmentNo : 140570107004 Department : Computer Engineering
 MobileNo : 9586362601 Discipline : BE
 Email : khanjanbarad@gmail.com Semester : Semester 8

PPR-Details

Periodic Progress Report : Forth PPR

Project : Warehouse++
 Status : Reviewed

1. What Progress you have made in the Project ?
 We have implemented the QR scanning logic in android application and also we have corrected some bugs in the software which were there earlier like there were some major changes needed to be made in the product and stock adding pages with database, we have also moved our database to Microsoft SQL server and done with the part of connecting it with the android application

2. What challenge you have faced ?
 we faced challenge when integrating QR code scanning(decoding) part with the mobile application. Also, when connecting our database to android application, there were a lot of network related issues which needed a lot of time to get solved.

3. What support you need ?
 We have to implement a functionality of virtual warehouse in software and android app, it is a bit complex topic for us to work upon, so we need support regarding that.

4. Which literature you have referred ?
 We referred blog posts and video references on topics related to connecting MS SQL server with android studio application and related to Microsoft and Google Vision API. The links are as follows:
<http://seotoolzz.com/android/android-login-app-with-mssql-server.php>
<https://code.tutsplus.com/tutorials/reading-qr-codes-using-the-mobile-vision-api--cms-24680>
<https://azure.microsoft.com/en-in/services/cognitive-services/computer-vision/>

Comments

- Comment by Internal Guide :
None
- Comment by External Guide :
None
- Comment by HOD :
None
- Comment by Principal :
None
- Comment by University Admin :
None

Shabnam Bharmal:

PPR1:

4/23/2018	Periodic Progress Report (PPR) Details			
Print Back				
College	: MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT			
StudentName	: Bharmal Shabnam Abidbhai			
EnrollmentNo	: 140570107008	Department	: Computer Engineering	
MobileNo	: 9426159952	Discipline	: BE	
Email	: bharmalshabnam@gmail.com	Semester	: Semester 8	

PPR-Details

Periodic Progess Report : First PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have completed some of the pages of desktop software which includes the main page, login page, new product page, new customer page, new order, new customer, order list, product list.

2. What challenge you have faced ?

We have faced some challenges in preparing proper database because there is lots of category in products and their properties.

3. What support you need ?

We needed support in understanding the proper format of the database which we are going to prepare.

4. Which literature you have referred ?

We have referred "BPB publication " for SQL database understanding.

Comments

Comment by Internal Guide :

None

Comment by External Guide :

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

PPR2:

4/23/2018 Periodic Progress Report (PPR) Details

College :	MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT		
StudentName :	Bharmal Shabnam Abidbhai		
EnrollmentNo :	140570107008	Department :	Computer Engineering
MobileNo :	9426159952	Discipline :	BE
Email :	bharmalshabnam@gmail.com		
	Semester :	Semester 8	

PPR Details

Periodic Progess Report : Second PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have implemented the functionality of generating QR code for the given input.

2. What challenge you have faced ?

We have faced some of the challenges in finding the proper library to implement QR code generation functionality. There are already many libraries available for QR code generation, so it was little tough to find the correct one and implement it.

3. What support you need ?

As we are able to generate QR code, we are now looking forward to finding some tool which also decodes (read) the QR code. To implement that functionality we are searching for libraries which help us to perform decoding of generated QR code.

4. Which literature you have referred ?

We have referred various libraries for QR code generation like ZXING.NET and ZEN.NET for QR code generation.

Comments

Comment by Internal Guide :

None

Comment by External Guide :

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

PPR3:

4/23/2018 Periodic Progress Report (PPR) Details

[Print](#) [Back](#)

College :	MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT		
StudentName :	Bharmal Shabnam Abidbhai		
EnrollmentNo :	140570107008	Department :	Computer Engineering
MobileNo :	9426159952	Discipline :	BE
Email :	bharmalshabnam@gmail.com		
	Semester	:	Semester 8

PPR Details

Periodic Progress Report : Third PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?
 We have started designing the android application. We prepared the login pages and different pages according to the authorized login of manager and owner as it is going to be with the help of fragments.

2. What challenge you have faced ?
 We were going to develop our projects android application in visual studio xamarin, but it was too heavy for our machines to work on and time was passing but the issues with it were not resolving.

3. What support you need ?
 As the xamarin was not working properly for us, we shifted to android studio for our project and the main problem we had was that we were using the local sql database in visual studio and now as we had to also work with android studio with java , we need an alternative to store our database so we can connect smoothly our c# and java code with it.

4. Which literature you have referred ?
 we have referred google articles and other blog posts for android pages designing especially topics like navigation drawer activity with fragments. Also, referred some content on web for our database storing on server. the links are as follow : -<https://www.simplifiedcoding.net/android-navigation-drawer-example-using-fragments/> -<https://developer.android.com/guide/components/fragments.html> -<https://azure.microsoft.com/en-in/resources/videos/mobile-get-started-with-data-android/>

Comments

Comment by Internal Guide :

None

Comment by External Guide:

None

Comment by HOD:

None

Comment by Principal:

Name _____

Comment by Universiti Admin.

100

PPR4:

4/23/2018	Periodic Progress Report (PPR) Details		
Print Back			
College :	MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT		
StudentName :	Bharmal Shabnam Abidbhai		
EnrollmentNo :	140570107008	Department :	Computer Engineering
MobileNo :	9426159952	Discipline :	BE
Email :	bharmalshabnam@gmail.com		
Semester :	Semester 8		

PPR Details

Periodic Progress Report : Forth PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have implemented the QR scanning logic in android application and also we have corrected some bugs in the software which were there earlier like there were some major changes needed to be made in the product and stock adding pages with database. we have also moved our database to Microsoft SQL server and done with the part of connecting it with the android application.

2. What challenge you have faced ?

we faced challenge when integrating QR code scanning(decoding) part with the mobile application. Also, when connecting our database to android application, there were a lot of network related issues which needed a lot of time to get solved.

3. What support you need ?

We have to implement a functionality of virtual warehouse in software and android app, it is a bit complex topic for us to work upon, so we need support regarding that.

4. Which literature you have referred ?

We referred blog posts and video references on topics related to connecting MS SQL server with android studio application and related to Microsoft and Google Vision API. The links are as follows:-
<http://seotoolzz.com/android/android-login-app-with-mssql-server.php> -
<https://code.tutsplus.com/tutorials/reading-qr-codes-using-the-mobile-vision-api--cms-24680> -
<https://azure.microsoft.com/en-in/services/cognitive-services/computer-vision/>

Comments

Comment by Internal Guide :

None

Comment by External Guide :

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

Gautam Parmar:

PPR1:

4/23/2018 Periodic Progress Report (PPR) Details

[Print](#) [Back](#)

College :	MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT		
StudentName :	Parmar Gautam Bhailalbhai		
EnrollmentNo :	140570107064	Department :	Computer Engineering
MobileNo :	9574499199	Discipline :	BE
Email :	gautamparmar201@gmail.com		
	Semester	:	Semester 8

PPR Details

Periodic Progress Report : First PPR.

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have completed some of the pages of desktop software which includes the main page, login page, new product page, new customer page, new order, new customer, order list, product list.

2. What challenge you have faced ?

We have faced some challenges in preparing proper database because there is lots of category in products and their properties.

3. What support you need ?

We needed support in understanding the proper format of the database which we are going to prepare.

4. Which literature you have referred ?

We have referred "BPB publication " for SQL database understanding.

Comments

Comment by Internal Guide :

None

Comment by External Guide :

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

PPR2:

4/23/2018	Periodic Progress Report (PPR) Details
Print	Back
College : MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT StudentName : Parmar Gautam Bhailalbhai EnrollmentNo : 140570107064 Department : Computer Engineering MobileNo : 9574499199 Discipline : BE Email : gautamparmar201@gmail.com Semester : Semester 8	

PPR Details

Periodic Progress Report : Second PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have implemented the functionality of generating QR code for the given input.

2. What challenge you have faced ?

We have faced some of the challenges in finding the proper library to implement QR code generation functionality. There are already many libraries available for QR code generation, so it was little tough to find the correct one and implement it.

3. What support you need ?

As we are able to generate QR code, we are now looking forward to finding some tool which also decodes (read) the QR code. To implement that functionality we are searching for libraries which help us to perform decoding of generated QR code.

4. Which literature you have referred ?

We have referred various libraries for QR code generation like ZXING.NET and ZEN.NET for QR code generation.

Comments

Comment by Internal Guide :

None

Comment by External Guide :

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

PPR3:

4/23/2018

Periodic Progress Report (PPR) Details

[Print](#) [Back](#)

College : MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT
StudentName : Parmar Gautam Bhaialbhai
EnrollmentNo : 140570107064
MobileNo : 9574499199
Email : gautamparmar201@gmail.com
Department : Computer Engineering
Discipline : BE
Semester : Semester 8

PPR Details

Periodic Progress Report : Third PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have started designing the android app. We prepared the login pages and different pages according to the authorized login of manager and owner as it is going to be with the help of fragments.

2. What challenge you have faced ?

We were going to develop our projects android application in visual studio xamarin, but it was too heavy for our machines to work on and time was passing but the issues with it were not resolving.

3. What support you need ?

As the xamarin was not working properly for us, we shifted to android studio for our project and the main problem we had was that we were using the local sql database in visual studio and now as we had to also work with android studio with java , we need an alternative to store our database so we can connect smoothly our c# and java code with it.

4. Which literature you have referred ?

we have referred google articles and other blog posts for android pages designing especially topics like navigation drawer activity with fragments. Also, referred some content on web for our database storing on server. the links are as follow : -<https://www.simplifiedcoding.net/android-navigation-drawer-example-using-fragments/> -<https://developer.android.com/guide/components/fragments.html> -<https://azure.microsoft.com/en-in/resources/videos/mobile-get-started-with-data-android/>

Comments

- Comment by Internal Guide :
None
- Comment by External Guide :
None
- Comment by HOD :
None
- Comment by Principal :
None
- Comment by University Admin:
None

PPR4:

4/23/2018

Periodic Progress Report (PPR) Details

[Print](#) [Back](#)

College : MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT
StudentName : Parmar Gautam Bhailalbhai
EnrollmentNo : 140570107064 Department : Computer Engineering
MobileNo : 9574499199 Discipline : BE
Email : gautamparmar201@gmail.com Semester : Semester 8

PPR Details

Periodic Progress Report : Forth PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have implemented the QR scanning logic in android application and also we have corrected some bugs in the software which were there earlier like there were some major changes needed to be made in the product and stock adding pages with database. we have also moved our database to Microsoft SQL server and done with the part of connecting it with the android application.

2. What challenge you have faced ?

We faced challenge when integrating QR code scanning(decoding) part with the mobile application. Also, when connecting our database to android application, there were a lot of network related issues which needed a lot of time to get solved.

3. What support you need ?

We have to implement a functionality of virtual warehouse in software and android app, it is a bit complex topic for us to work upon, so we need support regarding that.

4. Which literature you have referred ?

We referred blog posts and video references on topics related to connecting MS SQL server with android studio application and related to Microsoft and Google Vision API. The links are as follows:-
<http://seetoolzz.com/android/android-login-app-with-mssql-server.php> -
<https://code.tutsplus.com/tutorials/reading-qr-codes-using-the-mobile-vision-api--cms-24680> -
<https://azure.microsoft.com/en-in/services/cognitive-services/computer-vision/>

Comments

Comment by Internal Guide :

None

Comment by External Guide :

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

Varun Upadhyay:

PPR1:

4/23/2018 Periodic Progress Report (PPR) Details

[Print](#) [Back](#)

College : MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT
 StudentName : Upadhyay Varun Jitendra
 EnrollmentNo : 140570107101 Department : Computer Engineering
 MobileNo : 9898545458 Discipline : BE
 Email : upadhyayvarun777@gmail.com Semester : Semester 8

PPR Details

Periodic Progess Report : First PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have completed some of the pages of desktop software which includes the main page, login page, new product page, new customer page, new order, new customer, order list, product list.

2. What challenge you have faced ?

We have faced some challenges in preparing proper database because there is lots of category in products and their properties.

3. What support you need ?

We needed support in understanding the proper format of the database which we are going to prepare.

4. Which literature you have referred ?

We have referred "BPB publication " for SQL database understanding.

Comments

Comment by Internal Guide :

None

Comment by External Guide :

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

PPR2:

4/23/2018	Periodic Progress Report (PPR) Details		
Print	Back		
College :	MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT		
StudentName :	Upadhyay Varun Jitendra		
EnrollmentNo :	140570107101	Department :	Computer Engineering
MobileNo :	9898545458	Discipline :	BE
Email :	upadhyayvarun777@gmail.com	Semester :	Semester 8

PPR Details

Periodic Progress Report : Second PPR

Project : Warehouse++

Status : Reviewed

- #### **1. What Progress you have made in the Project ?**

We have implemented the functionality of generating QR code for the given input.

- ### 2. What challenges you have faced?

We have faced some of the challenges in finding the proper library to implement QR code generation functionality. There are already many libraries available for QR code generation, so it was little tough to find the correct one and implement it.

- ### 3. What support you need?

As we are able to generate QR code, we are now looking forward to finding some tool which also decodes (read) the QR code. To implement that functionality we are searching for libraries which help us to perform decoding of generated QR code.

- #### 4. Which literature may have referred to

We have referred various libraries for QR code generation like ZXING.NET and ZEN.NET for QR code generation.

Comments

Comment by Internal Guide :

None

[Comment by External Guide](#)

None

Comment by HOD:

Comm
None

None

Comm Name

None

Comm

PPR3:

4/23/2018

Periodic Progress Report (PPR) Details

[Print](#) [Back](#)

College : MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT
StudentName : Upadhyay Varun Jitendra
EnrollmentNo : 140570107101 Department : Computer Engineering
MobileNo : 9898545458 Discipline : BE
Email : upadhyayvarun777@gmail.com Semester : Semester 8

PPR Details

Periodic Progress Report : Third PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have started designing the android app. We prepared the login pages and different pages according to the authorized login of manager and owner as it is going to be with the help of fragments.

2. What challenge you have faced ?

We were going to develop our projects android application in visual studio xamarin, but it was too heavy for our machines to work on and time was passing but the issues with it were not resolving.

3. What support you need ?

As the xamarin was not working properly for us, we shifted to android studio for our project and the main problem we had was that we were using the local sql database in visual studio and now as we had to also work with android studio with java , we need an alternative to store our database so we can connect smoothly our c# and java code with it.

4. Which literature you have referred ?

we have referred google articles and other blog posts for android pages designing especially topics like navigation drawer activity with fragments. Also, referred some content on web for our database storing on server. the links are as follow : <https://www.simplifiedcoding.net/android-navigation-drawer-example-using-fragments/> <https://developer.android.com/guide/components/fragments.html> <https://azure.microsoft.com/en-in/resources/videos/mobile-get-started-with-data-android/>

Comments

Comment by Internal Guide :

None

Comment by External Guide :

None

Comment by HOD :

None

Comment by Principal :

None

Comment by University Admin :

None

PPR4:

4/23/2018	Periodic Progress Report (PPR) Details		
Print	Back		
College :	MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT		
StudentName :	Upadhyay Varun Jitendra		
EnrollmentNo :	140570107101	Department :	Computer Engineering
MobileNo :	9898545458	Discipline :	BE
Email :	upadhyayvarun777@gmail.com	Semester :	Semester 8

PPR Details

Periodic Progress Report : Forth PPR

Project : Warehouse++

Status : Reviewed

1. What Progress you have made in the Project ?

We have implemented the QR scanning logic in android application and also we have corrected some bugs in the software which were there earlier like there were some major changes needed to be made in the product and stock adding pages with a database. we have also moved our database to Microsoft SQL server and done with the part of connecting it to the android application.

2. What challenge you have faced ?

we faced a challenge when integrating QR code scanning(decoding) part with the mobile application. Also, when connecting our database to an android application, there were a lot of network related issues which needed a lot of time to get solved.

3. What support you need?

We have to implement a functionality of virtual warehouse in software and android app, it is a bit complex topic for us to work upon, so we need support regarding that.

4. Which literature you have referred ?

We referred to blog posts and video references on topics related to connecting MS SQL server with android studio application and related to Microsoft and Google Vision API. The links are as follows:
<http://seotoolzz.com/android/android-login-app-with-mssql-server.php>
<https://code.nutplus.com/tutorials/reading-qrs-codes-using-the-mobile-vision-api--cms-24680>
<https://azure.microsoft.com/en-us/services/cognitive-services/computer-vision/>

Comments

Comment by Internal Guide :

None

Comment by External Guide:

None

Comment by HOD :

None

Comment by Principal :

None

[Comment by University Admin](#)

None

Appendix B – Business Model Canvas (BMC)

Business model canvas is used to validate the market significance of products and services that will be of technology nature in this case. Technology projects are often solutions or processes that solve a technical problem. However, the market implementation of such solutions also require that the problem solution is designed to overcome not just the technical barriers but also market and business-related barriers of costs, customer reach and collaborations and those that pertain to the practical nature of limited initial capacities within the team.

Thus, business model canvas can be used to visualize such market problems and customer expectations. This exercise will increase the market potential and penetration of technology goods and services. This will make them more effective in market.

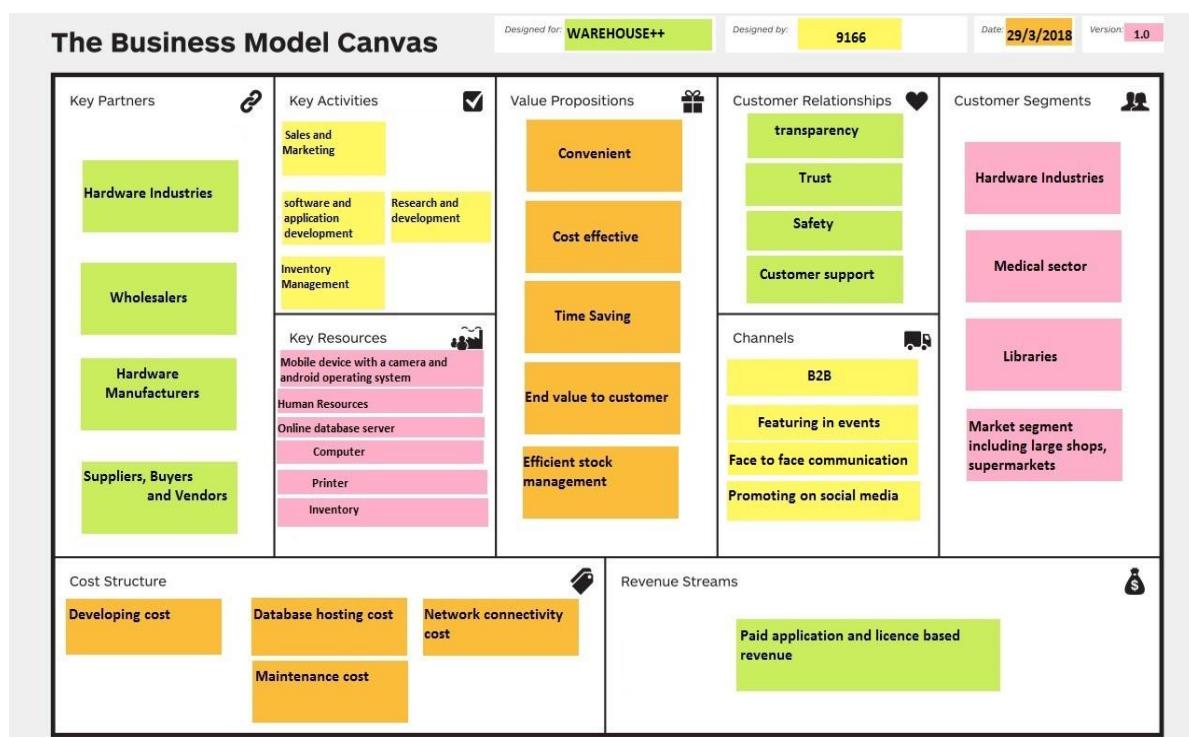


Fig. B.1 Business Model Canvas

Appendix C – Patent Drafting Exercise (PDE)

PDE Form:

4/23/2018		PDE Details	
College	: MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT		
Department	: Computer Engineering		
Discipline	: BE		
Semester	: Semester 8		
Project Name	: Warehouse++		
Team ID	: 20441		

Form 1 – APPLICATION FOR GRANT OF PATENT

Applicants :

Sr. No	Name	Nationality	Address	Mobile No.	Email Id
1	Bharmal Shabnam Abidbhai	Indian	Computer Engineering , MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT , Gujarat Technological University.	9426159952	bharmalshabnam@gmail.com
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4	Upadhyay Varun Jitendra	Indian	Computer Engineering , MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT , Gujarat Technological University.	9898545458	upadhyayvarun777@gmail.com

Inventors :

Sr. No	Name	Nationality	Address	Mobile No.	Email Id
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PDE Details		
4/23/2018		
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3	Parmar Gautam Bhaialalbhai	Indian
	Gujarat Technological University.	
	Computer Engineering , MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT	9574499199 gautamparmar201@gmail.com
4	Upadhyay Varun Jitendra	Indian
	Gujarat Technological University.	
	Computer Engineering , MARWADI EDUCATION FOUNDATIONS GROUP OF INSTITUTIONS,RAJKOT	9898545458 upadhyayvarun777@gmail.com

I/We, the applicant(s) hereby declare(s) that:

Following are the attachments with the applications :

Form 2 - PROVISIONAL/COMPLETE SPECIFICATION

1 . Title of the project/invention :

Warehouse++

2. Preamble to the description :

Provisional

3. Description

a) Field of Project / Invention / Application :

Our field of project is for the Hardware Industries with Huge Warehouse and Inventory. Invention is to provide an ease to the manager and workers in their daily routine work maintaining the warehouse.

b) Prior Art / Background of the Project / Invention :

The main purpose of this application is to provide better inventory management with a simple and user-friendly interface. Our desktop application and mobile application can help users to reduce the manual efforts and save their time.

c) Summary of the Project / Invention :

This system that we are developing is a replacement for certain existing systems, which contain a limited number of features each while our system aims at combining every available feature into one for the user to have everything at one place. This application will provide various features such as adding and storing data of various products, customers, orders with user friendly interface, adding and removing products through QR codes, etc.

d) Objects of Project / Invention :

4/23/2018

PDE Details

Objects of this project are mainly three people:

Industry Owner
Manager
Worker

e) Drawings :

f) Description of Project / Invention : (full detail of project) :

This project will be developed in java with android technology in android application and c# Dotnet for desktop application. The user interface will be different for managers, workers and owners of the. The features will be as per the requirement for the designated users like viewing customer and order records can be for owners only and adding and removing of products can be for workers only.

g) Examples :

h) Claims (Not required for Provisional Application) / Unique Features of Project

It has unique features such as :

- virtual view warehouse
- Adding removing products through easy QR scanning

4. Claims

5. Date and signature

6. Abstract of the project / invention :

Nowadays, Industries are growing swiftly and to maintain their inventory in warehouses they are using various inventory management systems. According to our survey in different industries we found that many of hardware based industries are having trouble maintaining their stock. They are facing many similar problems like knowing availability of stock, exact location of product in warehouse, manual updating and management, stock entry and ordered stock , rearranging in warehouse, new worker will be lacking knowledge about particular warehouse, manual updating in stock maintaining excel sheets. These are the various problems that industries are facing. To provide a solution to this, we are introducing "WAREHOUSE++" an advanced warehouse management system as a Desktop application and an android application.

Our system will provide such facilities that can be helpful in solving problems mentioned above. Our system will provide QR code based warehouse in which by scanning, the database would be able to store item and its location and it can be updated easily when warehouse needs to be rearranged. It will provide functionalities like showing availability of stock placed in the warehouse, adding new stocks, storing customers and order records and expanding warehouse also with user friendly Interface. The system will also show highest selling and comparatively less selling products. The system will notify when out of stock or over stock situation are about to happen.

This system will provide very user friendly graphical user interface which can be understood by any common user easily. This system will provide replica of warehouse so that operator can know about stock placed in warehouse without dealing with complexities.

Form 3 – STATEMENT AND UNDERTAKING UNDER SECTION 8

Name of the applicant(s) : I/We, Bharmal Shabnam Abidbhai ,Barad Khanjan Vijaybhai ,Parmar Gautam Bhailalbhai ,Upadhyay Varun Jitendra

Name,Address and Nationality Hereby declare :
of the joint applicant :

34

4/23/2018

PDE Details

(i) that I/We have not made any application for the same/substantially the same victim invention outside India.

(ii) that the rights in the application(s) has/have been assigned to

Name of the Country	Date of Application	Application Number	Status of the Application	Date of Publication	Date of Grant
N/A	N/A	N/A	N/A	N/A	N/A

(iii) That I/We undertake that upto the date of grant of the patent by the Controller, I/We would keep him informed in writing the details regarding corresponding applications for patents filed outside India within three months from the date of filing of such application.

Dated this 23 day of April 2018

Signature.....

Bharmal Shabnam Abidbhai ,Barad Khanjan Vijaybhai ,Parmar Gautam Bhailalbhai ,Upadhyay Varun Jitendra

To,
The Controller of Patents,
The Patent Office,
At Mumbai

Appendix D – Patent Drafting Exercise (PDE)

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Similarity Found: 10%

Date: Sunday, April 29, 2018

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Remarks: Low Plagiarism Detected - Your Document needs Optional Improvement.

WAREHOUSE++ IDP A Project Report Submitted by KHANJAN BARAD – 140570107004 SHABNAM BHARMAL – 140570107008 GAUTAM PARMAR – 140570107064 VARUN UPADHYAY – 140570107101 in partial fulfilment for the award of the degree of Bachelor of Engineering in Computer Engineering – Faculty of Engineering Marwadi Education Foundation, Rajkot Gujarat Technological University, Ahmedabad 2017-2018 _ Marwadi Education Foundation Faculty of Engineering Computer Engineering Department 2017-2018 CERTIFICATE This is to certify that the project entitled Warehouse++ has been carried out by Khanjan Barad – 140570107004 under my guidance in partial fulfilment of the degree of Bachelor of Engineering in Computer Engineering of Gujarat Technological University, Ahmedabad during the academic year 2017-18.

Date: _____ Internal Guide Head of the Department Mr. Baljeetsinh Sucharia Head of Department Computer Engineering / / / Acknowledgments We take this momentous opportunity to thank numerous people who have Guided us and helped us throughout the project First of all, we would like to thank our project guide Mr. Baljeetsingh Sucharia to share his knowledge and

provide us his expert advice and encouragement whenever we were stuck at some point. We would also like to thank Mr. Jay Teraiya, Head of Department of Computer Engineering, to provide us with the opportunity to present our project. We are thankful to Niki Industries who gave us the golden opportunity to do this project and providing us relevant data for completion of this project. We would also like to thank our other faculties to give us suggestions for improvement in our project as well as our friends and family to support and encourage us. Index Institute's Vision and Mission 13 Department's Vision and Mission 14 PEO, POs and PSOs 15 Abstract 18 List of Tables 19 List of Figures 20 Chapters 23 1 Introduction 23 1.1 Problem Summary and Introduction 23 1.2 Aim and Obectives 23 1.3 Problem Specifications 24 1.4 Literature Review and Prior Art Search (PAS) 24 1.5

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According to our survey in different industries we found that many of hardware based industries are having trouble maintaining their stock. They are facing many similar problems like knowing availability of stock, exact location of product in warehouse, manual updating and management, stock entry and ordered stock , rearranging in warehouse, new worker will be lacking knowledge about particular warehouse, manual updating in stock maintaining excel sheets. These are the various problems that industries are facing. To provide a solution to this, we are introducing "WAREHOUSE++"- an advanced warehouse management system as a Desktop application and an android application. Our system will provide such facilities that can be helpful in solving problems mentioned above.

Our system will provide QR code-based warehouse in which by scanning, the database would be able to store item and its location and it can be updated easily when warehouse needs to be rearranged. It will provide functionalities like showing availability of stock placed in the warehouse, adding new stocks, storing customers and order records and expanding warehouse also with user friendly interface. The system will also show highest selling and comparatively

less selling products.

The system will notify when **out of stock** or over stock situation are about to happen. This system will provide **very user friendly graphical user interface** which can be understood by any common user easily. This system will provide replica of warehouse so that operator can know about stock placed in warehouse without dealing with complexities.

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1. Introduction **1.1 Problem Summary** and Introduction Nowadays, Industries are growing swiftly and to maintain their inventory in warehouses they are using various inventory management systems. According to our survey in different industries we found that many of hardware-based industries are having trouble maintaining their stock.

They are facing many similar problems like knowing availability of stock, exact location of product in warehouse, manual updating and management, stock entry and ordered stock, rearranging in warehouse, new worker will be lacking knowledge about particular warehouse, manual updating in stock maintaining excel sheets. These are the various problems that industries are facing.

To provide a solution to this, we are introducing "WAREHOUSE++"- an advanced warehouse management system as a Desktop application and an android application in which Dot Net Technology will be used. **1.2 Aim and Objectives** Our project aims to develop a product which will optimize the worker's work providing him with a ton of useful functionalities.

It will be helpful to maintain all the records products, customers, sales and stock. It provides user with a mobile application with virtual warehouse feature wherein owner at different place can easily know about the warehouse statistics. Benefits of using this application are easier stock management, Time efficiency, and Cost efficiency due to QR codes being used.

It provides efficient warehouse management for the user to arrange/rearrange products in warehouse. **1.3 Problem Specifications** According to our survey in different industries we found that many of hardware-based industries are having trouble maintaining their stock because of their gigantic warehouses.

They are facing many similar problems like knowing availability of stock, exact location of product in warehouse, manual updating and management, stock entry and ordered stock, rearranging in warehouse, new worker will be lacking knowledge about warehouse, manual updating in stock maintaining excel sheets. These are the various problems that industries are facing. **1.4 Literature Review and Prior Art Search (PAS)** 1.

ABC Inventory It gives independency of arranging inventory unit wise like dozen, inch, feet, kgs, and lbs. It provides another option- barcode based entry for registration. It helps user when user transfer the stock from one warehouse to another with accuracy. It provides billing facility , and user can have record of bills in the form of pdf file and also can print it.

It provides general facilities like adding, updating and deleting. **2. In Flow** It is RFID enabled. It is Barcode compatible. It has Search/Filter functionality for products. It has order management functionality. It has Shipping management functionality. Books and Links of websites being referred: Andrew Marder , "Top five free and open inventory management systems", Internet:

<https://blog.capterra.com/the-top-5-free-inventory-software-systems/>
Techtarget,"warehousemanagement",Internet:<https://searcherp.techtarget.com/definition/warehouse-management-system-WMS> August, 2009 Table 1.4.1
PSAR 1.5

Plan of the Work / Fig. 1.5.1 Plan of the Work 1.6 Materials/Tools Required
Hardware requirements: Mobile / Tablet Laptop / Computer for development
Printer Software requirements: Operating system: Android, windows Language : Java / Android, Dot net Front End : Android / XML, windows form Back End : Java, c# 2. Analysis, Design Methodology and Implementation Strategy 2.1
Observation Matrix **The Observation Matrix** contains **a set of observations** based on which we have decided upon our project. Using the Observation Matrix, we can decide based on all our observation what challenges are pertaining in the society, what underlying problems are causing them and accordingly, **what is the most important problem that needs to be resolved.**

Accordingly, we can proceed towards formulating a project which **will provide an answer for the same.** Observation Matrix: / Fig. 2.1.1 Observation Canvas 2.2 Ideation Canvas The Ideation Canvas contains **a set of data** including people, activities, locations and tools involved on the basis of which we have settled on the current project definition. The set of people includes the users who are facing the particular issues stated in the observation matrix.

Thus, these people will be the potential users when a solution is formulated. The list of activities includes the situations in which the stated issue is being faced. The situation or location field states all the areas where the issue is faced. The last field includes all the required equipment related to the users and the location. / Fig. 2.2.1 Ideation Canvas 2.3

Product Development Canvas The Product Development Canvas provides us an outline based on which we can know how is our project definition supposed to be implemented and **what are the parameters to be kept in mind while making it.** **It also includes a set of people** who will be using it, the features and experience we will be providing these users and the components required for the same. / Fig.

2.3.1 **Product Development Canvas** 2.4 Database Design Table 2.4.1 Customer Columns _Datatype _Size _Constraints _ _c_id _integer _ _Primary key _ _C_name _varchar _50 _Not null _ _Company_name _Varchar _50 _Not null _ _Phone_no _nvarchar _50 _Not null _ _Address _Varchar _50 _Not null _ _Email _Varchar _50 _Null _ _Website _Varchar _50 _Null _ _ Table 2.4.2

Location Columns _Datatype _Size _Constraints _ _l_id _Integer _ _Primary key _ _Rname _Varchar _50 _Not null _ _lqr_id _Varchar _50 _Not null _ _l_image _Varbinary _Max _Null _ _ Table 2.4.3 Login Columns _Datatype _Size _Constraints _ _User_id _Integer _ _Primary_Key _ _Username _Varchar _50 _Not null _ _Password _Varchar _50 _Not null _ _Name _Varchar _50 _Not null _ _Phone_no _Varchar _50 _Not null _ _Address _Varchar _50 _Not null _ _userType

_varchar _50 _Not null _ _ Table 2.4.4

Order Columns _Datatype _Size _constraints _ _o_id _Integer _ _Primary key _ _co_id _Integer _ _Not null _ _c_id _Integer _ _Not null _ _date_time _Date _ _Not null _ _p_id _Nvarchar _50 _Not null _ _Quantity _Integer _ _Not null _ _ Table

2.4.5 Product Columns _Datatype _Size _constraints _ _p_id _Nchar _50 _Not null _ _model_no _Nchar _10 _Not null _ _type _Nchar _10 _Not null _ _size_id _Nchar _10 _Not null _ _finish_id _Nchar _10 _Not null _ _Rate _Integer _ _Not null _ _box_size _Nchar _10 _Not null _ _per_box_quantity _Integer _ _Not null _ _total_quantity _Integer _ _Not null _ _ Table 2.4.6

Product Qr Columns _Datatype _Size _constraints _ _id _Integer _ _Primary key _ _p_id _varchar _50 _Not null _ _q_id _Nchar _10 _ Null _ _q_image _Varbinary _Max _ Null _ _l_id _Nchar _10 _ Null _ _qr_gen _Nchar _10 _ Null _ _qr_scanned _Nchar _10 _Null _ _qr_removed _Nchar _10 _Null _ _2.5 System Design Our project is completely object oriented. Thus, all the required diagrams are presented below.

Activity Diagram: Activity diagram is basically a flow chart to represent the flow from one activity to another activity. The activity can be described as an operation of the system. So, the control flow is drawn from one operation to another. / Fig. 2.5.1 Activity Diagram for Desktop based Application / Fig. 2.5.2 Activity Diagram for Mobile based Application Sequence Diagram: A sequence diagram is an interaction diagram that shows how objects operate with one another and in what order. It is a construct of a message sequence chart.

A sequence diagram shows object interactions arranged in time sequence.

Sequence diagrams are sometimes called event diagrams or event scenarios / Fig. 2.5.3 Sequence Diagram for Desktop based Application / Fig. 2.5.4

Sequence Diagram for Mobile based Application Class Diagram: A class diagram is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects. / Fig. 2.5.5 Class Diagram Use Case Diagram: A use case diagram is a graphic depiction of the interactions among the elements of a system.

A use case is a methodology used in system analysis to identify, clarify, and organize system requirements. / Fig. 2.5.6 Use Case Diagram for Desktop based Application / Fig. 2.5.7 Use Case Diagram for Mobile based Application 3.

Implementation 3.1 Implemented Functionality This system is having both android application as well as desktop application, both will have different login's and functionality.

Android Application: Manager & Store keeper: Login into system Add & Remove product Re-arrange warehouse Search for product in warehouse Owner: login into system View warehouse (Search for product in warehouse) View orders and sales View customer Desktop Application: Owner & Manager: Login into system View warehouse (Virtual view) Generate QR code for both

product and location Print QR code Place new orders View orders & sales details Define new product and location Add new customer & view customer 3.2 Results and Reports Authentication: / Fig. 3.2.1 (a) Authentication SQL Database: / Fig. 3.2.2 Customer details (a) / Fig. 3.2.3 Customer details (b) / Fig. 3.2.4 Location details (a) / Fig. 3.2.5 Location details (b) / Fig. 3.2.6 Login details (a) / Fig. 3.2.7 Login details (b) / Fig. 3.2.8 Order details (a) / Fig. 3.2.9 Order details (b) / Fig. 3.2.10 Product details (a) / Fig. 3.2.11 Product details (b) / Fig. 3.2.12 QR code generate details (a) / Fig. 3.2.13 QR code generate details (b) 3.3 Snapshots 3.3.1 Snapshots of Desktop Application / Fig.3.3.1.1 Login Page / Fig.3.3.1.2 Home Page (a) / Fig.3.3.1.3 Home Page (b) / Fig.3.3.1.4 Add Product Page / Fig.3.3.1.5 View Product List Page / Fig.3.3.1.6 Add Customer Page / Fig.3.3.1.7 View Customer List Page / Fig.3.3.1.8 Add Order / Fig.3.3.1.9 Add Stock Page / Fig.3.3.1.10 Print Product QR code Page / Fig.3.3.1.11 Add Location Page / Fig.3.3.1.12 Print Location QR code Page / Fig.3.3.1.13 View Warehouse Page / Fig.3.3.1.14 Add User Page / Fig.3.3.1.15 View User List Page 3.3.2 Snapshots of Android Application / Fig. 3.3.2.1 Login Screen Fig.3.3.2.2 Owner Home Screen / Fig. 3.3.2.3 Owner Navigation Screen Fig.3.3.2.4 View Customer List / Fig. 3.3.2.5 View Order List Fig. 3.3.2.6 View Product List / Fig. 3.3.2.7 Manager Home Screen Fig. 3.3.2.8Manager Home Navigation / Fig. 3.3.2.9 Add Products Fig.3.3.2.10 Scan Location QR / Fig.3.3.2.11 Adding QR by Scanning Fig.3.3.2.12 Update Existing Location / Fig.3.3.2.13 Remove Products Fig.3.3.2.14Scan QR to Remove Products / Fig.3.3.2.15 Search Product's Location 3.4

Testing and Verification Software testing has a dual function: It is used to establish the presence of defects in program and it is used to help judge whether or not the program is usable in practice. The software testing is used for validation and verification, which ensures that software, confirms to its specification meets the need o the software customer.

The testig is done by novice user and test the application with all possible way to find the bugs and error as well as check validation. 4. Conclusion 4.1 Summary of the Results The results of our project in terms of working are efficient. The pages and the interface are just fine and easy to use for any user. The login functionality, the adding and removal of stock by scanning Qr code, adding customer, tracking orders and finding products with its location etc. functionalities work very well without any issues. Thus, any user can have a very smooth experience using the android application as well as desktop application. 4.2 Advantages of your Work/Result/Methodologies The advantages of our work lie in the fact that we have created these mobile application and desktop application using the simplest of tools available, making both the app a simple app which will be easy to install and use.

It will not even be too big in size considering the simple tools used in the making of the application. Along with this, the system will be having the following advantages: Ease of Access: Users can easily access each functionality using the simple and minimal interface. Users can simply perform different tasks to manage inventory with the help of both mobile and desktop application.

User friendly: This system provides totally user-friendly environment. The user can easily interpret with the mobile app and desktop application. The system provides very easy user interface to perform tasks like adding and removing stock, adding new user, manage orders, generating Qr-code as well scanning of previously generated Qr-code, view products with its location in inventory etc.

Reliable and Secure: The system is reliable and gives quick responses.

User can get ease of access and their account can be accessed only after providing the correct username and password, thus making it authenticated and privacy safe. 4.3 Scope of Future Work The production business is growing very swiftly and as the production increases there will be increase in the numbers of warehouses and there will be also increase in the number of inventory. As inventory increases there will be a need of inventory management as well.

As per the current scenario there are lot of variety in the inventory and it requires a system that can manage huge number of items data. Workers working in the inventory will get benefits from the provided solution by the system. This system will definitely help to manage large warehouses. Just scan location Qr-code and add the products to the respective scanned location and forget our system will take care of rest. 4.4

Unique Features of your Innovation/Project(UDP) The project we have developed has a lot of unique features such as follows: Desktop as well as mobile application to perform necessary tasks. Qr-code generating and scanning. Adding new products data as well as new customers. Search facility to find availability of products. Online database synced with both mobile and desktop application. Re-arranging of inventory is also available. Order management. 4.5

Attainment of POs and PSOs Table 4.5.1 Attainment of POs and PSOs PO / PSO
_ Attainment Level _Justification _ PO1 _2 _We have used the concepts of mathematics and software engineering to a great extent to make our application efficient.

_ PO2 _3 _We have done a lot of research regarding what all applications are available in the market currently and why they aren't as much popular. _ PO3 _2 _Our application provides solution to a major problem which is inventory management of big warehouses. _ PO4 _3 _We have researched through a lot of existing applications to understand their design, their working and their functionalities.

_ PO5 _2 _We have used a lot of modern techniques such as Qr-code generation and its decoding which are areas in computer science that are still

developing and are very new. _ _PO6 _3 _We have kept in mind all the parameters of assessment while developing our project as well as all the issues that may arise and the respective responsibilities that we hold. _ _PO7 _3 _We have understood our society and environment properly and have taken care of sustainable development in our project.

_ _PO8 _3 _We have very ethically developed our project and commit not to use it for any unethical practice whatsoever in terms of engineering. _ _PO9 _3 _We have developed the application in a way that we serve our responsibilities as an individual as well as a team wherever required. _ _PO10 _3 _We have communicated the norms of our project, its features, the functionalities, etc. via reports, UML diagrams, etc.

_ _PO11 _2 _We understand the principles of engineering and management and have made the project keeping in mind each one of these. _ _PO12 _3 _We have made the project currently keeping in mind the current scenario and will be very flexible to make any modifications required as per time and circumstances. _ _PSO1 _3 _We have demonstrated the skills, knowledge and competence in a way that it addresses industrial as well as social issues.

_ _PSO2 _3 _We have enough competence to make the use of future and advanced technologies and their respective issues whenever required. _ _ Appendix A - Periodic Progress Reports (PPR) Khanjan Barad: PPR1: / PPR2: / PPR3: / PPR4: / Shabnam Bharmal: PPR1: / PPR2: / PPR3: / PPR4: / Gautam Parmar: PPR1: / PPR2: / PPR3: / PPR4: / Varun Upadhyay: PPR1: / PPR2: / PPR3: / PPR4: / Appendix B – Business Model Canvas (BMC) / Fig. B.1 Business Model Canvas Appendix C – Patent Drafting Exercise (PDE) PDE Form: / / /

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