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CHASE UP TOUCH SHOP SYSTEM



By

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STATEMENT OF SUBMISSION

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PROJECT BRIEF

PROJECT TITLE: Chase up touch shop system

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DEVELOPMENT TOOL USE: Android Studio

OPERTATING SYSTEM: Windows 8.1

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Abstract

Chase up touch shop system is an innovative idea to change the traditional environment of shopping malls. This application facilitates the customers to make their purchases using touch screens and token number. It reduces customer's time and effort of shopping as he does not need to wonder around the shopping mall to search required items. Customer can view categories, subcategories, items and their descriptions. He/she can add or remove items to his shopping cart. He/she can also view bill details during shopping. The customer is further facilitated by fetching the purchased items to him by the receptionist. Chase up touch shop system reduces the chances of theft and provides good quality items to the customers. It contributes to increase the profitability and market shares of the shopping mall. It provides a unique virtual shopping experience to customers in terms of reliability, usage and functionality.

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Chapter # 1

Introduction

1.1 Overview

Now a day's, the use of touch screen devices has become very popular in our routine life. These devices are playing vital role in different industries like medical, education, banking, automobiles and even in shopping keeping in view this, the proposed project is a customer product to serve in a shopping mall. It is an android based application to facilitate the business functions of a shopping mall. Our system provides functionality to sit at one place and do all the shopping in the mall just by using touch screens LCD available in the mall.

1.2 Problem Definition

In our country, the shopping malls follow a traditional sale purchase system. In the shopping mall people select things and drop them in their carts. And when done with their shopping, they go to counter and show all the things and pay the bill. It is time consuming. Sometimes people wish to buy a thing and are unable to find that item. They need to move from one shelf to another in search of an item. But they couldn't find that item and the item still exist in the mall. And there is also an issue of theft in the mall. Even with the help of security cameras the owner of the mall is unable to stop theft cases.

Problem Solution

Overview Statement

To overcome above mentioned problems I am going to design an application which turns the shopping malls into touch screens mall. We are developing an android application which is implementing in the shopping malls. User goes to shopping mall get a token number from the counter in the shopping mall and log in to any device available at that time. Customer can add or remove items in his shopping cart and view his bill at any time during the shopping. He does not need to move from one shelf to other shelves to search an item. Just by clicking the item list in the application, the customer can check item availability. He can also leave the message in the feedback box for that item. When customer done his shopping then he goes to counter table tell his token number to the counter man and he brings his things. There is no need of barcode reader to read. His bill can be generated automatically from the desktop software. We are also providing

the functionality to generate reports on daily basis that which items was mostly purchased and the reports on monthly basis.

Our project is designed to save the time of customers. Customers can add things in their shopping cart. Customers can view the description of items and their prices. Customers can also view the bill details during shopping.

1.3 Goals & Objective

The goals and objective of this project is to increase the business functionality of the shopping mall. It also saves the time of customers. It also generates reports on daily basis and monthly basis that which items are purchased most in this month. It also makes easier for customers to search an item that is available or not in the shopping mall.

1.4 Scope

The system is a solution to remove the traditional method to do shopping in big malls. People can buy any item while sitting at one place. They just need to log in to any touch screen device by using the token number provided by counter table. User can add or remove things in their shopping cart and can view the bill details at any time during the shopping. When they have done their shopping they tell their token number to the counter man, collect their shopped items and pay bill.

1.5 Interface

Functionality of System

In proposed system, the following are the main functionalities.

Get token number from counter table while entering in the shopping mall.

Log in to any touch screen available at that time.

Can add or remove things in his shopping cart.

Can search an item by item name.

Can also view bill details at any time during shopping.

1.6 constraints

Constraints are the terms and conditions to the system that must be keep in mind when using the system. In proposed system there are some constraints that must be address before using the application.

1.6.1 Application Constraints

1. Customer must get token number if he wants to buy something.
2. Customer must log in.
3. He can view the items.
4. Can add or remove things in his shopping cart.
5. He just can view the bill details.

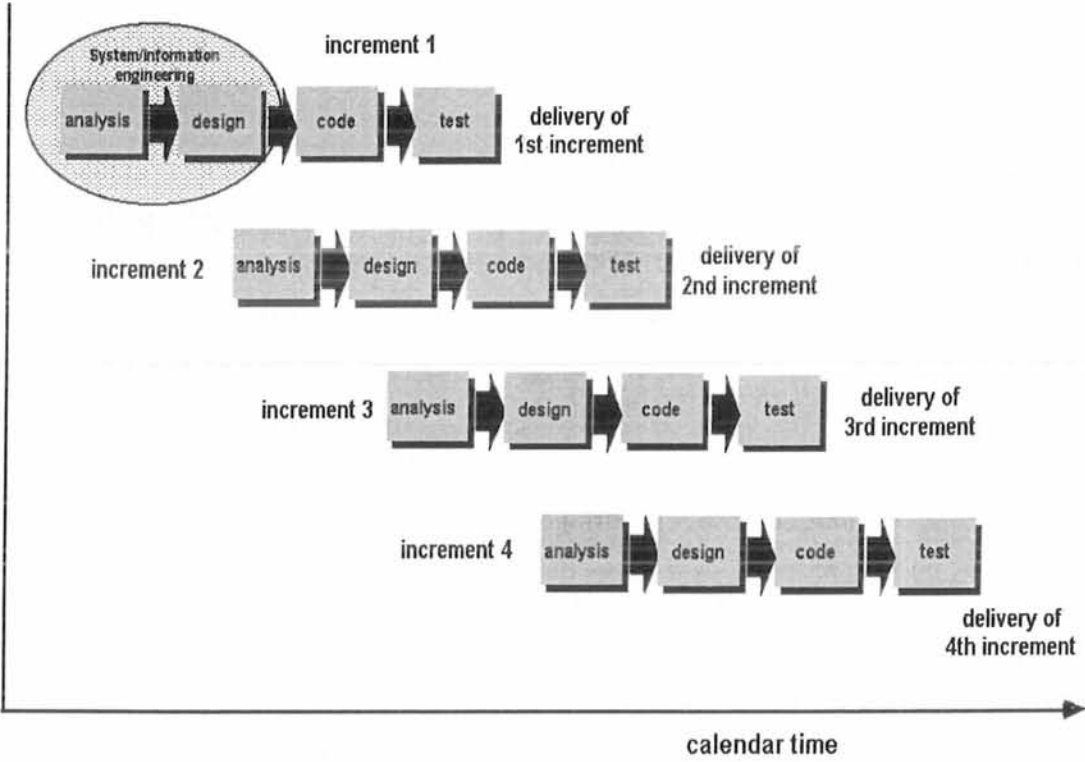
1.6.2 Hardware Constraints

This application is designed for android devices. To run this application, the operating system of device should be android.

1.7 Process Model

Incremental model is used to carry out this project. We modularize the system in some parts and then make increments by time at the end of each increment the working module is present. Overall development has contained three increments

- 1. Development of interface of the system by using android studio.
- 2. Implementation of core features like categories of items and search.
- 3. Connect Database to store the images of items their description and prices.



Chapter # 2

Requirement Analysis

2.1 Introduction

In this chapter we discuss the requirements of proposed system in detail to achieve the goals and objectives of the system. If the requirements are not completely defined then there might be inconsistencies in the final product. The most errors in code are detected after testing and mostly half of them are in requirements and design. To prevent these errors we analyze each requirement by requirement analysis process.

2.2 Requirement Definition

In requirement analysis first we clearly define the requirements of proposed system. There are two types of requirements. One is called functional requirements and other one is called non-functional requirements. The main functionalities that system should perform are functional requirements. Non-functional requirements are those requirements that the customer didn't demand but the programmer and developer should keep in minds to fulfill the quality aspects of the system like usability and efficiency etc.

2.2.1 Requirement Elicitation

The elicitation activity consists of gathering information, understanding the stakeholder need, and articulating high level requirements.

2.2.2 Requirement Analysis

The analysis activity examines the high level requirements and determines if they are clear, complete, and free of contradictions, and then defines the strategy to address these issues.

2.2.3 Requirement Specification

The specification activity defines the behavior of a system in development and determines the method for requirements documentation (i.e., natural-language documents, process models, business definitions, use cases, user stories, or process specifications).

2.2.4 Requirement Validation

The validation activity involves sessions with users, stakeholders, and functional experts to determine mitigation and issue resolution plans for conflicting requirements before projects move into the development phase.

2.3 Functional Requirement

Functional requirements describe the main functionality of the system. These requirements are requested by the customer to the developer. The presences of functional requirements are very important for the system because if any one of the functional requirements is missing in the system, our system will be incomplete. The following are the main functional requirements of the system,

2.3.1 Enter token number

Enter token number provided by the counter table man.

2.3.2 View categories

User can view categories of items.

1. groceries
2. cosmetics
3. cold drinks
4. clothes
5. electronics

2.3.3 Enter items in shopping cart

User can enter items in his shopping cart.

2.3.4 View items in shopping cart

User can view items that he added in the shopping cart. User can also view description of items. He can also view the prices of items.

2.3.5 View bill details

User can view the bill details at any time during the shopping.

2.3.6 Delete items

User can delete the items from the shopping cart during the shopping. But when he done the shopping then he will not be able to remove any item from the shopping cart.

2.4 Non-Functional Requirements

Non-functional requirements are those requirements that user did not demanded but the programmer and developer should keep in mind that he/she must follow these rules or he/she should provide these functions. These are the products that system must have. These requirements are related to usability, accuracy or security. Following are some non-functional requirements that are discussed in our project scenario.

2.4.1 Platform supported

System will provide functionality on those devices that support android platform.

2.4.2 Usability

System should be usable by every means and must have interactive interface and design.

System should be user friendly.

2.4.3 Maintainability

Maintainability is important thing because with the passage of time system must evolve. So if maintainability is difficult it creates problems, system can be made maintainable by using object-oriented concepts

2.4.4 Efficiency

System must be efficient in every aspect in case of response time, in case of speed and calculation system should provide quick results.

2.4.5 Feature Enhancement ability

Feature Enhancement has its own importance, because with the passage of time system evolves and there should be a need for more functions, so system should allow future Enhancements. This functionality may be achieved by system design. System should be designed in such a way that it supports the enhancement.

2.4.6 Reliability

System must perform all the tasks for what it is made. It should not be accepted if system crashes during run time. System is said to be more reliable that how fast it recovers from the abnormal conditions. This functionality can be achieved by adding exception handling techniques in coding or implementation and through proper testing of the system.

2.4.7 Availability

Services provided by the system must be available all the time and everywhere. Proposed system should be available all the time even in the absence of internet access user should be able to read stored feed.

2.5 object-oriented analyses

Object-oriented Analysis and Design (OOAD) is a popular technical approach for analyzing, designing an application, system, or business by applying the object-oriented paradigm and visual modeling throughout the development life cycles to foster better stakeholder communication and product quality.

2.5.1 Actor identification

A user who interacts with the system is known as actor of the system.

The main actor of our system is:

- Customer

Customer enters the token number provided by the recipient. When customer enters the token number then he can start the shopping and add items in his shopping cart. He can delete items from shopping cart and also can view bill details at any time during shopping.

2.5.2 Use case identification

Use Cases describe scenarios that describe the interaction between users of the system (the actor) and the system itself. A use case represents a function that the system performs.

2.5.3 Use case diagram

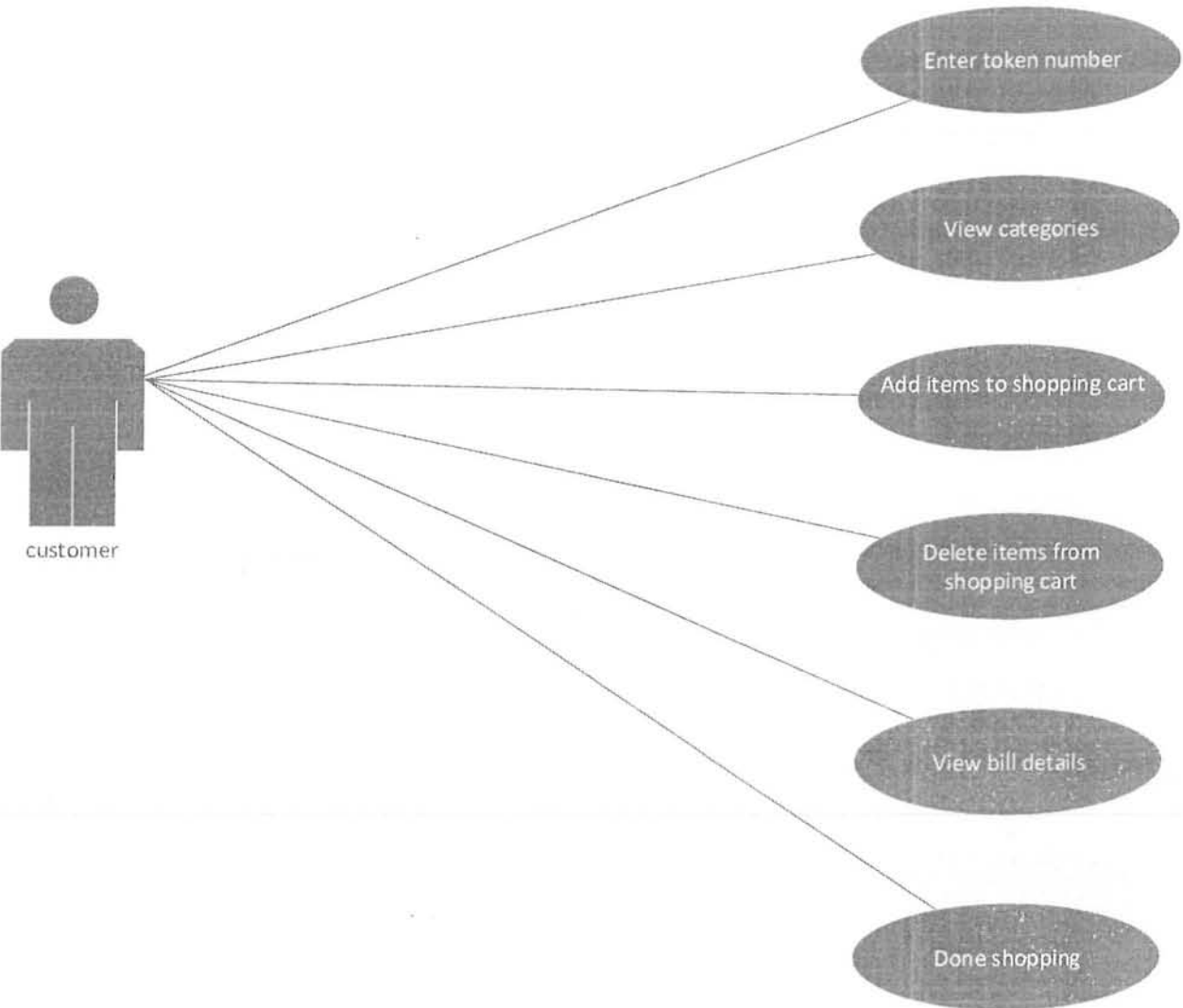


Fig 2.1: Use case diagram of chase up touch shop system

2.5.4 Use case description

Table 2.1 use case description for add items

Use Case: search items	
Actor: customer	
Purpose: to search items	
Typical course of events:	
Actor Action	System Response
1. Customer writes the names of items to search.	1. System displays the items.

Table 2.2: Use case description for enter token number

Use Case: enter token number	
Actor: customer	
Purpose: To allow to do shopping	
Typical course of events:	
Actor Action	System Response
1. User enters correct token number. 2. User clicks "login" button.	1. System authenticates the token number. 2. If token number is correct, system generates his shopping form and sends a message to the employ that a customer is enters with this token number.
3. Customer enters incorrect token number and clicks the "login" button.	3. System displays an error message that token number is not correct.

Table 2.3 use case description for view categories

Use Case: view categories	
Actor: customer	
Purpose: to view categories	
Typical course of events:	
Actor Action	System Response
1. Customer enters correct token number.	1. System will check and verify the token number.
2. Customer clicks "view categories" button	2. Systems will display all the available categories.

Table 2.4 use case description for add items

Use Case: add items	
Actor: customer	
Purpose: to add items in shopping cart	
Typical course of events:	
Actor Action	System Response
1. Customer adds item in shopping cart.	1. System adds item in his shopping form. 2. Systems send his shopping form to the employ and inform the employ which items customer enters in his shopping cart.

Table 2.5 use case description for delete items

Use Case: delete items	
Actor: customer	
Purpose: to delete items from shopping cart	
Typical course of events:	
Actor Action	System Response
1. Customer deletes item from shopping cart.	<p>1. System send a message to employ that which items customer delete from his shopping cart.</p> <p>2. Systems send his shopping form to the employ and inform the employ which items customer enters in his shopping cart.</p>

Table 2.6 use case description for view bill details

Use Case: view bill details	
Actor: customer	
Purpose: to view bill details to avoid any conflict.	
Typical course of events:	
Actor Action	System Response
1. Customer clicks on “view bill” button	1. System shows the bill details.

Table 2.7 use case description for done shopping

Use Case: Done shopping	
Actor: customer	
Purpose: to end shopping.	
Typical course of events:	
Actor Action	System Response
1. When customer done his shopping then he clicks on the “done shopping” button.	1. System sends a message to the recipient and the employ that customer with this token number has done his shopping.

Chapter # 3

System Analysis

3.1 Introduction

This system is all about covering the shopping from manual to automatic. When a customer enters in the shopping mall he will get a token number from the recipient man and enter this token number to any touch screen LCD available at that time in the mall. When he enters the token number the system will check whether the token number is correct or not. If token number is correct the system will generate his shopping form. Customer can buy products by sitting at one place in the shopping mall. He can view all the items and check whether an item exist in the shopping mall or not. Customer can add or delete items from his shopping cart. He can also view bill details. Once the customer clicks on the done shopping button then he cannot add or remove anything from the shopping cart. At the same time his shopping form is also shown to employee in the store so that employee knows what a customer adds or deletes in his shopping cart. When customer clicks on the done shopping button then employee bring his products to the counter for the customer's token number.

3.2 Activity Diagrams:

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams are intended to model both computational and organizational processes (i.e. workflows). Activity diagrams show the overall flow of control.

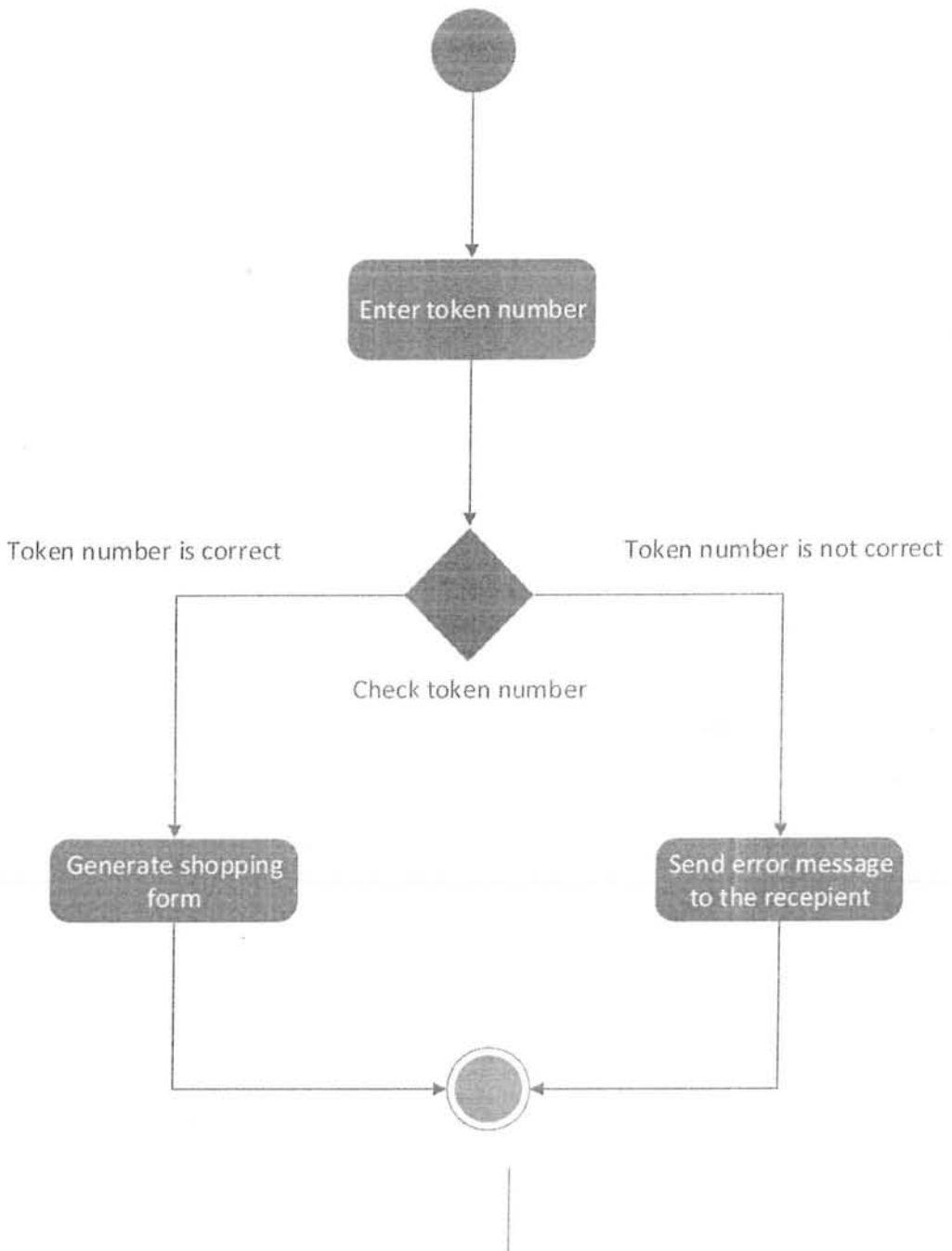


Figure 3.2.1 Enter token number activity

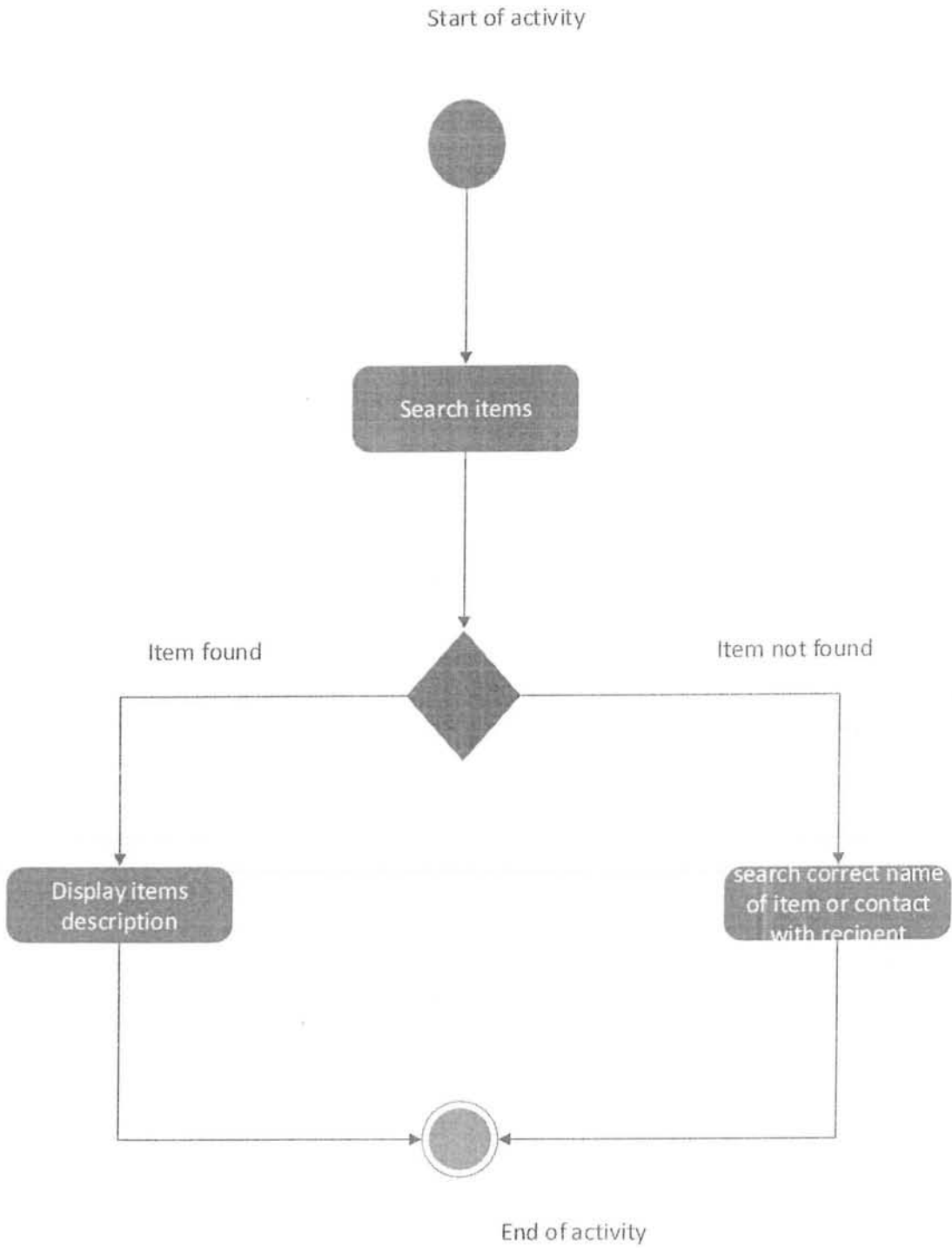


Figure 3.2.2 Search item activity

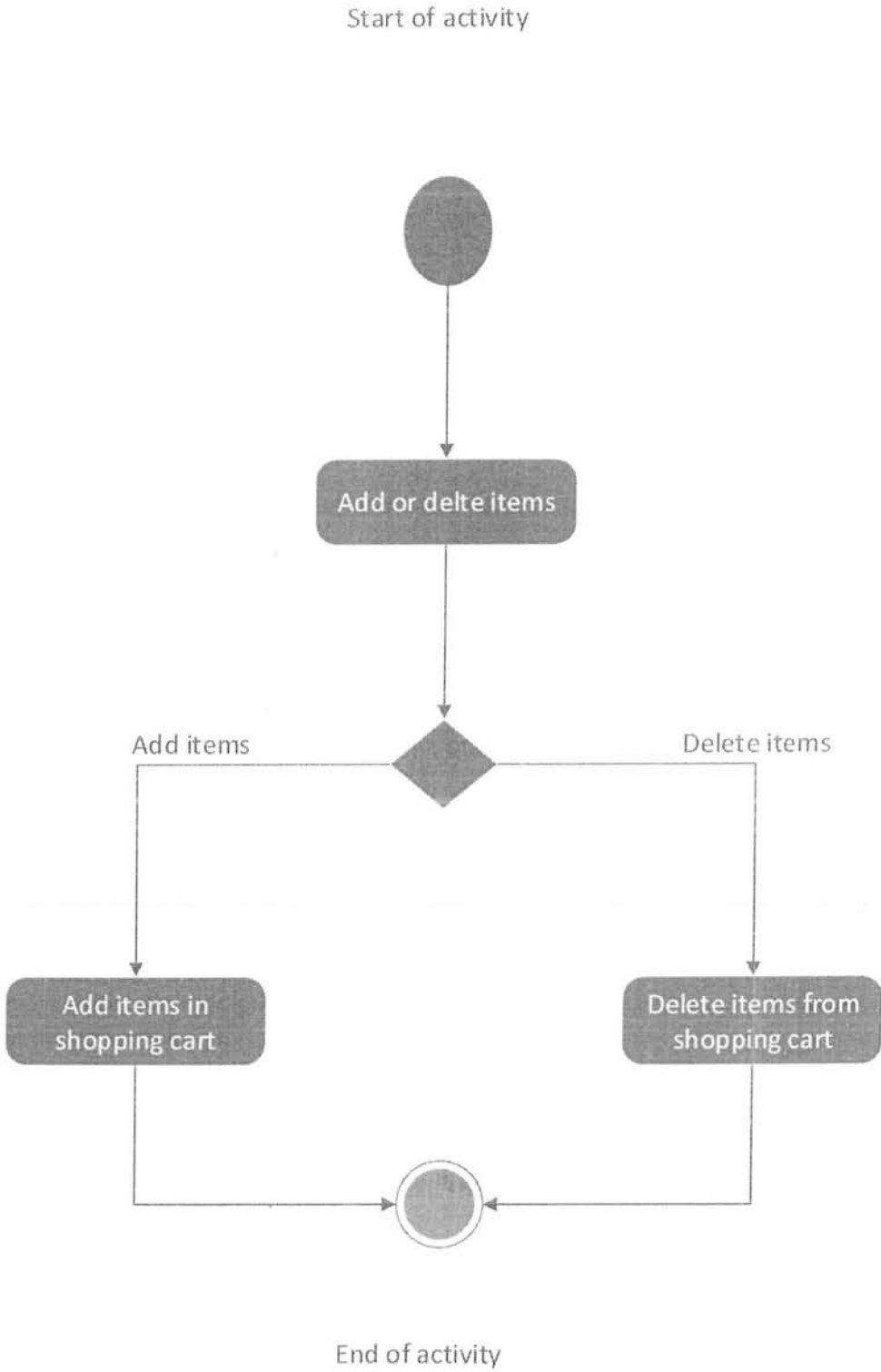


Figure 3.2.3 Add or delete item activity

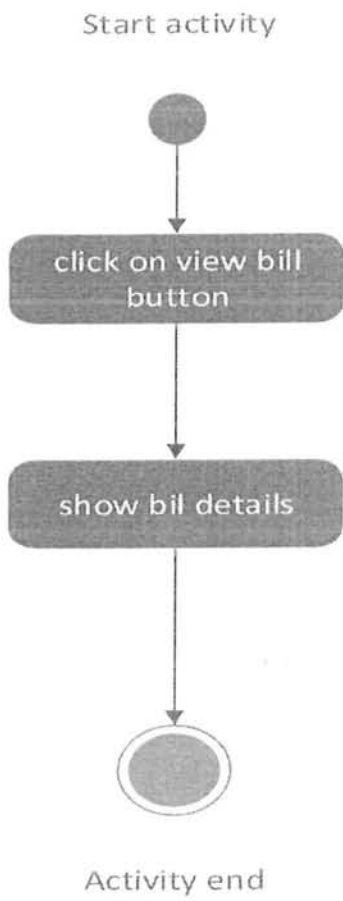


Figure 3.2.4 View bill details activity

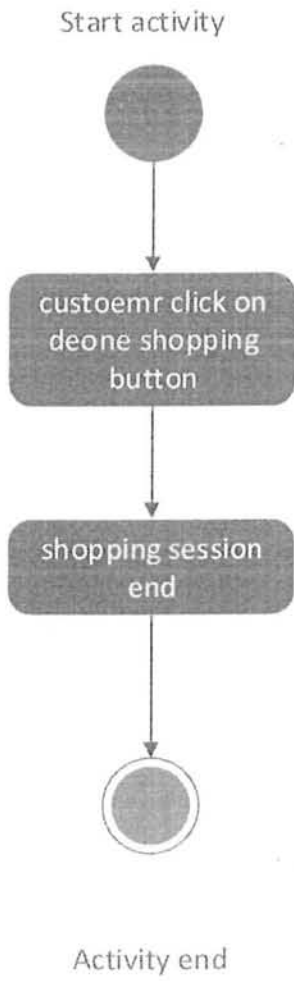


Figure 3.2.5 done shopping

Chapter # 4

System design

4.1 Introduction

System design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development.

Object-oriented analysis and design methods are becoming the most widely used methods for computer systems design. The UML has become the standard language in object-oriented analysis and design. It is widely used for modeling software systems and is increasingly used for high designing non-software systems and organizations.

4.2 Architectural design

The architectural design of a system emphasizes on the design of the systems architecture which describes the structure, behavior, and more views of that system and analysis.

4.3 Class Diagram:

The class diagram is the main building block of object oriented modeling. It is used both for general conceptual modeling of the systematic of the application, and for detailed modeling translating the models into programming code. Class diagrams can also be used for data modeling. The classes in a class diagram represent both the main objects, interactions in the application and the classes to be programmed.

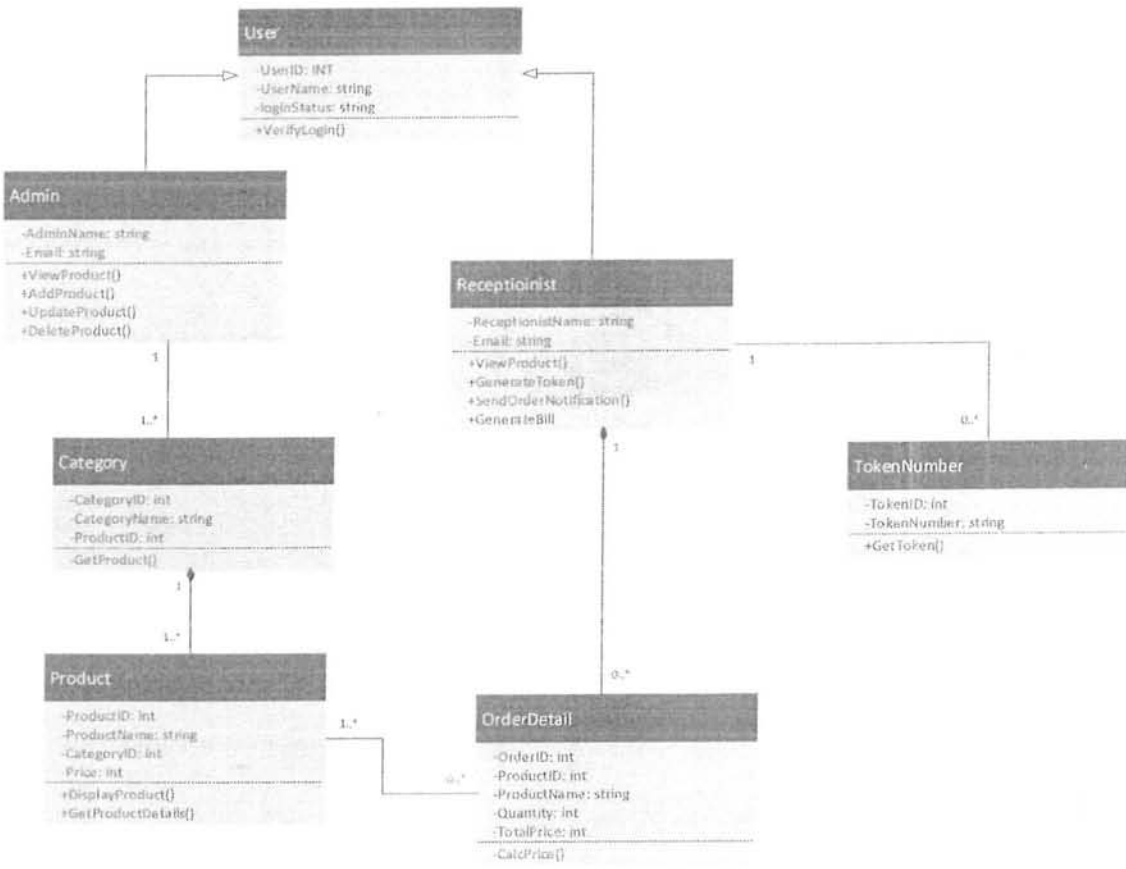


Fig 4.1 class diagram of chase up touch shop system

Chapter # 5

Implementation

5.1 Implementation

Implementation means to carry out or to put into effect. The implementation phase of the system of any software is to obtain source code from the design specifications. Implementation becomes necessary to obtain source code and related internal documentation required to understand the system and be demonstrated easily. Documentation and code is written in a way so that testing, debugging and modification become easy.

Post-implementation is nothing but an evaluation in which we can verify that objectives of the project are met completely and to check if actual cost of the project does not go beyond initial evaluation. It can be even stated as review about the problems which need to be converted for the success of the project.

Once implementation and conversion is done, review is conducted to check whether the system meets all the expectations and is changed if any improvements are required. Post implementation also measures performance of the system against pre-determined necessities and also checks if any modification or re-design is required.

5.2 Hardware Selection

- Personal Computer core i5, 4 GB RAM
- Android Device supported above 2.2.

5.3 Software Selection

5.3.1 Operating System Selection

- Windows 8.1

5.3.2 Development Tools

- MY Eclipse ADT
- Android SDK
- Android Studio

5.4 Programming Language Selection

5.4.1 Java Programming Language (JDK)

A Java Development Kit (JDK) is a program development environment for writing Java applets and applications. It consists of a runtime environment that "sits on top" of the operating system layer as well as the tools and programming that developers need to compile, debug, and run applets and applications written in the Java language.

5.4.2 Android

Operating Systems have developed a lot in last 15 years. Starting from black and white phones to recent smart phones or mini computers, mobile OS has come far away. Especially for smart phones, tablets, Mobile OS has greatly evolved from Palm OS in 1996 to Windows pocket PC in 2000 then to Blackberry OS and Android.

One of the most widely used mobile OS these days is ANDROID. Android does a software bunch comprise not only operating system but also middleware and key applications. Android Inc. was founded in Palo Alto of California, U.S. by Andy Rubin, Rich miner, Nick sears and Chris White in 2003. Later Android Inc. was acquired by Google in 2005. After original release there have been number of updates in the original version of Android.

5. 5 Classes used

The following classes has been used while implementation.

5.5.1 Login

This class is used for customer to enter token number to use services.

5.5.2 Categories

This class is used to view categories of items.

5.5.3 Sub categories

This class is used to view sub categories on the basis of product company name, size, description etc.

5.5.4 Product

This class is used to view products of all companies.

5.5.5 Bill

This class is used to view bill of purchased items at any time during shopping.

5.5.5 Shopping form

This class is used to view shopping form so that customer may know what he has added in his shopping cart.

Chapter # 6

Testing

6.1 Introduction

Testing means checking the software whether it meets the requirements or not. Testing helps the developer in finding all the bugs and errors before deployment. After detection, the developer then corrects or debugs these errors to ensure the functional requirements of the system. The main purpose of testing is to check that either system's objectives are achieved successfully or not. In short words we can say that it is necessary to test the system to validate the functional requirements before deployment.

6.2 Testing Techniques

There are many testing techniques; we are using black box testing technique to test this application.

6.2.1 Black box testing

Black box testing is used when we don't test data structures and variables we just give input to the system and get results. If results are similar to the expected results then test is successful otherwise test is unsuccessful. In black box testing we discover interface errors, incorrect or missing functionalities, initialization errors and termination errors. Black box testing is also known as functional or behavior testing.

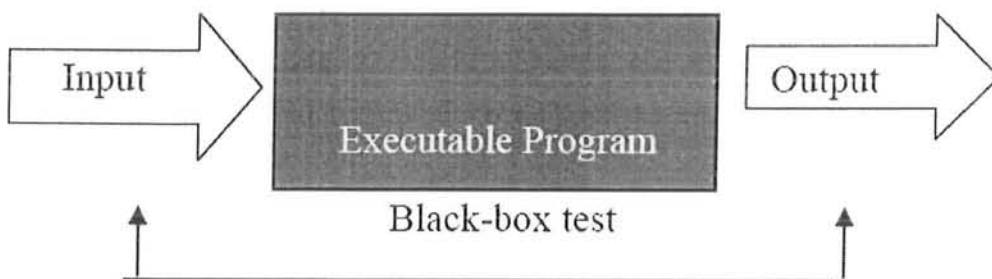


Fig 6.1: Black box testing

6.3 Software

No special software used for automated testing. The application is tested manually and using Eclipse IDE.

6.4 Hardware

We tested the application on Samsung Galaxy S-3.

6.5 Functions to be tested

- Enter Token Number
- View Categories
- Add Items
- Delete Items
- View Bill
- Done Shopping

6.8 Test cases

Table 6.1: Test case for Enter token number

Test case ID	01
Tester	Shakeel
Test type	Black box testing
Test case name	Enter token number
Description	Customer wants to do Shopping.
Procedure	Customer enters token number.
Expected result	Customer gets his shopping form on screen.
Actual result	Customer got shopping form.
Status	Successful

Table 6.2: Test case for view categories

Test case ID	02
Tester	Shakeel
Test type	Black box testing
Test case name	Customer click on view categories button.
Description	Customer wants to see all categories of item.
Procedure	Customer click on view categories button.
Expected result	System displays all categories.
Actual result	All categories displayed.
Status	Successful

Table 6.3: Test case for add items

Test case ID	03
Tester	Shakeel
Test type	Black box testing
Test case name	Add items
Description	Customer wants to add items in shopping cart
Procedure	Customer clicks on add item button
Expected result	System should add items in his shopping cart
Actual result	Items added successfully
Status	Successful

Table 6.4: Test case for delete items

Test case ID	04
Tester	Shakeel
Test type	Black box testing
Test case name	Delete item
Description	Customer want to delete items in his carts
Procedure	Customer click on delete button
Expected result	System should delete the items
Actual result	Item deleted successfully
Status	Successful

Table 6.5: Test case for view bill details

Test case ID	05
Tester	Shakeel
Test type	Black box testing
Test case name	View bill details
Description	Customer wants to see his bill details
Procedure	Customer clicks on view bill details
Expected result	System should display his bill detail
Actual result	System displayed successfully
Status	Successful

Table 6.6: Test case for done shopping

Test case ID	06
Tester	Shakeel
Test type	Black box testing
Test case name	Done shopping
Description	Customer wants to finish shopping
Procedure	Customer clicks on done shopping button
Expected result	System should finish the session
Actual result	System finished the shopping session successfully
Status	Successful

Chapter # 7

Conclusion and future work

7. 1 Benefits of current system

The current system provides customers an easy way to purchase items. User can search whether a particular item exists in the shopping mall or not. He will not move from one place to another in search of items. There is also no need of barcode reader to view the price of items. It also reduces the theft seen in the shopping mall. The owner of the mall can view daily transactions and view which items are sold today or this week, month and year wise. The manager finds it easily that which items are mostly purchased by customers.

7.2 Future Work

System evolves with the passage of time and there is a need for more features and functionalities that's why enhancement has its own importance, so system should allow future enhancement. System is developed by keeping this thing in mind.

This system is designed to increase the business performance of the shopping mall. In future we can make a website for online shopping to increase the business functionality more. In future we can make an internal network through Wi-Fi that user who already have android device can connect through this router and access this app. So that he can view things in the mall and add in his shopping cart.

7.3 3D Scanner

3d body scanner technology use low power radio waves to construct a 3D model of a person. That model is used to extract body measurements. The body measurements are used to help customers find great fitting clothes.

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