Sri Lanka Institute Of Information Technology

CUSTOMER TRACKING SYSTEM FOR PROMOTIONS AND OFFERS

Software Requirement Specification

(Merchant Dashboard)

Comprehensive Design Analysis Project - 1

Project Id – 19-081

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Declaration

I declare that this is my own work and this proposal does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any other university or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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The supervisor/s should certify the proposal report with the following declaration.

The above candidates are carrying out research for the undergraduate Dissertation under my supervision.

Signature of the Supervisor : ----------

(Ms. Manori Gamage)

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1 Introduction

1.1 Purpose

This SRS document gives detailed description of the merchant dashboard sub unit of a proposed customer tracking system .It describes all the functional and nonfunctional requirements of the system and mainely it includes a purpose , an overall description , Specific requirements of a system and so on. And also this SRS document includes several architectural diagrams to describe system process. Such as Activity diagram , sequence diagram and class/object diagram. By looking at a software requirement specification document you will understand about requirements of the system.

1.2 Scope

Through the merchants dashboard recommendations will be given to the merchants for improvement of the shop. To give those recommendations customer reviews will be analyzed. Both positive and negative reviews should be analyzed to give suggestions. And also give statistical chart representing trending offers , less value offers and so on. Then also merchants can targeting those offers.

1.3 Definitions , Acronyms and Abbreviations

Acronym/Abbreviation	Definitions
SRS	Software Requirement Specification
OS	Operating System
DB	Database
IDE	Integrated Development Environment
UML	Unified Modeling Language
UI	User Interface
HTTP	Hyper Text Transfer Protocol
HTTPS	Hyper Text Transfer Protocol Secure

RAM	Random Access Memory
MB	Mega Byte

Table 1.3.1 : Definitions , Acronyms and Abbreviations

1.4 Overview

The merchants dashboard in the customer tracking system gives suggestions and recommendations to merchants for improvement of their business with new business ideas. This document describes importing requirements for software development life cycle , functional and nonfunctional requirements , constraint on development and testing mechanisms and supporting informations. Furthermore different diagrams represent process of system functionalities.

2. Overall Description

2.1 Product Perspective

According to the background study and the literature review we found some systems which are similar to our system. But we found some problems of that system.

- We have identified a similar system used in a ODEL colombo. In that system they are using Bcons to track customers and send notifications to customers with containing offers and promotions [1].
- Groupon.com is also a similar kind of system. Basically it is also a website. In their website they list down offers. But there are no proper categorization of listing down offers. Mainely Groupon.com is not a location based system [2].
- There is also a website call webengage.com which is similar to proposed system. But we identified there are some problems. Main problem is in there site offers can add only to there website [3].

In our proposed system we will overcome above problems. Following chart represent the comparison of each of the system and proposed system.

	Feature	Proposed System	ODEL	Groupon.com	Webengage.com
1	Location based	Yes	Yes	No	No
2	Gather existing offers using public FB pages and shop's website	Yes	No	No	No
3	Prioritize offers according to customer's behaviour	Yes	No	No	No

Table 2.1.1 : Comparison between proposed system and similar systems

2.1.1 System Interfaces

- Windows OS

2.1.2 User Interfaces

- Interface of Merchant Dashboard
- Interface to give Suggestions

2.1.3 Hardware Interfaces

- Laptop or Desktop computer
- Android mobile device or iphone
- Wifi router , dongle or any other network device to connect to an internet.

2.1.4 Software Interfaces

- Webstom
- TensorFlow library
- mongoDB

- Python
- React Native

2.1.5 Communication Interfaces

- Network Router , dongle or mobile data.

2.1.6 Memory Constraints

- Our application is expected to use no more than 20MB of RAM and 40MB of external storage
- For the DB it will use around 2GB of space, which will increase with the time.

2.1.7 Operations

Merchant should perform following operations in the system.

- Merchant should Register to the system as a merchant
- After Register to the system Merchant should log in to the system.
- Then Merchant can visit their Merchant dashboard.
- Merchant can see statistical data and the suggestions that are given by the system on the merchant dashboard.

2.1.8 Site adaptation requirements

- To install this mobile application and successfully run the application user need a android mobile device with minimum version 4.1 (Jelly Bean) or else ios 7 mobile device.
- Minimum 20 MB of RAM required and minimum 40 MB of external storage required.
- For the DB it will use around 2GB of space, which will increase with the time.

2.2 Product Functions

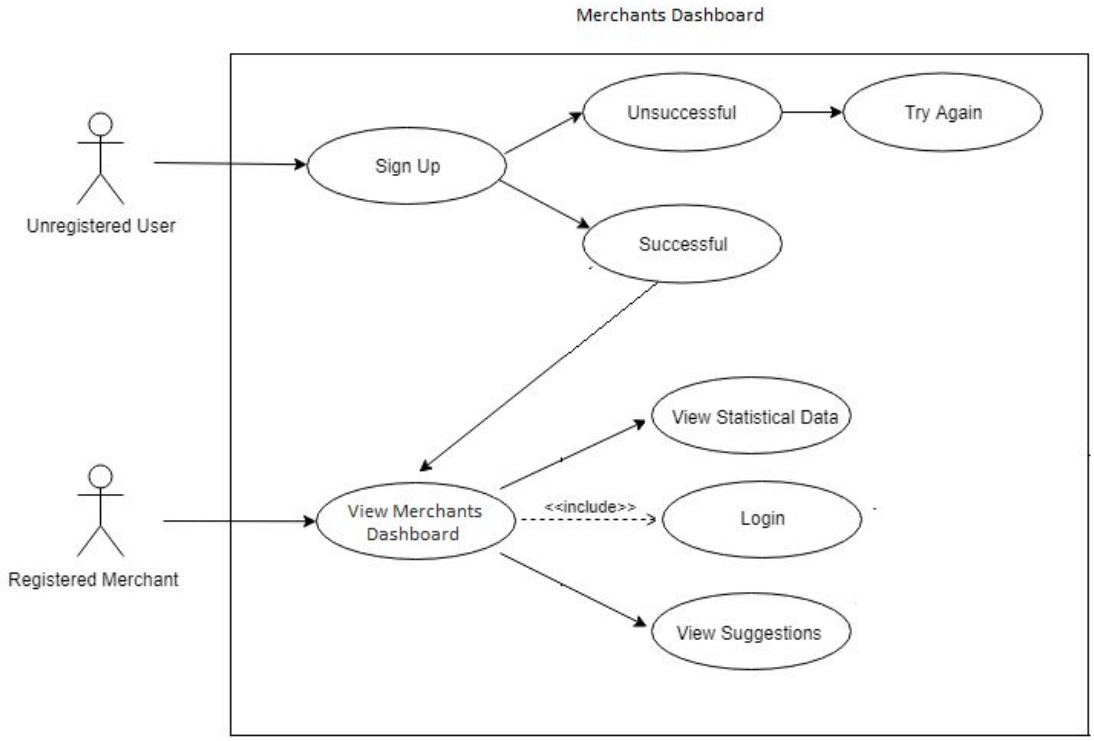

Figure 2.1 : Use Case Diagram

Use case name	View Statistical Data
Primary Actor	Registered Merchant
Pre-Condition	User need to login to the system as a merchant
Main Step	1. View Statistical data on statistical charts related to merchant
Extensions	1.a.1 Merchant doesn’t have an active internet connection.
Post Condition	Successfully load Statistical data on a statistical chart

Table 2.2.1 : Use case scenario for view statistical Data

Use case name	View Suggestions
Primary Actor	Registered Merchant
Pre-Condition	User need to login to the system as a merchant
Main Step	1. View Suggestions with new business ideas.
Extensions	1.a.1 Merchant not clicked on view Suggestions link 1.a.2 Merchant doesn't have an active internet connection
Post Condition	Successfully load the Suggestions page with new business ideas.

Table 2.2.2 : Use case scenario for View Suggestions

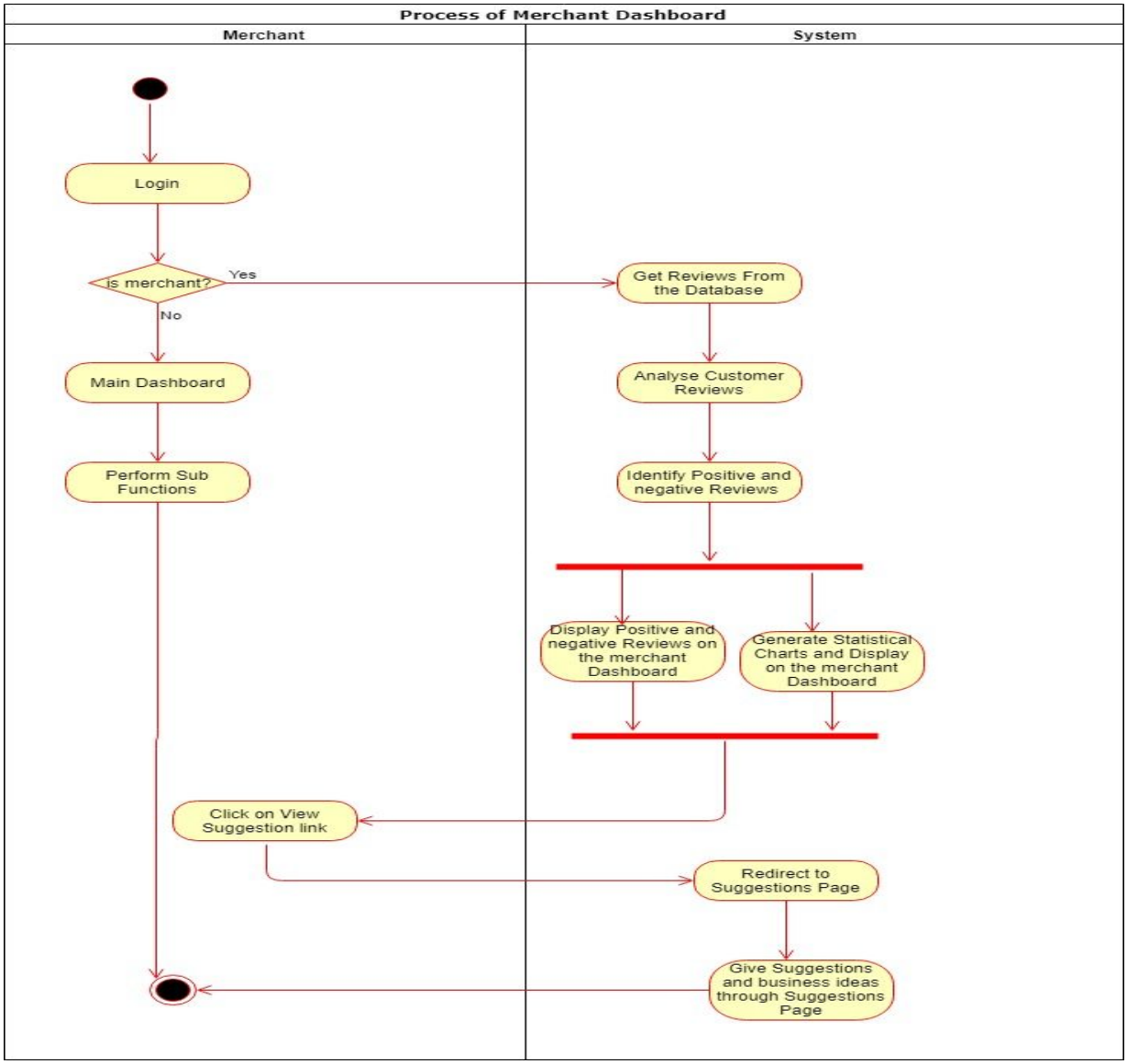

Figure 2.2 : Activity diagram for merchant dashboard

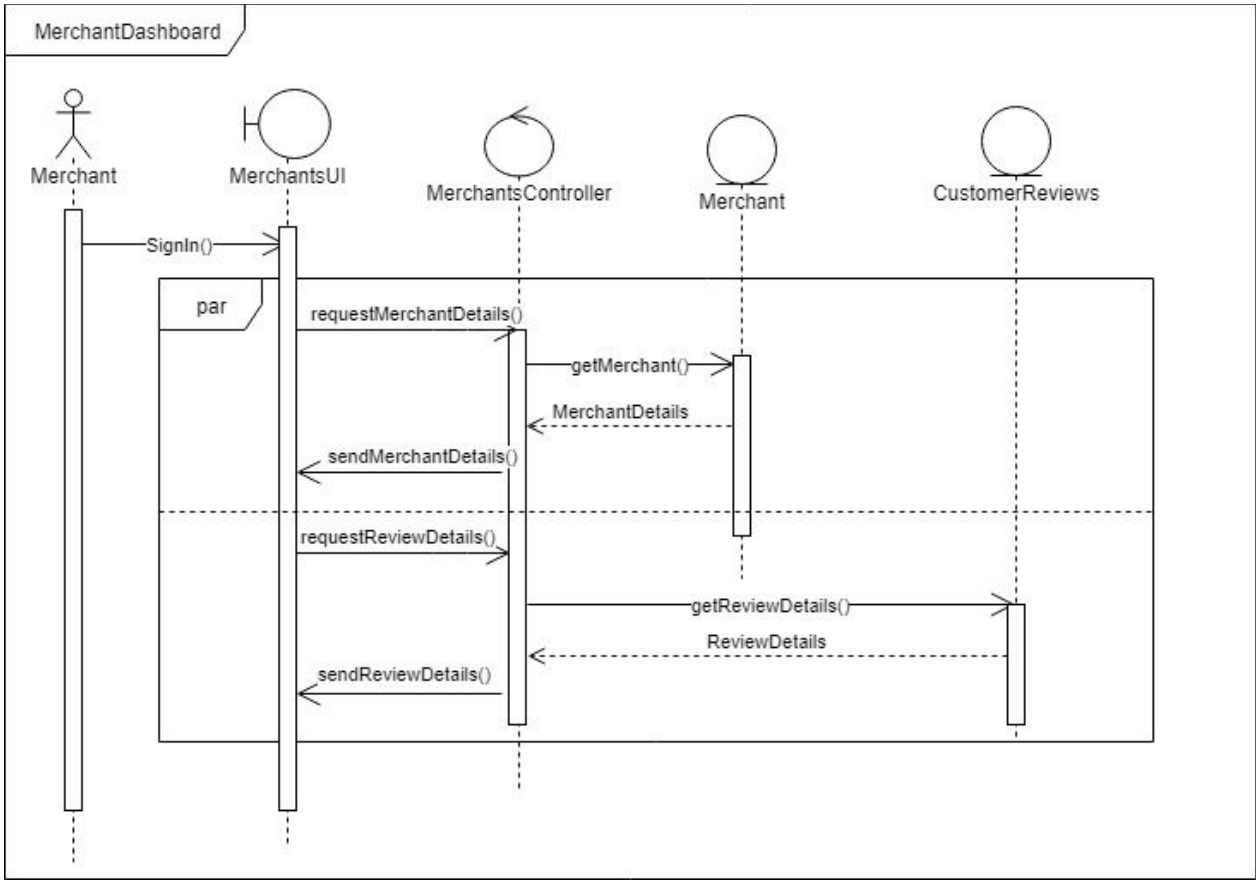

Figure 2.3 : Sequence diagram for merchant Dashboard

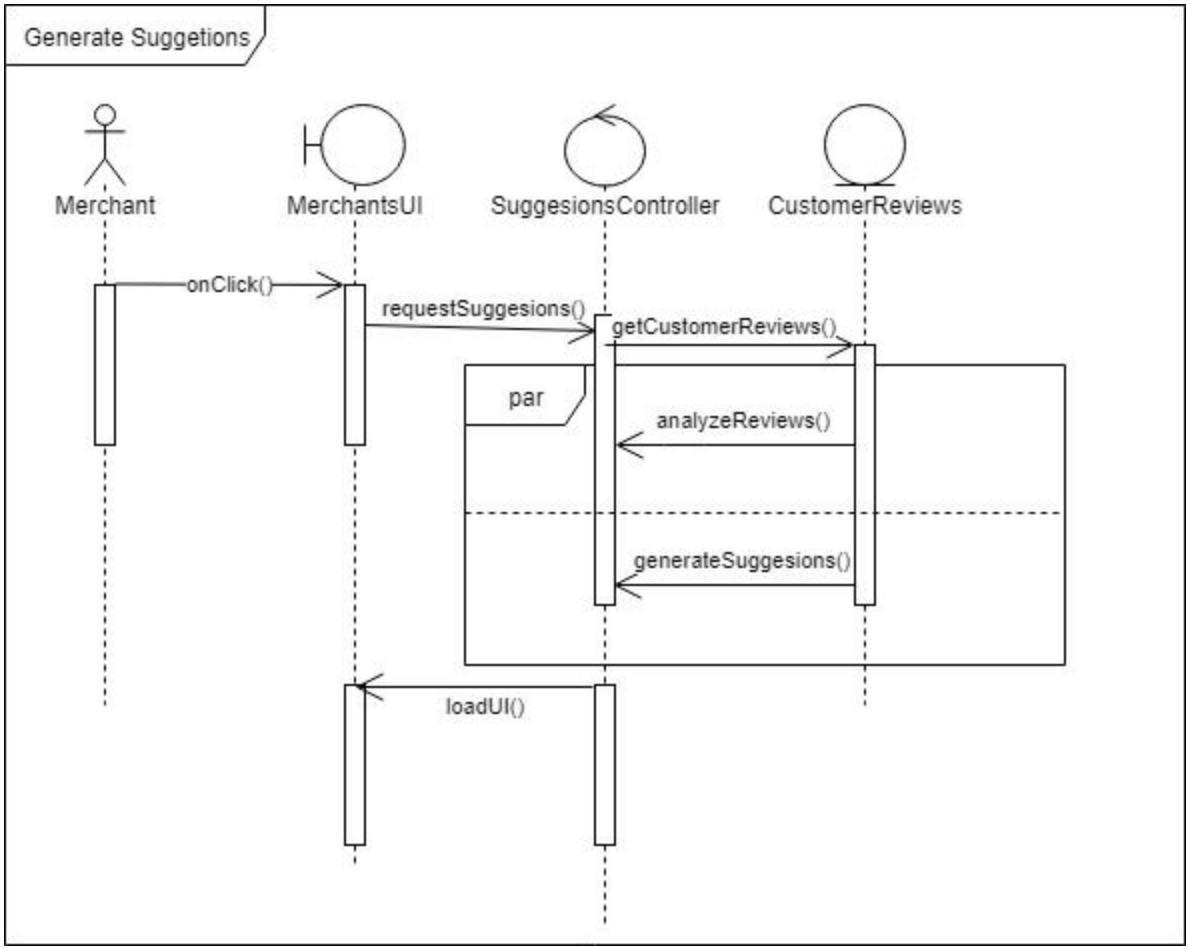

Figure 2.4 : Sequence Diagram for generate suggestions

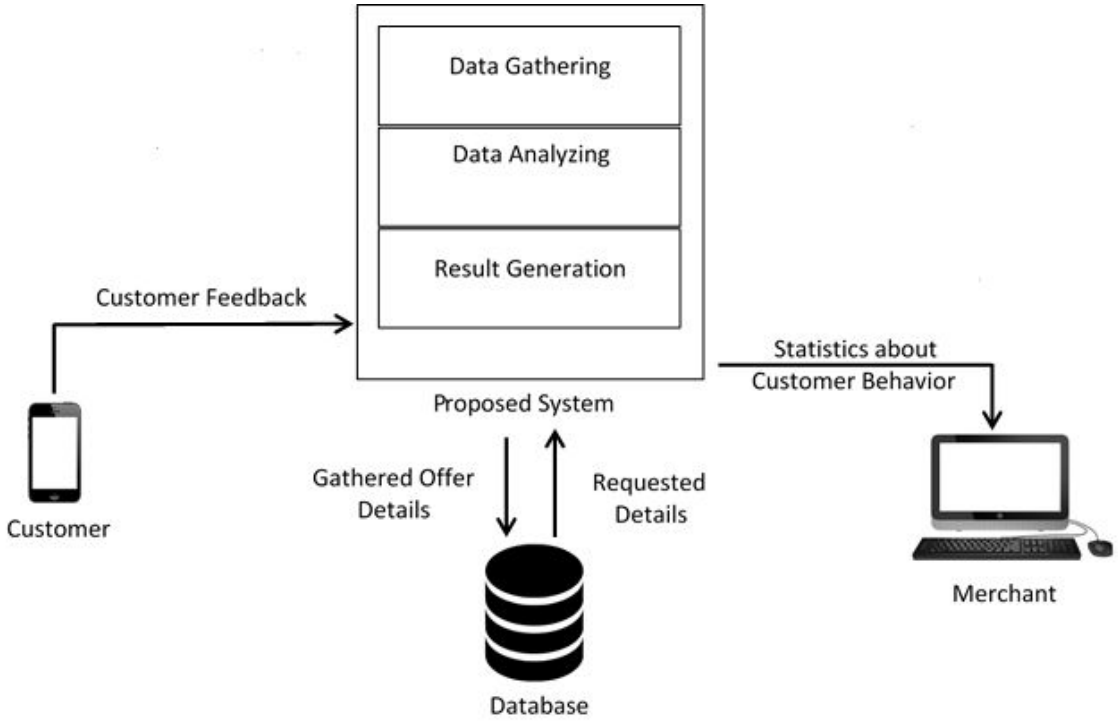

Figure 2.5 : System Architecture Diagram For Merchant Dashboard

2.3 User Characteristics

This proposed system mainly focus on customers and merchants of a shops inside shopping complex.

2.4 Constraints

The main functionalities in a merchant dashboard of a newly proposed customer tracking system such as analyzing customer reviews and ratings , create statistical charts and give suggestions and recommendations with new business ideas works fine if and only if cross platform mobile application connected to an internet.

2.5 Assumptions and dependencies

- Mobile phone is always connected to internet via wifi or mobile data.
- Since the mobile application is cross platform The application run on any android or ios mobile devices.
- The application running minimum android 4.1 (Jelly Bean) or ios version 7.

2.6 Apportioning of requirements

Mainely in this SRS documant their are 3 sections. In section 1 and 2 describe primary specification of the system. Section 3 describe about functional and non functional requirements and also section 3 provides detailed description than section 1 and 2 regarding a product. Since section 3 provides much more detail than the other 2 levels the application will be build from functional specifications in section 3.

3. Specific requirements

3.1 External interface requirements

3.1.1 User Interfaces

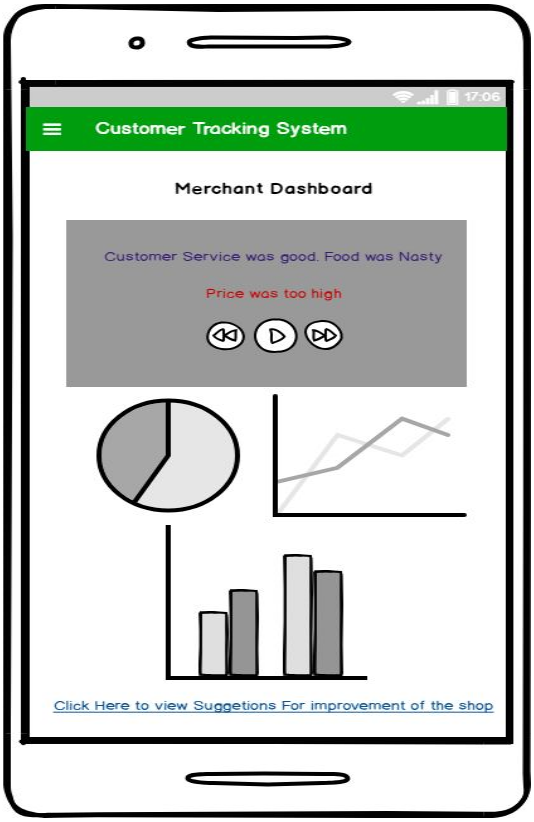

Figure 3.1 : Merchant Dashboard

Figure 3.2 : Give Suggestions page

3.1.2 Hardware Interfaces

- Android smart phone or IPhone will be needed to install and run the application.
- To connect to an internet wifi router / dongle / mobile data or any other network devices should be use.
- Personal computer will be needed to develop the application

3.1.3 Software Interfaces

- We will use Webstorm IDE as a developing platform.
- MongoDB uses as a database management system. By using MongoDB we can manage important data of our application easily. We can easily store data in a MongoDB database as a documents and later we can retrieve those documents for different functionalities of

our application. Mainely MongoDB is a NoSQL database and it is cross platform. And also it is a open source database.

- GitHub will be use as a code hosting platform. Basically it is consider as a version control system. We can add team members as collaborators. Collaborators can commit there changes to the github And rest of the team members can get those modifications. And also finally we can merge all commits and build a single application easily.
- Draw.io is used to create different UML diagrams such as Activity diagrams , use case diagrams , sequence diagrams and so on.
- All the UI wireframes designed using balsamiq cloud.
- Microsoft word 2016 will be use to create all documents.

3.1.4 Communication interfaces

- In this proposed customer tracking system we will be using cloud computing services to host our proposed system database and our system functionalities.
- HTTP/HTTPS protocol is used for communicate our application over the internet.

3.2 Classes/Objects

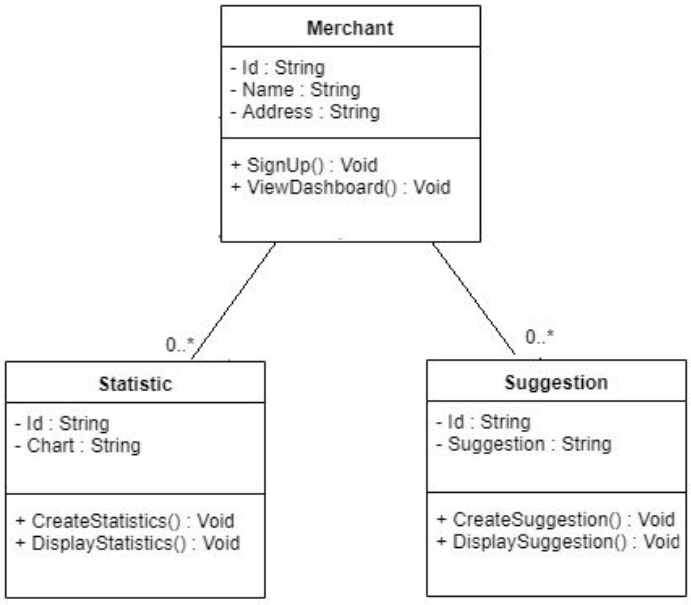

Figure 3.3 : Class Diagram

3.3 Performance requirements

- This cross platform mobile application will be developed for minimum android API level 16 and ios 7 , which will need phone having minimum of dual core processor.
- Minimum of 512MB RAM will be required.
- At least 100MB of free storage will be required to install the application.

3.4 Design constraints

- User interface must be simple , easy to use ,attractive and consistent.

3.5 Software system attributes

3.5.1 Reliability

Reliability is most important software system attribute. Our application should works properly without any failures. Functionalities should works correctly without crashing.

- Ex -: After many user reviews are analyzed and give suggestions for improvement of the business reliability is highly maintained.

3.5.2 Security

We need to prevent our application data from unauthorized users / unauthorized access. Because of that security is mandatory requirement of our application.

- Ex -: We have to provide Login interface to users , Verify email address and password to prevent our application data from unauthorized access.

3.5.3 Maintainability

Maintainability is defined as the degree of an application to repaired or enhanced it. We will be focussing on keeping a good maintainable software by using,

- Fix a bug without introducing a new bug.
- Organized code properly
- Limit number of used libraries
- Make changes to support new environment.

3.5.4 Availability

If at the time user want to access the system all functions of the system should be available to users for accessing. That means if user want to access the merchant dashboard all the functions of the merchant dashboard should be available.

- Note -: Merchants can only access functions of the merchant dashboard. Customers cannot access merchant dashboard.

3.6 Other Requirements

3.6.1 Accessibility

Since merchants of shops are using merchant dashboard frontend of the merchant dashboard (UI) has to be simple and easy to understand. All informations contains in a merchant dashboard should be much more familiar to merchants.

3.6.2 Extensibility

The system should be able to accept extensions or modifications. Some times newly created functions added to the system or else some functions will be added to the system with some modifications.

4 Supporting Information

4.1 References

[1] "Dialog and Odel pioneer revolutionary smart retail with D-Beacon" [Online]. Available: http://www.ft.lk/article/425697/Dialog-and-Odel-pioneer-revolutionary-smart-retail-with-D-Beacon

[2] “Groupon.com” [Online]. Available: https://www.groupon.com/

[3] “WebEngage.com” [Online]. Available: https://webengage.com/