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1. INTRODUCTION

This document includes software requirements specifications for an e-commerce website Kinmail. Kinmail is developed to connect buyers and sellers across the country seeking to buy and sell products online conveniently for free without any third parties in between. Internet is a great promotional vehicle and communication channel for connecting buyers and sellers. Consumers can find a product of interest in visiting the website of the retailers (sellers) directly or by searching among the alternatives using a shopping search engine. For the consumers searching for cheap products to buy online and sellers desiring to get some profit out of some unused stuffs, kinmail.com is the best website.

1.1 Purpose

The purpose of this document is to give a detailed description of the requirements for "Kinmail". It will explain system constraints, interface and give a complete declaration for the development of the system. The website can be used by users to browse, search and add products to sell to the buyers.

1.2 Scope

Kinmail will be an e-commerce website designed to facilitate buying and selling of products between consumers without the involvement of businesses and hidden costs. The functions that a user will be able to perform in this platform are:

1. Register to the platform

2. Log in to the platform

3. Browse through the database of available product

4. View user profile

5. Get contact information of the seller

6. View product dashboard

1.3 Problem Definition

The online market is flooded with the availability of online stores including a third party involved either in the case of storage or in the case of delivery/distribution, which normally includes a huge amount of money being expensed in the both shipping and extra charges.So to overcome such concepts we have decided to make a customer to customer transaction based online system where the buyers and sellers make a reasonable discussion of the product involved to make a deal among themselves. With the partial fulfillment of the semester wise project, a need for the study of database and some designing was a must, and what better a way to study all those than to design a functional website. Current online websites involves a third party with the charges of shipping involving many extra charges which is completely reduced in our website, also reducing the over prince hike in the normal products.

1.4 Audience

People interested in buying and selling their products without the involvement of any middleman and free of charges are the targeted audience of this platform.

1.5 Tools to be Used

Programming Language: HTML, CSS, JavaScript and Bootstrap for front-end.

PHP for back-end.

Database: MySQL

Platform: Sublime Text, XAMPP

1.6 References

Somerville, Software Engineering, 10th ed. England: Addison-Wesley, 2017

1.7 Overview

Kinmail will be a C2C based web platform to buy and sell products without any charges, similar to a forum of discussion but for posting and buying online products. Since, it will be designed as a web platform; it can be easily accessed by anyone with Internet access and web browser in their device. The advantages of our platform are:

1.   Browse and search products easily.

2.   Add products without any charges.

3.   View product and its details.

4.   Contact sellers directly.

2. GLOSSARY

2.1 Definitions

2.1.1 C2C e-Commerce

C2C e-commerce is a type of trade relations where both sellers and buyers are consumers, not businesses. Vendors sell their products on the site and buyers purchase what they want. C2C websites benefit from commission fees for listing goods that are normally paid for by the seller. The main advantage of C2C business is that sellers and buyers are reachable. It is also effortless and handy and does not take much time to use.

2.1.2 Email Authentication

Email authentication is a technical solution to proving that an email is not forged. It provides a way to verify that an email comes from whom it claims to be from. Email authentication is most often used to block harmful or fraudulent uses of email such as phishing and spam which has been implemented in this platform.

2.1.3 Interface

The interaction between a user and system running on a Web server. The user interface is the Web browser and the Web page it downloaded and rendered.

2.1.4 Class

Class is a blueprint or prototype that defines the variables and the methods common to all objects of a certain kind.

2.1.5 Attribute

A database attribute is a column name and the content of the fields under it in a table in a database.

2.1.6 Relational Database

A relational database is any database that follows the relational model provided by traditional relational database management systems. It is a set of formally described tables from which data can be accessed or reassembled in different ways without having to reorganize the database tables.

2.2 Acronyms and Abbreviations

C2C: Customer to Customer

HTML: Hypertext Markup Language

CSS: Cascading Style Sheet

DB: Database

DESC: Description

ER: Entity Relationship

DFD: Data Flow Diagram

3. SYSTEM MODEL

3.1 State Transition Diagram

Figure 1: State Transition Diagram
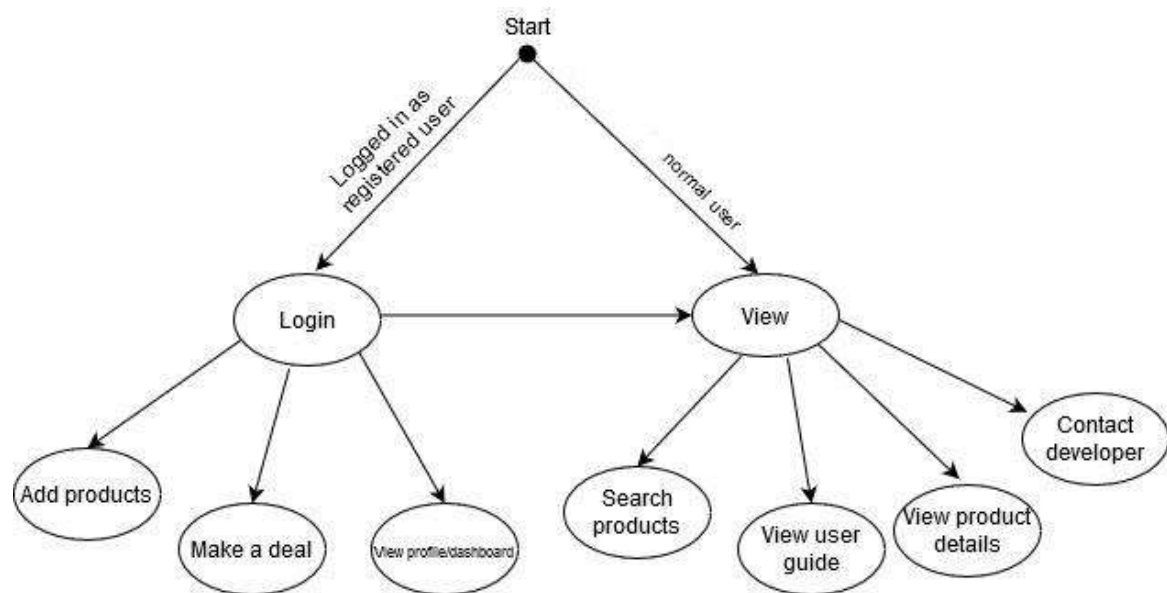
State transition diagrams are used to give an abstract description of the behavior of a system. This behavior is analyzed and represented by a series of events that can occur in one or more possible states. Here the system is started with an initial state which is black dot as shown in the above figure. Logged in registered users have privilege to more states than normal users.

3.2 Sequence Diagram
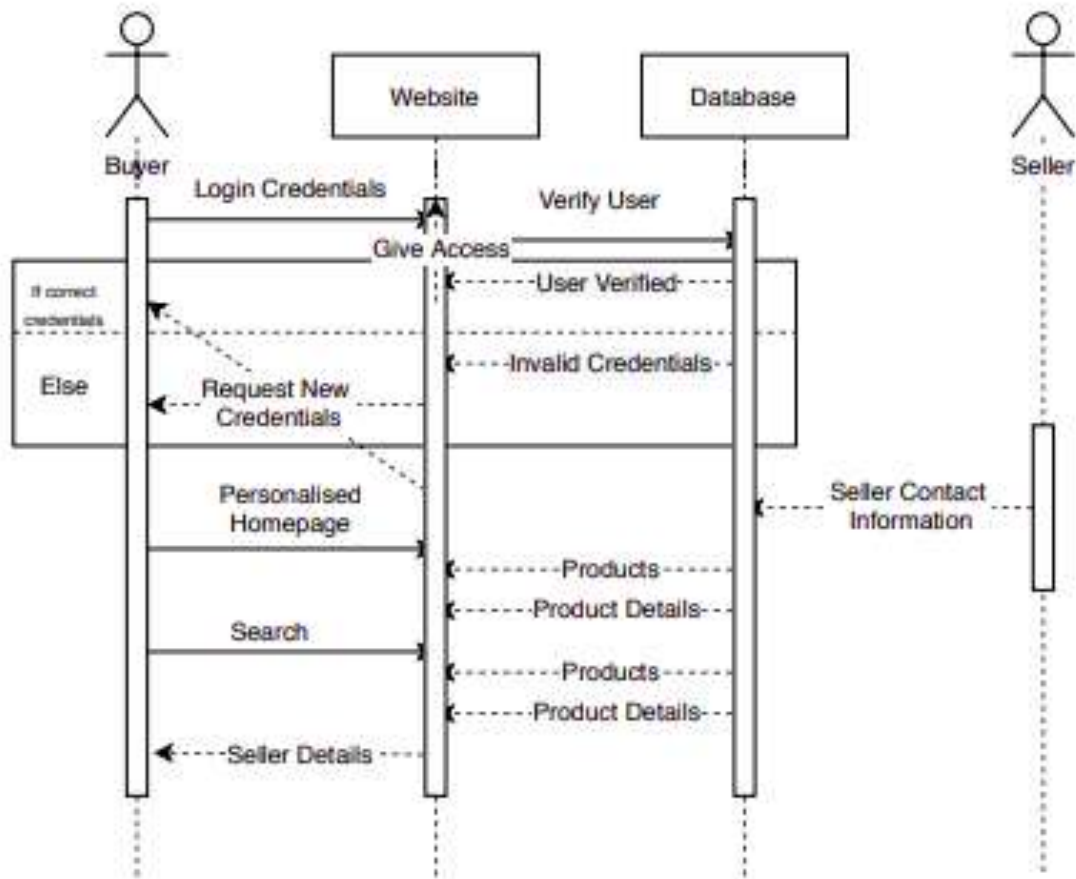
Figure 2: Sequence Diagram

A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interactions take place. The above figure shows the interaction of the user with various objects of the system acted in sequence to carry out several tasks by user.

3.3 Use Case Diagram
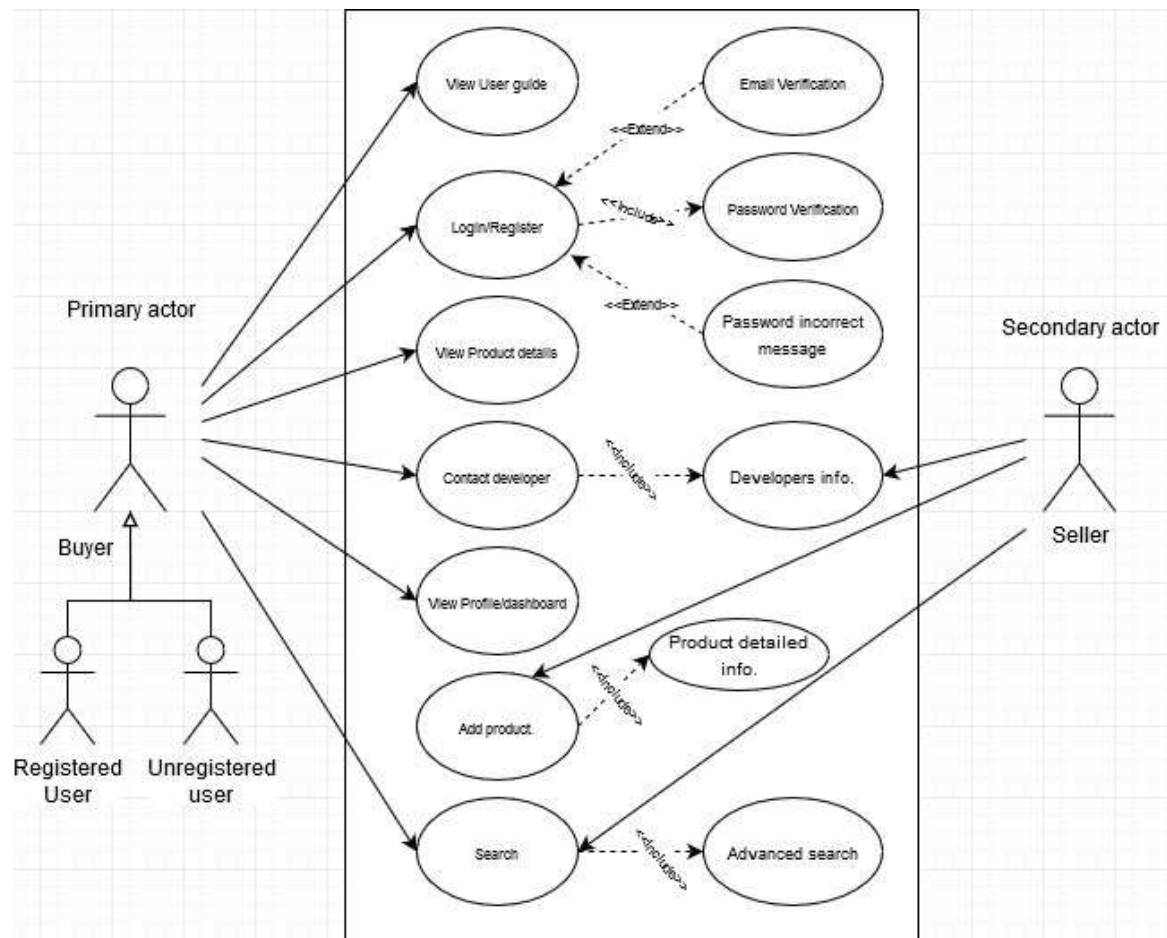
Figure 3: Use Case Diagram

A use case is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. The above figure shows the use cases of the user in the system. The user must be logged in to perform use cases like add products, view profile, view products dashboard.

3.4 Data Flow Diagram
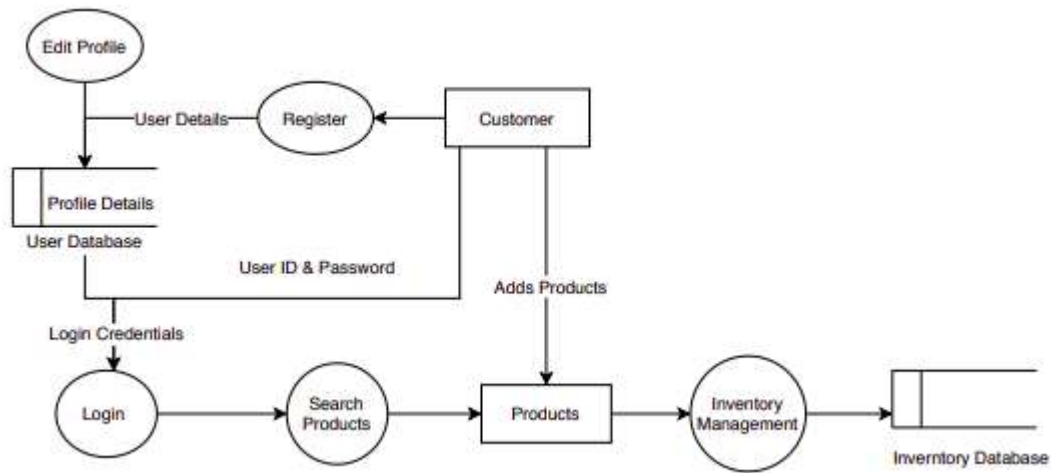
Figure 4: Level 0 DFD (Context Flow Diagram)

A data flow diagram (DFD) is a way of representing a flow of data of a process or a system. DFD describes the processes that are involved in a system to transfer data from the input to the file storage and reports generation. The above figure shows the data flow of various processes in Kinmail.

3.5 ER Diagram
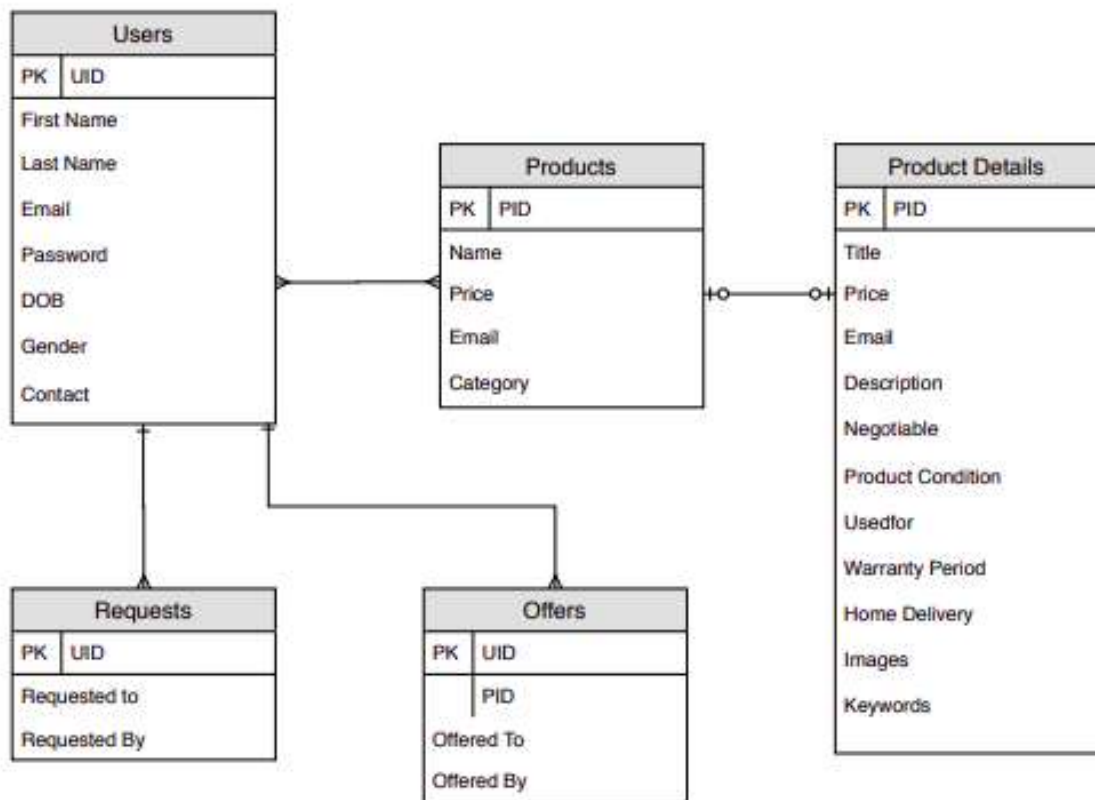
Figure 5: ER Diagram

An Entity Relationship model (ER model) describes the structure of a database with the help of ER diagram. An ER diagram shows the relationship among entity sets and can be later implemented in database. An entity set is a group of similar entities and these entities can have attributes. Above figure shows the entities along with their attributes and relationship among them.

4. FUNCTIONAL REQUIREMENT

4.1 Functional Definition

4.1.1 The normal users can register to the website

4.1.2 The registered users can login to the website using their credentials

4.1.3 Users can search for the products

4.1.4 Users can view product details

4.1.5 Registered users can add products along with the required details

4.1.6 Registered users can view and update the profile

4.1.7 Registered users can view the product dashboard

4.1.8 Users can contact the developer

4.1.9 Users can view website manual

5. NON FUNCTIONAL REQUIREMENTS

The system should meet the following non-functional requirements:

5.1 Security

    i.   Users need to create password containing minimum of 8 alphanumeric characters with both uppercase and lowercase letters including a number.

    ii.   Users need to verify their email after registering to enter the platform as registered user.

    iii.   Only the registered users can add products.

5.2 Performance

    i.   The web design is responsive, attractive and, easy-to-navigate.

    ii.   The page loads fast without delay of more than one second.

    iii.   There is a focused shopping approach with searching and filtering functionality.

5.3 Safety

    i.   The platform is hosted by a secure hosting infrastructure.

    ii.   It gives a pop-up message whenever an error or accidental decision is made.

5.4 Correctness

    i.   The system should do what it is supposed to do.

    ii.   The software should provide correct details of product, seller and buyer.

    iii.   The new details and changes should be updated simultaneously.

5.5 Scalability

    i.   The system should be able to be scaled up on adding more information and should be able to scale down on removing the features.

6. SYSTEM EVOLUTION

The system evolved by proposing the website with little functionality. We started off by building the basic register and login system with general authentication requirements. We worked on the initial requirements and analyzed it in parallel, and several new requirements came into existence. Later on, we changed the general authentication to robust authentication system with email verification. Then, we added features like customer dashboard and customer profile.

The requirements evolution takes place during the RE process and after a system has gone into service. As the requirements definition is developed, it normally develops a better understanding of users' needs, in this case, what will be the necessary functions required in the application for recording the school activities. From an evolution perspective, the requirements fall into following two categories:

6.1 Enduring Requirements

These are relatively stable requirements that derive from the core activity of the organization and which relate directly to the domain of the system. In case of our system, these include requirements concerned with activities of users, buyers and sellers. The enduring requirements are

- To login and log out of the system
- To add details of users, products.
- To view the details of the product
- To search the products information in the system

6.2 Volatile Requirements

These are requirements that are likely to change during the system development process or after the system has become operational. In the case of the system, these include requirements resulting from view of product details design and searching parameters. The volatile requirement include the following:

- If the website requires tracking the products during the shipments, then the system must be able to add a relevant tracking system

- If the normal users demand posting and looking at product reviews and comments, the system should be able to integrate a reasonable review system.

- If the users demand an advanced searching in the platform, the software should be able to add integrate various filtered parameters to process search queries.

7. REQUIREMENT SPECIFICATION

The following functions should be achieved by this software.

1. The normal users can register to the website

    1.1. The users should go to the register page
    1.2. Users should specify their credentials
    1.3. Users can click the register button

2. The registered users should be able to log in the system.

    2.1. The user should be able to log in the system
    2.2. There should be a master admin username and password

3. The users should be able to search the products

    3.1. A search bar should be available in the platform which can be used to search for the required product.
    3.2. Users can also search through the category of products.
    3.3. Users can input key words in the search bar and if the relevant match is found, then the title matching the word is displayed otherwise, 'No products found' message should be displayed.

4. Registered users can add products along with the required details

    4.1. Users should specify product name, category
    4.2. Users should specify product descriptions like dimensions, warranty, pictures and more.

5. The users can view product details

    5.1. Users can see the information like general details, seller details, product description, pricing details, delivery and warranty details.

6. Registered users can view and update the profile

    6.1. The users can change their name, profile picture, and passwords
    6.2. The users can change the details of the product, delete or put up more products for sale and requests.

7. Registered users can view the product dashboard

7.1. Users can view the number of products they have added to sell, requested to buy and been offered for the product they put on sale

8. Users can contact the developer

   8.1. Users can contact any developer by clicking the different social media links associated with the developer
   8.2. The information like name, email and message is required from the user.

9. Users can view website manual

   9.1. User can visit help page to view the website user manual.
   9.2. The user manual should contain the instructions on how to register to the platform, deal with forgotten password, search for products, and contact the seller and so on.