Software Requirements Specification

for

IITKart

Version <1.0>

Prepared by

Group : 9 **Group Name: Matrix**

Akshunya Vijayvargiya	**200092**	**akshunyavijayvargiya@gmail.com**
Kushal Gehlot	**200541**	**kushal9427@gmail.com**
Subodh Kumar	**201007**	**9703subodh@gmail.com**
Kevalkumar Solanki	**200991**	**kevalsolanki49049@gmail.com**
Jasjot Singh	**200468**	**jasjotb02@gmail.com**
Kumar Arpit	**200532**	**kumararpit987@gmail.com**
Samarpreet Singh	**200848**	**singh.samar23@gmail.com**
Saurav Kumar	**200906**	**sauravsagu@gmail.com**
Mayank	**200568**	**mayankmayank67936@gmail.com**
Vaidik Sharma	**201079**	**underscoresharma@gmail.com**

Course: CS253

Mentor TA: Swastik Maiti

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1. Introduction

1.1. Product Scope

IITKart is software designed to provide a sophisticated platform for buying, selling a variety of goods. Often people face difficulty in buying second-hand products or finding genuine buyers for their devices. This platform will provide solutions for all these problems. Users can purchase essential commodities conveniently at an effective price. Short-term requirements of items can be efficiently dealt with by renting features of this software. Users can get rid of unwanted items by selling them either to other consumers or to shopkeepers in need of spare parts. The chat feature will enable one-to-one interaction where end-users can negotiate for price and discuss other aspects of buying/selling or renting their goods.

It will have this 3 key features along with the purpose it serves:

- This platform will be highly secure, accessible only to registered users.
- User-friendly interface.
- Easy to maintain by administrators.

1.2. Intended Audience and Document Overview

This document is intended for potential buyers of this software, any team which may want to work upon any sort of changes, up-gradation to a new version, debugging, and much more.

The remaining sections of this document provide a general description, including the characteristics of the users of this project, the product's hardware, and the functional and data requirements of the product. Section 2 provides an overview of the software, including its functionality, constraints and assumptions. Section 3 gives specific requirements which the software is expected to deliver including functional requirements and the use case model of the system. Section 4 provides non functional requirements regarding safety, security and performance of the software.

1.3. Definitions, Acronyms and Abbreviations

Ethernet - a family of frame – based computer networking technologies for Local Area Networks.

DDos - Distributed Denial of service

OTP - One Time Password

SRS - Software Requirement Specification

1.4. Document Conventions

In general this document follows the IEEE formatting requirements. Arial font size 11 is used throughout the document for text. All the headings are written in bold format with font size 14, with the section names in Arial with font size 18. The hyperlinks are underlined and the text is written in dark cornflower blue 2 colour.

1.5. References and Acknowledgments

IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications IEEE Computer Society, 1998

https://standards.ieee.org/ieee/830/1222/

https://en.wikipedia.org/wiki/Software_requirements_specification

2. Overall Description

2.1. Product Overview

Our web-based product aims to benefit the IITK Campus Community by providing a medium for selling, buying and renting essential commodities. The idea has been inspired from consumer to consumer marketing platforms like OLX and Quikr which provide classified advertisements for goods. Since such provision isn't available for the college, we've planned to work on it.

It would be handy for everyone, as there might be some people who are in dire need of items like books, bicycles, tables, electric kettles, etc. and would prefer having used ones (in good condition), instead of buying new ones, and others who are wishing to sell the same. There is an option of renting things like sports equipment, hence fulfilling short-term requirements as well. Both the parties will have exclusive control on the deal and will be free to discuss, negotiate and manage payment on their own.

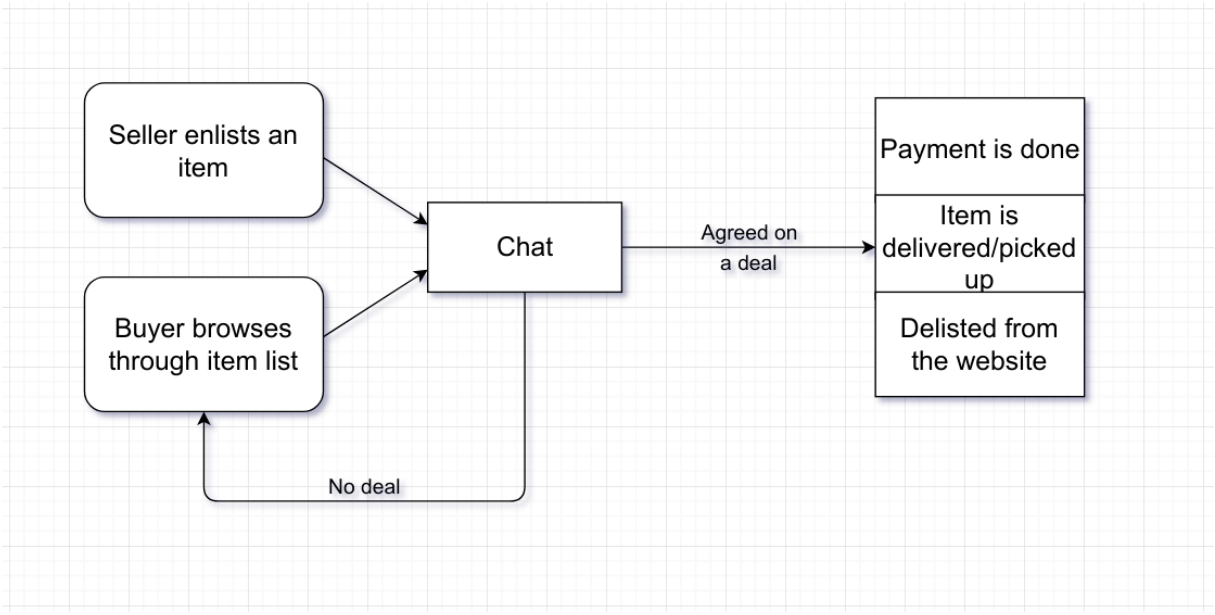


Figure 2a - Product's interaction with the environment

2.2. Product Functionality

- A User Account, authenticated by IITK Roll No. and other details, will be required for browsing/accessing the list of items available.
- The home page will show the new listings of products for sale the items uploaded by the user to sell.

- Search Engine will help the user in searching for a product according to its name in name and description provided by the seller in the Product List, and then display matching results.
- Option of Filtering and Sorting for more relevant choices.
- Chat would act as an interface for communication between interested buyer and seller.
- Inventory for saving the items temporarily in a virtual cart, for future reference or purchase.

2.3. Design and Implementation Constraints

- Active support for the users is not feasible due to lack of any support community.
- No Real Time Monitoring of the system is possible due to hardware as well as manpower limitations.
- Our system may not be able to counter against DDos and other attacks due to hardware constraints.
- Users must sign up with their IITK credentials (mail ID and OTP) so that external people may not access the system. This however might be of slight privacy concerns to some.

2.4. Assumptions and Dependencies

- The IITK mail account of the users cannot be compromised which can cause any negative interventions in the system. Also, we assume the users themselves take proper measures while paying online.
- The users have access to sufficiently fast internet connectivity.
- The OTP Generation services of twilio which are tested and sufficiently secure.
- The hardware used for accessing the systems should be fairly recent and compatible with latest versions of web browsers.

3. Specific Requirements

3.1. External Interface Requirements

3.1.1. User Interfaces

The user interface of the software will be web-based and user-friendly. Allowing users to access the software via any modern web browser like Google Chrome, Mozilla Firefox, Microsoft Edge, etc. Users have to log in/create an account via their IITK mail Id/registered mobile number and a password. After that they can see the homepage where options will be available for various facilities like selling, renting, buying, and end to end communication. In the sell option, a webpage seller will be able to upload information and photos related to the product which he wants to sell/rent. On the rent/buy, web page information of things which are available to rent/buy will be available. User can open a webpage related to the respective thing in which he is interested. There will be a chat option available with the seller if the user is interested in buying something. Also, there will be a User setting webpage that can be opened via the homepage. In that options will be available such as general, user history, privacy (phone number visibility, password change), delete the account, chat settings, etc.

3.1.2. Hardware Interfaces

Since the application must run over the internet, all the hardware shall be required to connect to the internet, which will be the hardware interface for the system. As for e.g. Wi-Fi, Ethernet Cross-Cable, etc. Any smartphone or PC with proper internet connection will serve the purpose.

3.1.3. Software Interfaces

Any modern updated browser.

3.2. Functional Requirements

3.2.1 F1 : Login

Every user must be allowed to login only through his iitk.ac.in domain email id.

3.2.2 F2 : Upload Product

Every user must be able to upload specifications of the item along with rental or seller features and his/her credentials that can be used to access the item by buyer.

3.2.3 F3 : Products Display

All the items available to be sold / rentable must be shown to the users .

3.2.4 F4 : Chat box

Buyer side must be able to send messages privately to the seller so that they can negotiate and come to a conclusion over the deal.

3.2.5 F5 : Update Details

The Seller side must be able to update the details of that particular item which is to be sold/rented after if needed.

3.2.6 F6 : Delete Product

The Seller must be able to delete the item if it has been rented or sold.

3.2.7 F7 : Search Product

The buyer should be able to search through the product list and get the desired result as per the input in search bar

3.3 Use Case Model

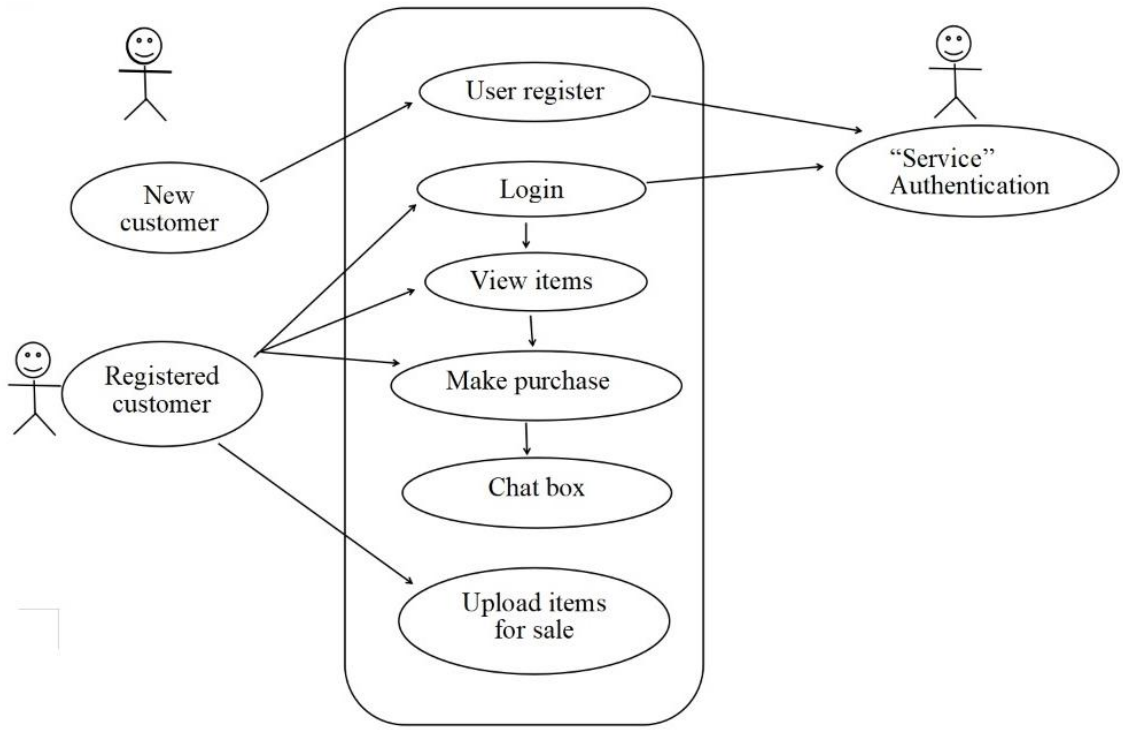
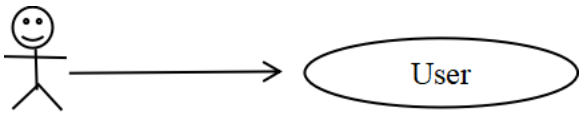


Figure 3a Use case Model

3.3.1 Use Case #1 : Register Account

Author: Mayank



New Customer

Description - Register a new customer account with the system.

Steps:

1. Customer first clicks on the button or link to initiate the registration process.

2. System prompts the customer to fill out his/her first name, last name, user id, email address, and their password.

3. Customers enter fields.

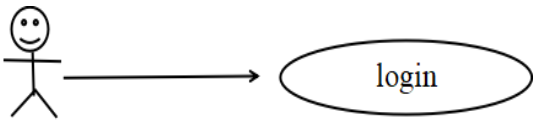
4. System validates the customer's information.

5. System creates a new account for the Customer.

6. System displays an account home page to Customer.

3.3.2 Use Case #2 : Login

Author: Mayank



Registered customer

Description - Login to a customer account with the system.

Steps:

1. Customer clicks on the button or link to initiate the login process.

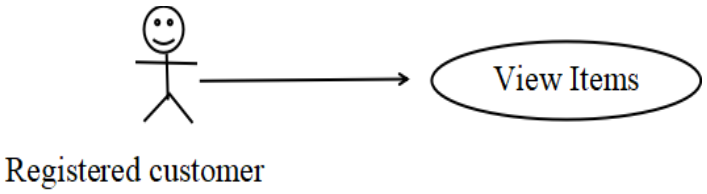
2. System prompts the customer for his/her user id and password.

3. System verifies the information.

4. System displays account home page to the Customer

3.3.3 Use Case #3 : View Items

Author: Mayank



Description - Customer can search the desired product depending on whether he/she needs to purchase/rent the product.

Steps:

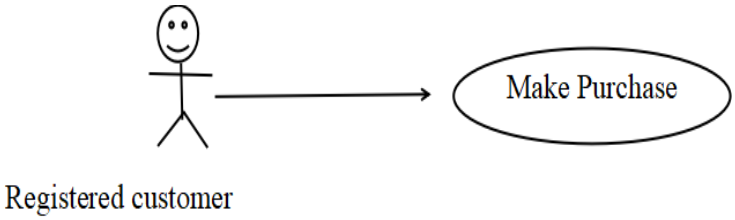
1. Customer enters a category or name of the product in the search engine.

2. System searches for the matching product.

3. System displays the results.

3.3.4 Use Case #4 : Make Purchase

Author: Kushal



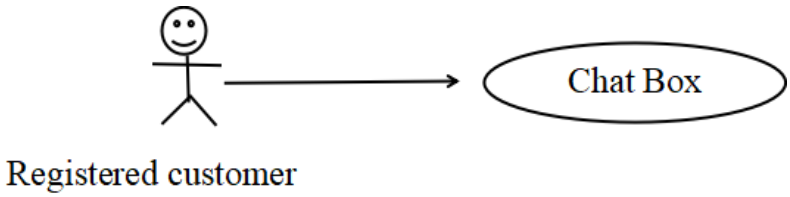
Description - Customer places an order.

Steps:

1. Customer clicks the button or link to initiate the confirmation process.
2. System directs the customer to a chat box.

3.3.5 Use Case #5 : Chat Box

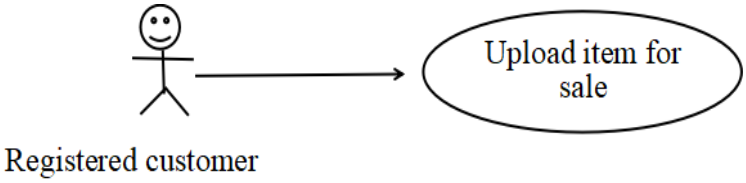
Author: Kushal



Description - Customers get access to chat with sellers for negotiation.

3.3.6 Use Case #6 : Upload item for sale

Author: Kushal



Description - Customers can upload items for sale on the website.

Steps:

1. Customer has to choose whether he wants to sell/rent his product.
2. User has to upload an image of that particular item.
3. Describe the current condition of the item.

4. Click upload button.
5. System uploads item in sell/rent.

4. Other Non-functional Requirements

4.1 Performance Requirements of the System

The system must be interactive, and the delays involved should be less. The website and the server should be online and available 24*7 since hosting on Heroku. There are no immediate delays in the response of the system to an action. For saving session settings or popping of error messages, the delay should be less than 1 second as per the testing performed until now. For retrieving information from the database and sorting queries, response time should be less than 2 seconds for 90% of the time since online data suggests that Django takes almost 30 seconds to query around a million data requests and since we have a fraction of that number in our campus so 2 seconds seems a good bound. There should be a very low probability of the site crashing (<1%) and the recovery time should be within 10 seconds.

4.2. Safety and Security Requirements

- All Administrators and Users must log in using their IITK email IDs ONLY, to avoid multiple identities of a single user or administrator.
- Challenge-Response Authentication(CAPTCHA) will be done at the time of signing in, to tell computers and humans apart. 'reCAPTCHA- Google' seems to be the best alternative.
- Administrators can only perform the administrative task on pages they are privileged to access. Customers will not be allowed to access the administrator pages.
- Data of the website must be accessed in the way they were intended to be accessed. Included files shall not be accessed outside of their parent file.

4.3 Software Quality Attributes

- Interoperability will be achieved by conducting compatibility tests, engineering our software with a common standard and using the same coding language or syntax across multiple systems when appropriate thus ensuring Availability & Flexibility as well.
- Robustness & Testability will be ensured by passing valid input and invalid input to check the Reliability of the software.

Appendix B - Group Log

Meeting 1 (21/1/22): 12:00am to 1:00am:
All the team members discussed various aspects of the Requirement Document. Also, main features of the software were finalised and the corresponding functional requirements were discussed.

After the first meet all of us explored a variety of SRSs related to online shopping platforms and tried to analyse different design and implemental constraints along with non functional requirements.

Meeting 2 (25/1/22): 12:00am to 2:00am:
Section-wise Work was distributed between all team members and tried to identify various use cases for our software. Discussed problems that could arise while using software and possible ways to tackle them.

As per distribution, all the team members worked on specific sections of SRS and regularly discussed the progress of the document.

Meeting 3 (30/1/22): 7:00pm to 9:00pm:
Everything was assembled and organised into a single document with cross-checking of all sections by other team members. Possible changes and suggestions were incorporated to generate the final Requirement Document.