



**Dhirubhai Ambani Institute of Information and
Communication Technology**

**IT314 Software Engineering
Course Project
Renting System**



Software Requirement Specification

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Group 06**

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1 | Acknowledgement

We would like to thank **Prof. Saurabh Tiwari** for giving us this wonderful opportunity to work on real life project that can help us in many ways in the future. From this project we learnt a lot of new things that we didn't experience in the past and also learnt lot about development technologies and tools like GITHub, NodeJS, ReactJS, Firebase and much more. During the brainstorming and designing phases, our mentor **Kriti Joshi** also helped us in resolving our doubts regarding choosing process models and guided us throughout the project.

2 | Problem Statement

A modern man is always looking forward to cut costs of expenses in all the ways possible, be it hunting for a discount coupon code or saving the shipping charge. He would always look for options to reduce and reuse stuff as and when possible. That's where the concept of renting comes in, where one doesn't need to commit to the product as heavily as purchasing. Also, one can look for an extra source of income on the possessions. Thus, the objective of our project is to *design a system where users can share the details of things which he/she wants to give for rent and contact them for same.*

3 | Actors and Stakeholders

- Actors
 - Buyer
 - Seller
- Stakeholders
 - Buyer
 - Seller

4 | Requirements Elicitation:

The Renting System is not a completely new concept, so building it from scratch would be like reinventing the wheel, so we focused on three main techniques of elicitation, for gathering most useful requirements. Three elicitation practices we exploited are as follows:

4.1 Brainstorming:

The inception of the project began with getting as many ideas we had regarding the Renting paradigm, and thinking them out loud in the discussions. Renting is not something people are alienated to, everyone being clear about the status quo, we had discussions on the basis of our experiences of giving out things on rents to others and how we faced different challenges in the existing scenario. Our discussions revolved around building a whole new system in the beginning. But there were issues regarding trusting online buying and security. During these discussions, we came across two significant points, first, the widespread popularity and user-friendliness of e-commerce websites and their similarities with the renting system. Second, getting an honest response from some people on what are the key requirements in the domain of the renting system. This led us to our next elicitation technique.

4.2 Analysis of Existing System:

The current market shows the easiness and fast moving growth of E-commerce websites throughout the world. Due to its prevalence amongst the users, most people are quite used to the features of these websites like searching and filtering products, adding products to wishlist and much more. So, working on making a renting system on the base of an e-commerce website will be a better option to work upon. The key features of an e-commerce website, which are quite necessary for the renting system too, are getting a sorted list of products with being able to get products of different categories, having a wishlist of products, integrating payment options and getting contact details of the seller. This will help in getting the skeleton ready for the renting platform. Now, comes the part of having some features which are specific for a renting system. For that we will take help of interviews.

4.3 Interviews:

Here, we wanted to get an idea about what are the requirements from the renting business perspective, and what are the key parameters sellers and buyers look for.

4.3.1 Interview 1

IT Solutions: Roleplay interview with Tech Experts	
System: Renting System	Stakeholder: Seller
Interviewee: Parth Patel Jeet Umat	Designation: CEO at TeQ.Prit Seller
Interviewer: Parth Santoki Mihir Doshi	Designation: Product Manager Designation: Senior Developer
Date: 20/03/2021 Time: 11:30 AM Duration: 55m Place: Google Meet	
Purpose of Interview: Sharing our idea of the project - 'Renting System.' Discussion of seller problem with Tech experts & Seller	
Summary: In order to reach as many buyers as possible through websites especially nearby in my town. There should be some assurance regarding return of the product without any harm. There should be some privacy policy regarding getting seller details by buyers. There should be a functionality to view all the buyers who have visited their product. Renter would prefer giving his/her product to someone in surroundings or the same city to easily manage delivering and returning products.	

4.3.2 Interview 2

IT Solutions: Roleplay interview with Tech Experts	
System: Renting System	Stakeholder: Buyer
Interviewee: Ayush Patel Deven Vachhani	Designation: Buyer CEO at Devsoftz
Interviewer: Prayush Dave Prit Patel	Designation: Product Manager Designation: Senior Developer
Date: 20/03/2021 Time: 11:30 AM Duration: 55m Place: Google Meet	
Purpose of Interview: Sharing our idea of the project - 'Renting System.' Discussion of buyer problem with Tech experts & Buyer	
Summary: This type of system is very useful in domains of photography. There should be some way to assure the quality of the product shown on the website. There should to some seller verification to ensure that seller on the website is genuine There should be some mechanism to be implemented to assure the state of product at the time of delivery.	

5 | Software Requirements

5.1 Functional Requirements

5.1.1 Functionalities for Buyer

- See all products:
 - In this window, buyers can see all the products that are available for rent.
- See all categories:
 - Buyer can see all the different categories. so, he(she) can easily find the categories of products that he(she) is interested.
 - The different categories like house, electronics, furniture, gadget ,essentials, etc are available.

- See products category wise:
 - Buyer can select any category that is available and can find the product of that category only.
- See one product in detail:
 - Buyer can see the product in detail and find the information of that particular product like price, model etc..
 - Buyers can see a photo and description of that item under this feature.
- Add to Wish list:
 - The Buyer will add one or more items to the wish list so he(he) finds those items easily and he(he) can checkout these items easily.
- Buy a product:
 - This basic feature allows the user to confirm his(her) purchase and check his address and later redirect him(her) to the payment gateway for further process.
- View wish list:
 - Buyer can find the products that he(he) added to the wish list.
- View My orders:
 - Buyer can find the products that he(he) took on rent earlier.
 - Buyer can also find the products that he(he) currently took on rent.
- Request for Renter Details Location:
 - Buyer can request details of the seller like the seller's location, mobile-number and address. If the seller approves the request then Buyer can see the seller details.
- View Profile:
 - In this window, Buyer can find his(her) personal details.
- FAQ section, Help and Contact us:
 - In this section buyers can find the most asked questions and their answers and he(he) can put their query also.

5.1.2 Functionalities for Seller

- See all products:
 - In this window, Sellers can only see all the products that are available for rent but can't rent.
- See all categories:
 - Sellers can see all the different categories. so, he/she can easily find the categories of products.
- See products category wise:
 - Sellers can select any category that is available and can find the product of that category only but he/she can not buy from the seller login.
- See one product in detail:
 - Sellers can see the product in detail and find the information of that particular product like price, model, etc..
 - Sellers can see photos, description of that item under this feature.
- Rent a new product:
 - Seller can add product for rent. he/she needs to submit all the necessary details to put on the rent and after clicking on the submit button the product will be available on the website for the rent.
- Manage product:
 - A seller can manage products from a product list like he/she can update a price, picture, status, or any other description of the product.
 - If a seller no longer wants to put a product on rent, he/she can remove the product from his/her product list.
- Manage Customer requests for details:
 - The Seller can see the list of Buyers who have asked for the details of the product and subsequently, send them the details they asked for.
- My Products:
 - The Seller can see the list of all products that he/she put for rent on the website.
 - Seller can remove the product from the website.
 - Seller can update the product details like he/she can change the product image, prize, description, etc...
- My Orders:
 - The Seller can see a list of all the products that he/she rented in the past.
 - The seller can also, see a list of all the product that he/she currently rented.

5.2 Non-Functional Requirements

- Usability:
 - The system should be interactive for users to be comfortable and easy-to-use. A user who interacts with the system for the first time should be able to adapt all the functionality of the system quickly. Information of all products should be easily found by the user and the process of purchasing product should be smooth.
- Performance:
 - Response time of a single operation in the system should not be more than 4-5 seconds otherwise he/she would give up on the website by getting frustrated. So the pages must be loaded faster. Increment in website traffic must not affect the system negatively.
- Security:
 - Need highly secure servers to prevent user data leaks. As the system collects some personal information and payment information which are confidential, the system must be able to keep the information safe. Users have to get permission in order to access the personal information of other users and payment information (like credit/debit card number, bank details etc.) must not be shared with anyone. Also, there is Aadhar ID number, security should be one of the key priority.
- Maintainability:
 - make the website maintainable from the initial development phase So it will reduce the time and cost to identify and resolve the system faults in the future.
- Availability:
 - The system needs to be available 24 hours and 7 days a week except the maintenance period of 1-2 hour per day.
- Responsiveness:
 - All pages must be responsive and be viewable in different device sizes – mobile, tablets and desktop. Features must be available in all viewports but can act in different ways to fit the different viewport and navigation possibilities
- Database requirements:
 - Database of users and products need to be maintained.

6 | Use Case Models

The stakeholders and actors in these system are

6.1 Buyer Use Case Models

6.1.1 Register/Sign-up for New Buyer

Use Case	Signup
Actor	New User
Description	The user registers himself by filling up the details
Pre-condition	None
Post Condition	The user is now a registered buyer on the platform. Buyer will be shown the homepage of the website.
Basic Flow:	<ul style="list-style-type: none">• The new user clicks on the Signup button and opens a form to register himself on site.• He will fill the details asked in the form like name, email id, address and password for the account.• After successfully filling all the correct and valid details, he will submit the form.
Alternate Flow/s:	If the user doesn't insert any of the valid details, he will be prompted to fill that detail with a valid entry.
	In case the user is unable to register on the platform, he can browse through the products without a registration.

6.1.2 Sign In for Registered Buyer

Use Case	Signup
Actor	Registered Buyer
Description	Buyer logs in to the system
Pre-condition	He/she must be a registered buyer.
Post Condition	Buyer is directed to the homepage of the website.
Basic Flow:	<ul style="list-style-type: none">• The buyer clicks on the Signinbutton and opens a form to login himself on site.• He will enter the username and password.• After successfully filling all the correct and valid details, he will submit the form.
Alternate Flow/s:	If the user doesn't insert any of the valid details, he will be prompted to fill that detail with a valid entry.

6.1.3 View Products

Use Case	View Products
Actor	New Buyer, Registered
Description	Buyer gets overview as well as details of all the product
Pre-condition	None
Post Condition	Registered buyers can buy the product on rent.
Basic Flow:	<ul style="list-style-type: none">• New/unregistered Buyer can view all the products that are available for rent.• Also, can select a specific product and look out for other available details.
Alternate flow:	<ul style="list-style-type: none">• Registered buyers after login can see all the products on the home page.• He/she can navigate through them, and see the primary product information like photographs of product, name and price.• Registered Buyer can then select a specific product and look at all the available details about the product.

6.1.4 Buy a product on rent

Use Case	Buy a product on rent
Actor	Registered Buyer
Description	Buyer chooses a product that he/she wants to buy.
Pre-condition	Buyer must have logged in to the system.
Post Condition	Buyer goes to the checkout page.
Basic Flow:	<ul style="list-style-type: none">• After viewing the product, the user will click on the buy now button.• Then, he will be shown the checkout option.

6.1.5 Search

Use Case	Search
Actor	Buyer
Description	Buyer searches for specific products by product title.
Pre-condition	Buyer is on the 'All Products' or Home Page.
Post Condition	None
Basic Flow:	<ul style="list-style-type: none">• Buyer is on the 'All Products' page.• Then, clicks on the search bar, and enters the keyword for search.• He/she will be shown the results of his search.

6.1.6 Select by Category

Use Case	Select by Category
Actor	Buyer
Description	Buyer chooses to look for products for specific categories.
Pre-condition	None
Post Condition	None
Basic Flow:	<ul style="list-style-type: none">• Buyer will click on the Categories button.• He will be shown the Categories of Products present on the platform.• He can select a specific category of all the mentioned.

6.1.7 Add to Wishlist

Use Case	Add to wishlist
Actor	Buyer
Description	Buyer adds product to his/her wishlist.
Pre-condition	Must have logged in to the system.
Post Condition	Wishlisted products will be visible in the Wishlist page of the user profile.
Basic Flow:	<ul style="list-style-type: none">• Buyer after selecting a specific product, will click on 'Add to Wishlist' button• The product will be added to his/her 'Wishlist' page.

6.1.8 Request Seller Details

Use Case	Request Seller Details
Actor	Buyer
Description	Buyer sends a request to get details about the seller.
Pre-condition	Must have logged in to the system.
Post Condition	Requests will be sent to Seller.
Basic Flow:	<ul style="list-style-type: none">• Buyer after selecting a single product can click on request seller details.• Buyer will get a popup of Requests Sent on the screen.

6.1.9 Checkout

Use Case	Checkout
Actor	Buyer
Description	Buyer will confirm his purchase of the product on rent.
Pre-condition	Must have logged in to the system.
Post Condition	Order will be visible in MyOrders.
Basic Flow:	<ul style="list-style-type: none">• After looking on the details of the product and clicking on 'Buy Now', he/she will be directed to 'Checkout' option• He will display the details of purchase on the Checkout page, and on confirmation, the product will be updated in his orders.

6.2 Seller Use Case Models

6.2.1 Register/Sign-up for New Seller

Use Case	Signup
Actor	New Seller
Description	The user registers himself by filling up the details
Pre-condition	None
Post Condition	The user is now a registered seller on the platform. Sellers will be shown the homepage of the website.
Basic Flow:	<ul style="list-style-type: none">• The new user clicks on the Signup button and opens a form to register himself on site.• He will select the seller out of the option, fill the details asked in the form like name, email id, address and password for the account.• After successfully filling all the correct and valid details, he will submit the form.
Alternate Flow/s:	If the user doesn't insert any of the valid details, he will be prompted to fill that detail with a valid entry.
	In case the user is unable to register on the platform, he can browse through the products without registration.

6.2.2 Sign In Registered Seller

Use Case	Sign In
Actor	Registered Seller
Description	Seller Logs in to the system
Pre-condition	He/she must be a registered seller.
Post Condition	Seller is directed to the homepage of the website.
Basic Flow:	<ul style="list-style-type: none">• The seller clicks on the Sign In button and opens a form to login himself on site.• He will enter the username and password.• After successfully filling all the correct and valid details, he will submit the form.
Alternate Flow/s:	If the user doesn't insert any of the valid details, he will be prompted to fill that detail with a valid entry.

6.2.3 Rent New Product

Use Case	View Products
Actor	New Seller, Registered Seller
Description	Seller gets overview as well as details of all the product
Pre-condition	None
Post Condition	None(Seller won't be shown buying option from seller account)
Basic Flow:	<ul style="list-style-type: none">• New/unregistered sellers can view all the products that are available for rent.• Also, can select a specific product and look out for other available details.
Alternate flow:	<ul style="list-style-type: none">• Registered buyers after login can see all the products on the home page.• He/she can navigate through them, and see the primary product information like photographs of product, name and price.• Registered Buyer can then select a specific product and look at all the available details about the product.

6.2.4 Manage Product

Use Case	Rent New Product
Actor	Registered Seller
Description	Seller adds a new product to the platform.
Pre-condition	He/she must be a registered seller.
Post Condition	New Product Successfully Added.
Basic Flow:	<ul style="list-style-type: none">• Seller clicks on the Add New Product button.• He will be shown a form to fill the details about the product like product name, photograph, price of rent, format of price, end-date and availability status, category and description.• Clicking on submit he/she can see the product on the MyProducts page.
Alternate Flow/s:	If the user doesn't insert any of the valid details, he will be prompted to fill that detail with a valid entry.

6.2.5 Accept/Deny Request

Use Case	Manage Product
Actor	Register Seller
Description	The Seller Updates the details or delete the product
Pre-condition	He/she must be a registered seller.
Post Condition	Product description will be updated or product will be deleted.
Basic Flow:	<ul style="list-style-type: none">• Seller clicks on the Manage Product button.• He/she will be shown to choose the option between Update and delete.• If he/she chooses an update then he can change any details field like photo, price, description etc..• If he/she chooses a delete then the product will be deleted from the website.

6.2.6 Select by Category

Use Case	Accept/Deny Request
Actor	Registered Seller
Description	Sellers can see the request and accept/deny the request.
Pre-condition	He/she must have added a minimum of one product.
Post Condition	The buyer who sent the request will get the details.
Basic Flow:	<ul style="list-style-type: none">• After receiving the request from the buyer, the seller can see the requests in 'My Requests'.• On accepting the request, the buyer will get the relevant contact information of the seller like address and email-id.
Alternate Flow/s:	<ul style="list-style-type: none">• If the seller declines the request, the buyer will be shown a message of "Seller declined the request".

6.2.7 View Products

Use Case	Select by Category
Actor	Seller
Description	Seller chooses to look for products for specific categories.
Pre-condition	None
Post Condition	None
Basic Flow:	<ul style="list-style-type: none">• Seller will click on the Categories button.• He/she will be shown the Categories of Products present on the platform.• He/she can select a specific category of all the mentioned.

7 | Process Model

Keeping in mind the structure of requirements and discussions, we have come to a consensus of choosing **Incremental Waterfall** model for our project management. Points we took into consideration while discussions:

- The requirements for the project are quite constant and doesn't change over time. Thus after getting hand of the SRS, team can get started on preparing modules and no need to change the SRS again for same.
- Our version of renting system is inspired from the existing e-commerce system, thus requirements are steady
- We can implement the project in different modules or builds and start deploying it after parallely testing the system.
- The system is flexible to change in later stages too. For instance, keeping in mind the need of the hour, if system needs to be used to help find resources for Covid patients, then those features can be updated in the upcoming module.

This points brought out by discussions with our group members and mentor, helped us in deciding the process model.

As Incremental Waterfall has its implementation based on completing modules or builds one by one, below mentioned are some builds that we framed and completed successfully:

- Frontend
 - Build 1: Project Setup & Buyer Side Page Design
 - Build 2: Seller Side & General Page Design
 - Build 3: API Calling & Working Model
- Backend
 - Build 1: Schema Design & Basics Routes
 - Build 2: Advanced Routes
 - Build 3: Fix Code & Enhancement