

REQUIREMENTS ANALYSIS DOCUMENT  
FOR  
THE FILL LABS BUSINESS ANALYSIS  
MANAGER TRAINEE PROGRAM  
CASE STUDY

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## CHANGE HISTORY

This document is the first version of *the Equipment Rental feature*, Requirements Analysis and Specification that was released in November, 2023. The possible subsequent changes and updates will be mentioned in this part of the next reports.

## PREFACE

The document contains the Requirements Analysis and Specifications of *the Equipment Rental feature* for an Experience Booking Project. The mission of the project is to develop the Equipment Rental feature and ensure the feature aligns with the platform's goals and provides an exceptional user experience. This is a case study for Business Analysis Manager Trainee program for the Fill-Labs.

The goal of the Requirements Analysis and Specifications is to describe the requirements of *the Equipment Rental feature* for a booking platform. This system is prepared according to IEEE standards [1,2,3]. The software requirements specification is in content compliance with the IEEE standard 1058-1998 in which the contents of this standard are rearranged and a mapping is provided. That is, the content compliant Software Requirements Specifications is mapped into various clauses and subclauses of the IEEE standard 1058-1998.

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# 1 INTRODUCTION

## 1.1 Purpose

The aim of the case study document is

- to identify what *the Equipment Rental feature* is supposed to do,
- to cite explicitly all specifications, interfaces and requirements.

This document is the basis upon which all design, coding, and testing will be based. It outlines any constraints and design issues that would affect the product's performance and reliability.

The purpose of *the Equipment Rental feature* implementation is to enrich the booking platform, making it a versatile and user focused platform that not only facilitates experience booking but also seamlessly integrates equipment rental into the overall user journey.

This significant addition aims to meet user demands, promote platform growth and solidify the platform's position in the competitive landscape.

## 1.2 Scope of the Product

The scope of *the Equipment Rental feature* implementation project contains the design, development, and integration of a robust and user-friendly equipment rental system within the existing Experience Booking platform.

The project will focus on providing users with a seamless and intuitive experience to explore, reserve, and review equipment associated with various experiences offered on the platform.

The primary objectives of *the Equipment Rental feature* are

- to enhance enjoyable user experience with implementing user centric design principles and developing interfaces that simplifies the process of exploring and reserving equipment.
- to improve user feedback through the implementation of a rating and review system.
- to integrate a secure payment gateway to ensure the safety of user transactions and streamline the payment process.

### 1.3 Definitions, Acronyms and Abbreviations

**CAPTCHA:** Completely Automated Public Turing test to tell Computers and Humans Apart.

**Experience Booking:** refers to the process of reserving and participating in curated activities or events, often facilitated through online platforms, providing individuals with personalized and memorable leisure experiences. i.e. Experiences features in Tripadvisor and Airbnb. [4,5]

**Equipment Rental feature:** is a feature involves that allows users to browse, reserve, and utilize various types of equipment.

**IEEE:** Institute of Electrics & Electronics Engineering.

**HTTPS:** Hyper Text Transfer Protocol Secure.

**PCI DSS:** Payment Card Industry Data Security Standard.

**TCP/IP:** Transmission Control Protocol/Internet Protocol.

**UI:** User Interface.

**URL:** Uniform Resource Locator.

**Users:** The people who make use of the system e.g., customers, hosts, administrators.

**WBS:** Work Breakdown Structure

### 1.4 References

[1] IEEE Std 1058-1998, IEEE Standard for Software Management Plans.

[2] IEEE Std 830-1998. IEEE Recommended Practice for Software Requirements Specifications.

[3] IEEE Std 1016-1998, IEEE Recommended Practice for Software Design Descriptions.

[4] [www.tripadvisor.com](http://www.tripadvisor.com)

[5] [www.airbnb.com](http://www.airbnb.com)



## **2 OVERALL DESCRIPTION**

### **2.1 Product Perspective**

#### **2.1.1 System Interfaces**

*The Equipment Rental feature* is designed as a new feature for a current booking platform. It will be in a standalone application with no extra dependencies on system level. The feature will be launched after all developing and testing processes will be done.

#### **2.1.2 User Interfaces**

- The interfaces of the feature should be accessible on mobile and web versions of the platform.
- The UI must be user friendly and easy to understand.
- The user interfaces will be designed to include these following specifications :
  - Search, filter and browsing system,
  - Rating and review system for rented equipment,
  - Secure payment gateway system

#### **2.1.3 Hardware Interfaces**

There is no defined hardware interface for *the Equipment Rental feature*.

#### **2.1.4 Software Interfaces**

Software interfaces, frameworks, tools and requirements will be specifically defined in the later versions of the report. (according to the web and native mobile platform versions)

### 2.1.5 Communication Interfaces

For the web-based version of the application, it should be considered communication between server and client sides of project will be done using TCP/IP protocols over HTTPS. URL address will be provided to access application through the Internet.

Client and server sides of application will communicate through port number 80 and different URLs for different purposes.

### 2.1.6 Operations

- Administrators
  - User management
  - Technical support
  - Platform enhancement
  - Platform security
- Hosts
  - Creating/adding the equipment to the platform
  - Editing and deleting the equipment
  - Listing the rentals and customers
  - Listing equipment
  - Communication with customers
  - View and interact with the feedbacks
  - Receiving the payment
  - Accessing payment history (listing)
- Customers
  - Explore and search
  - Reserve equipment
  - Providing ratings and reviews
  - Managing rentals and reservations
  - Accessing payment history (listing)
  - Selecting and managing payment provider

## 2.2 Product Functions

1. ***Search for an equipment function:*** provide ability for users to search equipment through the name.
2. ***Listing function:*** list the needed items (e.g., equipment, history, reviews etc.)
3. ***Feedback function:*** provide feedback with reviews and rating pros & cons.
4. ***Reserving function:*** pick the item and make a reservation.
5. ***Creating an item function:*** give users the ability to create a new item.
6. ***Editing an item function:*** give users the ability to edit their operation.
7. ***Deleting an item function:*** give users the ability to delete their operation.
8. ***Chatting system:*** provide communication between the users.
9. ***Payment:*** Collaborate with a PCI DSS compliant payment gateway provider for secure and efficient payment processing. Integrate the payment provider to the system to be able to use the payment procedures.

## 2.3 User Characteristics

***Administrators:*** The people who oversee and manage the overall operation of the platform. They maintain the system.

***Customers:*** The people who use the system for renting/place an order. They can search and view the equipment. From the listed equipments, they can pick they want and make a reservation. Also, they can easily complete their payments thanks to the safe and user-friendly frame of the system. Moreover, they are able to generate feedbacks about their order.

***Hosts:*** The people who provide experiences and rent out the equipment. They manage their products on the system. They can create, edit and delete the items on the system. They receive the payments. Also, they can reply to the feedbacks.

## 2.4 Constraints

- *The Equipment Rental feature* is designed as a new feature for a current booking platform. It belongs to the main platform.
- This feature is available for three types of users, which are customers, hosts and administrators.

## 2.5 Assumptions and Dependencies

- All the users are responsible for the truth of their information.
- It is the responsibility of the hosts to make the updates of equipment/products.

# 3 REQUIREMENTS

## 3.1 Review and Rating System

The review and rating system implemented within the Equipment rental feature, serves as an encouragement transparency, trust, and informed decision-making among users.

This system should include the requirements that mentioned below:

- ***Rating mechanism:*** Implement a five-star rating system to allow users to express the overall satisfaction level with the rented equipment.
- ***Review submission:*** Provide users with a user-friendly interface to submit written reviews along with ratings. Include character limits and formatting options to maintain concise and structured reviews.
- ***Anonymous and verified reviews:*** Allow users to submit reviews anonymously or encourage verified reviews tied to user accounts for authenticity.
- ***Managing and moderation of reviews:*** Implement a moderation system to review and approve/disapprove user-generated content. Define moderation criteria to filter out inappropriate or irrelevant content.
- ***Replies:*** Allow hosts to address any concerns, express gratitude for positive feedback, or provide additional information.
- ***Storage and database:*** Develop a backend system to store and manage review and rating data efficiently.

- ***Integration with user profiles:*** Accessible user profiles based on their reviews and ratings. Hosts may also have profiles showcasing their overall performance based on user reviews.
- ***Fraud prevention:*** Implement measures to prevent fake reviews, such as CAPTCHA verification during review submission.
- ***User reporting:*** Provide users with the ability to report suspicious or fraudulent reviews. Establish a protocol for investigating reported reviews promptly.
- ***Language support:*** Allow users to submit reviews in their preferred language.
- ***Feedback system:*** It helps to ensure that reviews adhere to community guidelines, also promoting accurate, authentic and constructive feedback.
- ***Notification system:*** Users receive notifications when new reviews are submitted for their respective transactions. This feature encourages timely responses and engagement.

### 3.2 Payment System

Payment system of *the Equipment Rental feature* is designed to provide a straightforward and trustworthy mechanism for users to make payments for equipment rentals.

This system should include the requirements that mentioned below:

- ***Transparent pricing:*** The platform displays transparent pricing, including rental fees, deposits, and any other applicable charges. Users are informed of the total cost before confirming their reservation.
- ***Multiple payment options:*** The payment system supports a variety of payment options to accommodate user preferences and enhance convenience. (e.g. credit/debit cards and digital wallets)
- ***Secure payment gateway:*** Transactions are processed through a secure payment gateway that adheres to industry standards, including PCI DSS compliance. This ensures the confidentiality and integrity of users' financial information.
- ***Payment confirmation:*** Users receive confirmation of successful payment, along with a detailed invoice outlining the transactions.
- ***Refund and cancellation policies:*** contains clear refund and cancellation policies, outlining the conditions under which users may be eligible for refunds or if cancellation fees apply.
- ***Periodic billing:*** generates periodic billing statements summarizing their earnings from equipment rentals for hosts.

### **3.3 Software System Attributes**

#### **3.3.1 Reliability**

- The platform should consistently provide accurate and reliable information about equipment availability, rental pricing, and transaction details. This builds trust among users and hosts, contributing to the overall reliability of the system.

#### **3.3.2 Availability**

- The platform will be available for use 24/7 according to the user needs.

#### **3.3.3 Security**

- This involves implementing encryption, secure authentication mechanisms, and adhering to best practices for data protection.

#### **3.3.4 Maintainability**

- The system should be designed in a way that facilitates easy maintenance and updates. This includes well-organized code, clear documentation, and modular architecture to simplify modifications or additions.

#### **3.3.5 Compliance**

- The system should adhere to legal and industry-specific regulations and standards. This includes compliance with data protection laws, financial regulations, and any other relevant legal requirements.

## 4 PROJECT ORGANIZATION

### 4.1 Managerial Process

Titles	Roles
<b>Project Manager</b>	<ul style="list-style-type: none"><li>• Oversee the entire project, including the implementation of the Equipment Rental Feature.</li><li>• Coordinate activities, manage risks, and ensure the project stays on schedule and within budget.</li><li>• Serve as the primary point of contact for stakeholders.</li></ul>
<b>Product Owner</b>	<ul style="list-style-type: none"><li>• Define and prioritize features and functionalities for the Equipment Rental Feature.</li><li>• Ensure alignment with overall project goals.</li><li>• Collaborate with the development team to deliver a product that meets user needs.</li></ul>
<b>Development Team</b>	<ul style="list-style-type: none"><li>• Design and implement the Equipment Rental Feature, including user interface and backend functionality.</li><li>• Collaborate with other team members for seamless integration.</li><li>• Test and debug code to ensure a high-quality product.</li><li>• Sub-titles and Roles :<ul style="list-style-type: none"><li>○ Software Developers</li><li>○ UI/UX Designers</li><li>○ System Architects</li><li>○ Database Administrators</li></ul></li></ul>
<b>QA Team</b>	<ul style="list-style-type: none"><li>• Test the Equipment Rental Feature for functionality, usability, and performance.</li><li>• Identify and report bugs or issues.</li><li>• Collaborate with the development team to address and resolve problems.</li></ul>

*Table 1: Staff Plan and Roles for the Equipment Rental Feature*

## **4.2 Development and Testing**

The development phase initiates with a comprehensive requirements analysis, progressing through systematic design, coding, and integration efforts. Concurrently, the testing process is executed with precise planning, involving the creation of detailed test cases, their methodical execution, and thorough validation of the feature's functionalities.

## **4.3 Deployment and Rollout**

This phase begins with the release of the initial product. Simultaneously, a comprehensive user manual is prepared and serving as a detailed guide for users to navigate the new feature effectively.

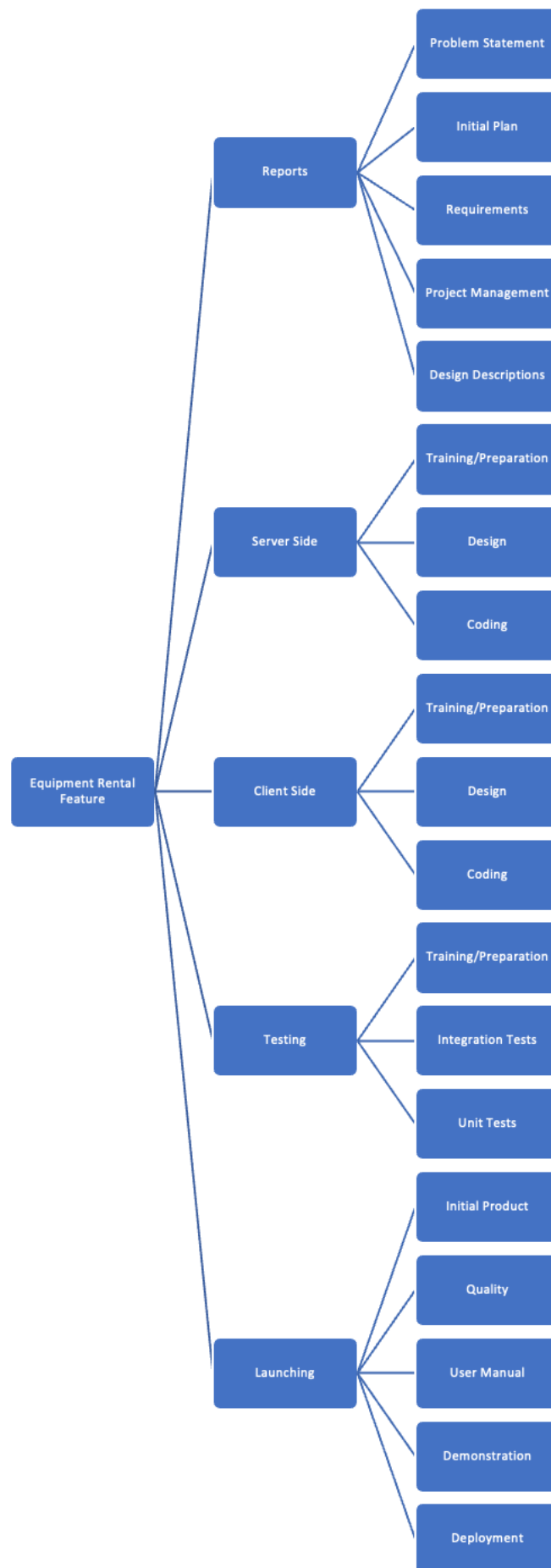
The launching is the process where stakeholders and end-users are provided with hands-on demonstrations of the Equipment Rental Feature. This interactive showcase aims to familiarize users with the feature's functionalities, enhancing their overall experience and promoting user confidence.

## **4.4 Monitoring and Optimization**

The Monitoring and Optimization phase represents to refining and enhancing the system's performance and user experience. Through real-time monitoring, data analytics, and proactive issue identification, this phase ensures the ongoing optimization of the feature. User feedback integration and performance metrics analysis play important role in guiding iterative improvements and promoting a dynamic environment that aligns with evolving user needs.

According to these mentioned phases, work plan of *the Equipment Rental feature* is schematized in Figure 1 below.





***Figure 1: WBS of the Equipment Rental Feature***

