

# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

1.0  
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## 1 Introduction

### 1.1 Purpose of the system

The primary purpose of this project is to design and develop a web and mobile platform for service-based companies to manage their appointments, employees, services and resources efficiently. Many companies currently rely on manual methods or multiple disconnected tools, which can lead to scheduling conflicts, inefficient resource allocation, and poor communication with customers. This system will solve these problems by providing a single, reliable platform for all scheduling and management tasks, thereby improving operational efficiency and client satisfaction.

### 1.2 Scope of the system

The system is a multi-tenant application that will support four distinct user roles with specific permissions: Super Admin, Branch Manager, Employee, and Customer.

The scope of the system includes the following core functionalities:

- **Super Admin:** Performs CRUD operations for companies, and branch managers.
- **Branch Manager:** Performs CRUD operations for employees, manages services, assigns services to employees, manages resources, and views employee calendars and usage reports.
- **Employee:** Views schedules, and manages appointment requests.
- **Customer:** Views available services and resources, optionally selects a specific employee, books appointments in available time slots and manage the appointment.
- **Core Features:** The system includes comprehensive calendar management, modules for service and resource management, and a notification system for appointment confirmations, reminders, and cancellations.

### 1.3 Objectives and success criteria of the project

#### **Objectives:**

- To develop a user-friendly platform that simplifies the appointment booking process for customers.
- To reduce the administrative workload for Branch Managers and Employees by automating scheduling tasks.
- To eliminate scheduling conflicts, such as double bookings, by accurately filtering available time slots.
- To provide clear and accessible calendar views tailored to the permissions of each user role.

#### **Success Criteria:**

- A Customer can successfully book a new appointment without conflicts, and the time slot becomes unavailable.
- An Employee can log in, view their daily appointments, and approve or deny a pending request.
- A Manager can successfully create a new service and assign it to an Employee.



- A Customer receives an email confirmation immediately after their appointment request is approved.
- The system correctly restricts access based on user roles (e.g., an Employee cannot access Manager-level functions).

## 1.4 Definitions, acronyms, and abbreviations

- **CRUD:** An acronym for Create, Read, Update, and Delete. These are the basic operations for managing data.
- **Customer:** The end-user who books an appointment.
- **Employee:** The staff member who provides the service for the appointment.
- **Branch Manager:** The user who manages employees, services, and resources for a company.
- **Super Admin:** The highest-level administrator, who manages the entire system and all businesses.

## 1.5 References

- Object-Oriented Software Engineering, Using UML, Patterns, and Java, 3rd Edition, by Bernd Bruegge and Allen H. Dutoit, Prentice-Hall, 2010, ISBN 10: 0136066836.
- Headfirst Design Patterns: Building Extensible and Maintainable Object Oriented Software, 2nd Edition, O'Reilly Media, 2020. introduction.

## 1.6 Overview

This document outlines the plan for the appointment management system. **Section 1** provides an introduction. **Section 2** describes the current implementations of appointment systems. **Section 3** details the functional requirements for each user role and explains the page structure and user flow. **Section 4** covers the non-functional requirements, including security and performance.

## 2 Current system

The current system used in many companies today is not a single tool or system but a collection of disconnected tools that include manual systems such as paper-pen based logging and phone calls, and a series of tools such as calendars, spreadsheets, and communication tools. The problem with the current model is that it lacks a centrally coordinated platform. This directly results in problematic issues such as scheduling conflicts and inefficient resource allocation in terms of double-booking employees or equipment.

## 3 Proposed system

### 3.1 Overview

An Appointment Scheduling and Resource Management System provides a complete platform designed to automate the scheduling, management, and tracking of service appointments. Designed as a multi-tenant solution, the system allows various independent companies or organizations to utilize the platform, each managing their own separate resources and services. The system integrates web and mobile interfaces to ensure accessibility for all users involved in the booking process. The core functionality centers on efficiently matching customer appointment requests with the available time slots of necessary resources (e.g., employees, tools), while providing managers with the necessary tools for



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resource management and service assignment. The system's primary goal is to minimize manual coordination, reduce scheduling conflicts, and provide a clear interface for scheduling and resource management.

### 3.2 Functional requirements

*Functional requirements describes the high-level functionality of the system.*

#### **SYSTEM**

ID	Requirement Description
FR-SYS-001	The system shall provide an Email Notification Service for transactional communications (confirmation, cancellation, reminder).
FR-SYS-002	The system shall provide a Calendar Module for managing time slot availability.
FR-SYS-003	The system shall not display slots that are already booked to the customer to prevent double booking.
FR-SYS-004	The system shall display a Login Screen for Super Admin, Branch Manager, Employee and Customer roles.
FR-SYS-005	The system shall provide a Register Screen for Customer.
FR-SYS-006	The system shall provide a "Reset Password" function for authenticated user roles.



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## SUPER ADMIN

ID	Requirement Description
FR-SA-001	The system shall allow the Super Admin to Create, Read, Update, and Delete (CRUD) company entries.
FR-SA-002	The system shall allow the Super Admin to Create, Read, Update, and Delete (CRUD) Manager accounts.
FR-SA-003	The system shall assign a newly created Branch Manager account to a specific Company.
FR-SA-004	The system shall display the Company Management Page upon successful Super Admin login.

## MANAGER

ID	Requirement Description
FR-MGR-001	The system shall allow the Branch Manager to Create, Read, Update, and Delete (CRUD) Employee accounts within their company.
FR-MGR-002	The system shall allow the Branch Manager to define the Working Shift Schedule (start and end times) for each Employee.
FR-MGR-003	The system shall allow the Branch Manager to Create, Read, Update, and Delete (CRUD) Service entries.
FR-MGR-004	The system shall allow the Branch Manager to specify the required Time Duration (e.g., 15min, 2 hours) for each Service.
FR-MGR-005	The system shall allow the Branch Manager to Assign a Service skill to Employees.
FR-MGR-006	The system shall allow the Branch Manager to Create, Read, Update, and Delete (CRUD) Resources.
FR-MGR-007	The system shall allow the Branch Manager to Assign a Resource to a specific Service.
FR-MGR-008	The system shall allow the Branch Manager to set a Resource's status to "Out of Service" by selecting the resource and the duration.



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FR-MGR-009	The system shall display a Unified Calendar View showing all Employee schedules.
FR-MGR-010	The system shall allow a Branch Manager to select an Employee and display the employee's schedule.
FR-MGR-011	The system shall display a Modal Window showing sequential appointment details when a day is selected on the calendar.
FR-MGR-012	The system shall allow the Manager to generate a report detailing total appointments and service usage frequency for a selected time period.
FR-MGR-013	The system shall allow the Manager to generate a Resource Utilization Report for a selected time period.

## EMPLOYEE

ID	Requirement Description
FR-EMP-001	The system shall display the Employee's Personal Day/Week/Monthly Schedule upon login.
FR-EMP-002	The system shall allow an Employee to select other Employees and display their schedule.
FR-EMP-003	The system shall allow the Employee to view the confirmed appointments of Other Employees.
FR-EMP-004	The system shall display a list of all Pending Appointment Requests.
FR-EMP-005	The system shall allow the Employee to Approve a pending appointment request.
FR-EMP-006	The system shall allow the Employee to Reject a pending appointment request.
FR-EMP-007	The system shall automatically trigger an Email Notification when an Employee approves or rejects a request.



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**CUSTOMER**

ID	Requirement Description
FR-CUS-001	All customer interactions within the system require authentication. Users must be registered and logged in before accessing any system functionality, including browsing, viewing, or booking services.
FR-CUS-002	The system shall display the Appointment Booking Page requiring user authentication.
FR-CUS-003	The system shall display a list of available Companies after successful login, allowing the Customer to choose their desired service provider.
FR-CUS-004	The Customer should have access to the appointment creation form.
FR-CUS-005	The system shall allow the Customer to select a desired Service while creating a new appointment request
FR-CUS-006	The system shall allow the Customer to optionally select a specific Employee for the chosen Service when creating a new appointment request
FR-CUS-007	The system shall filter the calendar to display only time slots where the Service, Employee, and required Resources are available while creating a new appointment request
FR-CUS-008	The system shall store a new request with a PENDING status upon Customer submission while creating a new appointment request
FR-CUS-009	The system shall allow the Customer to Create an Account to manage their appointments.
FR-CUS-010	The system shall allow the Customer to Cancel a confirmed appointment via their management screen.
FR-CUS-011	The system shall automatically send an Email Confirmation when the appointment status changes to Approved.
FR-CUS-012	The system shall provide a messaging mechanism that enables the Customer to communicate with the company's branch members.



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### 3.3 Nonfunctional requirements

#### 3.3.1 Usability

ID	Requirement Description
NFR-U-001	The system shall allow an experienced Manager to successfully create a new service and assign resources to it without consulting the user manual (Learnability).
NFR-U-002	The system shall automatically suggest available time slots immediately after the Service and Employee are selected by the Customer.
NFR-U-004	Users must be able to find desired service within three clicks from the customer homepage.
NFR-U-003	The system shall include context-sensitive tooltips for all Manager-level CRUD fields explaining the purpose of each field.

#### 3.3.2 Reliability

ID	Requirement Description
NFR-R-001	The core scheduling engine shall maintain an operational availability of 99.9% uptime during scheduled operational hours.
NFR-R-002	The system shall handle and recover from errors without data loss or incorrect data processing.
NFR-R-003	The Notification Service shall reliably deliver all time-critical emails, achieving a delivery success rate of 99%.
NFR-R-004	The system must perform without failure in 95% of use cases during a month.

#### 3.3.3 Performance

ID	Requirement Description
NFR-P-001	Appointment Availability Queries (FR-CUS-005) shall complete and return results to the customer in less than 2 seconds.
NFR-P-002	The system shall support a load of 100 concurrent customer booking requests per company without performance degradation.



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NFR-P-003	Database operations for monthly calendar views shall be optimized to render within 3 seconds of the request.
NFR-P-004	All interactive elements shall provide clear visual feedback, resulting in a state change or loading indicator within 500 milliseconds.
NFR-P-005	The Calendar Views for Managers and Employees shall load all necessary schedule data within 3 seconds of page access.

### 3.3.4 Supportability

ID	Requirement Description
NFR-S-001	The system shall provide comprehensive logging for all critical system events, allowing technical support to trace and diagnose errors in less than 30 minutes.

### 3.3.5 Implementation

ID	Requirement Description
NFR-I-001	The backend shall be implemented using the Spring Boot framework (Java) to provide robust, object-oriented API services.
NFR-I-002	The frontend web interface shall be developed using React and comply with Progressive Web App (PWA) standards.
NFR-I-003	The implementation shall utilize automated testing, maintaining a minimum of 80% code coverage for all core scheduling and business logic services.
NFR-I-004	The system shall be developed and managed using an API first approach.

### 3.3.6 Interface

ID	Requirement Description
NFR-N-001	The system shall successfully connect and communicate with the chosen External SMTP Service.



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### 3.3.7 Packaging

ID	Requirement Description
NFR-Pa-001	The backend application (Spring Boot) shall be packaged as a single, self-contained, executable .jar file.
NFR-Pa-002	The frontend application (React PWA) shall be packaged as a set of optimized static files (HTML, CSS, JS) ready for deployment on a web server.

### 3.3.8 Legal

ID	Requirement Description
NFR-L-001	The system shall enforce Role-Based Access Control (RBAC) to ensure users only access the data and functions appropriate for their assigned role.

## 3.4 System models

### 3.4.1 Scenarios

#### 3.4.1.1 Scenario 1: Customer Books a Haircut Appointment

**Actor:** Sarah (Customer)

**Context:** Sarah wants to book a haircut at "Style Studio" for next Tuesday afternoon.

**Flow of events:**

1. Sarah opens the appointment booking website and sees a list of available companies
2. She selects "Style Studio" from the list
3. Sarah browses the available services and selects "Haircut - 30 minutes"
4. Optionally she chooses her preferred stylist, John, from the employee list
5. The system shows available time slots for Tuesday afternoon when John, the haircut service, and necessary equipment are all available
6. Sarah selects the 2:00 PM slot and submits her request
7. The system creates the appointment with a "PENDING" status
8. John reviews the request on his employee dashboard and approves it
9. Sarah receives an email confirmation that her appointment is confirmed for Tuesday at 2:00 PM

**Result:** Sarah successfully booked her haircut appointment and received confirmation.

#### 3.4.1.2 Scenario 2: Employee Manages Daily Appointments

**Actor:** John (Employee - Hair Stylist)



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**Context:** John arrives at work and wants to check his calendar for the day.

### Flow of events:

1. John logs into the system using his employee credentials
2. The system displays Jhon's appointments for today.
3. He sees three confirmed appointments and two pending requests
4. John notices a pending request from a new customer, Michael, for 11:00 AM
5. He checks his calendar and sees he has a free slot at that time
6. John approves Michael's request
7. The system automatically sends an email confirmation to Michael
8. John reviews another pending request but notices it conflicts with his lunch break
9. He rejects this request with a polite message
10. The customer receives an email notification about the rejection

**Result:** John successfully managed his appointment requests and his calendar is now clear for the day.

### 3.4.1.3 Scenario 3: Branch Manager Creates New Service and Assigns Resources

**Actor:** Emma (Branch Manager)

**Context:** Emma wants to add a new "Massage" service to her spa's offerings.

### Steps:

1. Emma logs into the system
2. She navigates to the "Services" section and clicks "Add New Service"
3. Emma fills in the service details:
  - a. Name: "Deep Tissue Massage"
  - b. Duration: 60 minutes
  - c. Description: "Therapeutic massage targeting muscle tension"
4. She assigns this service to two qualified employees: Lisa and Mark
5. Emma adds required resources: "Massage Table 1" and "Aromatherapy Set"
6. She saves the new service
7. The system confirms the service is now active and available for booking
8. Emma checks the unified calendar to verify Lisa and Mark's schedules
9. She notices that "Massage Table 2" needs maintenance
10. Emma marks it as "Out of Service" for the next three days

**Result:** The new massage service is now available for customers to book, and resources are properly managed.

### 3.4.1.4 Scenario 4: Super Admin Sets Up New Company

**Actor:** Super Admin

**Context:** A new fitness center called "FitZone" wants to use the appointment system.

### Steps:

1. Admin logs into the super admin panel
2. He navigates to "Company Management" and clicks "Add New Company"



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3. Admin enters the company details:
  - a. Name: "FitZone"
  - b. Address: "123 Health Street"
  - c. Phone: "+1-555-0123"
  - d. Email: "fitzone@gmail.com"
4. He saves the new company entry
5. Admin creates a branch manager account for Jennifer, who will manage FitZone
6. He assigns Jennifer's account to the FitZone company
7. Admin sends login credentials to Jennifer via email
8. Jennifer receives the email and logs in for the first time
9. She immediately starts adding her employees and services
10. The system is now ready for FitZone to accept customer appointments

**Result:** A new company was successfully onboarded to the platform.

### 3.4.1.5 Scenario 5: Customer Cancels Appointment

**Actor:** Lisa (Customer)

**Context:** Lisa booked a yoga class but got sick and needs to cancel.

**Steps:**

1. Lisa logs into her account
2. She views her upcoming appointments
3. Lisa selects her yoga class appointment scheduled for tomorrow morning
4. She clicks the "Cancel Appointment" button
5. The system asks for confirmation
6. Lisa confirms the cancellation
7. The system immediately frees up the time slot
8. The instructor receives a notification about the cancellation
9. Lisa receives an email confirming the cancellation
10. The time slot becomes available for other customers to book

**Result:** Lisa cancelled her appointment and the system updated availability accordingly.

### 3.4.1.6 Scenario 6: Customer Registration

**Actor:** Alex (New Customer)

**Context:** Alex heard about "BeautyHub Salon" from a friend and wants to create an account to book a facial treatment appointment.

**Flow of events:**

1. Alex visits the appointment booking application for the first time
2. The homepage displays a list of available companies, including "BeautyHub Salon"
3. Alex clicks on "BeautyHub Salon" to view their services
4. The system shows the service catalog but displays a message: "Please register or login to book an appointment"
5. Alex clicks the "Register" button on the login screen
6. The registration form appears with the following fields:
  - a. Full Name



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- b. Email Address
- c. Phone Number
- d. Password
- e. Confirm Password
7. Alex fills in the form:
  - a. Full Name: "Alex Johnson"
  - b. Email: "[alex.johnson@email.com](mailto:alex.johnson@email.com)"
  - c. Phone: "+1-555-0199"
  - d. Password: "SecurePass123!"
  - e. Confirm Password: "SecurePass123!"
8. Alex clicks the "Create Account" button
9. The system validates the information:
  - a. Checks if the email is already registered (it's not)
  - b. Verifies password meets security requirements (it does)
  - c. Confirms both passwords match (they do)
10. The system creates the new customer account
11. Alex receives a confirmation message
12. The system automatically logs Alex in and redirects to the appointment booking page
13. Alex can now see the full service list and available time slots for "BeautyHub Salon"

**Result:** Alex successfully created a customer account and can now book and manage appointments.

### 3.4.1.7 Scenario 7: Password Reset

**Actor:** Michelle (Customer)

**Context:** Michelle hasn't used the appointment system for several months and forgot her password when trying to book a new appointment.

#### Flow of events:

1. Michelle visits the appointment booking application
2. The system displays the login screen
3. Michelle enters her email: "[michelle.brown@email.com](mailto:michelle.brown@email.com)"
4. She realizes she can't remember her password
5. Michelle clicks the "Forgot Password?" link below the login form
6. The system displays the password reset page with an email input field
7. Michelle enters her email address: "[michelle.brown@email.com](mailto:michelle.brown@email.com)"
8. She clicks the "Send Reset Link" button
9. The system validates that the email exists in the database (it does)
10. The system generates a unique password reset token with 1-hour expiration
11. The system sends an email to Michelle with the reset link
12. Michelle receives the email with subject: "Password Reset Request - DentalCare Clinic"
13. She clicks the reset link in the email
14. The system validates the token (it's valid and not expired)
15. The password reset form appears with two fields:
  - a. New Password
  - b. Confirm New Password
16. Michelle enters her new password: "NewSecure2025!"
17. She confirms the password in the second field
18. Michelle clicks "Reset Password"



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19. The system validates the password meets security requirements
20. The system updates Michelle's password in the database
21. A success message appears: "Your password has been reset successfully"
22. The system automatically redirects Michelle to the login page
23. Michelle logs in with her new password successfully

**Result:** Michelle successfully reset her password and regained access to her account.

#### 3.4.1.8 Scenario 8: Branch Manager Defines an Employee's Working Shift

**Actor:** Emma (Branch Manager)

**Context:** Emma has just created a new employee account for "Lisa" a massage therapist. Lisa will work a standard shift from Tuesday to Saturday, 10:00 AM to 6:00 PM. Emma needs to define this working shift in the system to make Lisa available for customer bookings.

**Flow of events:**

1. Emma logs into the system and navigates to the "Employee Management" section.
2. She finds "Lisa" on the employee list and clicks "Manage Profile"
3. She selects the "Working Shift" tab for Lisa's profile.
4. The system displays a working shift interface.
5. For Tuesday, she sets the Start Time to "10:00" and the End Time to "18:00".
6. She applies the same 10:00-18:00 schedule for Wednesday, Thursday, Friday.
7. For the other days, Emma leaves the fields blank.
8. Emma clicks "Save" to confirm the changes.

**Result:** The system saves Lisa's standard working hours.

#### 3.4.1.9 Scenario 9: Create Resource

**Actor:** Emma (Branch Manager)

**Context:** Emma's spa has just installed a new "Sauna" room. To allow customers to book it and to prevent double-booking, she must add it to the system as a "Resource"

**Flow of events:**

1. Emma logs into the system.
2. She navigates to the "Resources" section from her dashboard.
3. She sees a list of all current resources.
4. She clicks the "Add New Resource" button.
5. The system displays a form for the resource details.
6. Emma fills in the form:
  - a. Resource Name: "Infrared Sauna Room"
  - b. Status: "Available"
7. She clicks the "Save" button.



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**Result:** The “Infrared Sauna Room” is now created in the system. Emma can now assign this resource to a new or existing services.

#### 3.4.1.10 Scenario 10: Branch Manager Filters for a Specific Employee’s Schedule

**Actor:** Emma (Branch Manager)

**Context:** Emma is performing a routine management check on employee workloads, and she wants to review "John's" specific schedule for the week.

**Flow of events:**

1. Emma logs into the system and opens the “Unified Calendar” view.
2. By default, the calendar displays the schedules of all employees for that day combined.
3. Emma clicks on the “Select Employee” dropdown menu at the top of the calendar.
4. She selects “John” from the list.
5. The calendar interface immediately filters to show only John’s schedule.
6. Emma can now clearly see John’s defined working shift, his confirmed appointments.

**Result:** Emma successfully transitioned from the unified view (all employees) to a filtered view (one employee) and checked John’s schedule.

#### 3.4.1.11 Scenario 11: Branch Manager Views a Daily Appointment Summary

**Actor:** Emma (Branch Manager)

**Context:** Emma wants to get a quick overview of how busy the salon will be next Wednesday. Instead of scrolling through the hours on the calendar, she wants to see a simple, sequential list of all appointments for that day in one place.

**Flow of events:**

1. Emma logs into the system and opens the “Unified Calendar” view.
2. She clicks on Wednesday on the calendar.
3. The system displays a modal.
4. This modal window shows a sequential list of all appointments for the Wednesday, ordered by time.
5. Emma quickly reviews the entire day’s schedule from this list.
6. She clicks the “Close” button on the modal window to dismiss it and returns to the main calendar view.

**Result:** Emma successfully accessed a detailed, sequential summary of a specific day’s appointments in a modal.

#### 3.4.1.12 Scenario 12: Customer Sends a Message to the Branch

**Actor:** Sarah (Customer)



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**Context:** Sarah is looking at the "Services" list and is interested in the "Keratin Treatment." However, she has sensitive skin and wants to ask if the products used are hypoallergenic before she books the 3-hour appointment. She wants to ask a quick question to the branch professionals.

**Flow of events:**

1. Sarah logs into her customer account on the application.
2. She selects "Style Studio" from the company list.
3. She sees her appointments in "Style Studio".
4. She finds the "Keratin Treatment" on the list and clicks on it to see more details.
5. The service detail page opens, showing the description, duration.
6. On this page, she sees a button labeled "Contact".
7. Sarah clicks the "Contact" button.
8. The system opens a messaging interface.
9. Sarah types her question into the text box: "Hi, are the products you use for the 'Keratin Treatment' hypoallergenic? I have sensitive skin."
10. She clicks "Send".

**Result:** Sarah has successfully sent a question to the branch using the communication mechanism. The message is routed to the branch dashboard to answer.

#### 3.4.1.13 Scenario 13: System Prevents Overbooking

**Actor:** Alex (Customer A), Bob (Customer B), System

**Context:** Both Alex and Bob are online at the same time, trying to book the same appointment slot: a 2:00 PM haircut with the popular stylist, "John" this Saturday.

**Flow of events:**

1. At 10:00 AM, Alex logs in. He navigates the booking page, selects "John" and sees the 2:00 PM Saturday slot is available. He submits his request.
2. John approves Alex's request.
3. At 10:05 AM, Bob logs in. He navigates the booking page, selects "John" and sees the 2:00 PM Saturday slot is not available.

**Result:** The system showed 2:00 PM Saturday slot is not available to Bob to prevent double booking.

#### 3.4.1.14 Scenario 14: Branch Manager Reviews Monthly Service Performance

**Actor:** Emma (Branch Manager)

**Context:** It is the end of the month, and Emma wants to analyze the performance of "Style Studio" over the past 30 days. She needs to identify which services were the most popular and how many total appointments were completed.



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**Flow of events:**

1. Emma logs into the system and navigates to the "Reports" section from her dashboard.
2. She selects the "Appointment and Service Frequency Report" option.
3. The system prompts her to select a time period. Emma chooses a time period and clicks "Generate Report".
4. The system instantly generates and displays a summary report on her screen:
  - o Total Completed Appointments: 210
  - o Service Usage Frequency:
    - Haircut: 120
    - Message Therapy: 50
    - Keratin Treatment: 40
5. Emma reviews this report and analyzes that "Haircut" is the highest-performing service, while "Keratin Treatment" is underperforming based on her expectations.

**Result:** Emma successfully used the reporting feature to analyze her branch's service performance for a time period.

**3.4.1.15 Scenario 15: Branch Manager Checks Resource Utilization Efficiency**

**Actor:** Emma (Branch Manager)

**Context:** Emma has noticed a high demand for massage services and is considering requesting a budget for a new "Massage Table". Before making this financial decision, she must verify the current utilization rates of other tables.

**Flow of events:**

1. Emma logs into the system and navigates to the "Reports" section and selects the "Resource Utilization Report" option.
2. She selects the time period and generates the report.
3. The system calculates the percentage of time each resource was "booked" versus the branch's total operation hours. It presents a utilization list:
  - o Massage Table 1: 92% Utilized
  - o Massage Table 2: 89% Utilized
4. Emma confirms that the massage tables are operating at near-full capacity, which is likely turning away new bookings.

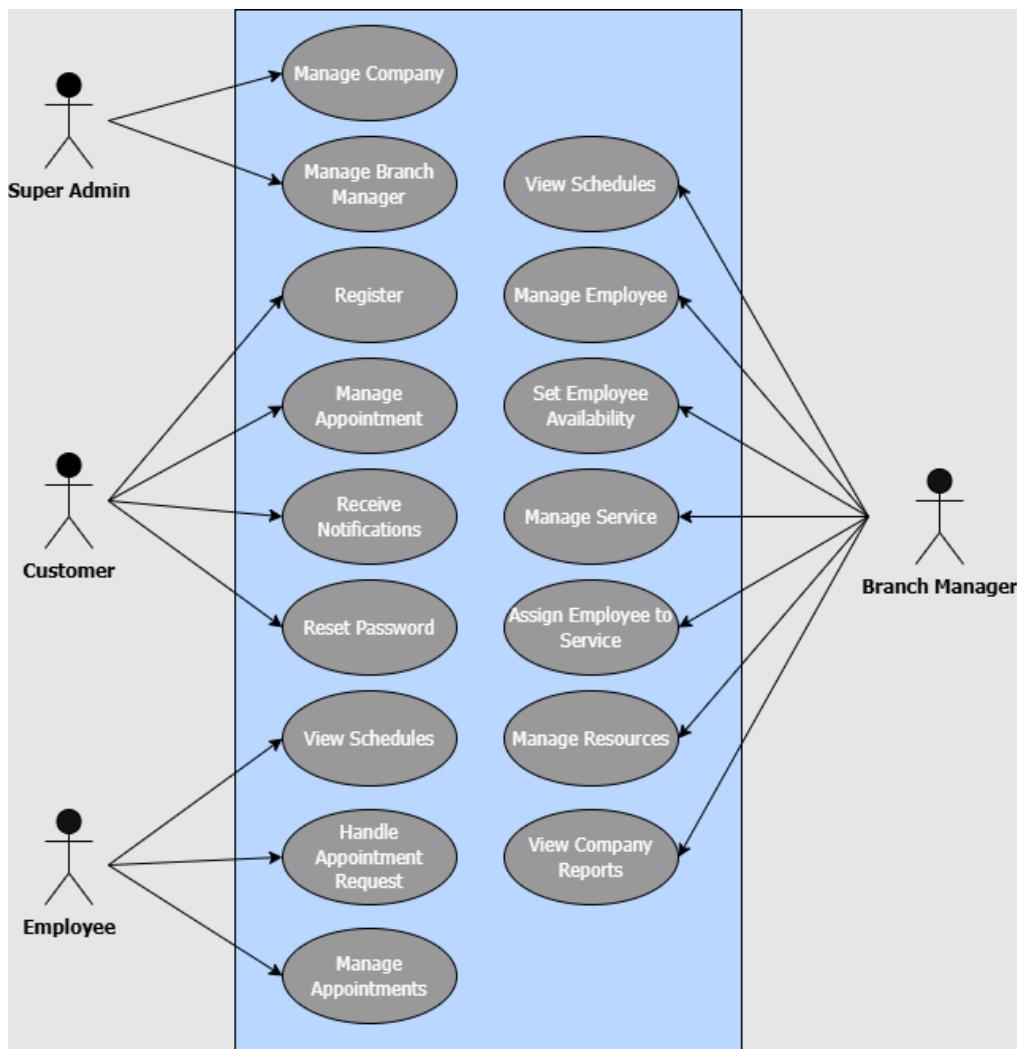
**Result:** Based on the data, Emma decides she has a strong justification to request a new massage table.



# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

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## 3.4.2 Use case model

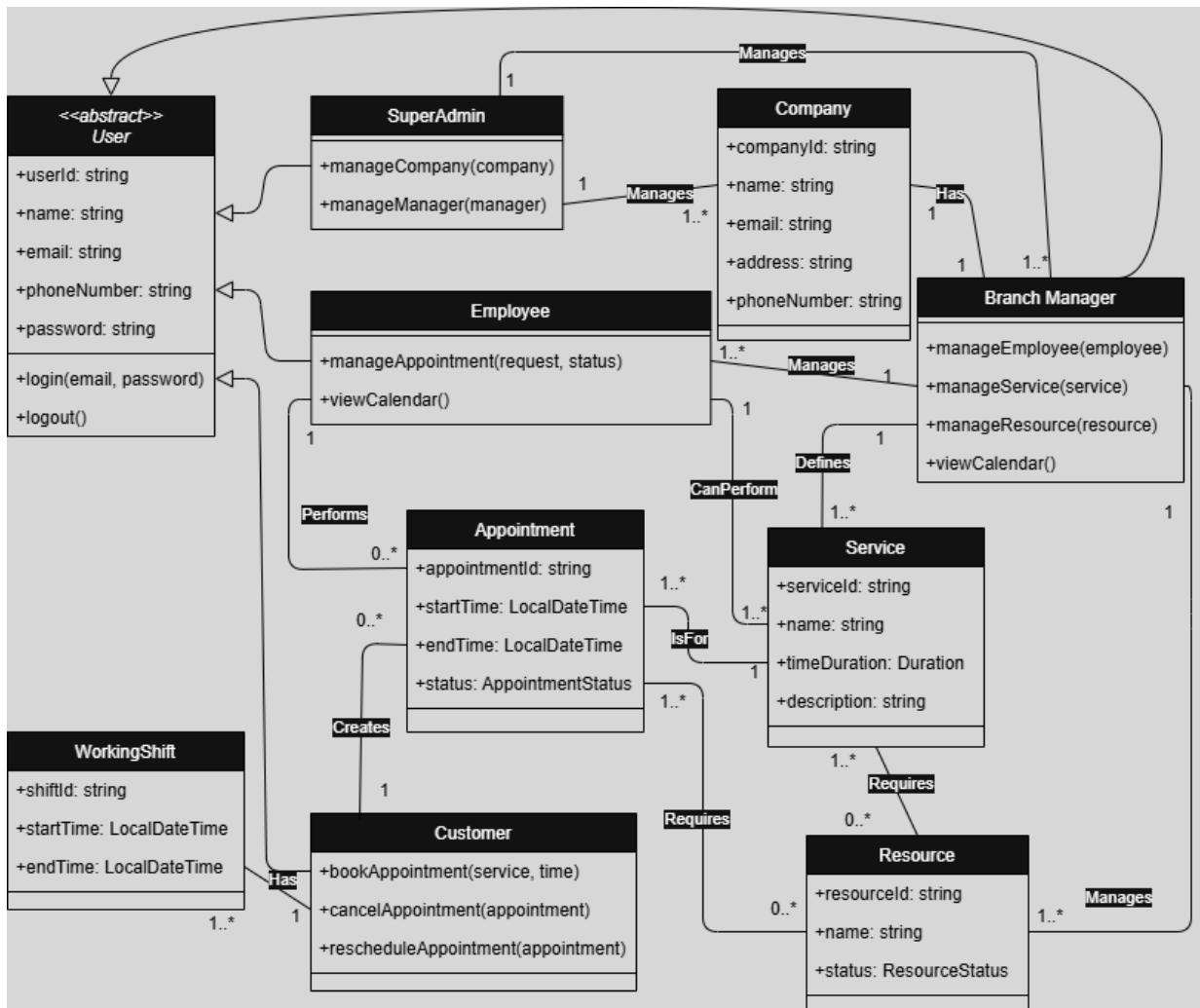




# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

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## 3.4.3 Object model





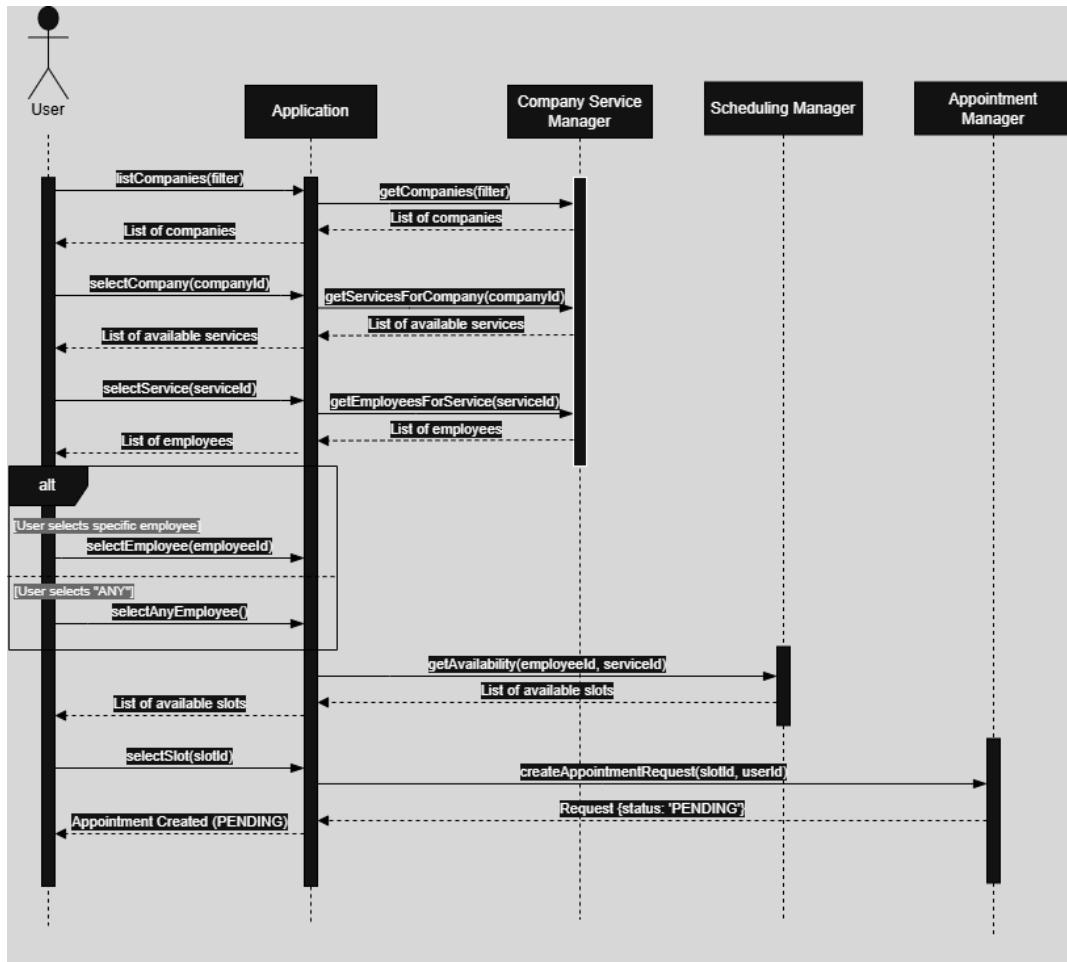
# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

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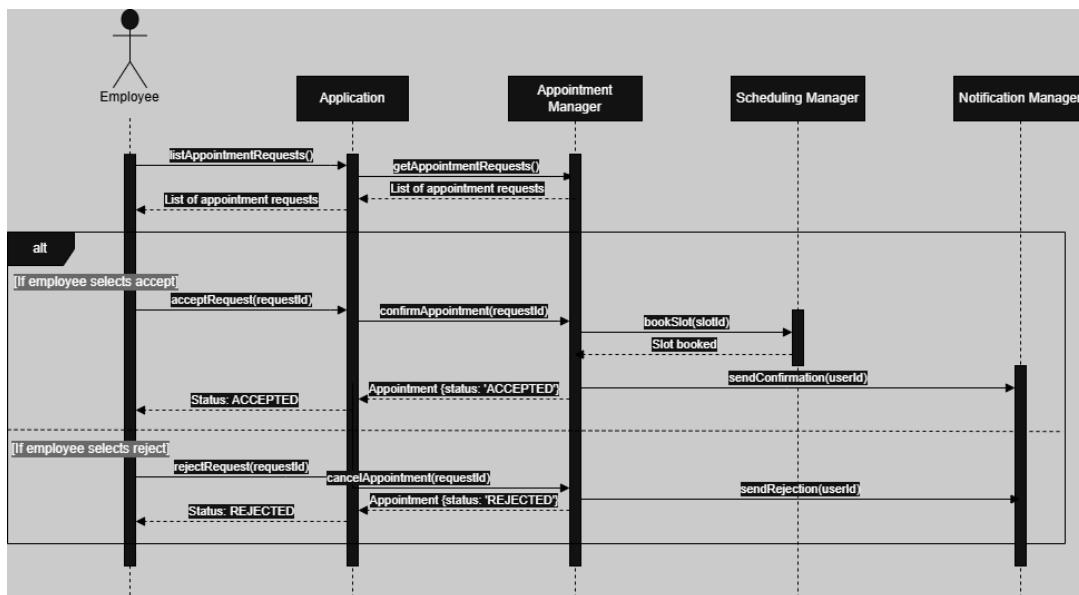
## 3.4.4 Dynamic model

### Interaction Diagrams

Create an Appointment Request



Handle Appointment Request

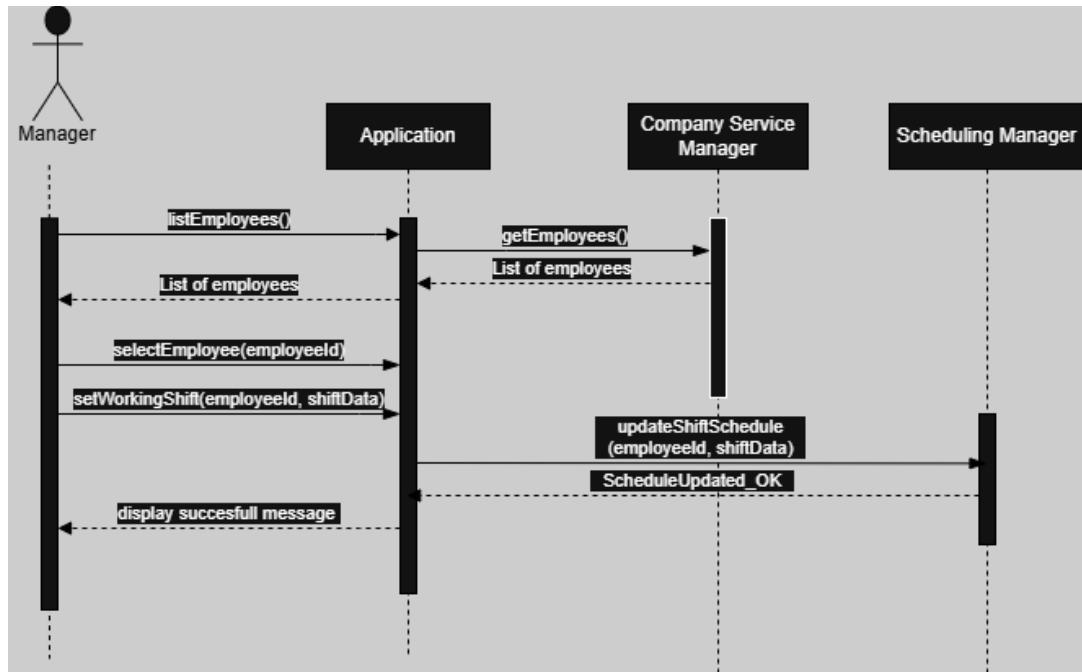




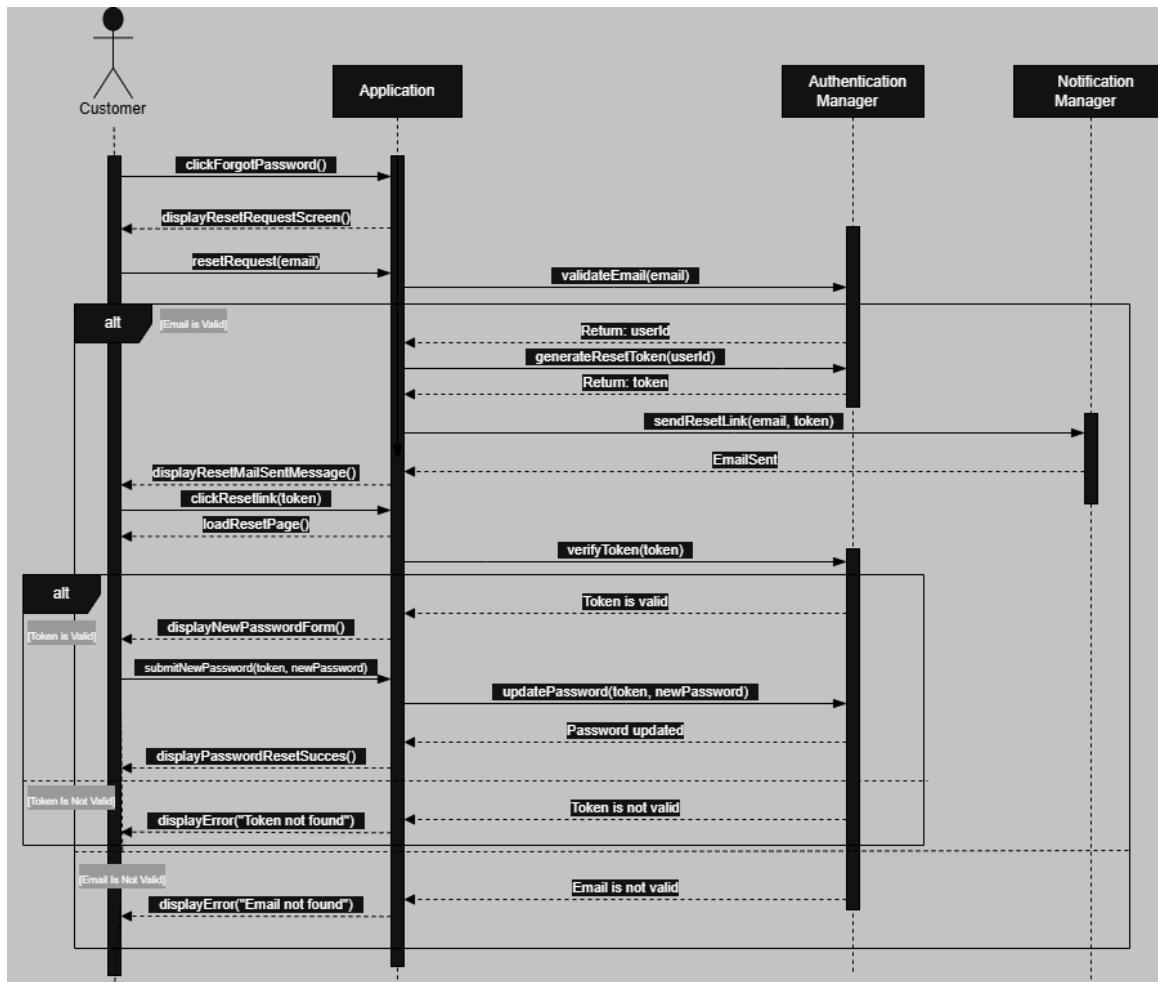
# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

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## Set Employee Schedule



## Reset Password



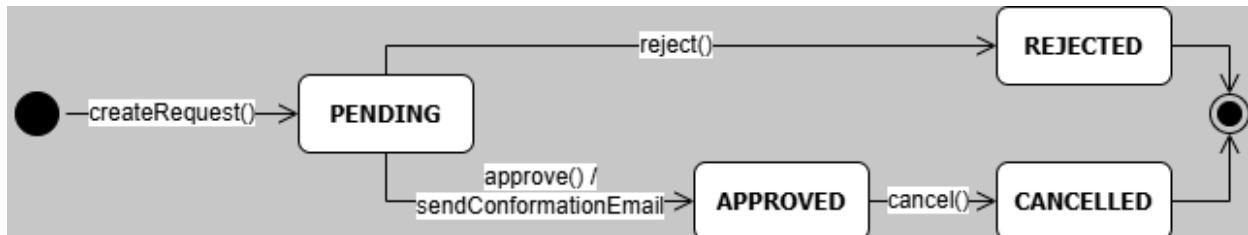


# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

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## State Machine Diagrams

For Appointment

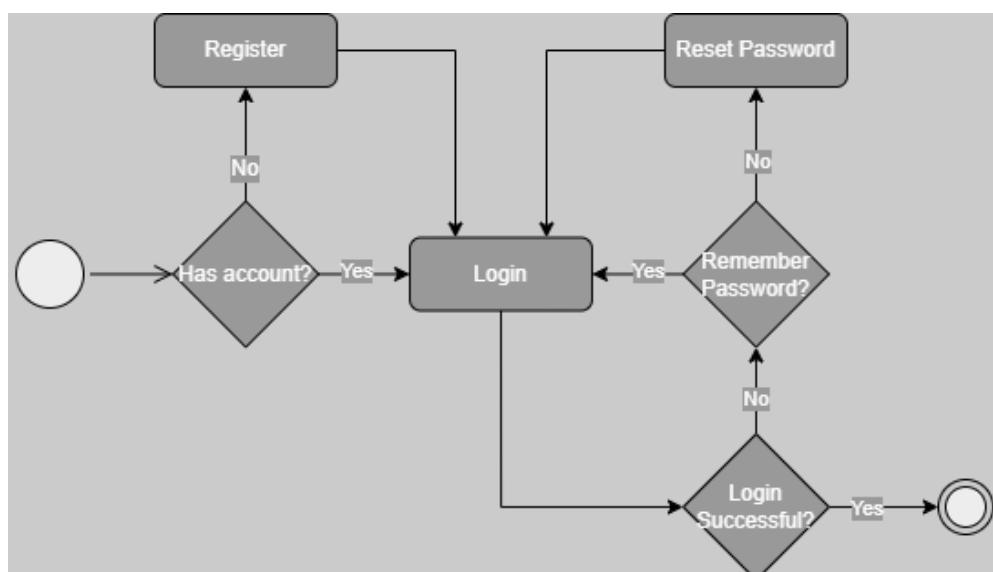


For Resource

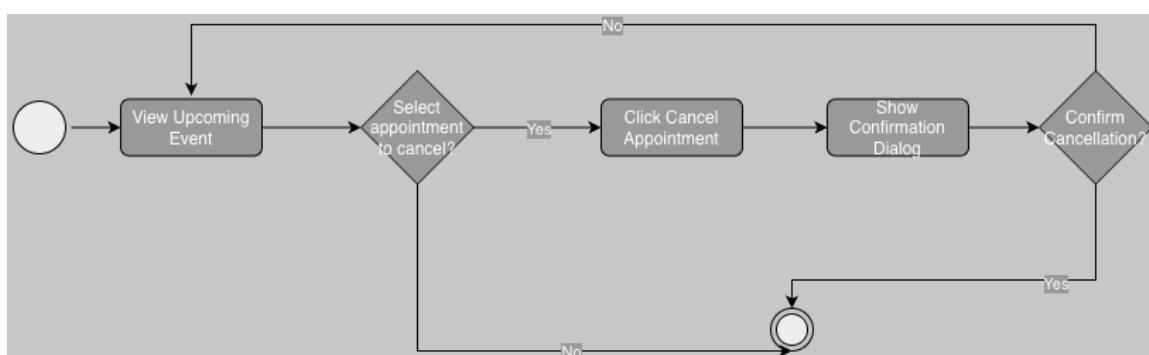


## Activity Diagrams

Authentication



Customer Cancel Appointment



Branch Manager Sets Employee Availability

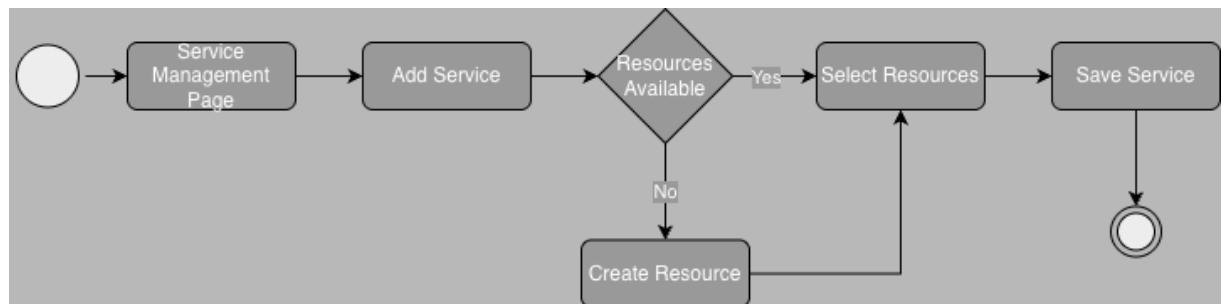


# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

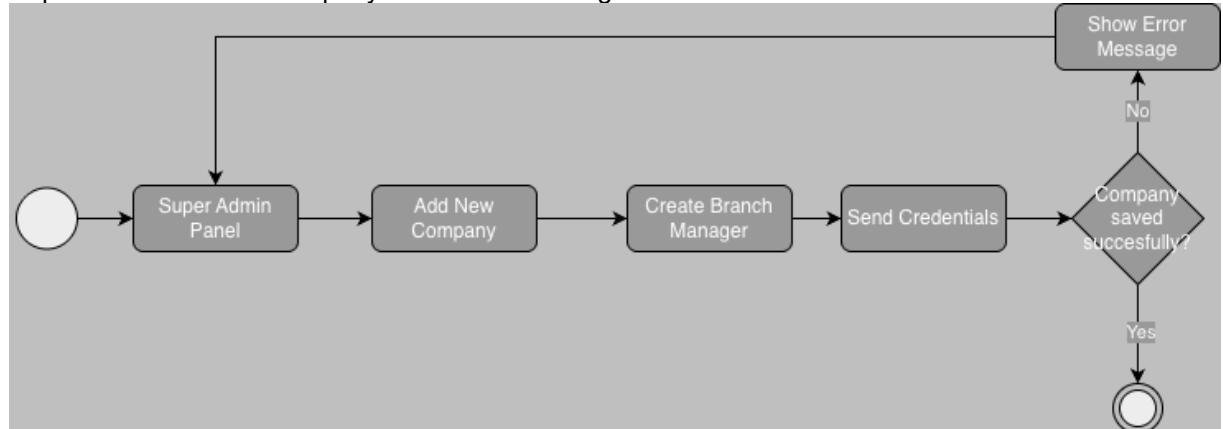
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Branch Manager Configures Service and Resources



Superadmin Handles Company and Branch Manager



## 3.4.5 User interfaces and Mock-ups

**Login**

E-mail

Password



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**Reset Your Password**

Enter your registered email address and we will send you password reset instructions.

E-mail

**Send Code**



# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

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Companies

MAIN MENU

Hi, Rabia 🌟

Home Page

Companies

Settings

## Company List

<input type="checkbox"/> Company	Name	Last Name	Phone			
<input type="checkbox"/>	Derin Bakış Psikoloji	Tayyip Soner	Tekin	+998 (99) 436-46-15		
<input type="checkbox"/>	Estetik Palette	Buğra	Kaşikçi	+998 (99) 436-46-15		
<input type="checkbox"/>	Kronos Klinik	Ahmet	Tuna	+998 (99) 436-46-15		
<input type="checkbox"/>	Fit Limit Stüdyo	Mahmut	Tekdemir	+998 (99) 436-46-15		
<input type="checkbox"/>	Lastik Durağı Pro	Ozan	Uçar	+998 (99) 436-46-15		
<input type="checkbox"/>	Örnek Firma	Can	Yılmaz	+998 (99) 436-46-15		

Total Company: 8

< 1 2 >

Request Management

My Schedule

Employee Management

Service Management

Resource Management

Employee Assignment

Company Reports

## Appointment Flow

### Employee Appointment Request Management

Here you can view and manage pending appointment requests from customers. You can review the details of each request and approve or reject it.

<p><b>Ayşe Yılmaz</b> Requested Service  Haircut and Care 2024-07-20 10:00</p> <p><b>Reject</b> <b>Approve</b></p>	<p><b>Caner Demir</b> Requested Service  Beard Shaving and Facial Care 2024-07-20 11:30</p> <p><b>Reject</b> <b>Approve</b></p>	<p><b>Elif Kaya</b> Requested Service  Manicure &amp; Pedicure 2024-07-21 14:00</p> <p><b>Reject</b> <b>Approve</b></p>	<p><b>Murat Güneş</b> Requested Service  Skin Care and Massage 2024-07-21 16:00</p> <p><b>Reject</b> <b>Approve</b></p>
<p><b>Zeynep Arslan</b> Requested Service  Hair Coloring and Ombre 2024-07-22 09:00</p> <p><b>Reject</b> <b>Approve</b></p>	<p><b>Deniz Kurt</b> Requested Service  Permanent Makeup Consultancy 2024-07-22 13:00</p> <p><b>Reject</b> <b>Approve</b></p>		



# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

Issue No: 1.0  
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My Daily Schedule

Friday, November 7, 2025

Timeline View

Time	Appointment	Status
09:00	Bilgenur Türk - Haircut & Style 1 hour	Complete
10:00	Available	
10:30	Ömer Olkay - Beard Trim 30 mins	Complete
11:00	Available	
11:30	Available	
12:00	Break Time 1 hour	
13:00	Rabia Çerçi - Coloring 1 hour 30 mins	Complete

Daily Overview

Total Appointments	Completed
4	0

Pending	Breaks
4	2

Add Break

Appointment Flow

## Employee Management

Manage employee profiles in your branch, assign roles and update their status.

Search employee...

Add New Employee

### Employee List

Manage all your employees here.

Name	E-mail	Role	Status	Skills
Ayşe Yılmaz	ayse.yilmaz@example.com	Employee	Active	...
Mehmet Can	mehmet.can@example.com	Manager	Active	...
Zeynep Demir	zeynep.demir@example.com	Receptionist	Off Duty	...
Ali Veli	ali.veli@example.com	Employee	Active	...
Elif Kaya	elif.kaya@example.com	Employee	Quit Job	...



# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

Issue No: 1.0  
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**Appointment Flow**

## Service Management

Add, edit or remove services offered by the branch.

**Available Service**

A comprehensive list of services offered by the branch.

Service Name	Name	Time	Operations
Haircut		45 minutes	<button>Edit</button> <button>Delete</button>
Beard Shaving		30 minutes	<button>Edit</button> <button>Delete</button>
Manicure		60 minutes	<button>Edit</button> <button>Delete</button>
Pedicure		75 minutes	<button>Edit</button> <button>Delete</button>
Skincare		90 minutes	<button>Edit</button> <button>Delete</button>

5 hizmet gösteriliyor.

**Appointment Flow**

## Resource Management

Manage the availability and status of branch resources.

**Available Resources** 4

**Resources in Use** 1

**Resources in Maintenance** 1

**Resource List**

View and manage all branch resources.

Name	Type	Status	Location	Last Maintenance	Action
Room 101	Care Room	Available	Floor 1	2023-10-26	<button>Edit</button> <button>Delete</button>
Laser Device A	Laser Device	In Use	Room 101	2023-10-20	<button>Edit</button> <button>Delete</button>
Massage Bed 1	Massage Bed	Maintenance	Care Room	2023-10-28	<button>Edit</button> <button>Delete</button>
Sterilizer B	Sterilizer	Available	Sterilization	2023-10-25	<button>Edit</button> <button>Delete</button>
Room 102	Care Room	Available	Floor 1	2023-10-27	<button>Edit</button> <button>Delete</button>

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# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

Issue No: 1.0  
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Request Management

My Schedule

Employee Management

Service Management

Resource Management

Employee Assignment

Company Reports

## Employee Assignment Management

Ensure correct staff allocation and optimize service delivery by assigning branch employees to available services.

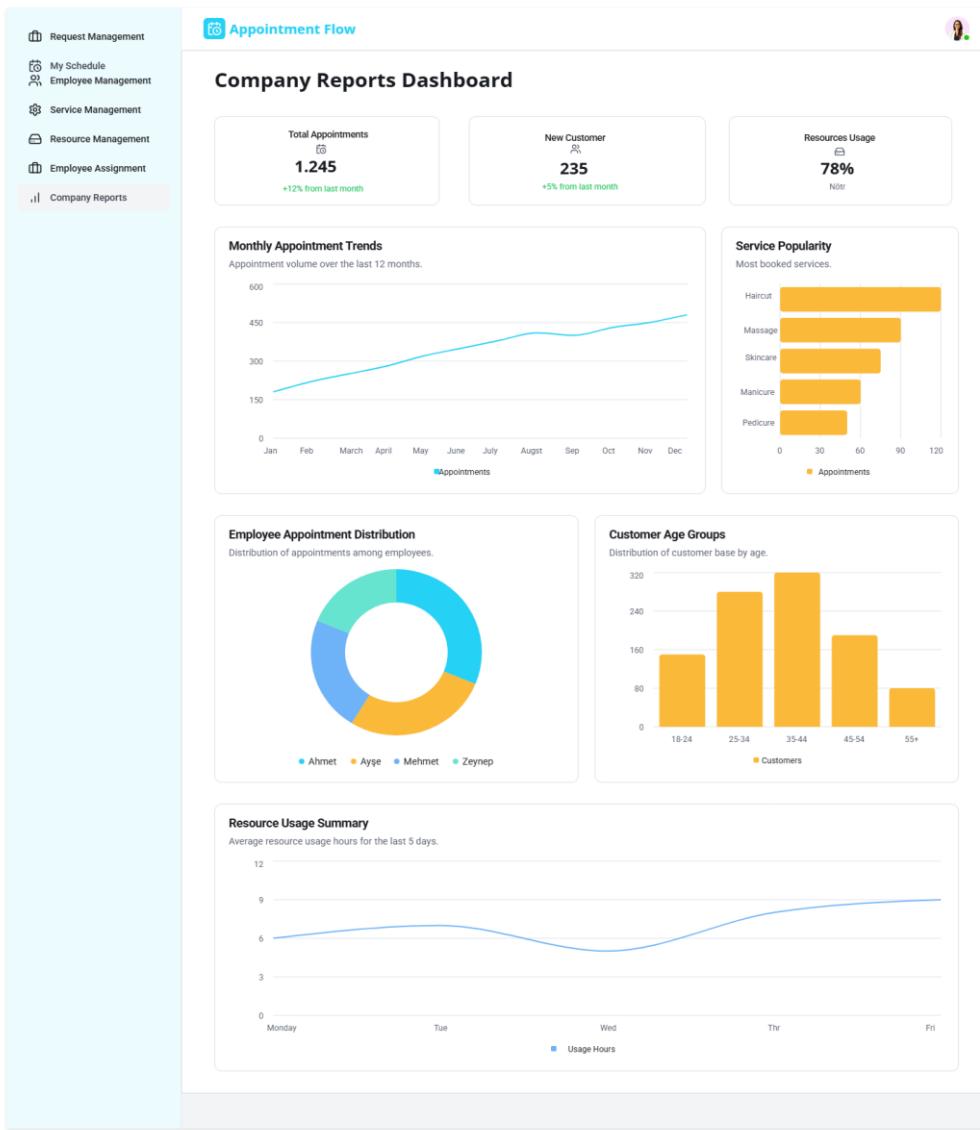
Employee List	Search employee...	Services and Assignments	Search service...						
<table border="1"><thead><tr><th>Ayşe Yılmaz Coiffeur</th><th>Available</th></tr></thead><tbody><tr><td></td><td><a href="#">Assign Employee</a></td></tr></tbody></table>	Ayşe Yılmaz Coiffeur	Available		<a href="#">Assign Employee</a>	<table border="1"><thead><tr><th>Haircut 45 minutes</th><th>+ Assign Employee</th></tr></thead><tbody><tr><td></td><td><a href="#">Assign Employee</a></td></tr></tbody></table>	Haircut 45 minutes	+ Assign Employee		<a href="#">Assign Employee</a>
Ayşe Yılmaz Coiffeur	Available								
	<a href="#">Assign Employee</a>								
Haircut 45 minutes	+ Assign Employee								
	<a href="#">Assign Employee</a>								
<table border="1"><thead><tr><th>Burak Demir Masseur</th><th>Unavailable</th></tr></thead><tbody><tr><td></td><td><a href="#">Assign Employee</a></td></tr></tbody></table>	Burak Demir Masseur	Unavailable		<a href="#">Assign Employee</a>	<table border="1"><thead><tr><th>Manicure &amp; Pedicure 60 minutes</th><th>+ Assign Employee</th></tr></thead><tbody><tr><td></td><td><a href="#">Assign Employee</a></td></tr></tbody></table>	Manicure & Pedicure 60 minutes	+ Assign Employee		<a href="#">Assign Employee</a>
Burak Demir Masseur	Unavailable								
	<a href="#">Assign Employee</a>								
Manicure & Pedicure 60 minutes	+ Assign Employee								
	<a href="#">Assign Employee</a>								
<table border="1"><thead><tr><th>Ceren Can Esthetician</th><th>Available</th></tr></thead><tbody><tr><td></td><td><a href="#">Assign Employee</a></td></tr></tbody></table>	Ceren Can Esthetician	Available		<a href="#">Assign Employee</a>	<table border="1"><thead><tr><th>Massage 30 minutes</th><th>+ Assign Employee</th></tr></thead><tbody><tr><td></td><td><a href="#">Assign Employee</a></td></tr></tbody></table>	Massage 30 minutes	+ Assign Employee		<a href="#">Assign Employee</a>
Ceren Can Esthetician	Available								
	<a href="#">Assign Employee</a>								
Massage 30 minutes	+ Assign Employee								
	<a href="#">Assign Employee</a>								
<table border="1"><thead><tr><th>Deniz Kaya Coiffeur</th><th>Unavailable</th></tr></thead><tbody><tr><td></td><td><a href="#">Assign Employee</a></td></tr></tbody></table>	Deniz Kaya Coiffeur	Unavailable		<a href="#">Assign Employee</a>	<table border="1"><thead><tr><th>Skincare 90 minutes</th><th>+ Assign Employee</th></tr></thead><tbody><tr><td></td><td><a href="#">Assign Employee</a></td></tr></tbody></table>	Skincare 90 minutes	+ Assign Employee		<a href="#">Assign Employee</a>
Deniz Kaya Coiffeur	Unavailable								
	<a href="#">Assign Employee</a>								
Skincare 90 minutes	+ Assign Employee								
	<a href="#">Assign Employee</a>								
<table border="1"><thead><tr><th>Elif Şahin Therapist</th><th>Available</th></tr></thead><tbody><tr><td></td><td><a href="#">Assign Employee</a></td></tr></tbody></table>	Elif Şahin Therapist	Available		<a href="#">Assign Employee</a>	<table border="1"><thead><tr><th>Hair Coloring 120 minutes</th><th>+ Assign Employee</th></tr></thead><tbody><tr><td></td><td><a href="#">Assign Employee</a></td></tr></tbody></table>	Hair Coloring 120 minutes	+ Assign Employee		<a href="#">Assign Employee</a>
Elif Şahin Therapist	Available								
	<a href="#">Assign Employee</a>								
Hair Coloring 120 minutes	+ Assign Employee								
	<a href="#">Assign Employee</a>								

[Save Assignments](#)



# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

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# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

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## Register

To use our services, create a new account by entering your information.

Name - Last Name

E-Mail Address

Phone Number

Password

Confirm Password

[Create Account](#)

Have you already an account? [Login](#)



<

## Style Studio Booking

Stylish cuts, professional service. Make your appointment easily.

Select Company

COMPANIES

- Derin Bakış Psikoloji
- Estetik Palette
- Kronos Klinik
- Fit Limit Stüdyo
- Lastik Durağı Pro

Cancel Save



# REQUIREMENTS ANALYSIS DOCUMENT

for  
APPOINTMENT MANAGEMENT SYSTEM

Issue No: 1.0  
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## Select Service

Choose from our wide range of services for a personalized hair care and styling experience. Once you've made your selection, you can move on to the next step.



### Haircut

Classic or modern haircuts from our expert stylists.

Time: 30 minutes

Select Service



### Beard Shaving

Smooth beard shave using traditional techniques and hot towel application.

Time: 20 minutes

Select Service



### Hair Wash & Blow-dry

Refreshing hair wash and stylish blow dry.

Time: 15 minutes

Select Service



### Children Haircut

Special haircuts for children in a fun and relaxed atmosphere.

Time: 25 minutes

Select Service



### Hair Coloring

Add new vitality to your hair with our experienced colorists.

Time: 90 minutes

Select Service



### Special Care Package

Deep care and relaxing massage special for your hair.

Time: 60 minutes

Select Service

Back



# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

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## employee Choice

Select an employee for your service or skip this step.

Selected Service:  
Haircut - 30 Minutes



Musab  
Stylist Expert

Select



Ayşe  
Hair Coloring Expert

Select



Mehmet  
Modern Haircut Expert

Select



Zeynep  
Hair Care Therapist

Select

Back

Skip



## Select Appointment Time

### Appointment Calendar

November 2025						
Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	1	2	3	4	5	6

### Select Time Zone

09:00 AM	09:30 AM	10:00 AM	10:30 AM
11:00 AM	11:30 AM	12:00 PM	12:30 PM
01:00 PM	01:30 PM	02:00 PM	02:30 PM
03:00 PM	03:30 PM	04:00 PM	04:30 PM
05:00 PM			

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# REQUIREMENTS ANALYSIS DOCUMENT for APPOINTMENT MANAGEMENT SYSTEM

Issue No: 1.0  
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## Appointment Confirmation

Appointment Status

Pending

Company: Style Studio Booking  
Service: Haircut - 30 minutes  
Employee: Ayşe Yılmaz  
Date: 23 November 2024  
Time: 14:00

A confirmation email will be sent to your email address. Please check your mailbox.

[Cancel Appointment](#)

[Back to Home Page](#)

Appointment Management

Schedule Viewing



## Upcoming Appointments

Today < > 7 November 2025 Daily Weekly Monthly



You do not have any upcoming appointments.  
To schedule a new appointment, visit the Appointment Management screen.



## 4 Glossary of Terms

**API-first** A development philosophy where API contracts are designed and specified before implementation, ensuring modularity and parallel development (NFR-I-004).

**Branch Manager** The system user responsible for managing a Company's operations, employees, services, and resources.

**CRUD** Acronym for Create, Read, Update, and Delete—the basic operations for managing data entities.

**Customer (Client)** The external end-user who books and manages appointments with a Company.

**Multi-Tenant** An architecture where a single application instance serves multiple independent organizations (tenants), ensuring data separation (FR-SYS-001).

**Out of Service** A status indicating that a Resource (e.g., equipment) is temporarily unavailable for booking due to maintenance or other constraints.

**PENDING** The initial status of an appointment request created by a Customer, requiring subsequent approval by an Employee.

**PWA** Progressive Web App. A web application designed to offer a user experience similar to a native mobile app, including offline functionality and device installation (NFR-I-002).

**Resource** Assets or equipment required for service delivery (e.g., treatment room, specialized machine).

**Shift Schedule** The defined operational start and end times for an Employee's working day (FR-MGR-002).



REQUIREMENTS ANALYSIS DOCUMENT  
for  
APPOINTMENT MANAGEMENT SYSTEM

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Issue Date: Nov 2025

## 5 Traceability

Use Cases	Req ID	Requirement	Role
Assign Employee to Service	FR-MGR-005	Assign Service to Employees	MANAGER
Handle Appointment Request	FR-EMP-004	Display Pending Requests	EMPLOYEE
	FR-EMP-005	Approve appointment request	EMPLOYEE
	FR-EMP-006	Reject appointment request	EMPLOYEE
	FR-EMP-007	Auto email notification on approval/rejection	EMPLOYEE
Receive Notifications	FR-CUS-011	Auto email on approval	CUSTOMER
	FR-SYS-001	Email Notification Service	SYSTEM
View Schedules	FR-EMP-001	Display Personal Schedule	EMPLOYEE
	FR-EMP-002	View other Employee schedules	EMPLOYEE
	FR-EMP-003	View confirmed appointments of others	EMPLOYEE
	FR-MGR-009	Unified Calendar View	MANAGER
	FR-MGR-010	Display Employee schedule	MANAGER
	FR-MGR-011	Modal with appointment details	MANAGER
	FR-SYS-002	Calendar Module	SYSTEM
	FR-CUS-010	Cancel confirmed appointment	CUSTOMER
	FR-CUS-002	Display Appointment Booking Page	CUSTOMER
	FR-CUS-003	Display available Companies	CUSTOMER
Manage Appointments	FR-CUS-004	Access appointment creation form	CUSTOMER
	FR-CUS-005	Select desired Service	CUSTOMER
	FR-CUS-006	Optionally select Employee	CUSTOMER
	FR-CUS-007	Filter available time slots	CUSTOMER
	FR-CUS-008	Store request as PENDING	CUSTOMER
	FR-CUS-012	Messaging mechanism	CUSTOMER
	FR-SYS-003	Prevent double booking display	SYSTEM
	FR-SA-002	CRUD Manager accounts	SUPER ADMIN
	FR-SA-003	Assign Manager to Company	SUPER ADMIN
Manage Company	FR-SA-001	CRUD company entries	SUPER ADMIN
	FR-SA-004	Display Company Management Page	SUPER ADMIN
Manage Employee	FR-MGR-001	CRUD Employee accounts	MANAGER
Manage Resources	FR-MGR-006	CRUD Resources	MANAGER
	FR-MGR-007	Assign Resource to Service	MANAGER
	FR-MGR-008	Set Resource Out of Service	MANAGER
Manage Service	FR-MGR-003	CRUD Service entries	MANAGER
	FR-MGR-004	Specify Service Time Duration	MANAGER
Register	FR-CUS-001	Authentication required	CUSTOMER
	FR-CUS-009	Create Account	CUSTOMER
	FR-SYS-004	Login Screen	SYSTEM
	FR-SYS-005	Register Screen	SYSTEM
Reset Password	FR-SYS-006	Reset Password function	SYSTEM
Set Employee Availability	FR-MGR-002	Define Working Shift Schedule	MANAGER
View Company Reports	FR-MGR-012	Generate service usage report	MANAGER
	FR-MGR-013	Generate Resource Utilization Report	MANAGER