**Task 1:**

**Optimal Test Data and Test Cases:**

1. **Search Functionality:**

* Test Data: Various combinations of search criteria (date, floor, equipment, smoking restrictions).
* Test Cases:
  + Verify that the system allows the user to perform a search with different combinations of criteria.
  + Test searching without setting any parameters.

1. **Sorting and Navigation:**

* Test Data: Search results with multiple entries.
* Test Cases:
  + Test sorting by each available field.
  + Verify the system allows flexible navigation between results.

1. **Date Range Validation:**

* Test Data: Past date, current date, future date.
* Test Cases:
  + Verify that the system allows searching only for the date range that is not in the past.

1. **Data Validation:**

* Test Data: Invalid date format, invalid floor, invalid equipment, invalid smoking restriction.
* Test Cases:
* Verify that the system validates provided data before search.

1. **Search Result Table:**

* Test Data: Valid search results.
* Test Cases:
* Verify that the search result table is read-only.
* Ensure the system displays results without delay.

1. **User-Friendly Interface:**

* Test Data: Different user profiles.
* Test Cases:
* Verify that the system provides a user-friendly interface for various user roles.

**Bad Requirements Identified:**

Requirement 1 is ambiguous. What does it mean to navigate by search results? Clarification is needed.

Requirement 7 is vague. What is the acceptable time limit for providing search results without delay?

**Task 2: Estimation**

**Format1-**

Assumptions:

The new features do not significantly impact the existing search functionality.

The team has access to the necessary resources and environments.

**1-Test Planning and Documentation (Level 1)**

Define testing objectives, scope, and strategy.

Create/update the Test Plan document.

**2-Environment Setup and Data Preparation (Level 1)**

Set up test environments for web and mobile applications.

Prepare test data for user registration and office place booking scenarios.

**3-Test Case Design and Execution (Level 1)**

Create test cases for new features based on user stories.

Execute test cases for user registration, booking, and user roles.

**4-Integration Testing (Level 2)**

Verify interactions between new features and existing functionality.

**5-User Acceptance Testing (Level 2)**

Collaborate with end-users for acceptance testing.

Validate the usability and functionality of the new features.

Expected Result:

1. A stable and well-functioning application with the new features implemented according to user stories.

2. Test reports, including executed test cases, identified defects, and user feedback.

**Process Assessment:**

The estimated test activities ensure a comprehensive evaluation of the new features, covering unit testing, integration testing, and user acceptance testing. The process aims to deliver a high-quality product with minimal defects, meeting customer expectations. The iterative nature allows for continuous improvement based on feedback.

**Format 2**

Work Breakdown Structure (WBS) for Test Activities:

**Test Planning (Level 1)**

* Define testing objectives, scope, and strategy.
* Identify resources and roles.
* Develop the Test Plan document.

**Environment Setup (Level 1)**

* Set up test environments for different configurations (web, mobile).
* Ensure data availability for user registration and booking scenarios.

**Test Case Design (Level 1)**

* Create test cases for user registration.
* Create test cases for office place booking.
* Create test cases for user roles (user and office manager).
* Create test cases for the native mobile application.

**Test Data Preparation (Level 2)**

* Prepare test data for user registration scenarios.
* Prepare test data for office place booking scenarios.
* Prepare test data for user roles scenarios.
* Prepare test data for native mobile application scenarios.

**Functional Testing (Level 1)**

* Execute test cases for user registration.
* Execute test cases for office place booking.
* Execute test cases for user roles.
* Execute test cases for the native mobile application.

**Integration Testing (Level 2)**

* Verify interactions between user registration and office place booking.
* Verify interactions between user roles and native mobile application.

**User Acceptance Testing (Level 2)**

* Collaborate with end-users for acceptance testing.
* Validate the application's usability, functionality, and user experience.

**Regression Testing (Level 2)**

* Ensure existing functionality remains intact.
* Execute regression tests after each feature addition.

**Performance Testing (Level 2)**

* Assess the application's performance under different user loads.
* Identify and address performance bottlenecks.

**Security Testing (Level 2)**

* Perform security assessments on user registration and user roles.
* Validate data encryption for mobile application usage.
* Estimated Test Activities Sum Up:

The estimated test activities aim to ensure the quality and reliability of the new increment. The strategy involves thorough testing at different levels to cover functional, integration, user acceptance, regression, performance, and security aspects. The process involves collaboration with end-users to enhance the user experience and validate the functionality.

**Assumptions and Expected Quality Level:**

* Assumption: Development follows the outlined features and timelines.
* Assumption: Test environments are set up as planned.
* Quality Level: The application should achieve a high level of reliability, security, and usability.
* Expected Result: A stable and feature-rich application with minimal defects and a positive user experience.

**Customer Deliverables**:

1-Test Plan Document.

2-Test Execution Reports.

3-Defect Reports with Severity and Priority.

4-Performance and Security Assessment Reports.

5-User Acceptance Testing Feedback.

The customer gets a well-tested and validated application, meeting the specified requirements and quality standards, ensuring a positive user experience with the added features.