

1. Community Sports Facility Management

Introduction

Many communities have shared sports facilities such as soccer fields, basketball courts, swimming pools, and gyms. These facilities often require scheduling, maintenance, and fair access management. Local governments or homeowner associations struggle to coordinate reservations, track facility usage, and handle maintenance efficiently. This project aims to provide a web-based solution for managing community sports facilities, allowing users to book slots, report maintenance issues, and receive relevant notifications.

Objectives

The team is required to use Agile methodology, incorporate CI/CD principles, and take a test-driven approach to design, develop, and operationalize a publicly available web-based application that meets the following requirements.

Overview of Features

- Facility booking and availability tracking
- Membership and user management
- Maintenance issue reporting
- Event organization
- Reporting

Detailed Requirements

Requirement	Extra info/limitations
User Verification	<div><div>• A 3rd party identity provider should be used</div><div>• 3 roles:<ul style="list-style-type: none">• Resident• Facility Staff• Admin</div></div>
User Management	Admins should be able to manage users – onboard members, revoke access, assign roles, etc.
Booking System	Residents should be able to reserve sports facilities for specific time slots. Admins can approve/block bookings as needed.
Maintenance Reporting	Users should be able to report facility issues. Facility staff should update status and provide feedback.
Events & Notifications	Admins should be able to create events (e.g., tournaments). Users should receive notifications about upcoming events and maintenance closures.
Reporting	<div>At least 3 dashboard reports:<ul style="list-style-type: none">• Usage trends by facility• Maintenance reports (open vs closed)• Custom view</div> <div>Reports should be exportable as CSV or PDFs.</div>
Bonus	Notify users of weather conditions affecting outdoor facilities.

2. Local Artisan Marketplace

Introduction

Many small-scale artisans and crafters struggle to reach customers and manage their inventory efficiently. Traditional e-commerce platforms may be too complex or costly. This project aims to equip artisans with a web-based platform where they can showcase and sell handmade goods while allowing buyers to browse and purchase items easily.

Objectives

The team is required to use Agile methodology, incorporate CI/CD principles, and take a test-driven approach to design, develop, and operationalize a publicly available web-based application that meets the following requirements.

Overview of Features

- Artisan shop creation
- Product browsing and purchasing
- Order fulfillment tracking
- Reporting

Detailed Requirements

Requirement	Extra info/limitations
User Verification	<div><div>• A 3rd party identity provider should be used</div><div>• 3 roles:<ul style="list-style-type: none">• Buyer• Seller• Admin</div></div>
Shop Management	Sellers should be able to create and manage their online store, including product listings and pricing.
Order & Inventory Management	Sellers should track orders, update stock levels, and manage delivery options.
Customer Shopping Experience	Buyers should be able to search, filter, and purchase products.
Payments	Integrated with a 3rd party payment gateway.
Reporting	<div>At least 3 dashboard reports:<ul style="list-style-type: none">• Sales trends• Inventory status• Custom view</div> <div>Reports should be exportable as CSV or PDFs.</div>
Bonus	AI-powered product recommendations for buyers.

3. Freelancer Management Platform

Introduction

Many businesses and individuals hire freelancers but struggle to manage contracts, payments, and deliverables efficiently. Freelancers also face challenges in tracking their projects and payments. This project aims to create a web-based platform where freelancers and clients can manage contracts, communicate, and track project progress.

Objectives

The team is required to use Agile methodology, incorporate CI/CD principles, and take a test-driven approach to design, develop, and operationalize a publicly available web-based application that meets the following requirements.

Overview of Features

- Job posting & applications
- Contract & task management
- Payment tracking
- Reporting

Detailed Requirements

Requirement	Extra info/limitations
User Verification	<div><div>• A 3rd party identity provider should be used</div><div>• 3 roles:<ul style="list-style-type: none">• Freelancer• Client• Admin</div></div>

Job Listings Requirement	Extra info/limitations
	Clients should be able to post job opportunities. Freelancers should apply for jobs.
Project Management	Clients should track tasks, set milestones, and provide feedback.
Payments	Platform should integrate with a payment gateway for milestone-based payments.
Reporting	At least 3 dashboard reports: <ul style="list-style-type: none">• Project completion rates• Payments received & pending• Custom view Reports should be exportable as CSV or PDFs.
Bonus	AI-based job matching system.

4. University Research Collaboration Platform

Introduction

Researchers in universities often struggle to find collaborators for projects, manage shared resources, and track project progress. This project aims to create a web-based research collaboration platform that allows academics to connect, share ideas, and manage their research work effectively.

Objectives

The team is required to use Agile methodology, incorporate CI/CD principles, and take a test-driven approach to design, develop, and operationalize a publicly available web-based application that meets the following requirements.

Overview of Features

- Research project postings
- Collaboration tools
- Funding tracking
- Reporting

Detailed Requirements

Requirement	Extra info/limitations
User Verification	<ul style="list-style-type: none">• A 3rd party identity provider should be used• 3 roles:<ul style="list-style-type: none">• Researcher• Reviewer• Admin
Project Management	Researchers should be able to create project listings, define requirements, and invite collaborators.
Collaboration Tools	Built-in messaging, document sharing, and milestone tracking.
Funding Tracking	Researchers should track grants, spending, and funding requirements.
Reporting	At least 3 dashboard reports: <ul style="list-style-type: none">• Project completion status• Funding used vs available• Custom view Reports should be exportable as CSV or PDFs.
Bonus	AI-powered collaborator recommendations.