RAJALAKSHMI ENGINEERING COLLEGE

RAJALAKSHMI NAGAR, THANDALAM – 602 105

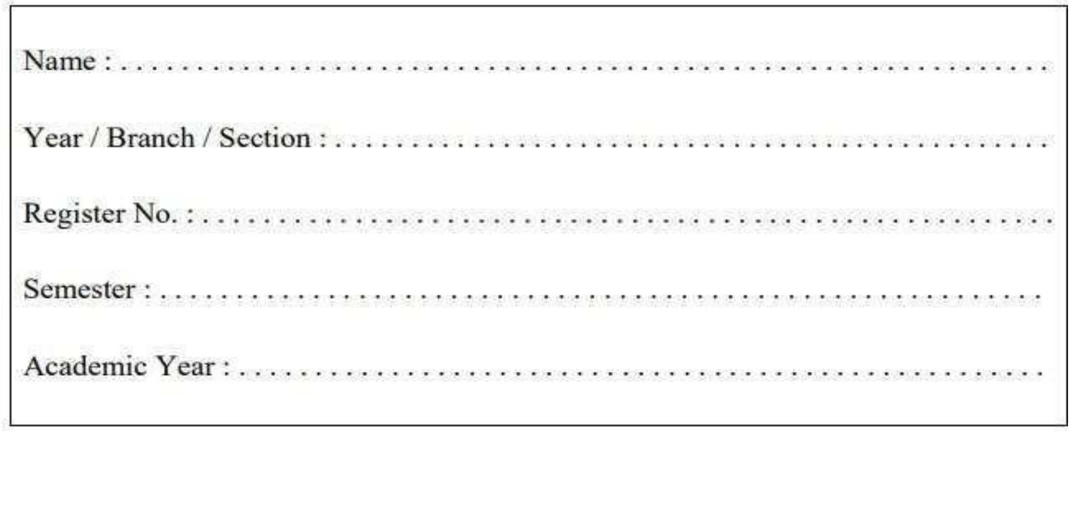
HARDWORK DISCIPLINE REC

RAJALAKSHMI
ENGINEERING COLLEGE

CS23432

SOFTWARE CONSTRUCTION

Laboratory Record Note Book



Name : . . . .

Year / Branch / Section : . . . .

Register No. : . . . .

Semester : . . . .

Academic Year : . . . .

RAJALAKSHMI ENGINEERING COLLEGE (AUTONOMOUS)

RAJALAKSHMI NAGAR, THANDALAM – 602 105

BONAFIDE CERTIFICATE

NAME ___________________________________ REGISTER NO. _____________________

ACADEMIC YEAR 2024-25 **SEMESTER-** IV **BRANCH**: B. Tech Information Technology [AD/AE]. This Certification is the Bonafide record of work done by the above student in the **CS23432- Software Construction** Laboratory during the year 2024-2025.

Signature of Faculty -in – Charge

Submitted for the Practical Examination held on _______________________

Internal Examiner External Examiner

LAB PLAN

CS23432-SOFTWARE CONSTRUCTION LAB

Ex No	**Date**	**Topic**	**Page No**	**Sign**
1	21/01/2025	Study of Azure DevOps		
2	28/01/2025	Problem Statement		
3	04/02/2025	Agile Planning		
4	18/02/2025	Create User stories with Acceptance Criteria		
5	25/02/2025	Designing Sequence Diagrams using Azure DevOps-WIKI		
6	04/03/2025	Designing Class Diagram using Azure DevOps-WIKI		
7	11/03/2025	Designing Use case Diagram using Azure DevOps-WIKI		
8	18/03/2025	Designing Activity Diagrams using Azure DevOps-WIKI		
9	25/03/2025	Designing Architecture Diagram Using Star UML		
10	01/04/2025	Design User Interface		
11	08/04/2025	Implementation – Design a Web Page based on Scrum Methodology		
12	15/04/2025	Testing-Test Plan, Test Case and Load Testing		

EX NO: 1

1.Study of Azure DevOps

AIM:

To study how to create an agile project in Azure DevOps environment.

STUDY:

Azure DevOps is a cloud-based platform by Microsoft that provides tools for DevOps practices, including CI/CD pipelines, version control, agile planning, testing, and monitoring. It supports teams in automating software development and deployment.

1. Understanding Azure DevOps

Azure DevOps consists of five key services:

1.1 Azure Repos (Version Control)

Supports Git repositories and Team Foundation Version Control (TFVC).

Provides features like branching, pull requests, and code reviews.

1.2 Azure Pipelines (CI/CD)

Automates build, test, and deployment processes.

Supports multi-platform builds (Windows, Linux, macOS).

Works with Docker, Kubernetes, Terraform, and cloud providers (Azure, AWS, GCP).

1.3 Azure Boards (Agile Project Management)

Manages work using Kanban boards, Scrum boards, and dashboards.

Tracks user stories, tasks, bugs, sprints, and releases.

1.4 Azure Test Plans (Testing)

Provides manual, exploratory, and automated testing.

Supports test case management and tracking.

1.5 Azure Artifacts (Package Management)

Stores and manages NuGet, npm, Maven, and Python packages.

Enables versioning and secure access to dependencies.

Getting Started with Azure DevOps

Step 1: Create an Azure DevOps Account Visit

Azure DevOps.

Sign in with a Microsoft Account.

Create an Organization and a Project.

Step 2: Set Up a Repository (Azure Repos) Navigate

to Repos.

Choose Git or TFVC for version control.

Clone the repository and push your code.

Step 3: Configure a CI/CD Pipeline (Azure Pipelines) Go

to Pipelines → New Pipeline.

Select a source code repository (Azure Repos, GitHub, etc.).
Define the pipeline using YAML or the Classic Editor.

Run the pipeline to build and deploy the application.

Step 4: Manage Work with Azure Boards Navigate

to Boards.

Create work items, user stories, and tasks.

Organize sprints and track progress.

Step 5: Implement Testing (Azure Test Plans) Go

to Test Plans.

Create and run test cases

View test results and track bugs.

Result:

The study was successfully completed.

EX NO: 2

PROBLEM STATEMENT

AIM:

To prepare PROBLEM STATEMENT for Student data management system.

Problem Statement:

Student Data Management System

Managing student data manually is time-consuming, error-prone, and inefficient, especially as the number of students increases. Institutions face difficulties in maintaining accurate records of student profiles, enrollments, course details, performance tracking, and document storage. A centralized Student Data Management System is needed to automate these processes, improve data accuracy, ensure secure access, and make information easily available to students, faculty, and administrators.

Result:

The problem statement was written successfully.

EX NO: 3

AGILE PLANNING

Aim:

To prepare an Agile Plan.

THEORY

Agile planning is a part of the Agile methodology, which is a project management style with an incremental, iterative approach. Instead of using an in-depth plan from the start of the project—which is typically product-related—Agile leaves room for requirement changes throughout and relies on constant feedback from end users.

With Agile planning, a project is broken down into smaller, more manageable tasks with the ultimate goal of having a defined image of a project's vision. Agile planning involves looking at different aspects of a project's tasks and how they'll be achieved, for example:

· Roadmaps to guide a product's release ad schedule

· Sprints to work on one specific group of tasks at a time

· A feedback plan to allow teams to stay flexible and easily adapt to change

User stories, or the tasks in a project, capture user requirements from the end user's perspective Essentially, with Agile planning, a team would decide on a set of user stories to action at any given time, using them as a guide to implement new features or functionalities in a tool. Looking at tasks as user stories is a helpful way to imagine how a customer may use a feature and helps teams prioritize work and focus on delivering value first.

· Steps in Agile planning process

1. Define vision
2. Set clear expectations on goals
3. Define and break down the product roadmap
4. Create tasks based on user stories
5. Populate product backlog
6. Plan iterations and estimate effort
7. Conduct daily stand-ups
8. Monitor and adapt

Result:

Thus the Agile plan was completed successfully.

CREATE USER STORIES

Aim:

To create User Stories

THEORY

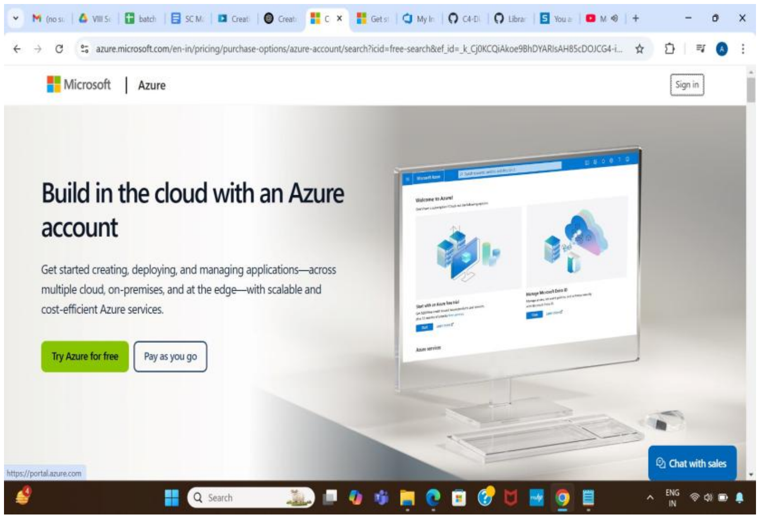
A user story is an informal, general explanation of a software feature written from the perspective of the end user. Its purpose is to articulate how a software feature will provide value to the customer.

User story template

"As a [role], I [want to], [so that]."

Procedure:

1. Open your web browser and go to the Azure website: *https://azure.microsoft.com/en-in* Sign in using your Microsoft account credentials. If you don't have an account, you'll need to create one.
2. If you don’t have a Microsoft account, you can sign up for *https://signup.live.com/?lic=1*

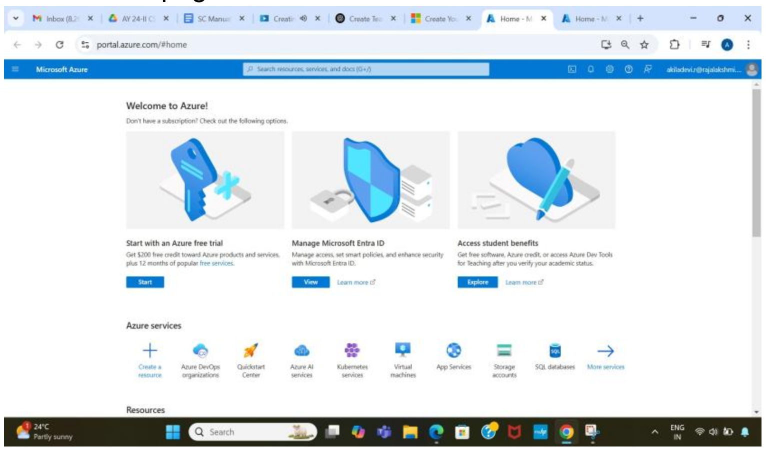


azure.microsoft.com/en-in/pricing/purchase-options/azure-account/search?icid=free-search&ef_id=_k_Cj0KCQiAkoe9BhDYARIsAH85cDOJCG4-i...

Build in the cloud with an Azure account

Get started creating, deploying, and managing applications—across multiple cloud, on-premises, and at the edge—with scalable and cost-efficient Azure services.

3. Azure home page



portal.azure.com/#home

Welcome to Azure!

Don't have a subscription? Check out the following options.

Start with an Azure free trial

Get $200 free credit toward Azure products and services, plus 12 months of popular free services.

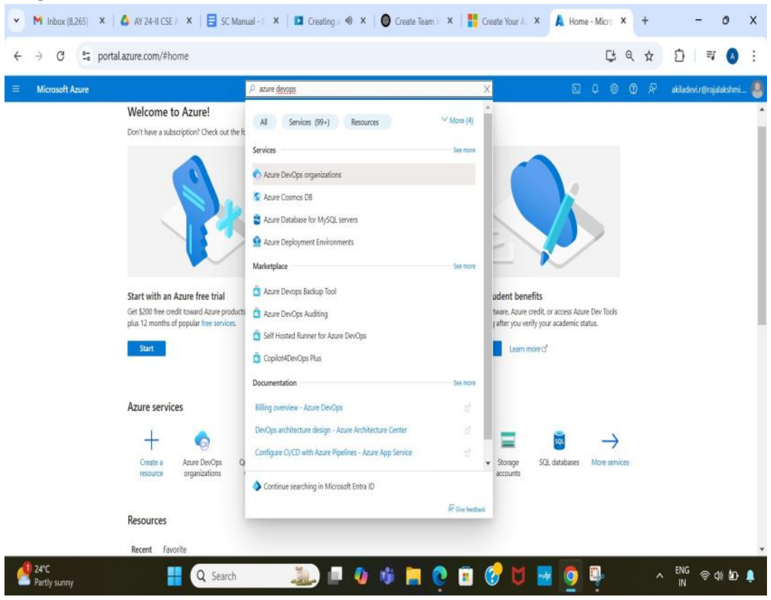
Manage Microsoft Entra ID

Manage access, set smart policies, and enhance security with Microsoft Entra ID.

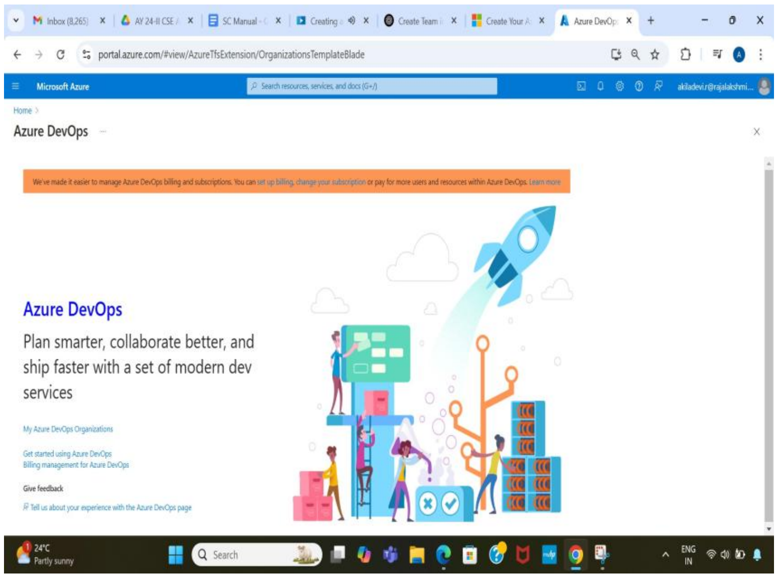
Access student benefits

Get free software, Azure credit, or access Azure Dev Tools for Teaching after you verify your academic status.

4. Open DevOps environment in the Azure platform by typing Azure DevOps Organizations in the search bar.


portal.azure.com/#home
Microsoft Azure
azure devops
All
Services (99+)
Resources
More (4)
Services
Azure DevOps organizations
Azure Cosmos DB
Azure Database for MySQL servers
Azure Deployment Environments
Marketplace
Azure Devops Backup Tool
Azure DevOps Auditing
Self Hosted Runner for Azure DevOps
Copilot4DevOps Plus
Documentation
Billing overview - Azure DevOps
DevOps architecture design - Azure Architecture Center
Configure CI/CD with Azure Pipelines - Azure App Service
Continue searching in Microsoft Entra ID
Give feedback
Welcome to Azure!
Start with an Azure free trial
Start
Azure services
Create a resource
Azure DevOps organizations
Storage accounts
SQL databases
More services
Resources
Recent
Favorite

5. Click on the My Azure DevOps Organization link and create an organization and you should be taken to the Azure DevOps Organization Home page.

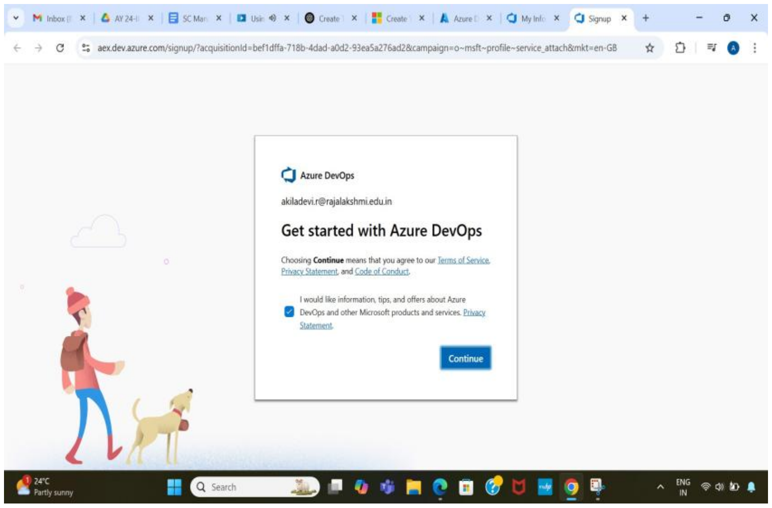

portal.azure.com/#view/AzureTfsExtension/OrganizationsTemplateBlade
Microsoft Azure
Search resources, services, and docs (G+/)
Home
Azure DevOps

We've made it easier to manage Azure DevOps billing and subscriptions. You can set up billing, change your subscription or pay for more users and resources within Azure DevOps. Learn more

Azure DevOps

Plan smarter, collaborate better, and ship faster with a set of modern dev services

My Azure DevOps Organizations
Get started using Azure DevOps
Billing management for Azure DevOps
Give feedback
Tell us about your experience with the Azure DevOps page



aex.dev.azure.com/signup/?acquisitionId=bef1dffa-718b-4dad-a0d2-93ea5a276ad2&campaign=o~msft~profile~service_attach&mkt=en-GB

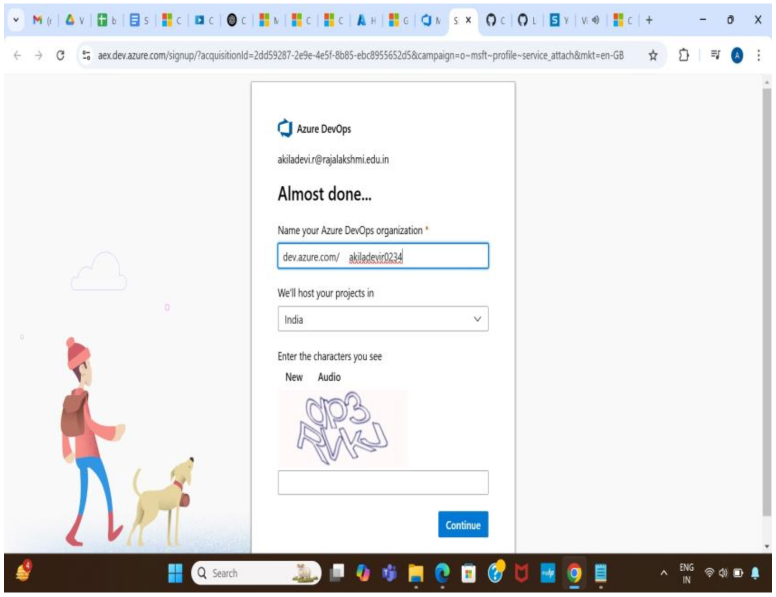
Azure DevOps

akiladevi.r@rajalakshmi.edu.in

Get started with Azure DevOps

Choosing **Continue** means that you agree to our Terms of Service, Privacy Statement, and Code of Conduct.

✓ I would like information, tips, and offers about Azure DevOps and other Microsoft products and services. Privacy Statement.


Azure DevOps

akiladevi.r@rajalakshmi.edu.in

Almost done...

Name your Azure DevOps organization *

dev.azure.com/ akiladevir0234

We'll host your projects in

India

Enter the characters you see

6. Create the First Project in Your Organization

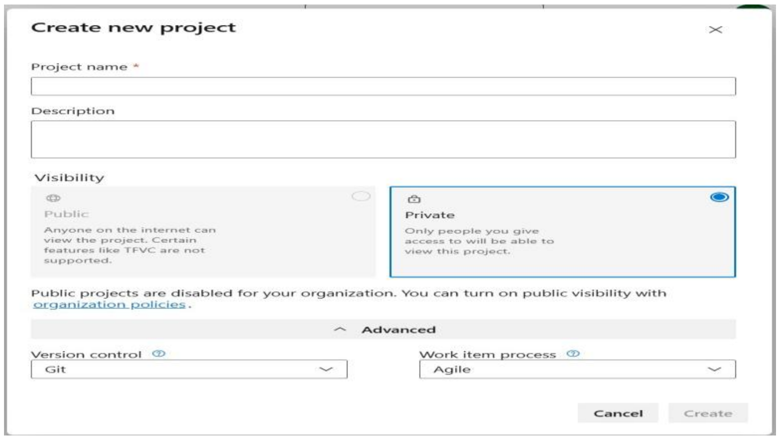
After the organization is set up, you'll need to create your first **project**. This is where you'll begin to manage code, pipelines, work items, and more.

i. On the organization's **Home page**, click on the **New Project** button.

ii. Enter the project name, description, and visibility options:

- **Name**: Choose a name for the project (e.g., `LMS`).
- **Description**: Optionally, add a description to provide more context about the project.
- **Visibility**: Choose whether you want the project to be **Private** (accessible only to those invited) or **Public** (accessible to anyone).

iii. Once you've filled out the details, click **Create** to set up your first project.


Create new project

Project name *

Description

Visibility

Public

Anyone on the internet can view the project. Certain features like TFVC are not supported.

Private

Only people you give access to will be able to view this project.

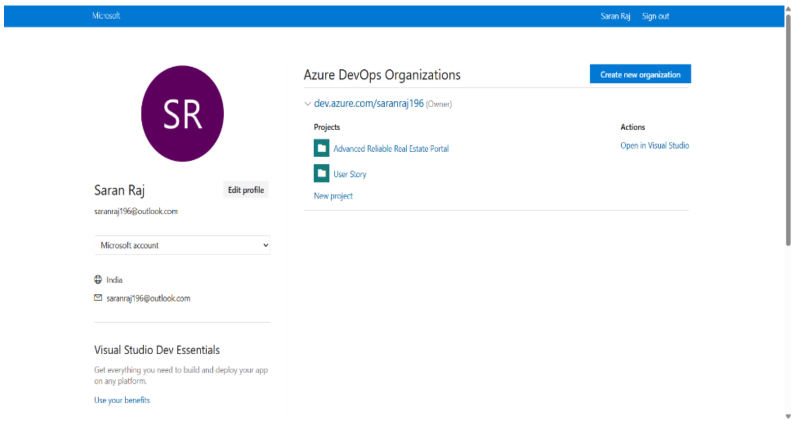
Public projects are disabled for your organization. You can turn on public visibility with organization policies.

Advanced

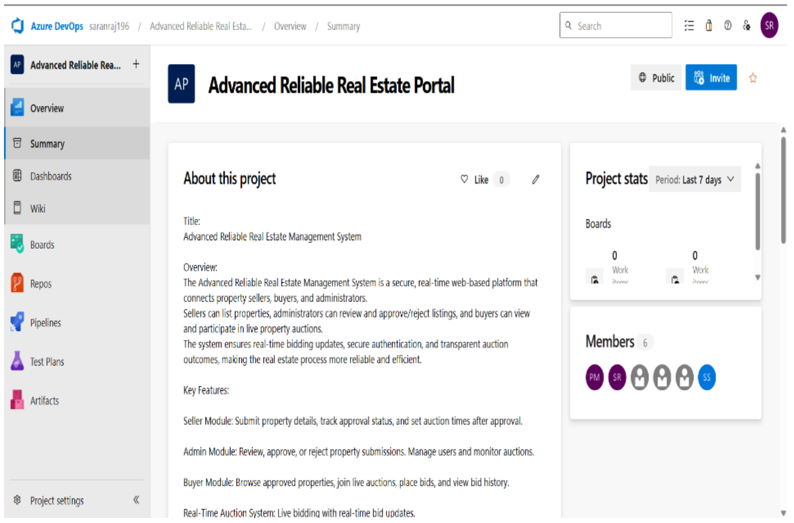
Version control: Git

Work item process: Agile

7. Once logged in, ensure you are in the correct organization. If you're part of multiple organizations, you can switch between them from the top left corner (next to your user profile). Click on the Organization name, and you should be taken to the Azure DevOps Organization Home page.



8. Project dashboard



Title:
Advanced Reliable Real Estate Management System

Overview:
The Advanced Reliable Real Estate Management System is a secure, real-time web-based platform that connects property sellers, buyers, and administrators.
Sellers can list properties, administrators can review and approve/reject listings, and buyers can view and participate in live property auctions.
The system ensures real-time bidding updates, secure authentication, and transparent auction outcomes, making the real estate process more reliable and efficient.

Key Features:

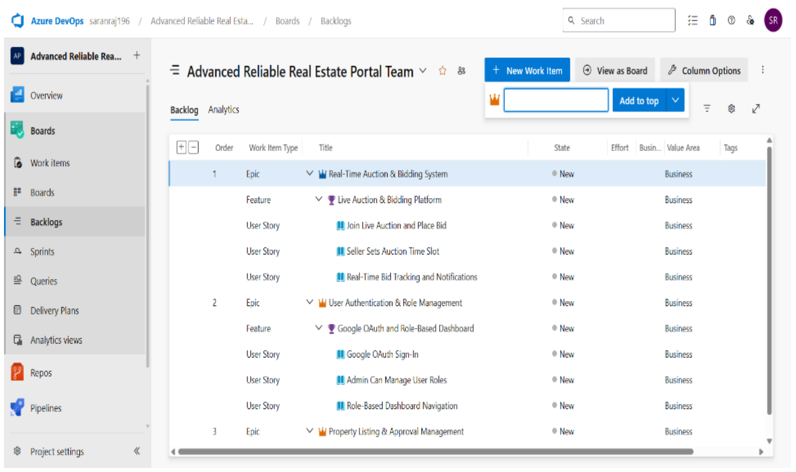
Seller Module: Submit property details, track approval status, and set auction times after approval.

Admin Module: Review, approve, or reject property submissions. Manage users and monitor auctions.

Buyer Module: Browse approved properties, join live auctions, place bids, and view bid history.

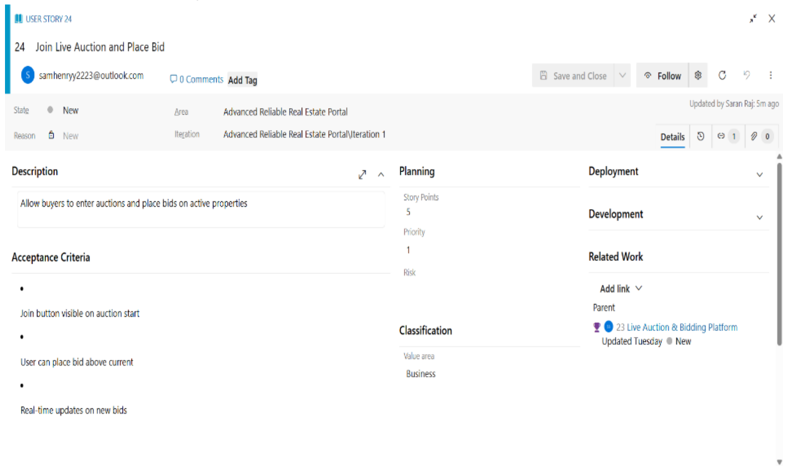
Real-Time Auction System: Live bidding with real-time bid updates.

9. To manage user stories
   a. From the **left-hand navigation menu**, click on **Boards**. This will take you to the main **Boards** page, where you can manage work items, backlogs, and sprints.
   b. On the **work items** page, you'll see the option to **Add a work item** at the top. Alternatively, you can find a **+** button or **Add New Work Item** depending on the view you're in. From the **Add a work item** dropdown, select **User Story**. This will open a form to enter details for the new User Story.



Order	Work Item Type	Title	State	Effort	Busin...	Value Area	Tags
1	Epic	Real-Time Auction & Bidding System	New			Business	
	Feature	Live Auction & Bidding Platform	New			Business	
	User Story	Join Live Auction and Place Bid	New			Business	
	User Story	Seller Sets Auction Time Slot	New			Business	
	User Story	Real-Time Bid Tracking and Notifications	New			Business	
2	Epic	User Authentication & Role Management	New			Business	
	Feature	Google OAuth and Role-Based Dashboard	New			Business	
	User Story	Google OAuth Sign-In	New			Business	
	User Story	Admin Can Manage User Roles	New			Business	
	User Story	Role-Based Dashboard Navigation	New			Business	
3	Epic	Property Listing & Approval Management	New			Business	

10. Fill in User Story Details



USER STORY 24

24 Join Live Auction and Place Bid

samhenryy2223@outlook.com

0 Comments Add Tag

Save and Close | Follow

Updated by Saran Raj: 5m ago

State: New | Area: Advanced Reliable Real Estate Portal

Reason: New | Iteration: Advanced Reliable Real Estate Portal\Iteration 1

Details | 1 | 0

Description

Allow buyers to enter auctions and place bids on active properties

Acceptance Criteria

- Join button visible on auction start
- User can place bid above current
- Real-time updates on new bids

Planning

Story Points: 5

Priority: 1

Risk:

Classification

Value area: Business

Deployment

Development

Related Work

Add link

Parent

23 Live Auction & Bidding Platform
Updated Tuesday ● New

Result:

The user story was written successfully.

EX NO: 5

SEQUENCE DIAGRAM

Aim:

To design a Sequence Diagram by using Mermaid.js

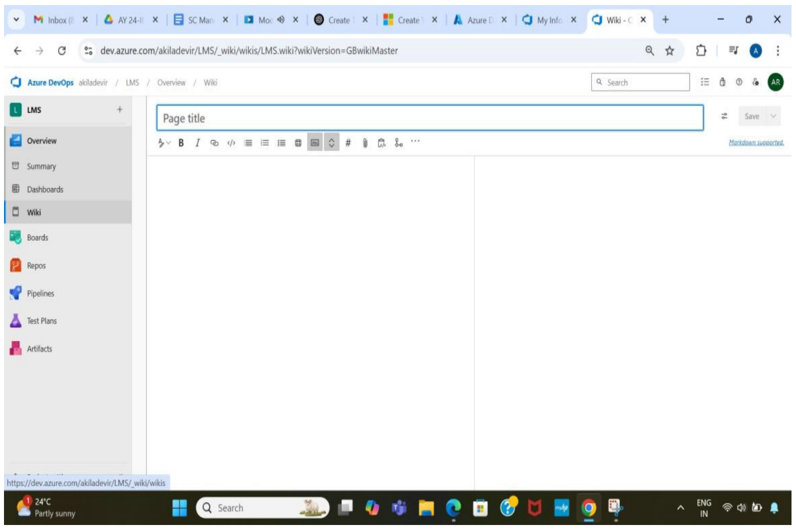
THEORY:

A Sequence Diagram is a key component of Unified Modelling Language (UML) used to visualize the interaction between objects in a sequential order. It focuses on how objects communicate with each other over time, making it an essential tool for modelling dynamic behaviour in a system.

Procedure:

1. Open a project in Azure DevOps Organisations.

2. To design select wiki from menu



3. Write code for drawing sequence diagram and save the code. ::: mermaid sequenceDiagram

```
sequenceDiagram
    participant Instructor
    participant System
    participant StudentDatabase
    participant CourseDatabase

    Instructor->>System: Login
    System->>Instructor: Authenticate & Show Dashboard

    Instructor->>System: Select Course & Student
    System->>CourseDatabase: Fetch Course Details
    System->>StudentDatabase: Fetch Student Record
```

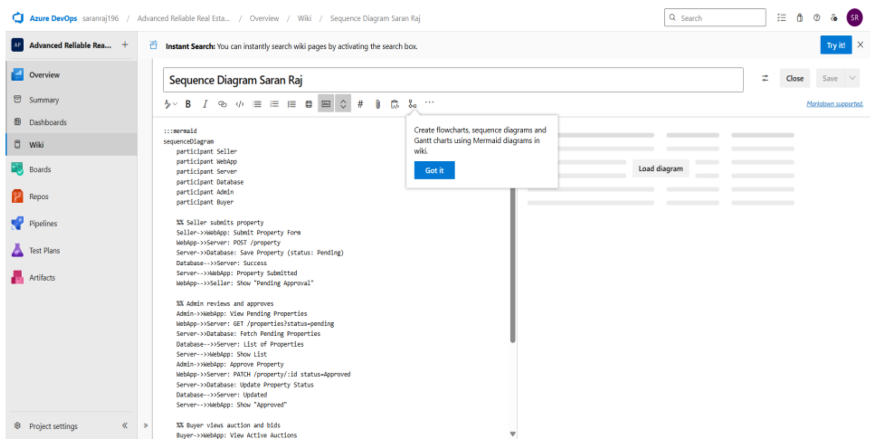
```
Instructor->>System: Enter Grade
System->>StudentDatabase: Save Grade
StudentDatabase-->>System: Confirm Grade Saved

System-->>Instructor: Grade Submission Success:::
```

Explanation:

participant defines the entities involved.
->> represents a direct message.
-->> represents a response message. + after
->> activates a participant.
  - after -->> deactivates a participant.
alt / else for conditional flows. loop can
be used for repeated actions.

->	Solid line without arrow
-->	Dotted line without arrow
->>	Solid line with arrowhead
-->>	Dotted line with arrowhead
<<->>	Solid line with bidirectional arrowheads (v11.0.0+)
<<-->>	Dotted line with bidirectional arrowheads (v11.0.0+)
-x	Solid line with a cross at the end
--x	Dotted line with a cross at the end
-)	Solid line with an open arrow at the end (async)
--)	Dotted line with a open arrow at the end (async)



Instant Search: You can instantly search wiki pages by activating the search box.

Sequence Diagram Saran Raj

Create flowcharts, sequence diagrams and Gantt charts using Mermaid diagrams in wiki.

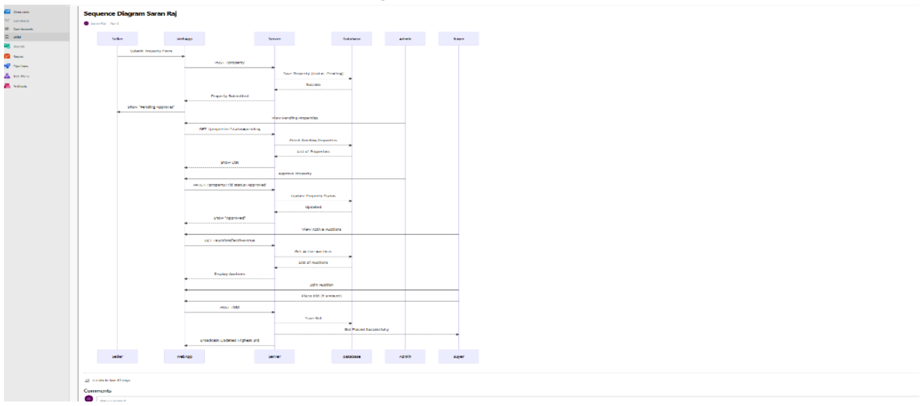
```
:::mermaid
sequenceDiagram
    participant Seller
    participant WebApp
    participant Server
    participant Database
    participant Admin
    participant Buyer

    %% Seller submits property
    Seller->>WebApp: Submit Property Form
    WebApp->>Server: POST /property
    Server->>Database: Save Property (status: Pending)
    Database-->>Server: Success
    Server-->>WebApp: Property Submitted
    WebApp-->>Seller: Show "Pending Approval"

    %% Admin reviews and approves
    Admin->>WebApp: View Pending Properties
    WebApp->>Server: GET /properties?status=pending
    Server->>Database: Fetch Pending Properties
    Database-->>Server: List of Properties
    Server-->>WebApp: Show List
    Admin->>WebApp: Approve Property
    WebApp->>Server: PATCH /property/:id status=Approved
    Server->>Database: Update Property Status
    Database-->>Server: Updated
    Server-->>WebApp: Show "Approved"

    %% Buyer views auction and bids
    Buyer->>WebApp: View Active Auctions
```

4. click wiki menu and select the page



Result:

The sequence diagram was drawn successfully.

EX NO. 6

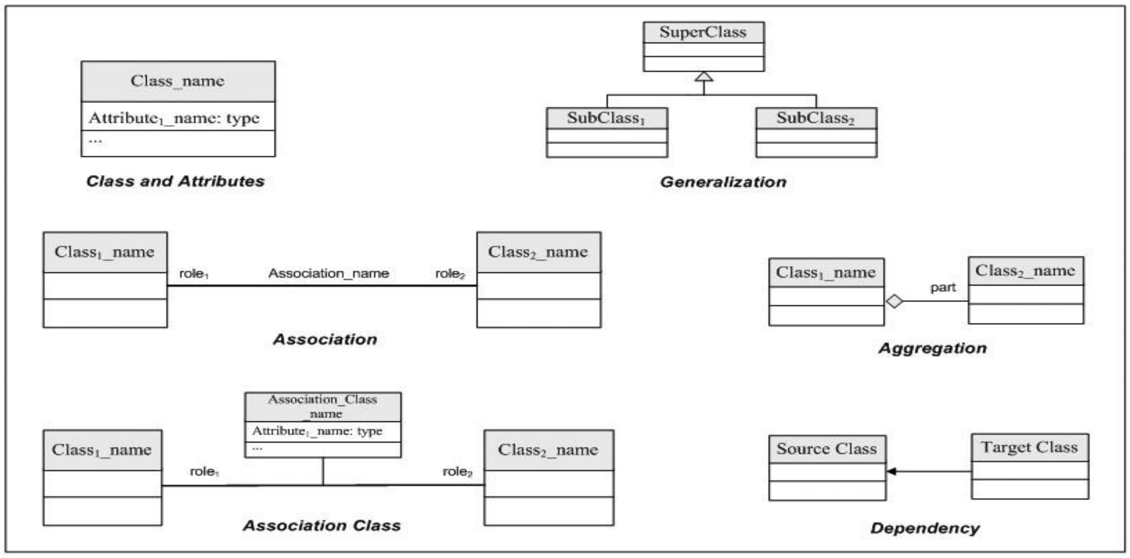
CLASS DIAGRAM

AIM :-

To draw a sample class diagram for Student Management System.

THEORY :

A UML class diagram is a visual tool that represents the structure of a system by showing its classes, attributes, methods, and the relationships between them.

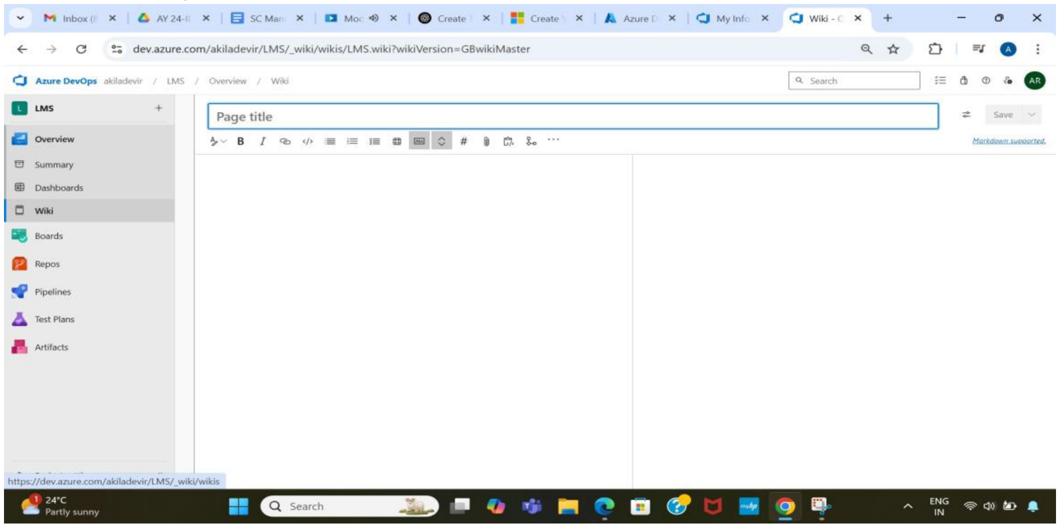


Notations in class diagram

Procedure:

1. Open a project in Azure DevOps Organisations.

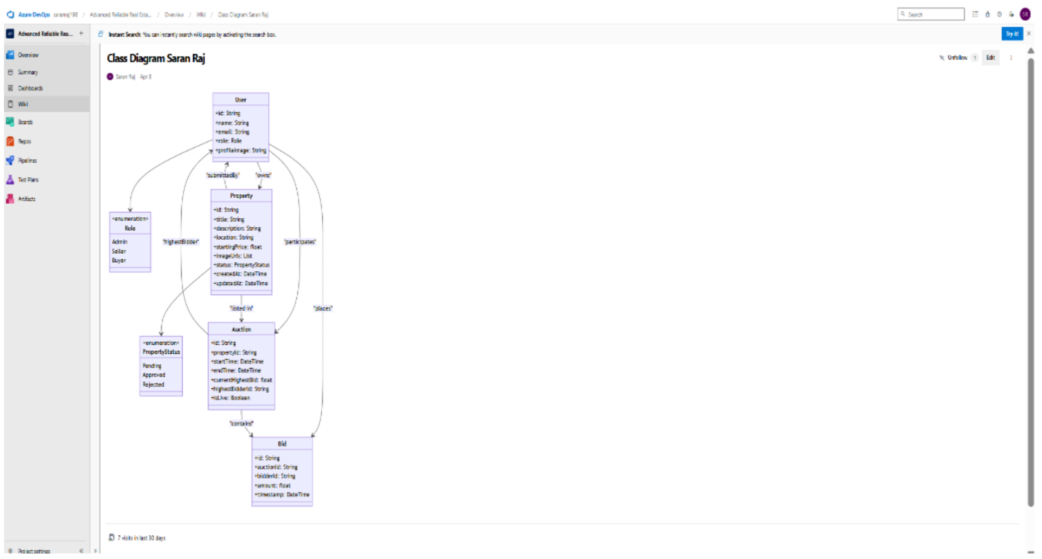
2. To design select wiki from menu


dev.azure.com/akiladevir/LMS/_wiki/wikis/LMS.wiki?wikiVersion=GBwikiMaster
Azure DevOps akiladevir / LMS / Overview / Wiki
LMS
Overview
Summary
Dashboards
Wiki
Boards
Repos
Pipelines
Test Plans
Artifacts
Page title
Save
Markdown supported.
Search

3. Write code for drawing class diagram and save the code

```
Class Diagram
   class Student {
      +string student Id
```

```
    +string name
    +Date dob
    +string email
}
class Course{
    +string course Id
    +string title
    +int credits
}
class Instructor {
    +string instructorId
    +string name
    +string email
}
class User {
    +string userId
    +string username
    +string password
    +string role
}
%% Relationships
Student "1" --> "many" Grade
Course "1" --> "many" Grade
Student "many" --> "many" Course
Course "1" --> "1" Instructor
Student --|> User
Instructor --|> User
```



Result:

The use case diagram was designed successfully.

EX NO: 7

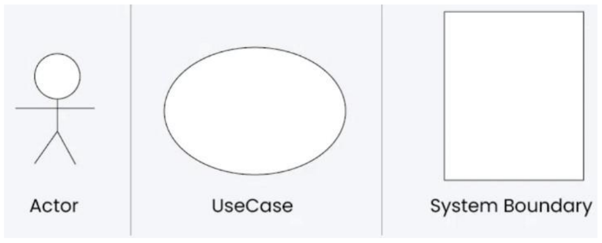
USECASE DIAGRAM

Aim:

Steps to draw the Use Case Diagram using draw.io

Theory:

- UCD shows the relationships among actors and use cases within a system which Provide an overview of all or part of the usage requirements for a system or organization in the form of an essential model or a business model and communicate the scope of a development project
- **Use Cases**
- **Actors**
- **Relationships**
- **System Boundary Boxes**



Procedure

Step 1: Create the Use Case Diagram in Draw.io

- Open Draw.io (diagrams.net).
- Click "Create New Diagram" and select "Blank" or "UML Use Case" template.
- Add Actors (Users, Admins, External Systems) from the UML section.
- Add Use Cases (Functionalities) using ellipses.
- Connect Actors to Use Cases with lines (solid for direct interaction, dashed for <<include>> and <<extend>>).
- Save the diagram as .drawio or export as PNG/JPG/SVG.

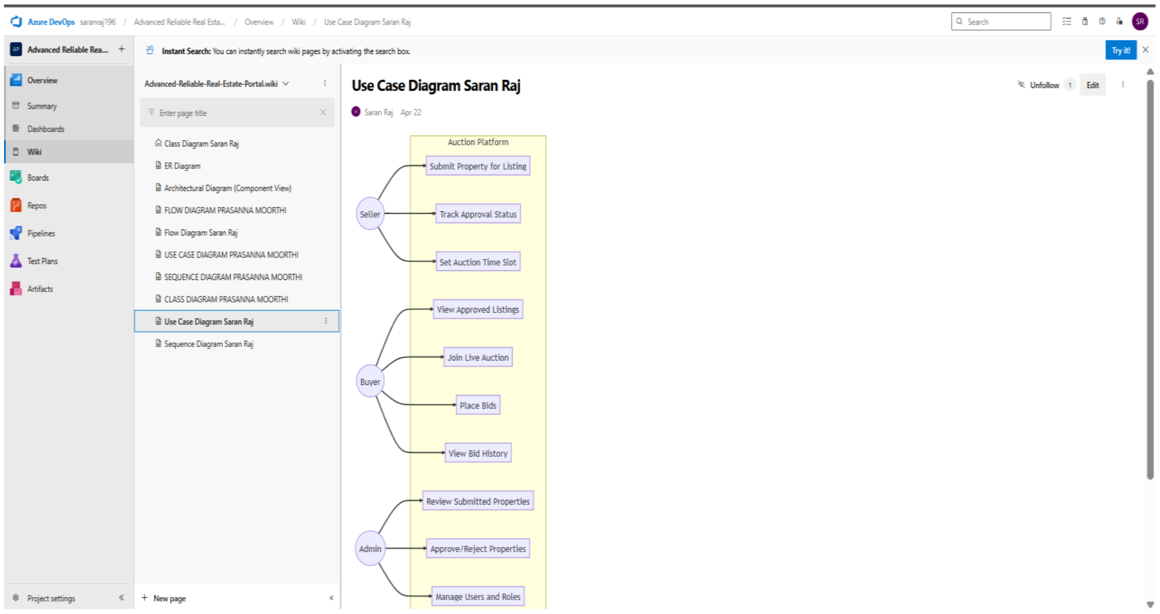
Step 2: Upload the Diagram to Azure DevOps

Option 1: Add to Azure DevOps Wiki ● Open Azure DevOps and go to your project.

- Navigate to Wiki (Project > Wiki).
- Click "Edit Page" or create a new page.
- Drag & Drop the exported PNG/JPG image.
- Use Markdown to embed the diagram:
- ![Use Case Diagram](attachments/use_case_diagram.png)

Option 2: Attach to Work Items in Azure Boards

- Open Azure DevOps → Navigate to Boards (Project > Boards).
- Select a User Story, Task, or Feature.
- Click "Attachments" → Upload your Use Case Diagram.
- Add comments or descriptions to explain the use case.


Azure DevOps saranraj196 / Advanced Reliable Real Esta... / Overview / Wiki / Use Case Diagram Saran Raj
Search
Advanced Reliable Rea...
Instant Search: You can instantly search wiki pages by activating the search box.
Try it!
Overview
Summary
Dashboards
Wiki
Boards
Repos
Pipelines
Test Plans
Artifacts
Project settings
Advanced-Reliable-Real-Estate-Portal.wiki
Enter page title
Class Diagram Saran Raj
ER Diagram
Architectural Diagram (Component View)
FLOW DIAGRAM PRASANNA MOORTHI
Flow Diagram Saran Raj
USE CASE DIAGRAM PRASANNA MOORTHI
SEQUENCE DIAGRAM PRASANNA MOORTHI
CLASS DIAGRAM PRASANNA MOORTHI
Use Case Diagram Saran Raj
Sequence Diagram Saran Raj
New page
Use Case Diagram Saran Raj
Saran Raj Apr 22
Unfollow
Edit
Auction Platform
Seller
Submit Property for Listing
Track Approval Status
Set Auction Time Slot
Buyer
View Approved Listings
Join Live Auction
Place Bids
View Bid History
Admin
Review Submitted Properties
Approve/Reject Properties
Manage Users and Roles

Result:

The use case diagram was designed successfully

EX NO. 8

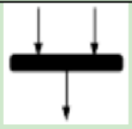
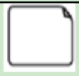
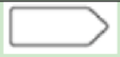
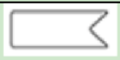
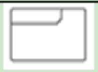
ACTIVITY DIAGRAM

AIM :-

To draw a sample activity diagram for your project or system.

THEORY

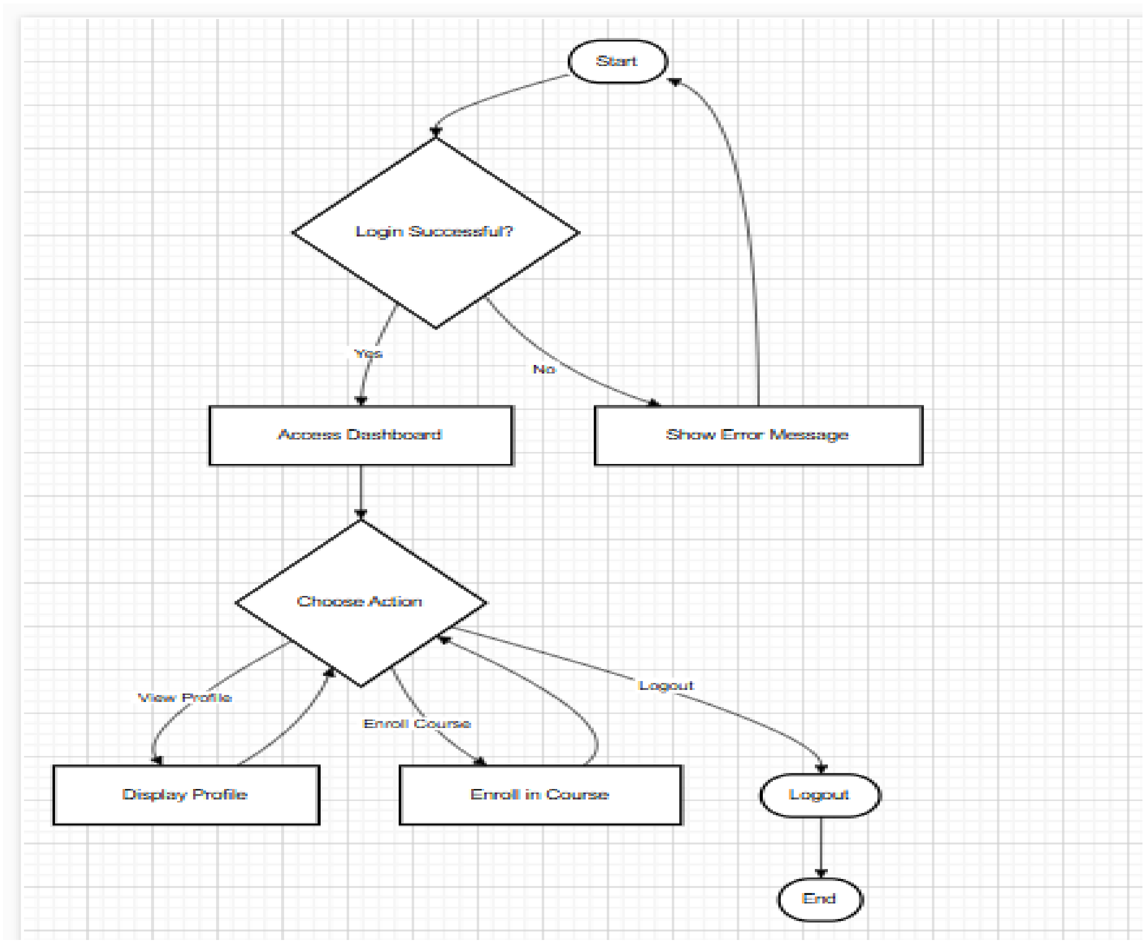
Activity diagrams are an essential part of the Unified Modelling Language (UML) that help visualize workflows, processes, or activities within a system. They depict how different

Notations	**Symbol**	**Meaning**
Start	●	Shows the beginning of a process
Connector	→	Shows the directional flow, or control flow, of the activity
Joint symbol		Combines two concurrent activities and re-introduces them to a flow where one activity occurs at a time
Decision	◇	Represents a decision
Note		Allows the diagram creators o communicate additional messages
Send signal		Show that a signal is being sent to a receiving activity
Receive signal		Demonstrates the acceptance of an event
Flow final symbol	⊗	Represents the end of a specific process flow
Option loop		Allows the creator to model a repetitive sequence within the option loop symbol
Shallow history pseudostate	Ⓗ	Represents a transition that invokes the last active state.
End	◉	Marks the end state of an activity and represents the completion of all flows of a process

actions are connected and how a system moves from one state to another.

Procedure

1. Draw diagram in draw.io
2. Upload the diagram in Azure DevOps wiki



Result:

The activity diagram was designed successfully

EX NO. 9

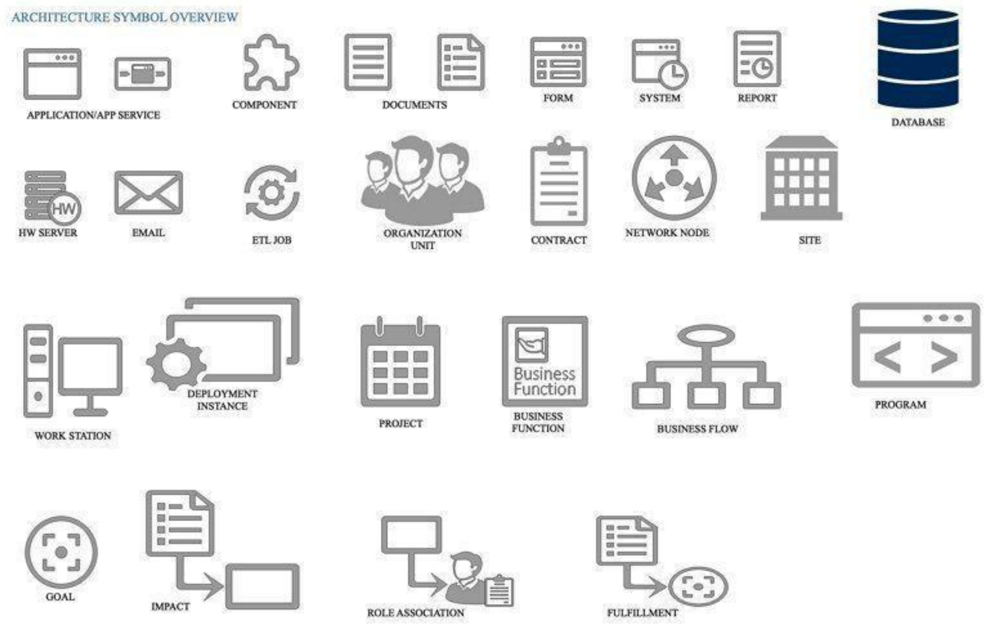
ARCHITECTURE DIAGRAM

Aim:

Steps to draw the Architecture Diagram using draw.io.

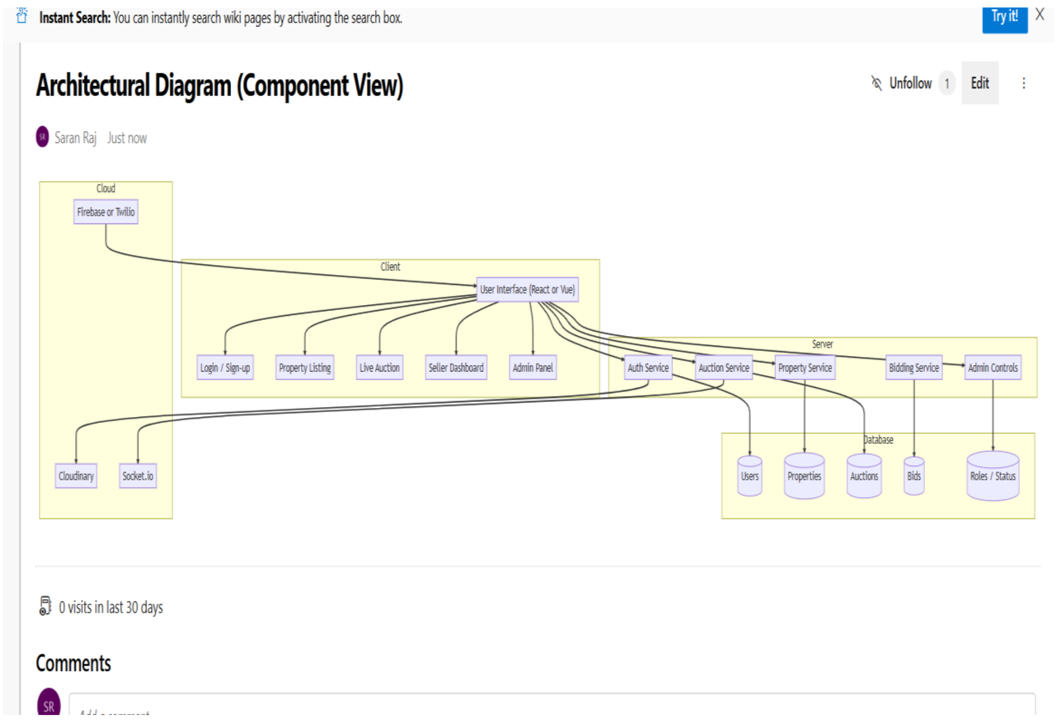
Theory:

An architectural diagram is a visual representation that maps out the physical implementation for components of a software system. It shows the general structure of the software system and the associations, limitations, and boundaries between each element.



Procedure

1. Draw diagram in draw.io
2. Upload the diagram in Azure DevOps wiki


Instant Search: You can instantly search wiki pages by activating the search box. Try it! X

Architectural Diagram (Component View)

Unfollow 1 Edit

SR Saran Raj Just now

0 visits in last 30 days

Comments

SR

Result:

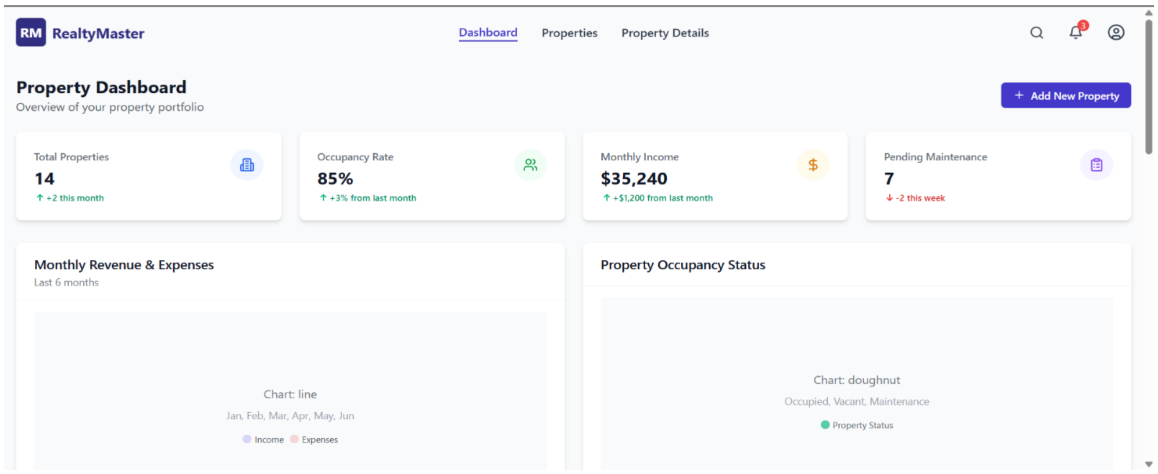
The architecture diagram was designed successfully

EX NO. 10

USER INTERFACE

Aim:

Design User Interface for the Student data Management System



RM RealtyMaster — Dashboard | Properties | Property Details

Property Dashboard
Overview of your property portfolio

+ Add New Property

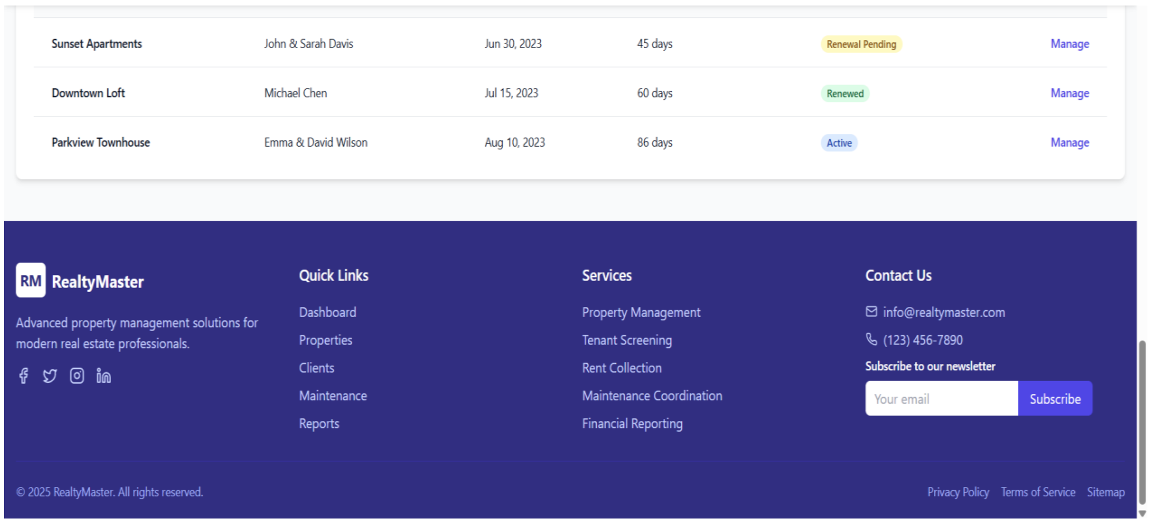
Total Properties	Occupancy Rate	Monthly Income	Pending Maintenance
14	85%	$35,240	7
↑ +2 this month	↑ +3% from last month	↑ +$1,200 from last month	↓ -2 this week

Monthly Revenue & Expenses
Last 6 months

Chart: line
Jan, Feb, Mar, Apr, May, Jun
● Income ● Expenses

Property Occupancy Status

Chart: doughnut
Occupied, Vacant, Maintenance
● Property Status



Sunset Apartments	John & Sarah Davis	Jun 30, 2023	45 days	Renewal Pending	Manage
Downtown Loft	Michael Chen	Jul 15, 2023	60 days	Renewed	Manage
Parkview Townhouse	Emma & David Wilson	Aug 10, 2023	86 days	Active	Manage

RM RealtyMaster

Advanced property management solutions for modern real estate professionals.

Quick Links
- Dashboard
- Properties
- Clients
- Maintenance
- Reports

Services
- Property Management
- Tenant Screening
- Rent Collection
- Maintenance Coordination
- Financial Reporting

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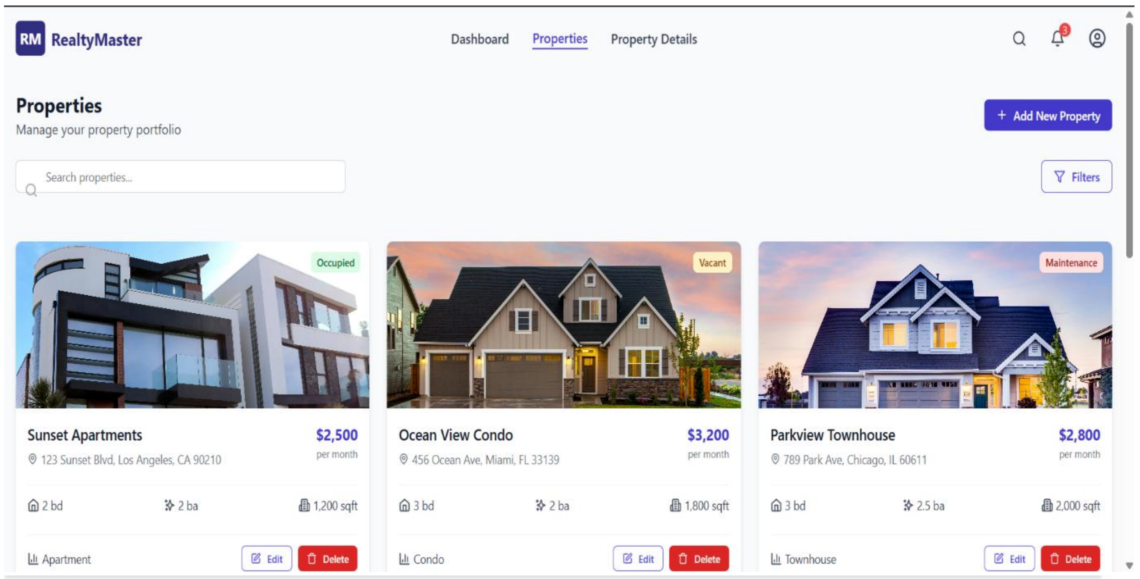


RM RealtyMaster

Dashboard | Properties | Property Details

Properties

Manage your property portfolio

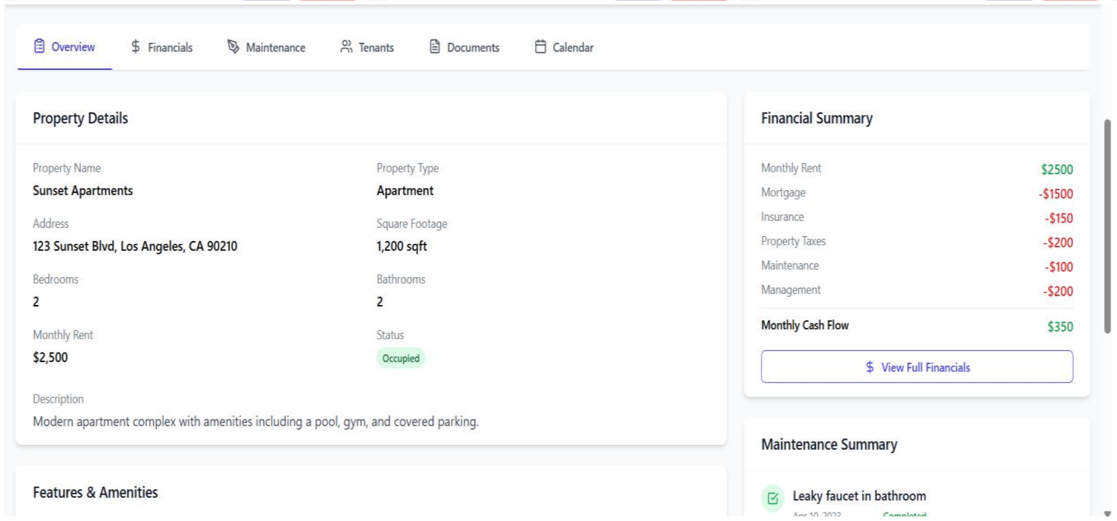
+ Add New Property

Search properties...

Filters

Property	Status	Address	Rent	Bedrooms	Bathrooms	Area	Type
Sunset Apartments	Occupied	123 Sunset Blvd, Los Angeles, CA 90210	$2,500 per month	2 bd	2 ba	1,200 sqft	Apartment
Ocean View Condo	Vacant	456 Ocean Ave, Miami, FL 33139	$3,200 per month	3 bd	2 ba	1,800 sqft	Condo
Parkview Townhouse	Maintenance	789 Park Ave, Chicago, IL 60611	$2,800 per month	3 bd	2.5 ba	2,000 sqft	Townhouse

Edit | Delete



Overview | Financials | Maintenance | Tenants | Documents | Calendar

Property Details

Property Name: Sunset Apartments	Property Type: Apartment
Address: 123 Sunset Blvd, Los Angeles, CA 90210	Square Footage: 1,200 sqft
Bedrooms: 2	Bathrooms: 2
Monthly Rent: $2,500	Status: Occupied

Description

Modern apartment complex with amenities including a pool, gym, and covered parking.

Financial Summary

Monthly Rent	$2500
Mortgage	-$1500
Insurance	-$150
Property Taxes	-$200
Maintenance	-$100
Management	-$200
Monthly Cash Flow	$350

View Full Financials

Features & Amenities

Maintenance Summary

Leaky faucet in bathroom

Result:

The UI was designed successfully.

EX NO. 11

IMPLEMENTATION

Aim:

To implement the given project based on Agile Methodology.

Procedure:

Step 1: Set Up an Azure DevOps Project

- Log in to Azure DevOps.
- Click "New Project" → Enter project name → Click "Create".
- Inside the project, navigate to "Repos" to store the code.

Step 2: Add Your Web Application Code

- Navigate to Repos → Click "Clone" to get the Git URL. ● Open Visual Studio Code / Terminal and run: git clone <repo_url> cd <repo_folder>

- Add web application code (HTML, CSS, JavaScript, React, Angular, or backend like Node.js, .NET, Python, etc.). ● Commit & push:

```
git add .
git commit -m "Initial commit" git
push origin main
```

Step 3: Set Up Build Pipeline (CI/CD - Continuous Integration)

- Navigate to Pipelines → Click "New Pipeline".
- Select Git Repository (Azure Repos, GitHub, or Bitbucket).
- Choose Starter Pipeline or a pre-configured template for your framework.
- Modify the azure-pipelines.yml file (Example for a Node.js app):

```
trigger:   - main

pool:
  vmImage: 'ubuntu-latest'

steps:
-      task: UseNode@1     inputs:
   version: '16.x'

-      script:       npm       install
displayName: 'Install dependencies'

-      script:    npm    run    build
displayName: 'Build application'

-      task: PublishBuildArtifacts@1
inputs:
   pathToPublish:              'dist'
artifactName: 'drop'
```

Click "Save and Run" → The pipeline will start building app.

Step 4: Set Up Release Pipeline (CD - Continuous Deployment)

- Go to Releases → Click "New Release Pipeline".
- Select Azure App Service or Virtual Machines (VMs) for deployment.
- Add an artifact (from the build pipeline).

- Configure deployment stages (Dev, QA, Production).
- Click "Deploy" to push your web app to Azure.

Result

Thus the application was successfully implemented.

EXP NO : 12

DATE : 12.04.2025

TESTING – TEST PLAN, TEST CASE, LOAD TESTING

AIM:

To design and manage structured test plans and test cases in Azure DevOps for validating core user stories through both happy path and error scenarios and evaluate the performance of the application's endpoint by creating and executing load tests using Azure Load Testing.

PROCEDURE:

TEST CASE DESIGN PROCEDURE

1. Understand Core Features of the Application

- Review requirement documents and user stories.
- Identify all main functionalities of the application.
- Ensure complete coverage of modules before test case creation.

2. Define User Interactions

- Determine common user behaviors based on application flow.
- Translate user actions into testable scenarios.
- Ensure each test case mimics a real user operation.

3. Design Happy Path Test Cases

- Create test cases for expected and correct user actions.
- Ensure each functionality works under normal conditions.
- Add these cases under the relevant Test Suite in Azure DevOps.

4. Design Error Path Test Cases

- Identify edge cases, invalid inputs, and system failures.
- Test how the system handles incorrect or unexpected behavior.
- Add these test cases to the same or a separate Test Suite in Azure DevOps.

5. Break Down Steps and Expected Results

- Write step-by-step instructions in the "Steps" section of the test case.
- Provide expected results for each action.
- Ensure clarity for both manual execution and automation mapping.

6. Use Clear Naming and IDs

- Name test cases clearly using a defined naming convention (e.g., TC01, TC02, etc.).
- Ensure titles reflect the purpose of the test case.
- Azure DevOps auto-generates test case IDs for tracking.

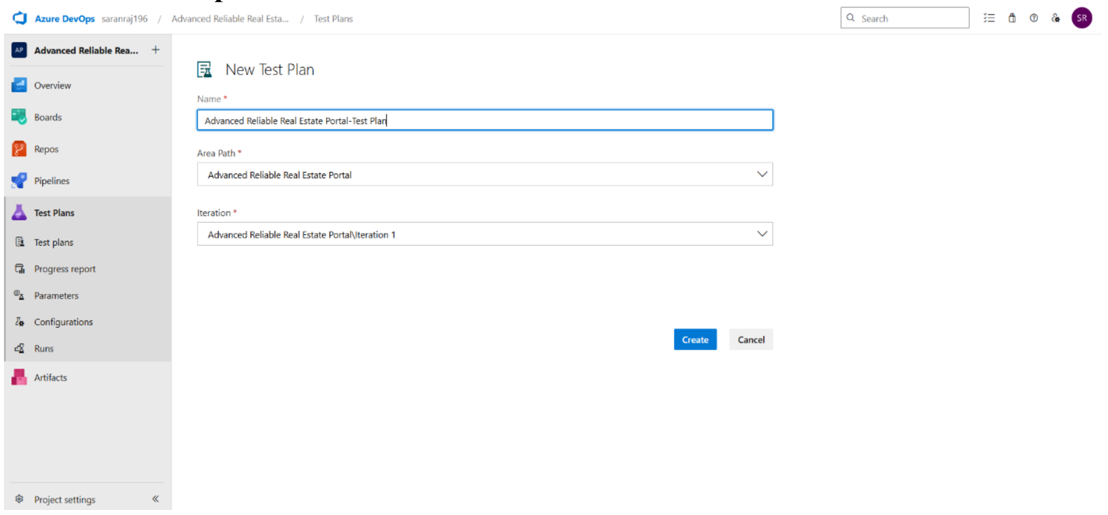
7. Separate Test Suites

- Group test cases based on functionality (e.g., Login, Playlist, Recommendations).
- Use Static, Requirement-based, or Query-based suites in Azure DevOps.
- Improves traceability and execution flow.

8. Prioritize and Review

- Mark test cases with priority (High, Medium, Low).
- Review test cases for completeness and correctness.
- Ensure alignment with associated user stories or features.

1. New test plan



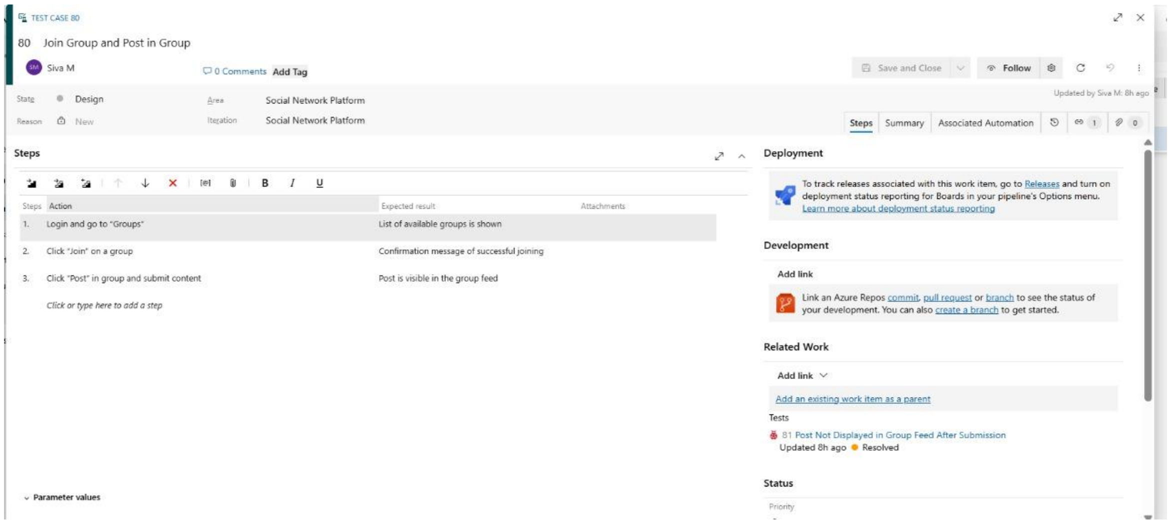
New Test Plan

Name *
Advanced Reliable Real Estate Portal-Test Plan

Area Path *
Advanced Reliable Real Estate Portal

Iteration *
Advanced Reliable Real Estate Portal\Iteration 1

2. Test case



TEST CASE 80

80 Join Group and Post in Group

Siva M 0 Comments Add Tag

Updated by Siva M: 8h ago

State: Design | Area: Social Network Platform
Reason: New | Iteration: Social Network Platform

Steps

Steps	Action	Expected result	Attachments
1.	Login and go to "Groups"	List of available groups is shown	
2.	Click "Join" on a group	Confirmation message of successful joining	
3.	Click "Post" in group and submit content	Post is visible in the group feed	
	Click or type here to add a step		

Deployment

To track releases associated with this work item, go to Releases and turn on deployment status reporting for Boards in your pipeline's Options menu. Learn more about deployment status reporting

Development

Link an Azure Repos commit, pull request or branch to see the status of your development. You can also create a branch to get started.

Related Work

Add an existing work item as a parent

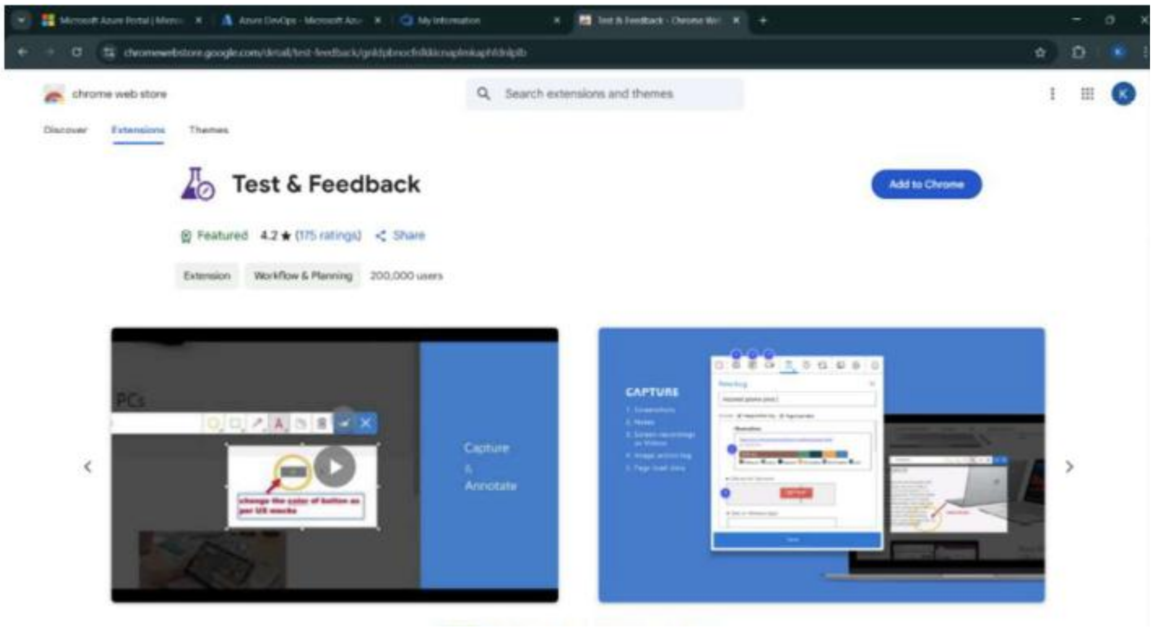
Tests

81 Post Not Displayed in Group Feed After Submission
Updated 8h ago ● Resolved

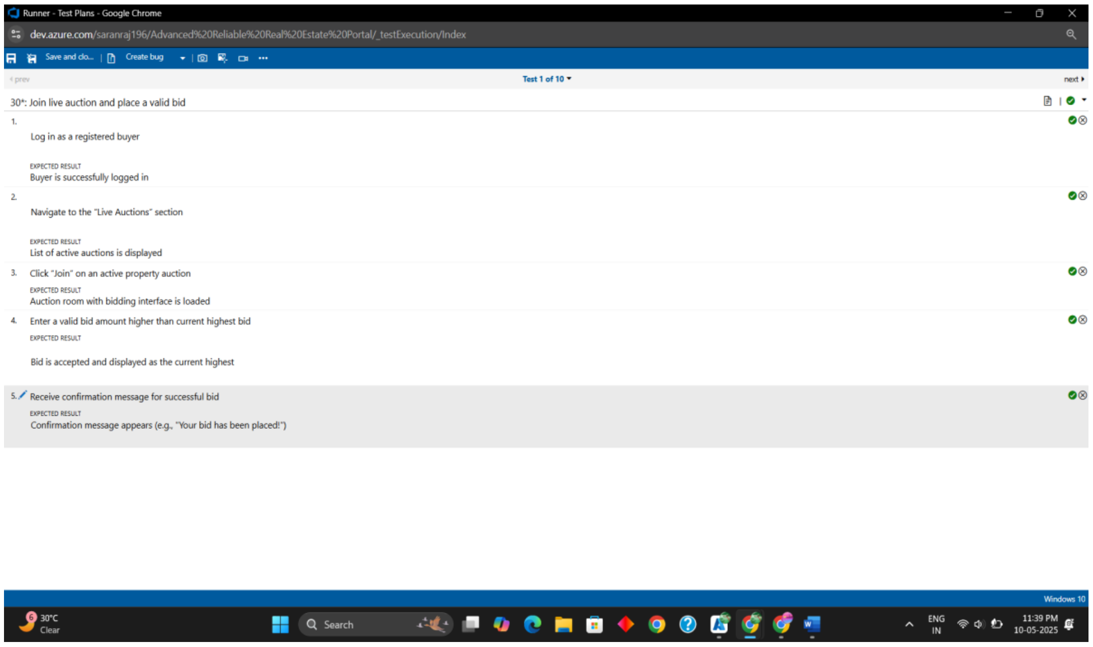
Status

Priority

3. Installation of Test



4. Running the Test Cases


Runner - Test Plans - Google Chrome
dev.azure.com/saranraj196/Advanced%20Reliable%20Real%20Estate%20Portal/_testExecution/Index
Save and clo...
Create bug
‹ prev
Test 1 of 10
next ›

30*: Join live auction and place a valid bid

1. Log in as a registered buyer

EXPECTED RESULT
Buyer is successfully logged in

2. Navigate to the "Live Auctions" section

EXPECTED RESULT
List of active auctions is displayed

3. Click "Join" on an active property auction

EXPECTED RESULT
Auction room with bidding interface is loaded

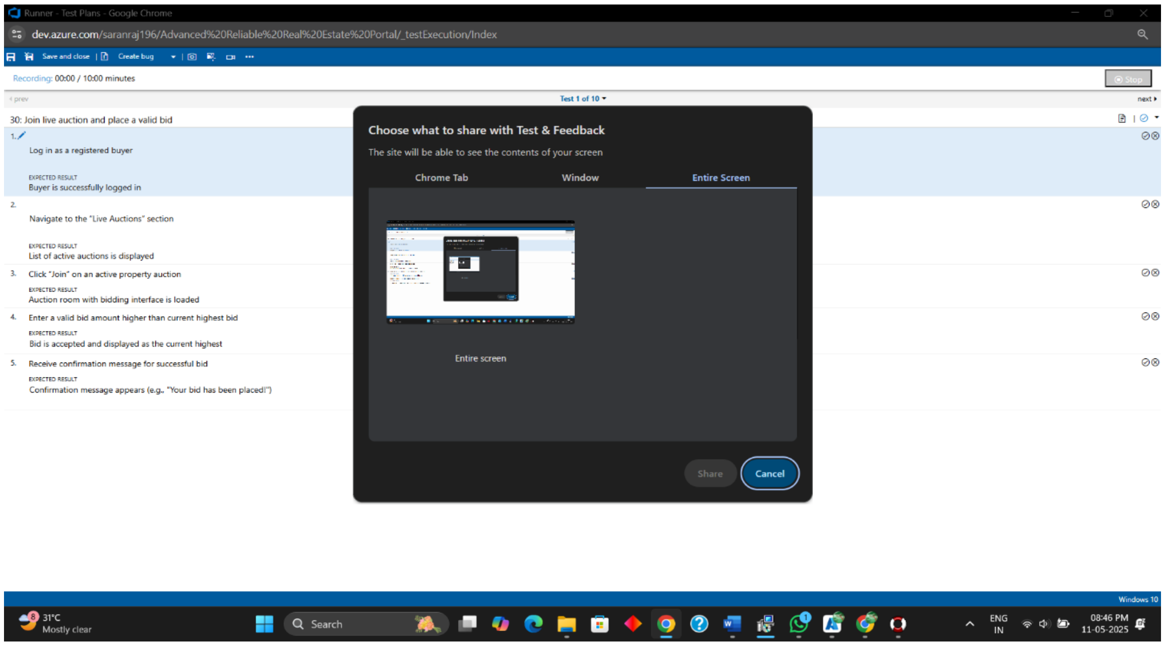
4. Enter a valid bid amount higher than current highest bid

EXPECTED RESULT
Bid is accepted and displayed as the current highest

5. Receive confirmation message for successful bid

EXPECTED RESULT
Confirmation message appears (e.g., "Your bid has been placed!")

5. Recording the Test Cases


Runner - Test Plans - Google Chrome

dev.azure.com/saranraj196/Advanced%20Reliable%20Real%20Estate%20Portal/_testExecution/Index

Recording: 00:00 / 10:00 minutes

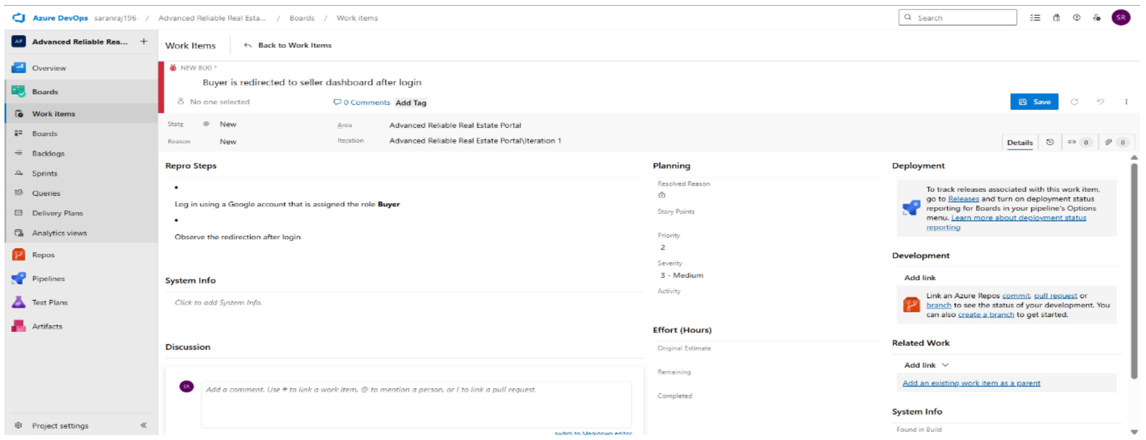
30: Join live auction and place a valid bid

1. Log in as a registered buyer
   EXPECTED RESULT
   Buyer is successfully logged in
2. Navigate to the "Live Auctions" section
   EXPECTED RESULT
   List of active auctions is displayed
3. Click "Join" on an active property auction
   EXPECTED RESULT
   Auction room with bidding interface is loaded
4. Enter a valid bid amount higher than current highest bid
   EXPECTED RESULT
   Bid is accepted and displayed as the current highest
5. Receive confirmation message for successful bid
   EXPECTED RESULT
   Confirmation message appears (e.g., "Your bid has been placed!")

Choose what to share with Test & Feedback

The site will be able to see the contents of your screen

6. Creating Bugs


Azure DevOps saranraj196 / Advanced Reliable Real Esta... / Boards / Work items

NEW BUG *

Buyer is redirected to seller dashboard after login

No one selected

State: New
Reason: New
Area: Advanced Reliable Real Estate Portal
Iteration: Advanced Reliable Real Estate Portal\Iteration 1

Repro Steps

- Log in using a Google account that is assigned the role **Buyer**
- Observe the redirection after login

System Info

Click to add System Info.

Discussion

Add a comment. Use # to link a work item, @ to mention a person, or ! to link a pull request.

Planning

Resolved Reason

Story Points

Priority: 2

Severity: 3 - Medium

Activity

Effort (Hours)

Original Estimate

Remaining

Completed

Deployment

To track releases associated with this work item, go to Releases and turn on deployment status reporting for Boards in your pipeline's Options menu. Learn more about deployment status reporting

Development

Add link

Link an Azure Repos commit, pull request or branch to see the status of your development. You can also create a branch to get started.

Related Work

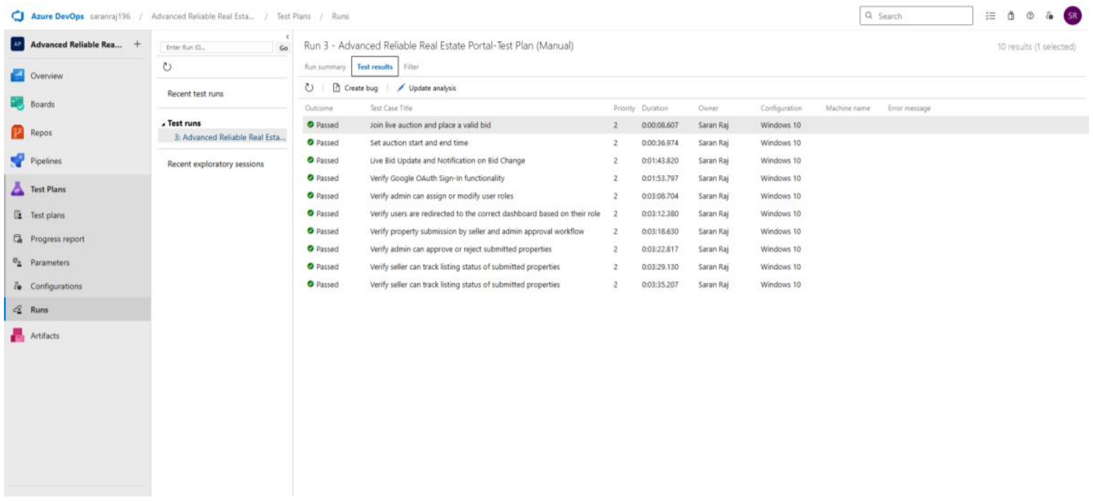
Add link

Add an existing work item as a parent

System Info

Found in Build

7. Test Case Results

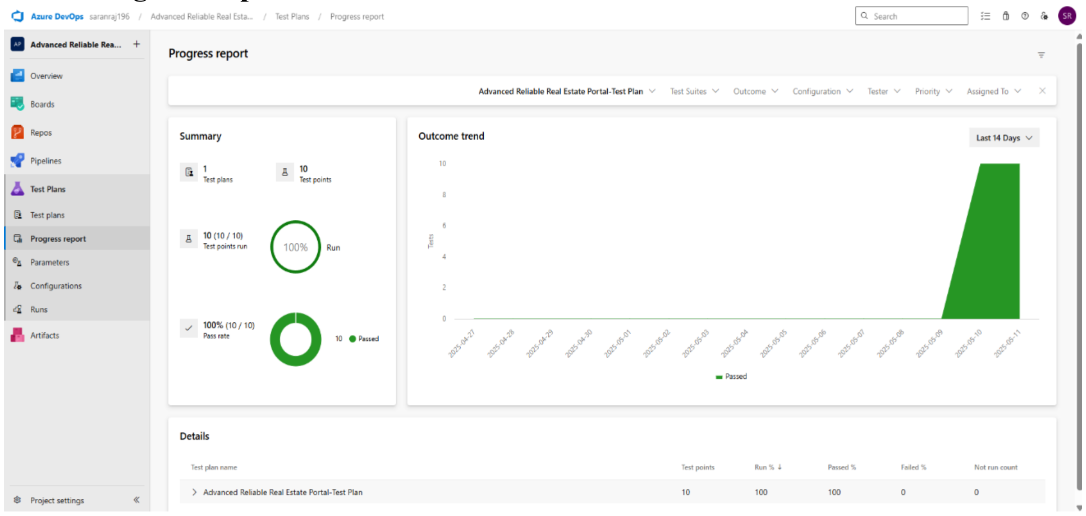


Run 3 - Advanced Reliable Real Estate Portal-Test Plan (Manual)

10 results (1 selected)

Outcome	Test Case Title	Priority	Duration	Owner	Configuration	Machine name	Error message
Passed	Join live auction and place a valid bid	2	0:00:08.607	Saran Raj	Windows 10		
Passed	Set auction start and end time	2	0:00:36.974	Saran Raj	Windows 10		
Passed	Live Bid Update and Notification on Bid Change	2	0:01:43.820	Saran Raj	Windows 10		
Passed	Verify Google OAuth Sign-In functionality	2	0:01:53.797	Saran Raj	Windows 10		
Passed	Verify admin can assign or modify user roles	2	0:03:08.704	Saran Raj	Windows 10		
Passed	Verify users are redirected to the correct dashboard based on their role	2	0:03:12.380	Saran Raj	Windows 10		
Passed	Verify property submission by seller and admin approval workflow	2	0:03:18.630	Saran Raj	Windows 10		
Passed	Verify admin can approve or reject submitted properties	2	0:03:22.817	Saran Raj	Windows 10		
Passed	Verify seller can track listing status of submitted properties	2	0:03:29.130	Saran Raj	Windows 10		
Passed	Verify seller can track listing status of submitted properties	2	0:03:35.207	Saran Raj	Windows 10		

8. Progress Report



Progress report

Advanced Reliable Real Estate Portal-Test Plan

Summary

1 Test plans

10 Test points

10 (10 / 10) Test points run — 100% Run

100% (10 / 10) Pass rate — 10 ● Passed

Outcome trend (Last 14 Days)

Details

Test plan name	Test points	Run %	Passed %	Failed %	Not run count
Advanced Reliable Real Estate Portal-Test Plan	10	100	100	0	0

LOAD TESTING PROCEDURE :

Steps to Create an Azure Load Testing Resource:

Before you run your first test, you need to create the Azure Load Testing resource:

1. Sign in to Azure Portal

Go to https://portal.azure.com and log in.

2. Create the Resource

- Go to Create a resource — Search for "Azure Load Testing".
- Select Azure Load Testing and click Create.

3. Fill in the Configuration Details

- Subscription: Choose your Azure subscription.
- Resource Group: Create new or select an existing one.
- Name: Provide a unique name (no special characters).
- Location: Choose the region for hosting the resource.

4. (Optional) Configure tags for categorization and billing.
5. Click Review + Create, then Create.
6. Once deployment is complete, click Go to resource.

Steps to Create and Run a Load Test:

Once your resource is ready:

1. Go to your Azure Load Testing resource and click Add HTTP requests > Create.
2. Basics Tab

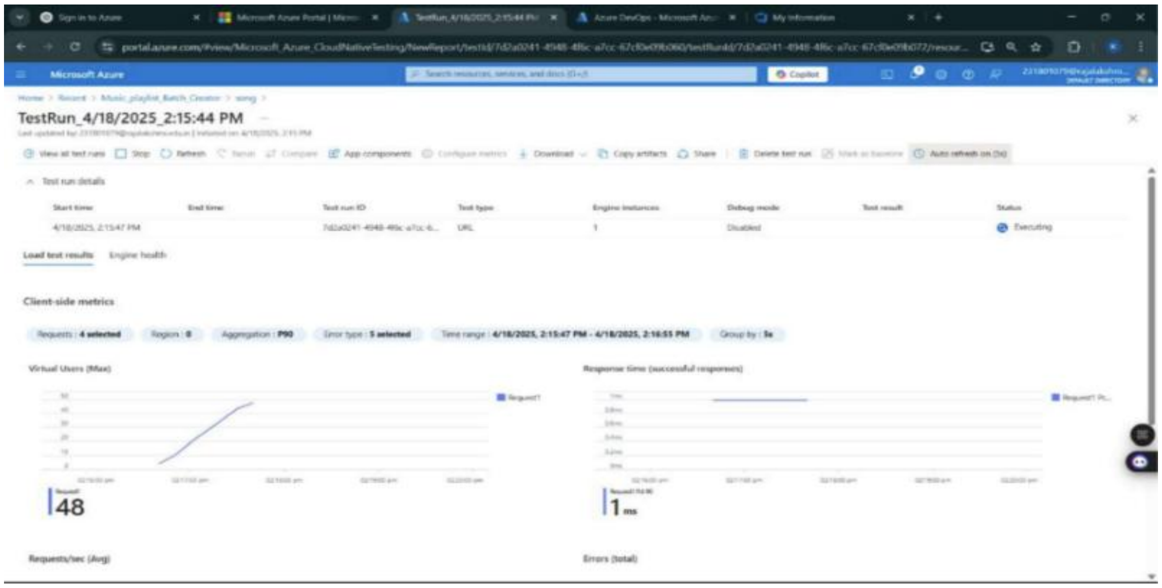
- Test Name: Provide a unique name.
- Description: (Optional) Add test purpose.
- Run After Creation: Keep checked.

3. Load Settings

- Test URL: Enter the target endpoint (e.g., https://yourapi.com/products).

4. Click Review + Create — Create to start the test.

Load Testing



TestRun_4/18/2025_2:15:44 PM

Test run details

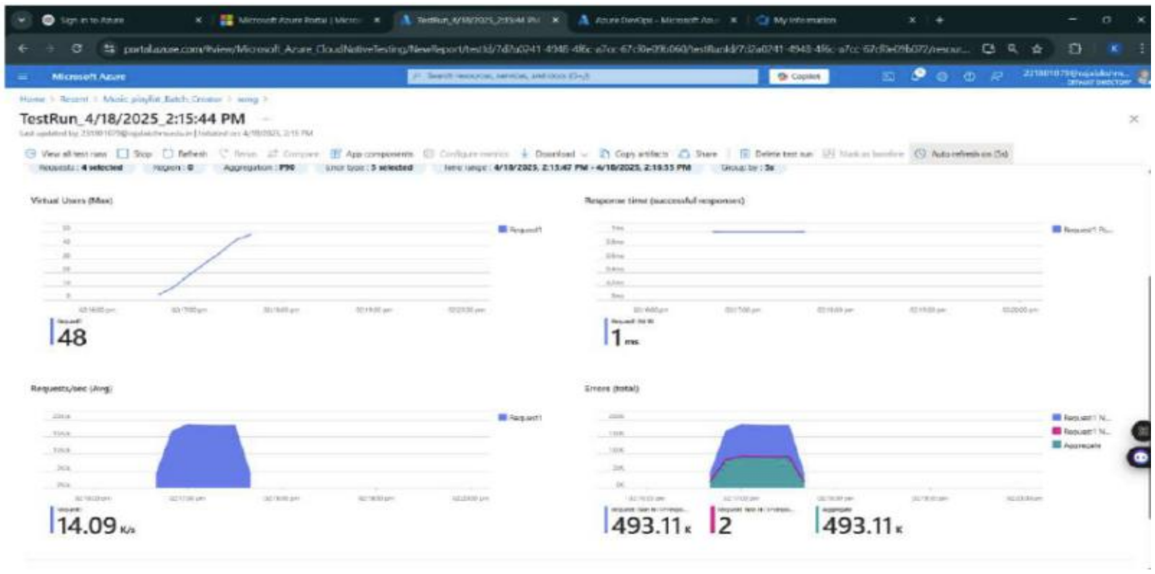
Start time	End time	Test run ID	Test type	Engine instances	Debug mode	Test result	Status
4/18/2025, 2:15:47 PM		7d2a0241-4948-4f6c-a7cc-6...	URL	1	Disabled		Executing

Client-side metrics

Requests : 4 selected | Region : 0 | Aggregation : P90 | Error type : 5 selected | Time range : 4/18/2025, 2:15:47 PM - 4/18/2025, 2:16:55 PM | Group by : 5s

Virtual Users (Max): 48

Response time (successful responses): 1 ms



RESULT:
Test plans and test cases for selected user stories were created in Azure DevOps, covering both happy and error paths and an Azure Load Testing resource was also set up, and a load test was successfully run to evaluate the performance of the target endpoint.