RAJALAKSHMI ENGINEERING COLLEGE

RAJALAKSHMI NAGAR, THANDALAM - 602 105



(REGULATION 2023)

CS23432 Software Construction

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING LABORATORY RECORD NOTEBOOK

DEJASWINI B G Name:
Year / Branch / Section :
Register No. :
Semester:
Academic Year:



RAJALAKSHMI ENGINEERING COLLEGE (AUTONOMOUS) RAJALAKSHMI NAGAR, THANDALAM- 602 105

BONAFIDE CERTIFICATE

NAME	DEJASWINI B G	REGISTER NO	2116 231501032
ACADE	MIC YEAR 2024-25 SEMESTER	R-IV BRANCI	H: AIML-B.Tech
This Cer	tification is the Bonafide record of	work done by th	e above student
in the CS	S23432- Software Construction L	aboratory durin	g
the year 202	24- 2025.		
		Signature of Fa	aculty-in— Charge
Submitted t	for the Practical Examination held on		
Internal Exa	aminer	F	External Examiner

INDEX

NAME: DEJASWINI B G BRANCH: AIML SEC: A ROLL NO: 231501032

S. No.	Date	TITLE	Page No.	Teacher's Signature / Remarks
1.	31.1.25	Azure DevOps Environment Setup		
2.	14.2.25	Azure DevOps Project Setup and User Story Management		
3.	21.2.25	Setting Up Epics, Features, and User Stories for Project Planning		
4.	28.2.25	Sprint Planning		
5.	31.1.25	Poker Estimation		
6.	07.3.25	Designing Class and Sequence Diagrams for Project Architecture		
7.	21.2.25	Designing Architectural and ER Diagrams for Project Structure		
8.	28.3.25	Testing – Test Plans and Test Cases		
9.	04.4.25	Load Testing and Performance Testing		
10.	21.4.25	Github: Project Structure & Naming Conventions		

AZURE DEVOPS ENVIRONMENT SETUP

Aim:

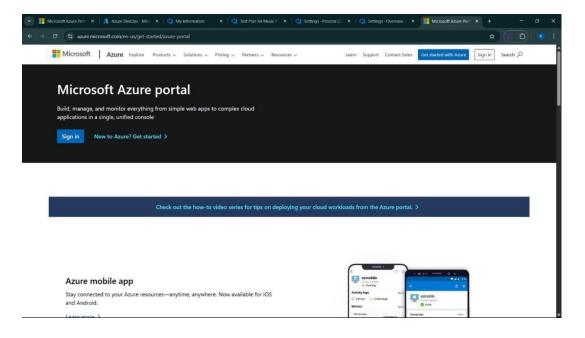
To set up and access the Azure DevOps environment by creating an organization through the Azure portal.

INSTALLATION

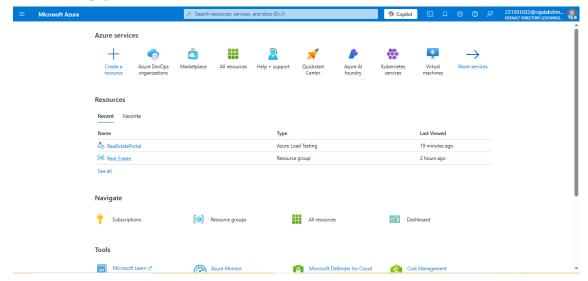
1. Open your web browser and go to the Azure website: https://azure.microsoft.com/en-us/get-started/azure-portal.

Sign in using your Microsoft account credentials.

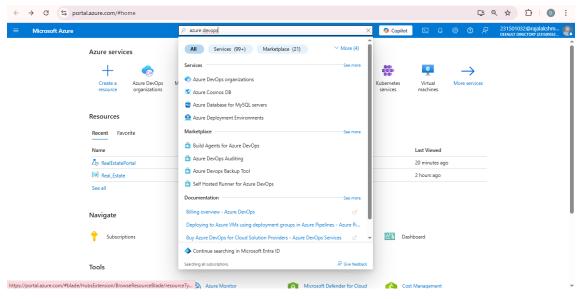
If you don't have a Microsoft account, you can create one here: https://signup.live.com/?lic=1



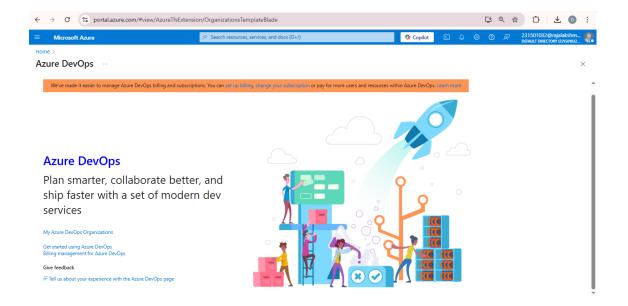
2. Azure home page



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



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



Result:

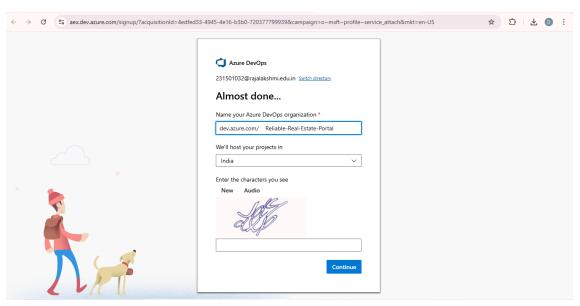
Successfully accessed the Azure DevOps environment and created a new organization through the Azure portal.

AZURE DEVOPS PROJECT SETUP AND USER STORY MANAGEMENT

Aim:

To set up an Azure DevOps project for efficient collaboration and agile work management.

1. Create An Azure Account



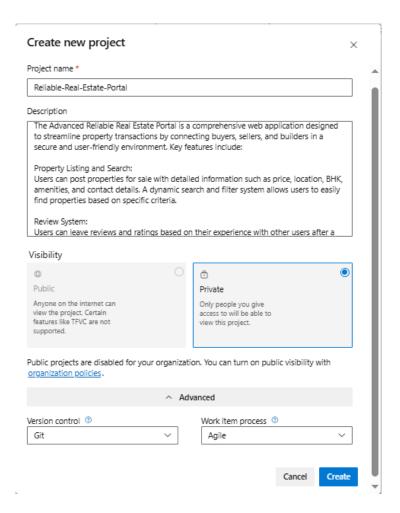
2. Create the First Project in Your Organization

- a. 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.
 - b. On the organization's **Home page**, click on the **New Project** button.
 - c. Enter the project name, description, and visibility options:

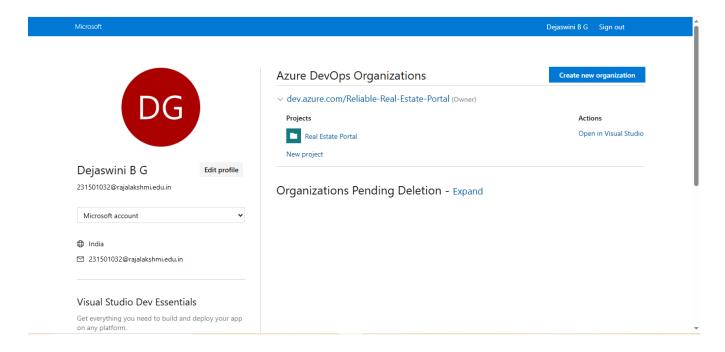
Name: Choose a name for the project (e.g., LMS).

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).

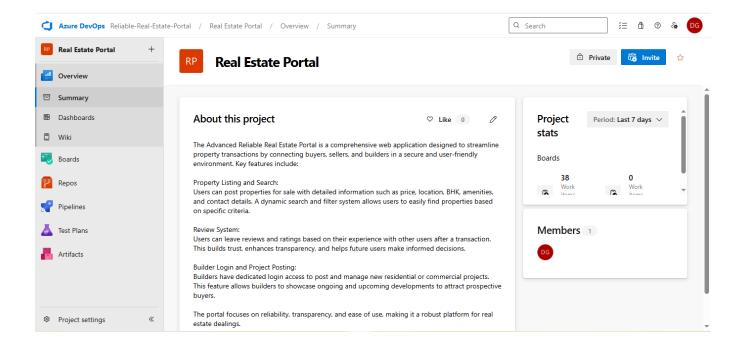
d. Once you've filled out the details, click **Create** to set up your first project.



3. 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.

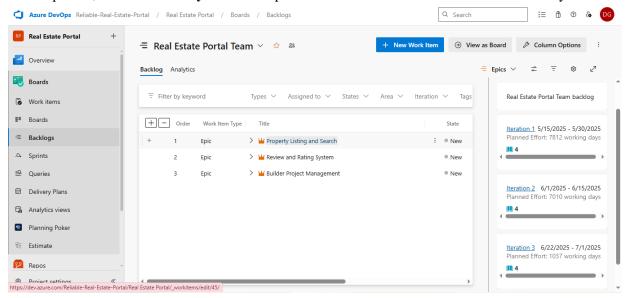


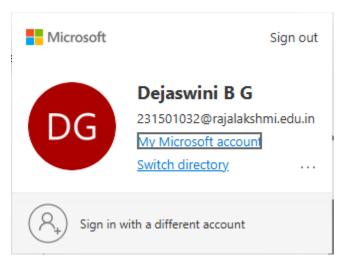
4. Project dashboard



5. 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.





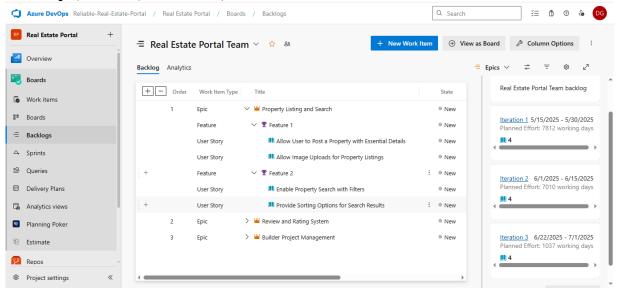
Th. 11		
Result:		
	Successfully created an Azure DevOps project with user story management and agile we	orkflow
setup.		
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SETTING UP EPICS, FEATURES, AND USER STORIES FOR PROJECT PLANNING

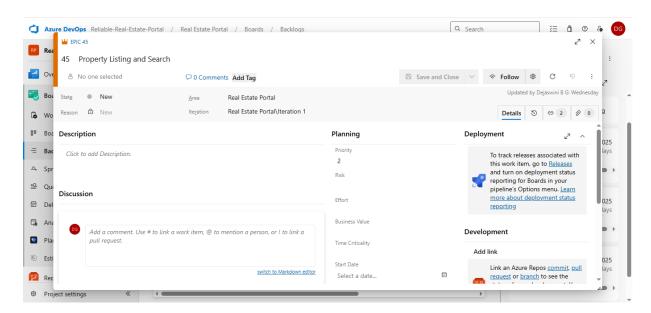
Aim:

To learn about how to create epics, user story, features, backlogs for your assigned project.

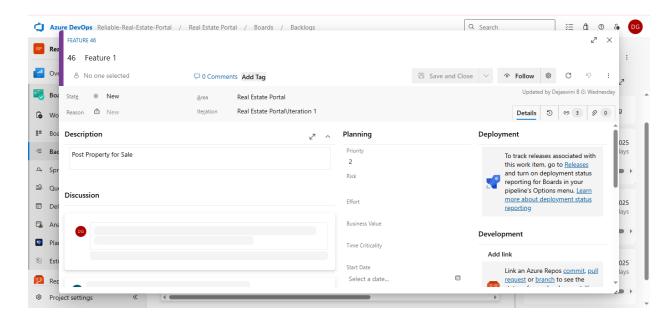
Create Epic, Features, User Stories, Task



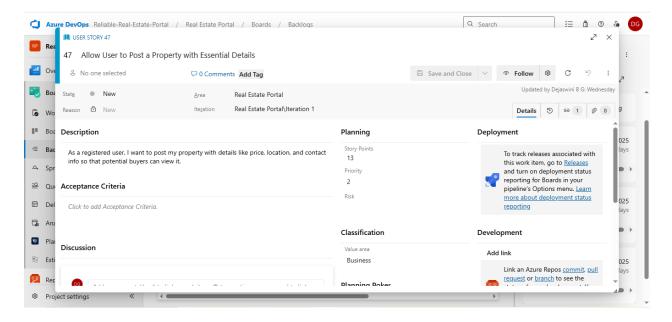
1. Fill in Epics



2. Fill in Features



3. Fill in User Story Details



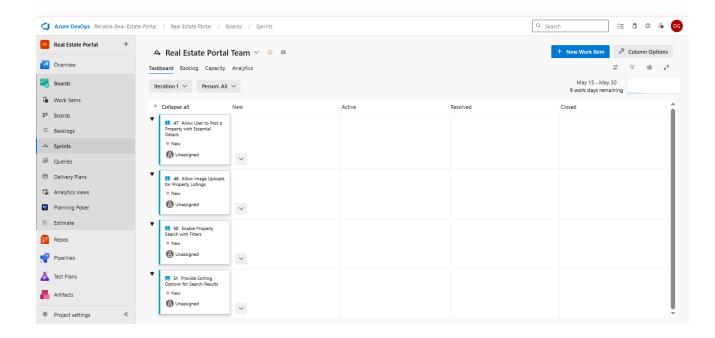
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Result:	
Thus, the creation of epics, features, user story and task has been	n created successfully.
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SPRINT PLANNING

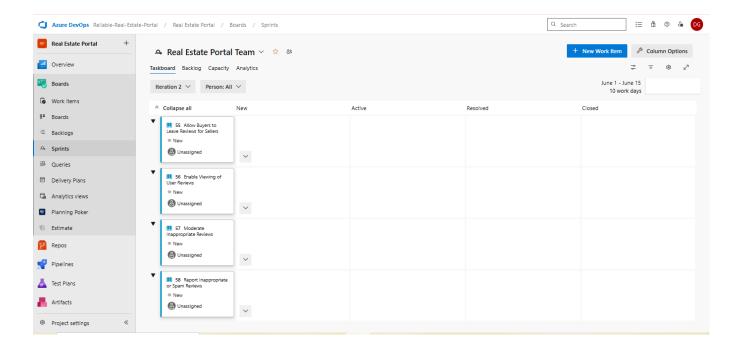
Aim:

To assign user story to specific sprint for the Online Banking System Project.

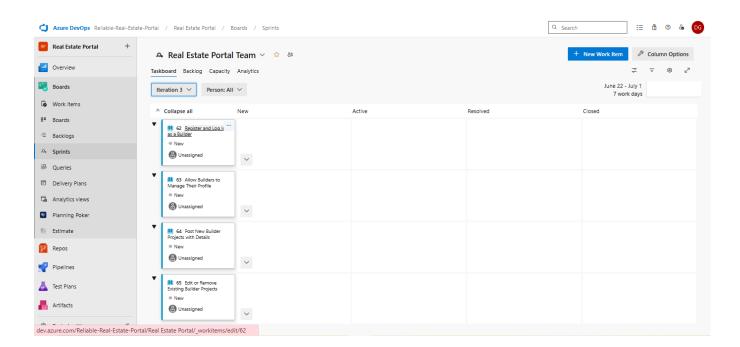
Sprint Planning Sprint 1



Sprint 2



Sprint 3



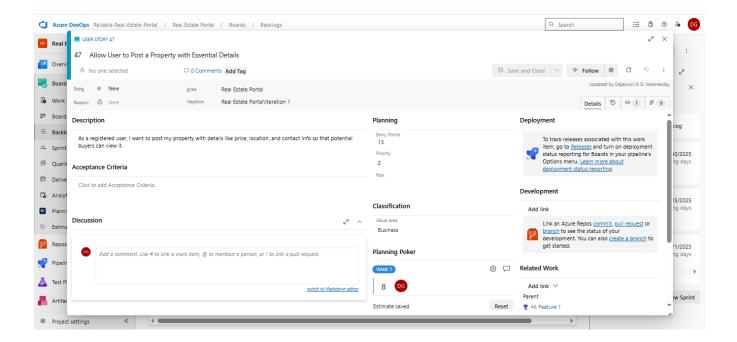
Result: The Sprints are created for the Online Banking System Project.	
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POKER ESTIMATION

Aim:

Create Poker Estimation for the user stories - Online Banking System Project.

Poker Estimation



Result:

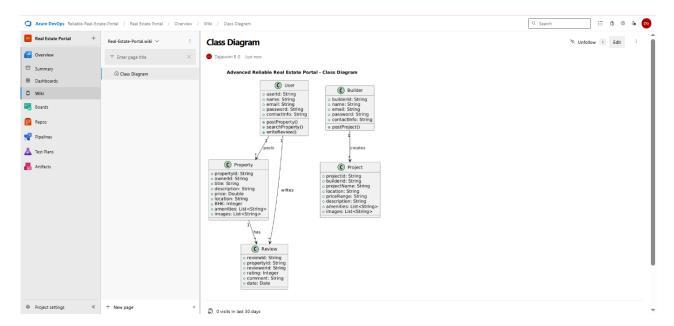
The Estimation/Story Points is created for the project using Poker Estimation.

DESIGNING CLASS AND SEQUENCE DIAGRAMS FOR PROJECT ARCHITECTURE

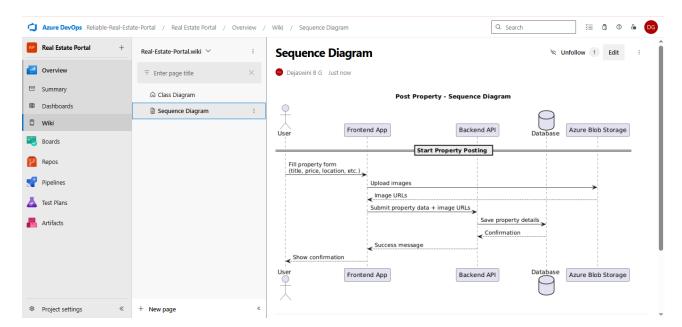
Aim:

To Design a Class Diagram and Sequence Diagram for the given Project.

6A. Class Diagram



6B. Sequence Diagram



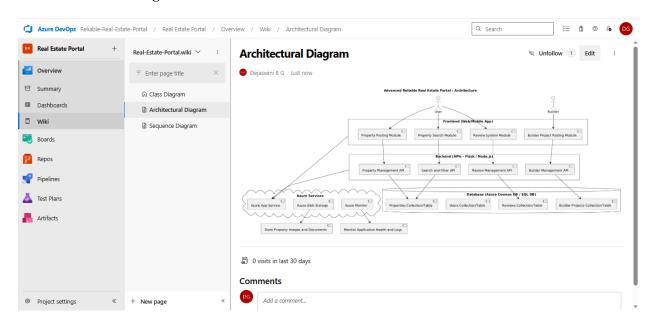
Docults	
Result: The Class Diagram and Sequence Diagram is designed Successfull	y for the Online Banking System
The class Diagram and Sequence Diagram is designed Succession	y for the offine banking bystein.
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DESIGNING ARCHITECTURAL AND ER DIAGRAMS FOR PROJECT STRUCTURE

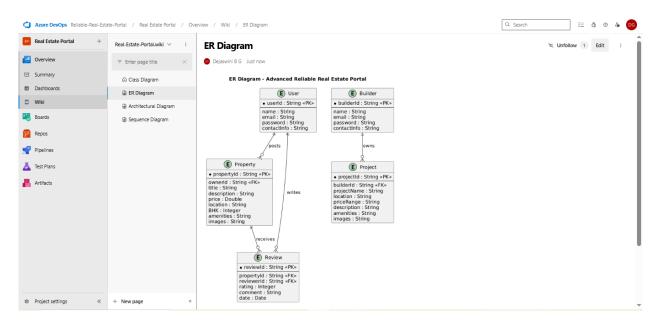
Aim:

To Design an Architectural Diagram and ER Diagram for the given Project.

7A. Architectural Diagram



7B.ER Diagram



Result:	
The Architecture Diagram and ER Diagram is designed Successfully for t	the Online Banking System.
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TESTING – TEST PLANS AND TEST CASES

Aim:

Test Plans and Test Case and write two test cases for at least five user stories showcasing the happy path and error scenarios in azure DevOps platform.

Test Planning and Test Case

Test Case Design Procedure

1. Understand Core Features of the Application

- Property Posting
- Property Search & Filter
- User Reviews
- o Builder Login & Registration
- Builder Project Posting

2. Define User Interactions

 Test cases simulate actual user behavior (e.g., posting properties, filtering listings, submitting reviews)

3. Design Happy Path Test Cases

Verify that each feature works as expected under normal conditions.

4. Design Error Path Test Cases

o Simulate unexpected/invalid scenarios to test robustness.

5. Break Down Steps and Expected Results

o Each test case includes step-by-step actions and the expected outcome.

6. Use Clear Naming and IDs

o Test cases are named clearly (e.g., Successful Login, Missing Required Fields).

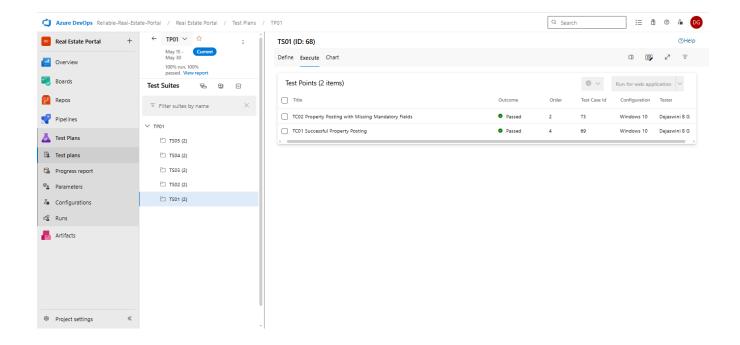
7. Separate Test Suites

 Group test cases based on functionality such as Posting, Searching, Reviews, Builder Access.

8. Prioritize and Review

- Prioritize test cases by business impact.
- o Ensure traceability with linked user stories.

Test Suites



1. Test case

Give two test cases for at least five user stories showcasing the happy path and error scenarios in azure DevOps platform.

RELIABLE_REAL_ESTATE - Test Plans

USER STORIES

- As a user, I want to post my property with details like price and location, so others can view it(ID:68).
- As a user, I want to upload images of my property, so it gets better visibility (ID: 72).
- As a user, I want to search for properties by BHK and area, so I find relevant matches (ID: 76).
- As a user, I want to leave a review after a transaction, so I can share my experience (ID: 79).
- As a builder, I want to log in securely, so I can manage my listings (ID: 82).

Test Suites

Test Suite: TS01 - Property Posting (ID: 68)

- 1. Successful Property Posting (Happy Path)
 - o Action:
 - 1. Login as a registered user.
 - 2. Navigate to the "Post Property" page.
 - 3. Enter valid title, price, location, and contact information.
 - 4. Click Submit.
 - Expected Results:
 - i. Property is created and appears under "My Listings" with status "Active."
 - ii. Confirmation message "Your property has been posted." is displayed.
- 2. **Property Posting with Missing Mandatory Fields** (Error Path)
 - a. Action:
 - 1. Login as a registered user.
 - 2. Navigate to the "Post Property" page.
 - 3. Leave the "Price" field empty.
 - 4. Click Submit.
 - **Expected Results:**
 - Validation error "Price is required" appears next to the field.
 - Property is not created.

Test Suite: TS02 - Image Upload for Listings (ID: 72)

- 1. Successful Image Upload (Happy Path)
 - o Action:
 - 1. Login and go to "Post Property."
 - 2. Fill in required property details.
 - 3. Upload three valid images (JPEG/PNG, <5MB each).
 - 4. Click Submit.
 - Expected Results:
 - i. Images appear in the property gallery.
 - ii. Uploaded thumbnails display correctly on the listing.
- 2. **Upload Unsupported Format** (Error Path)
 - a. Action:
 - 1. Login and go to "Post Property."
 - 2. Fill in required details.
 - 3. Attempt to upload a BMP file.
 - 4. Click **Submit**.
 - Expected Results:
 - Error message "Unsupported file format. Only JPEG and PNG allowed."
 - BMP file is rejected and not uploaded.

Test Suite: TS03 - Search Properties with Filters (ID: 76)

- 1. Filter Search by BHK and Location (Happy Path)
 - o Action:
 - 1. Go to "Search Properties" page.
 - 2. Select filter "2 BHK" and enter location "New York."
 - 3. Click **Search**.
 - Expected Results:
 - i. Results list only 2 BHK properties located in New York.
- 2. **No Matching Properties** (Error Path)
 - a. Action:
 - 1. Go to "Search Properties."
 - 2. Select "5 BHK" and location "Atlantis."
 - 3. Click **Search**.
 - Expected Results:
 - Message "No properties match your search criteria" is displayed.
 - Results pane remains empty.

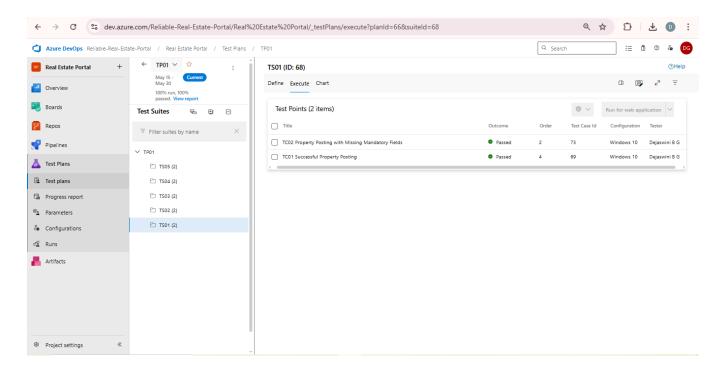
Test Suite: TS04 - Submit Reviews for Sellers (ID: 79)

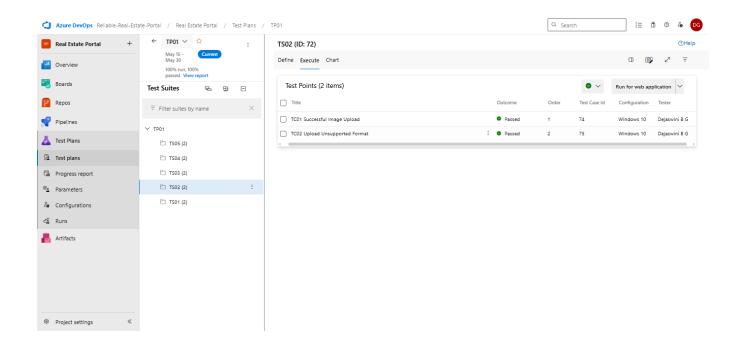
- 1. **Submit Review After Transaction** (Happy Path)
 - o Action:
 - 1. Login as buyer.
 - 2. Navigate to "Transaction History."
 - 3. Click **Leave Review** next to a completed deal.
 - 4. Enter 5-star rating and a comment.
 - 5. Click **Submit**.
 - Expected Results:
 - i. Review appears on seller's profile with correct rating and comment.
 - ii. Confirmation "Your review has been submitted." is displayed.
- 2. **Review Submission Without Rating** (Error Path)
 - a. Action:
 - 1. Login as buyer.
 - 2. Go to "Transaction History."
 - 3. Click **Leave Review**.
 - 4. Enter comment only, leave rating blank.
 - 5. Click **Submit**.
 - Expected Results:
 - Validation error "Rating is required" is displayed.
 - Review is not saved.

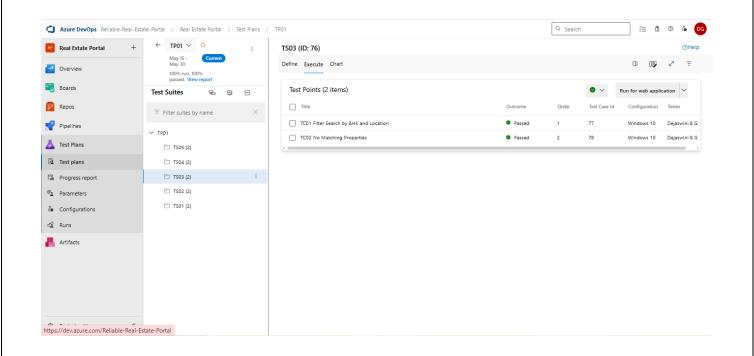
Test Suite: TS05 - Builder Registration and Login (ID: 82)

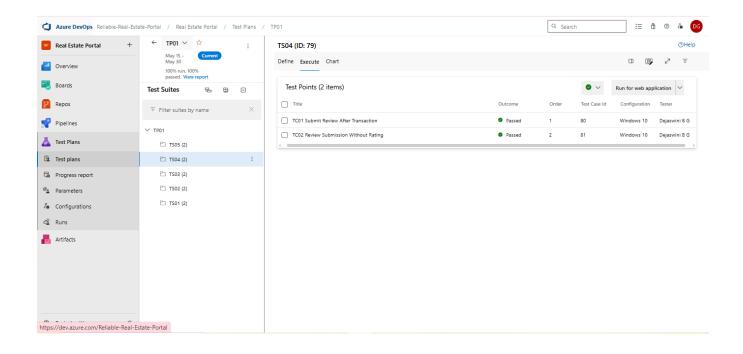
- 1. Successful Builder Registration and Login (Happy Path)
 - o Action:
 - 1. Navigate to "Builder Registration."
 - 2. Enter valid company name, email, and password.
 - 3. Click **Register** and then login with those credentials.
 - Expected Results:
 - i. Builder account is created; confirmation email sent.
 - ii. Builder is redirected to the dashboard upon login.
- 2. Registration with Invalid Email Format (Error Path)
 - a. Action:
 - 1. Go to "Builder Registration."
 - 2. Enter "builder@invalid" as email and valid other fields.
 - 3. Click **Register**.
 - Expected Results:
 - Error message "Enter a valid email address" is displayed.
 - Registration is not completed.

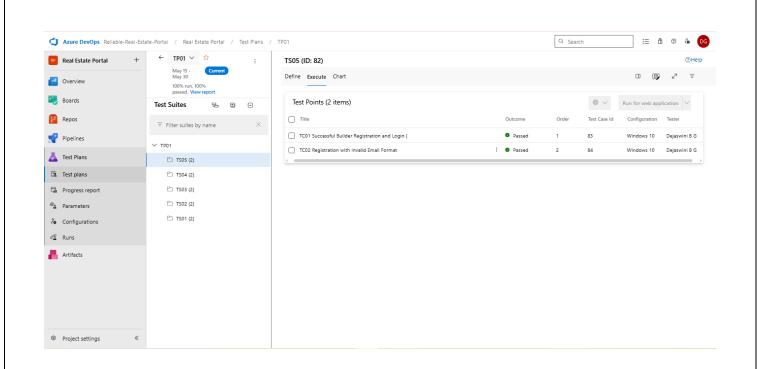
Test Cases

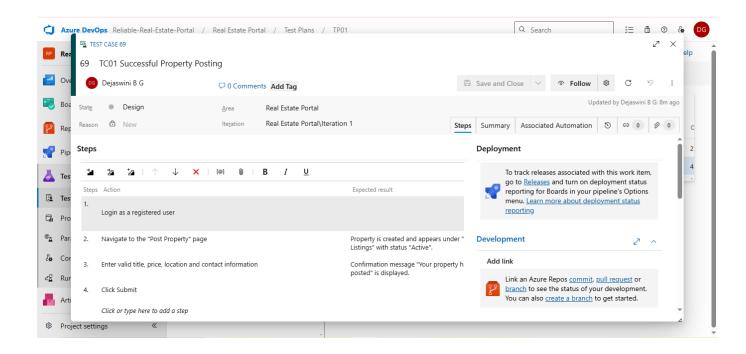


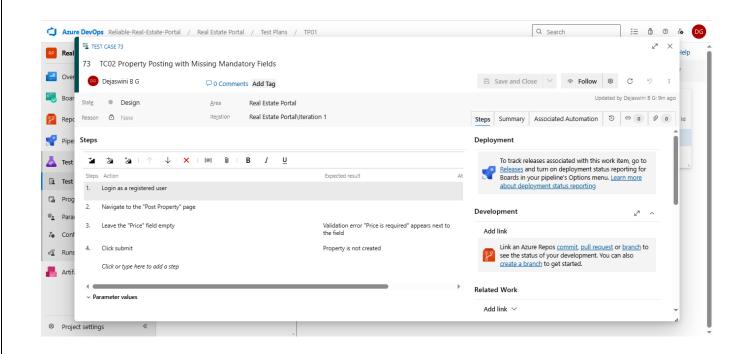


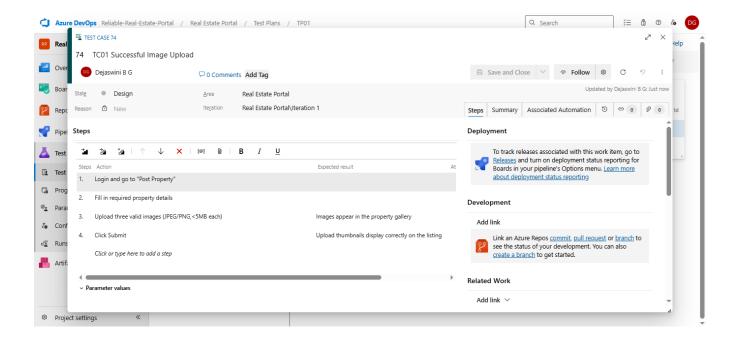


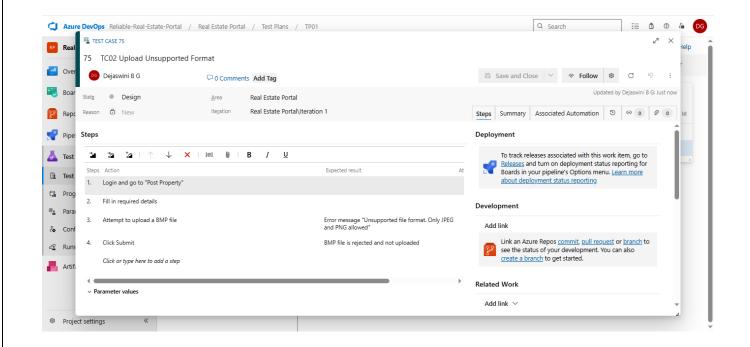


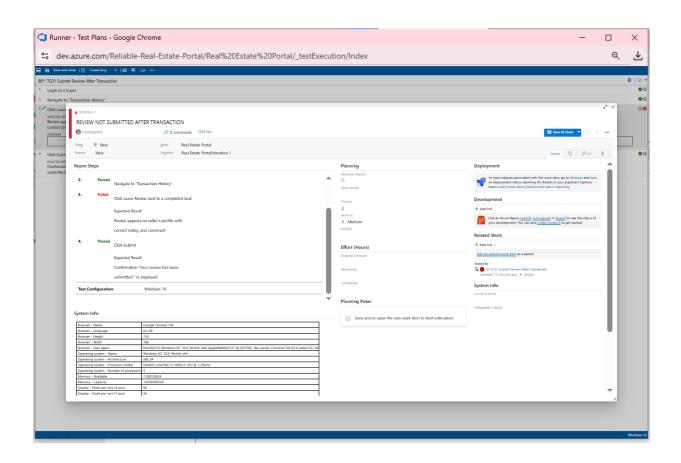


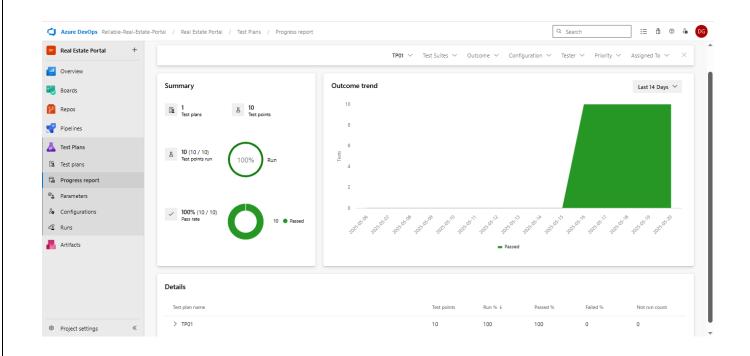


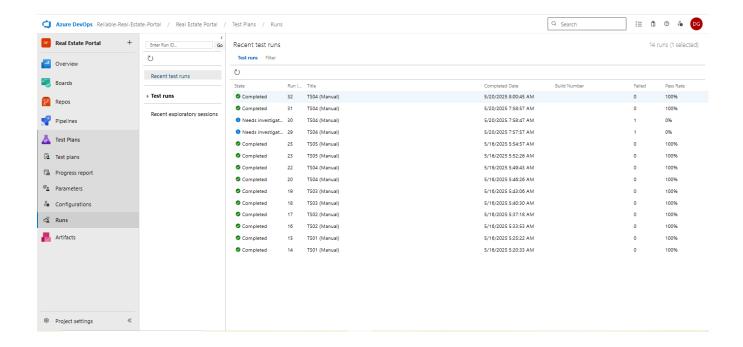


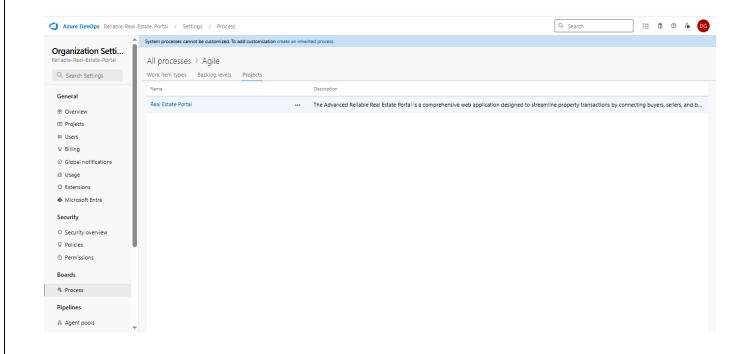












Result:

The test plans and test cases for the user stories is created in Azure DevOps with Happy Path and Error Path.

LOAD TESTING AND PERFORMANCE TESTING

Aim:

To create an Azure Load Testing resource and run a load test to evaluate the performance of a target endpoint.

Load Testing

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.

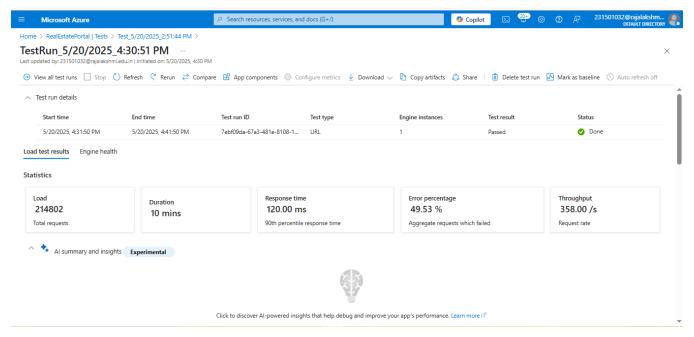
- 2. Create the Resource
 - o Go to Create a resource → Search for "Azure Load Testing".
 - Select Azure Load Testing and click Create.
- 3. Fill in the Configuration Details
 - o Subscription: Choose your Azure subscription.
 - o Resource Group: Create new or select an existing one.
 - o *Name:* Provide a unique name (no special characters).
 - o *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.

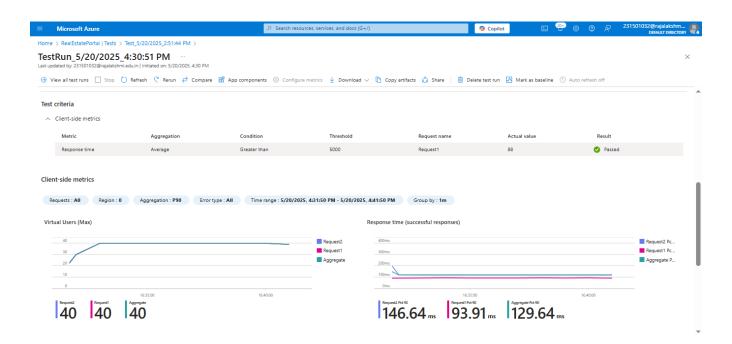
Steps to Create and Run a Load Test:

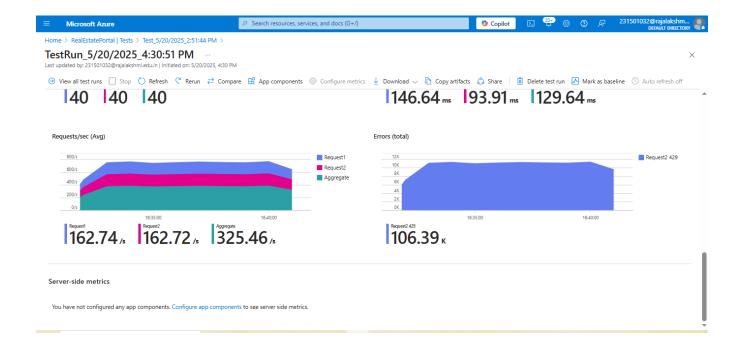
Once your resource is ready:

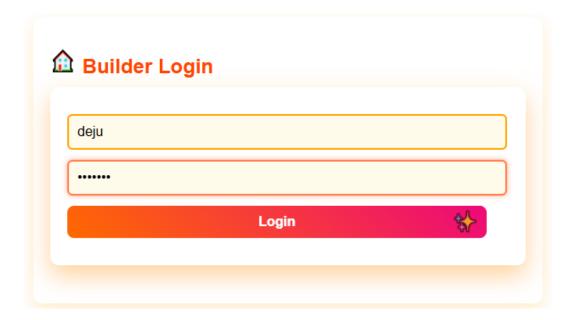
- 1. Go to your Azure Load Testing resource and click Add HTTP requests > Create.
- 2. Basics Tab
 - o *Test Name:* Provide a unique name.
 - o Description: (Optional) Add test purpose.
 - o Run After Creation: Keep checked.
- 3. Load Settings
 - o *Test URL*: Enter the target endpoint (e.g., https://yourapi.com/products).
- 4. Click Review + Create \rightarrow Create to start the test.

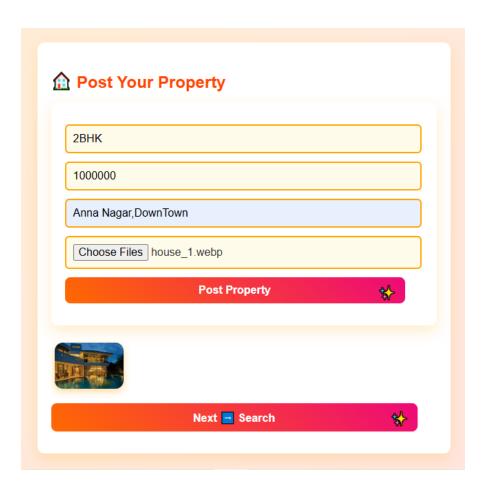
Load Testing

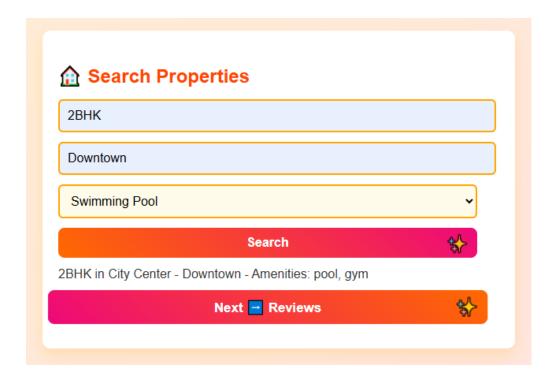


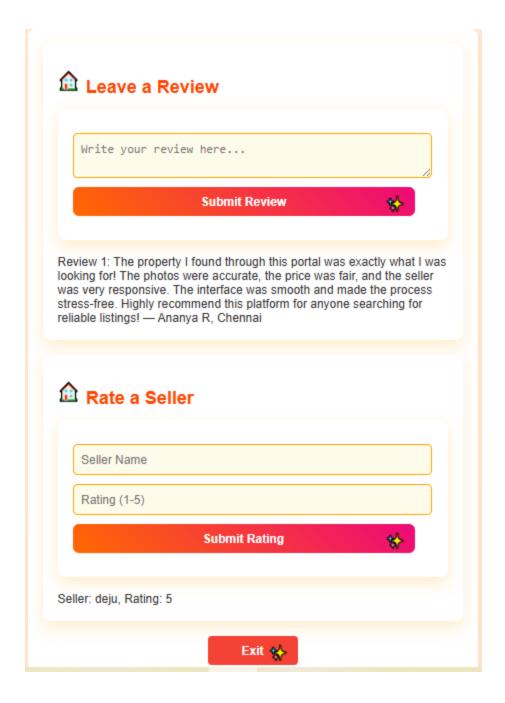












Result:

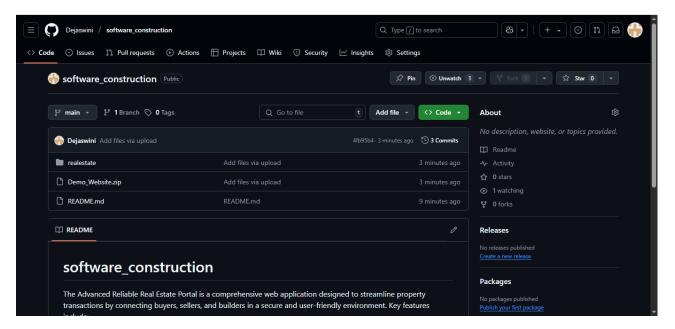
Successfully created the Azure Load Testing resource and executed a load test to assess the performance of the specified endpoint.

GITHUB: PROJECT STRUCTURE & NAMING CONVENTIONS

Aim:

To provide a clear and organized view of the project's folder structure and file naming conventions, helping contributors and users easily understand, navigate, and extend the online banking system project.

GitHub Project Structure



Result:

The GitHub repository clearly displays the organized project structure and consistent naming conventions, making it easy for users and contributors to understand and navigate the codebase.