

DEPARTMENT OF INFORMATION TECHNOLOGY LAB MANUAL

CS23432 – Software Construction

(REGULATION 2023)

RAJALAKSHMI ENGINEERING COLLEGE Thandalam, Chennai-602015

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EX NO: 1	AZURE DEVOPS ENVIRONMENT SETUP
Date:22/01/2025	

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

INSTALLATION

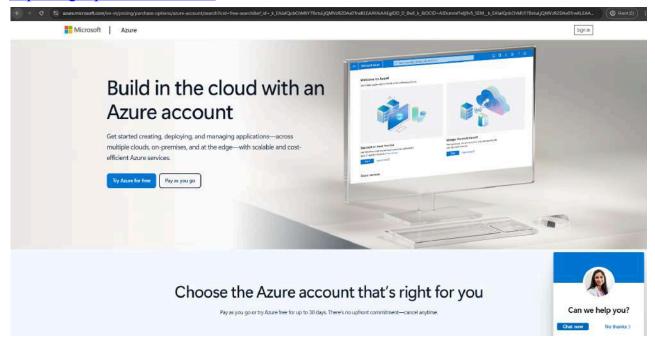
1. Open your web browser and go to the Azure website:

https://azure.microsoft.com/en-us/get started/azure-portal.

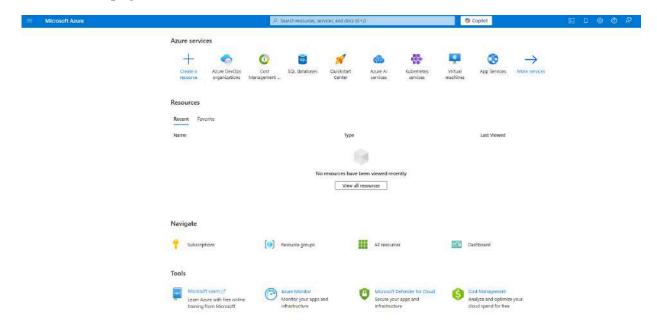
Sign in using your Microsoft account credentials.

If you don't have a Microsoft account, you can create one here:

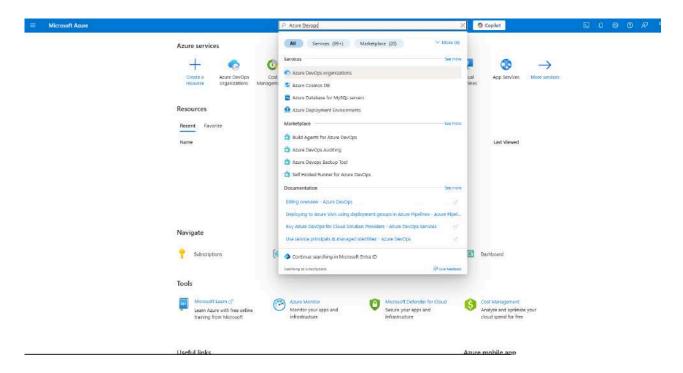
https://signup.live.com/?lic=1



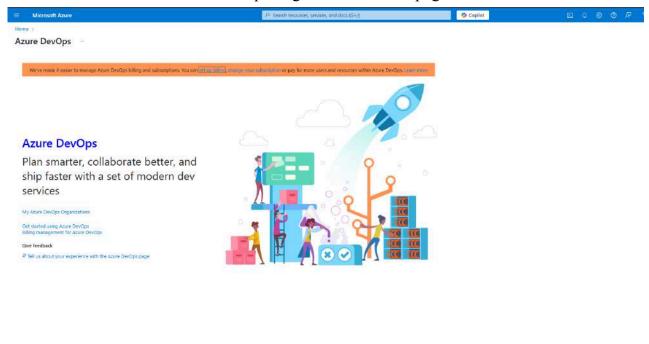
2. Azure home page



3.Open the 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.

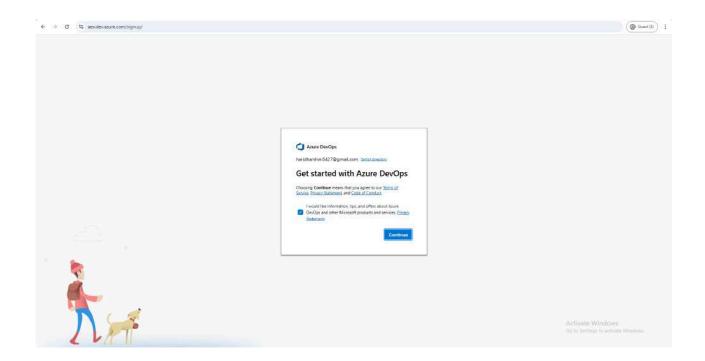
EX NO:2

Date: 07/02/2025

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

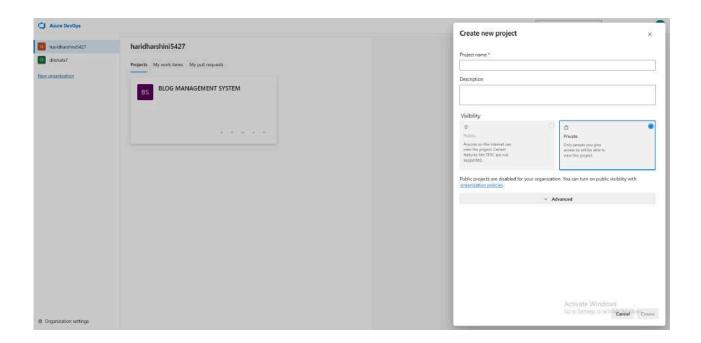
- a. After the organization is set up, you'll need to create your first **project**. This is where you'll begin to manage code, pipelines, work items, and more.
- b. On the organization's **Home page**, click on the **New Project** button.
- c. Enter the project name, description, and visibility options:

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

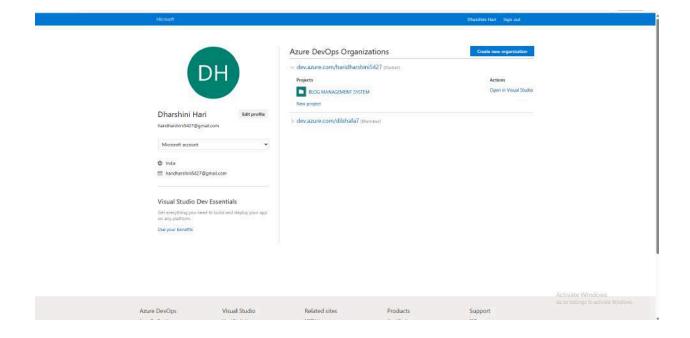
Description: Optionally, add a description to provide more context about the project.

Visibility: Choose whether you want the project to be **Private** (accessible only to those invited) or **Public** (accessible to anyone).

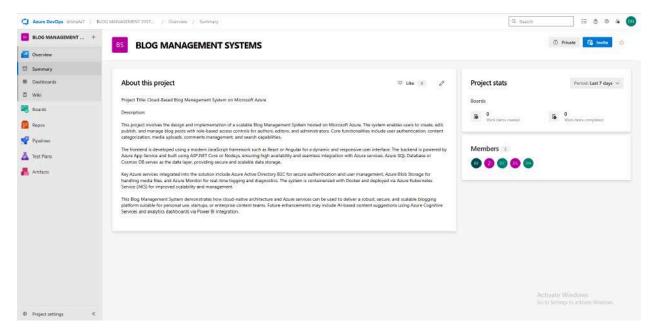
d. Once you've filled out the details, click Create to set up your first project.



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.

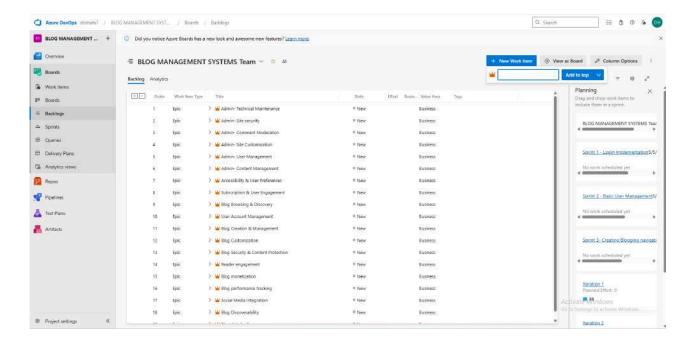


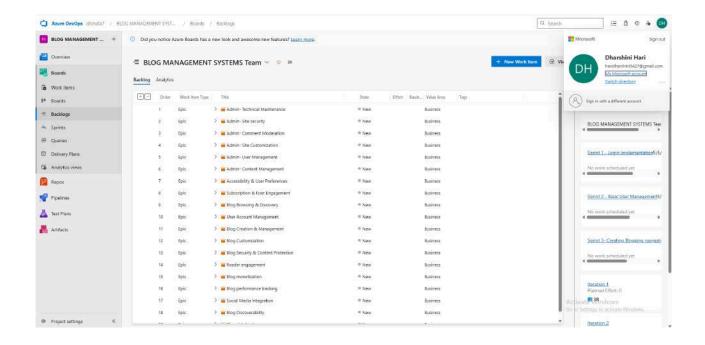
4. Project dashboard



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.





Result:

Successfully created an Azure DevOps project with user story management and agile workflow setup.

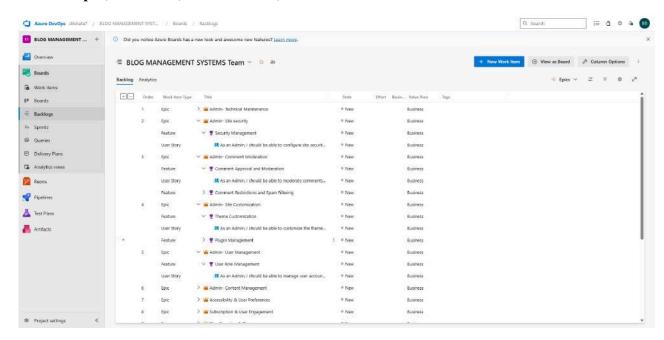
EX NO: 3

Date: 14/02/2025

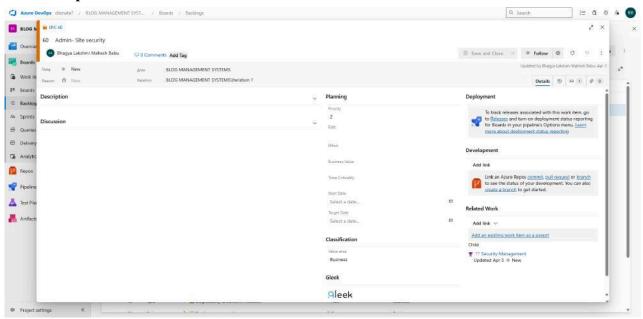
SETTING UP EPICS, FEATURES, AND USER STORIES FOR PROJECT PLANNING

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

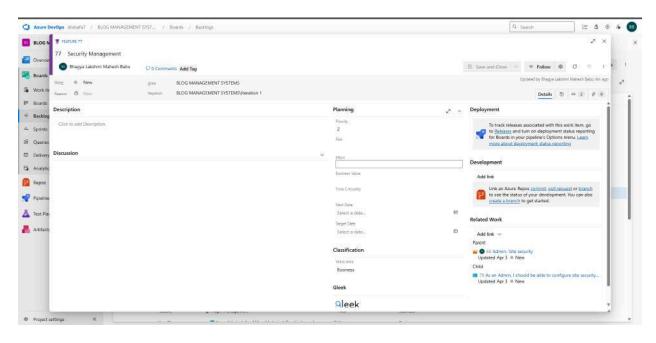
Create Epic, Features, User Stories, Task



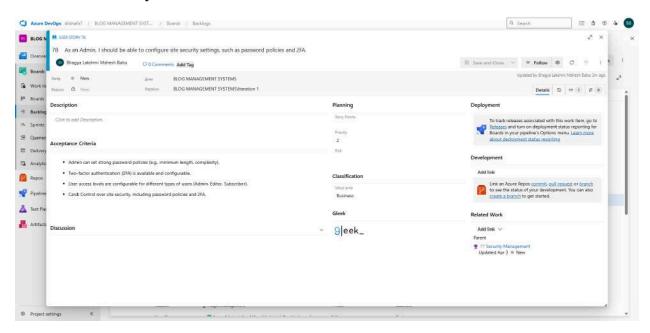
1. Fill in Epics



2. Fill in Features



3. Fill in User Story Details



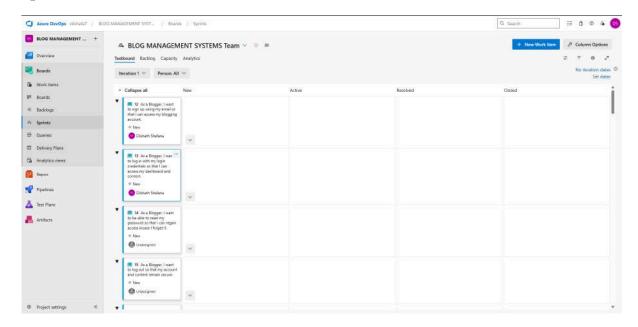
Result:

Thus, the creation of epics, features, user story and task has been created successfully.

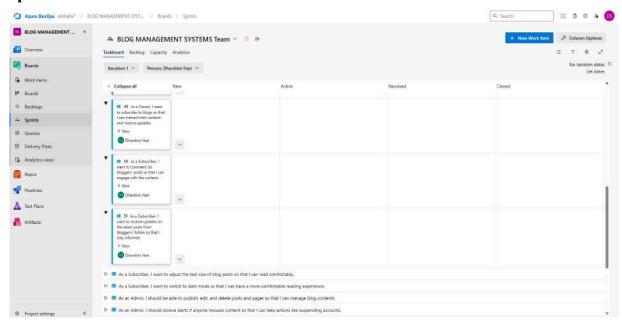
EX NO: 4 SPRINT PLANNING Date: 20/03/2025

Aim: To assign user story to a specific sprint for the Blog Management System Project.

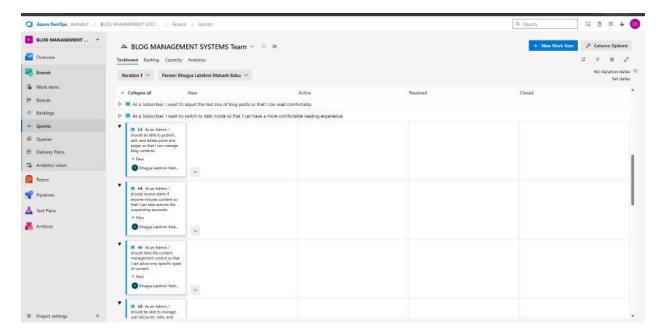
Sprint Planning Sprint 1



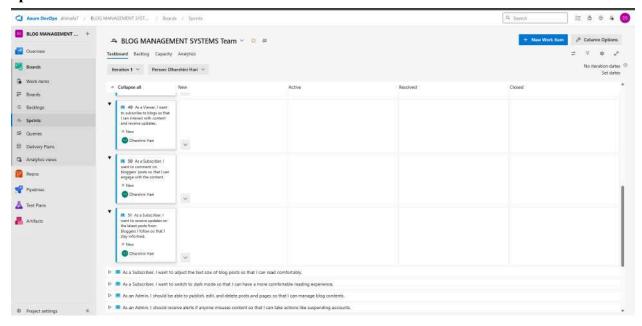
Sprint 2



Sprint 3



Sprint 4



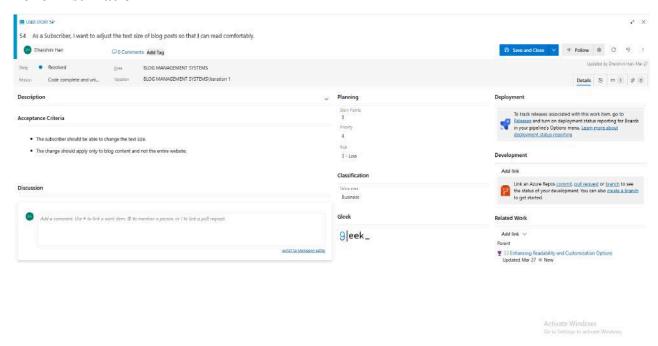
Result:

The Sprints are created for the Blog Management System.

EX NO: 5	POKER ESTIMATION
Date: 28/03/2025	

Aim: Create Poker Estimation for the user stories - Blog Management System.

Poker Estimation



Result:

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

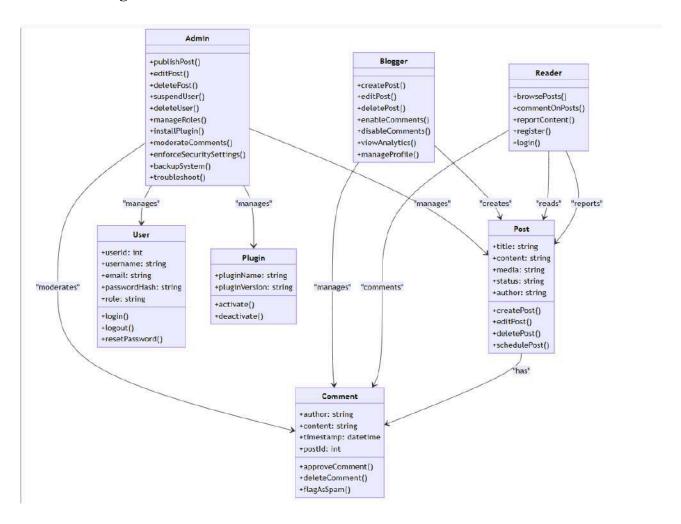
EX NO: 6

Date:04/04/2025

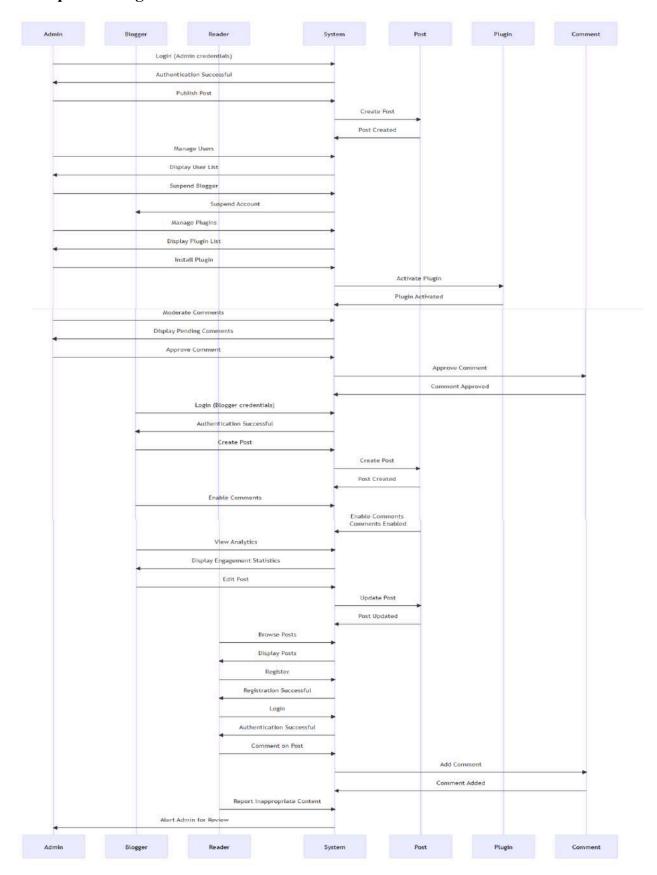
DESIGNING CLASS AND SEQUENCE DIAGRAMS FOR PROJECT ARCHITECTURE

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

6A. Class Diagram



6B. Sequence Diagram



Result: The class diagram and sequence diagram is designed successfully for the Blog Management system.

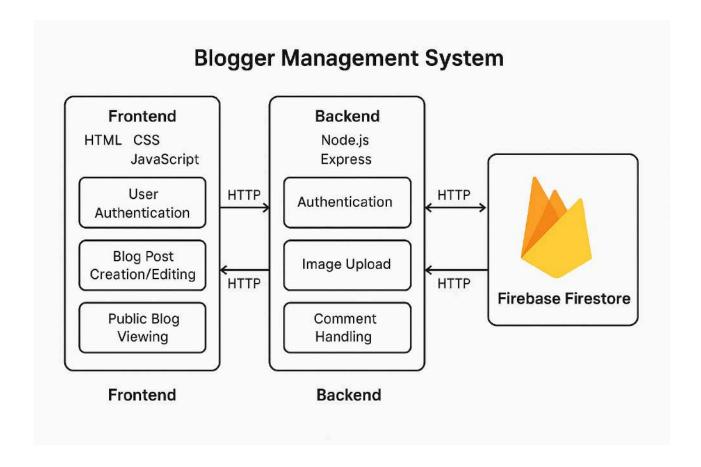
EX NO: 7

Date:16/04/2025

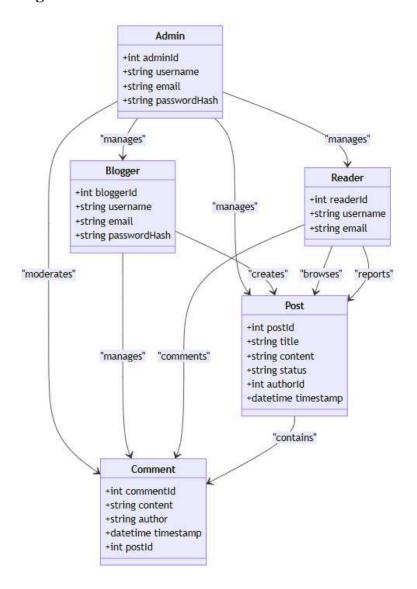
DESIGNING ARCHITECTURAL AND ER DIAGRAMS FOR PROJECT STRUCTURE

Aim: To Design an Architectural Diagram and ER Diagram for Blog management system.

7A. Architectural Diagram



7B.ER Diagram



Result:

The Architecture Diagram and ER Diagram is designed Successfully for the Blog management system.

EX NO: 8

Date:18/04/2025

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

- User Authentication (Signup & Login)
- Blog Post Creation (Create, Edit, Add image)
- Blog Post Publishing
- Category and Tag Management
- User Roles and Permissions
- Search Functionality

2. Define User Interactions

• Each test case will simulate a real user behavior, such as logging in, creating a blog post, publishing a post and browsing for a post.

3. Design Happy Path Test Cases

- These test cases will validate that all features function as expected under normal conditions.
- Example: User logs in successfully, creates a new blog post with a title and content, and publishes it successfully.

4. Design Error Path Test Cases

- These test cases will simulate negative or unexpected scenarios to test the system's robustness and error-handling capabilities.
- Example: Login fails with invalid credentials, post creation fails due to missing title, post fails to publish due to a system error.

5. Break Down Steps and Expected Results

- Each test case will contain step-by-step actions and a corresponding expected outcome.
- This ensures clarity for both testers and automation scripts.

6. Use Clear Naming and IDs

- Test cases will be named clearly (e.g., TC01 Successful Login, TC10 Create Post Fails Missing Title).
- This helps in quick identification and linking to user stories or features in Azure DevOps.

7. Separate Test Suites

- Test cases will be organized within Azure DevOps Test Plans and Test Suites.
- Test Suites will be grouped based on functionality (e.g., "User Authentication," "Blog Post Management," "Commenting").
- This improves organization and test execution flow in Azure DevOps.

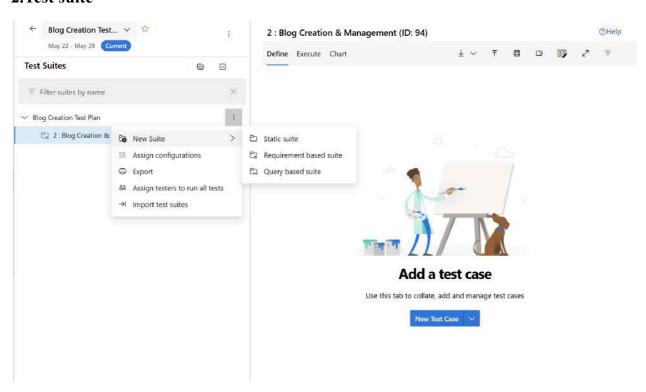
8. Prioritize and Review

- Critical user actions and core functionalities will be marked as high-priority in Azure DevOps.
- Test cases will be reviewed for completeness, accuracy, and traceability against feature requirements and user stories.

1.New test plan



2.Test suite



3.Test case

Give two test cases for at least five user stories showcasing the happy path and error

scenarios in azure DevOps platform.

Blog Management System – Test Plans

USER STORIES

• As a Blogger, I want to log in with my login credentials so that I

can access my dashboard and content.

• As a Viewer, I want to visit the website so that I can browse blogs

without signing in.

As a Blogger, I want to create a blog so that I can share my content.

• As an Admin, I should be able to publish, edit, and delete posts and

pages so that I can manage blog contents.

• As a Blogger, I want to sign up using my unique name and

password so that I can access my blogging account.

TEST SUITES

TEST SUITE: TS01 – USER LOGIN

Test Case: TC01 – Login with Valid Credentials

User Story: As a Blogger, I want to log in with my login credentials so that I can access

my dashboard and content.

Test Type: Happy Path

Steps and Expected Results:

• Action: Navigate to the login page

Expected Result: Login page is displayed with email and password fields

• Action: Enter valid email and password

Expected Result: Input is accepted with no errors

• Action: Click the "Login" button

Expected Result: Blogger is redirected to the dashboard

Notes: This test simulates a successful login with valid credentials.

Test Case: TC02 – Login with Invalid Password

User Story: As a Blogger, I want to log in with my login credentials so that I can access my dashboard and content.

Test Type: Error Path

Steps and Expected Results:

• Action: Navigate to the login page

Expected Result: Login page is displayed

• Action: Enter valid email and incorrect password

Expected Result: Password is rejected

• Action: Click the "Login" button

Expected Result: Error message "Incorrect password" is shown

Notes: Ensures failed login attempts are handled properly with informative error messages.

TEST SUITE: TS02 – VIEW BLOGS WITHOUT LOGIN

Test Case: TC01 – Access Blogs as a Viewer

User Story: As a Viewer, I want to visit the website so that I can browse blogs without

signing in.

Test Type: Happy Path

Steps and Expected Results:

• Action: Open the website homepage

Expected Result: Homepage with blogs is displayed

• Action: Scroll or navigate through blog posts

Expected Result: Viewer can read blogs without authentication

Notes: Validates open access to content for all visitors.

TEST SUITE: TS03 – BLOG CREATION

Test Case: TC01 – Create a New Blog Successfully

User Story: As a Blogger, I want to create a blog so that I can share my content.

Test Type: Happy Path

Steps and Expected Results:

• Action: Log in to the dashboard

Expected Result: Dashboard with "Write a blog" option is displayed

• Action: Click on "Write a Blog", enter title and content

Expected Result: Fields accept inputs with no validation errors

• Action: Click "Publish"

Expected Result: Blog is successfully created and visible in public feed

Notes: Tests standard functionality for creating a new blog.

TEST SUITE: TS04 – USER REGISTRATION

Test Case: TC01 – Sign Up with Valid Details

User Story: As a Blogger, I want to sign up using my unique email and password so that I

can access my blogging account.

Test Type: Happy Path

Steps and Expected Results:

• Action: Navigate to the sign-up page

Expected Result: Registration form is displayed

• Action: Enter a unique email and password

Expected Result: Inputs are accepted and no validation errors occur

• Action: Click "Sign Up"

Expected Result: Account is created and Blogger is redirected to dashboard

Notes: Validates successful registration for new users.

Test Case: TC02 – Sign Up with Existing email and password

User Story: As a Blogger, I want to sign up using my unique email and password so that I can access my blogging account.

Test Type: Error Path

Steps and Expected Results:

• Action: Navigate to the sign-up page

Expected Result: Registration form is displayed

• Action: Enter a email that already exists

Expected Result: Form accepts input

• Action: Click "Sign Up"

Expected Result: Error message "Email invalid" is shown

Notes: Ensures duplicates are not allowed.

TEST SUITE: TS05 – CONTENT MANAGEMENT BY ADMIN

Test Case: TC01 – Admin Manages Blog Posts

User Story: As an Admin, I should be able to publish, edit, and delete posts and pages so

that I can manage blog contents.

Test Type: Happy Path

Steps and Expected Results:

• Action: Log in to the admin panel

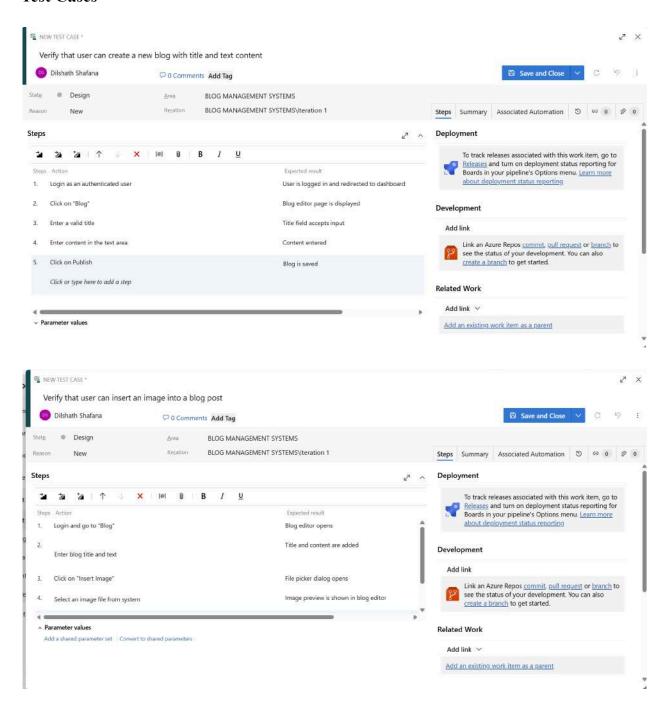
Expected Result: Admin dashboard is displayed

• Action: Choose an existing blog post and select "Delete"

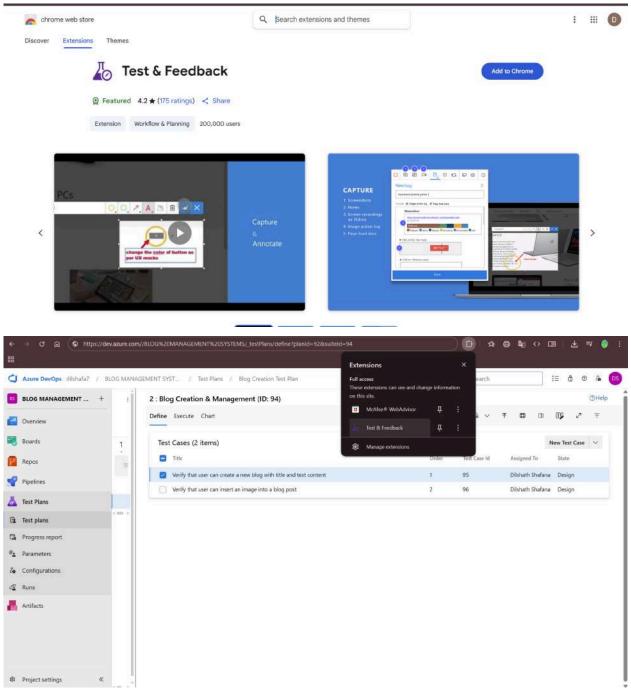
Expected Result: The Blog gets deleted

Notes: Tests core content control actions available to Admin.

Test Cases



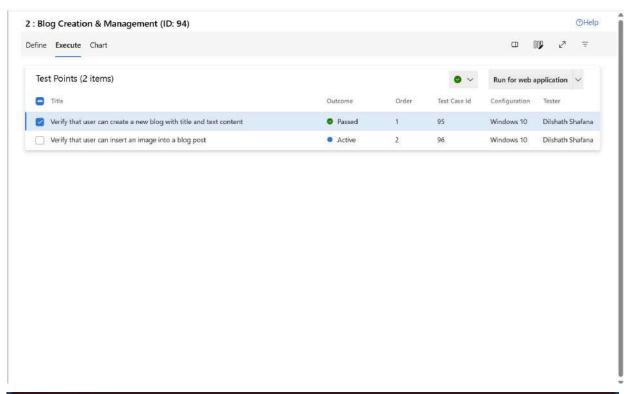
4.Installation of test

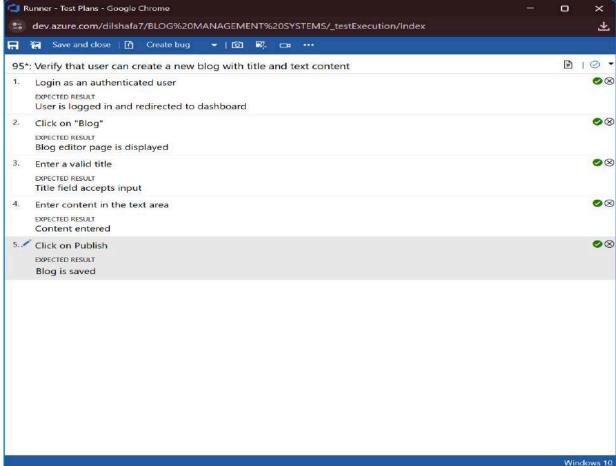


Test and feedback

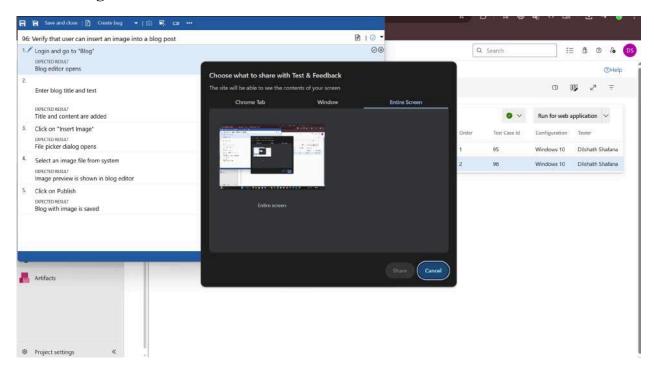
Showing it as an extension

5. Running the test cases

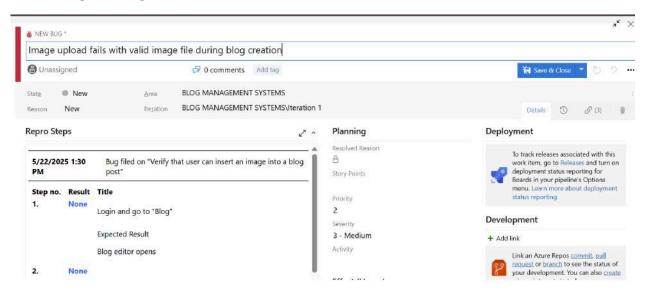




6.Recording the test case



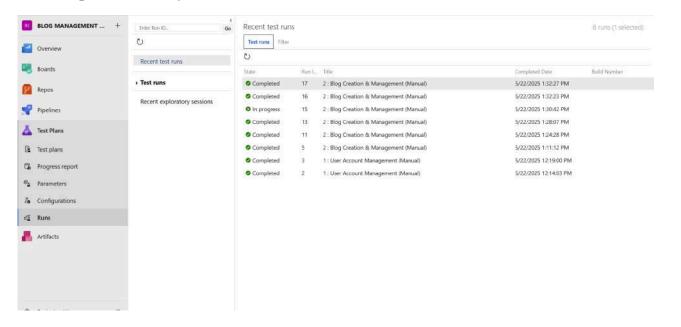
7. Creating the bug



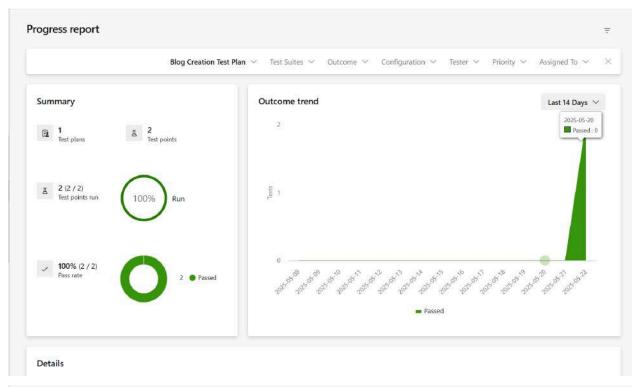
8. Test case results

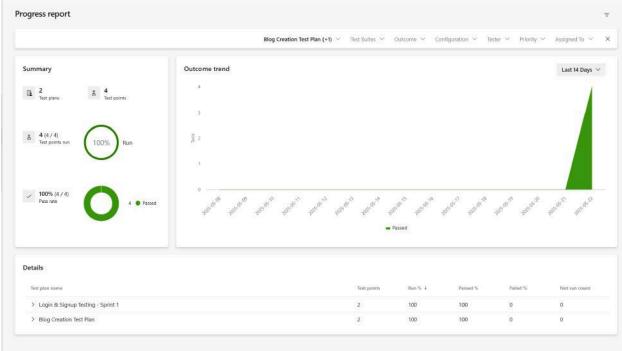


9.Test report summary

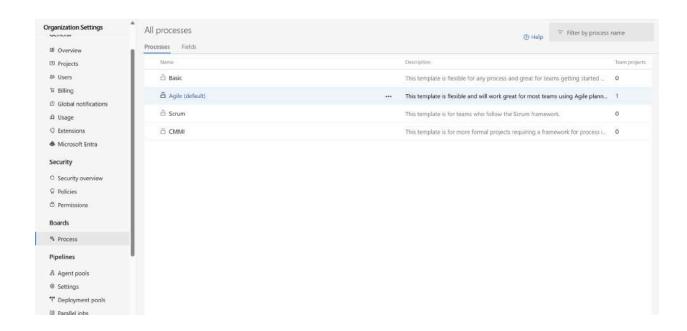


10.Progress report

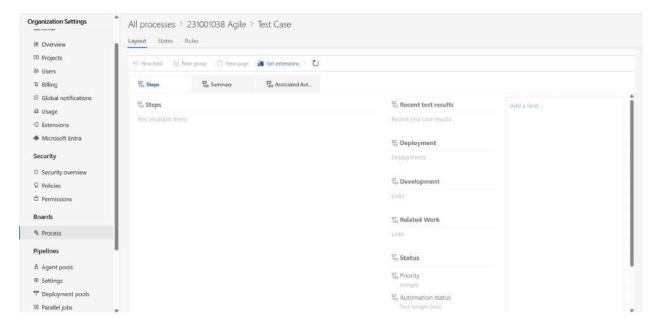


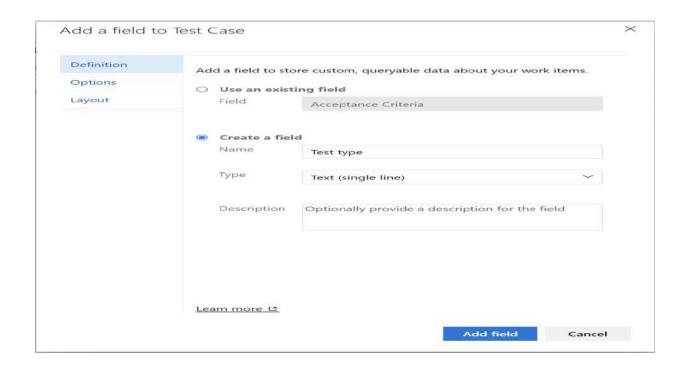


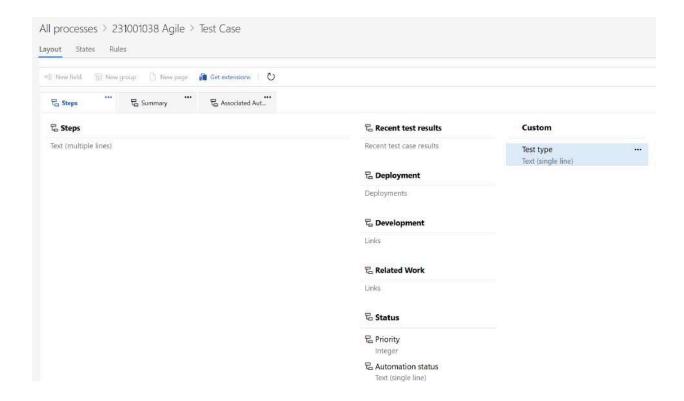
11. Changing the test template



12. View the new test case template







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

Date:25/04/2025

EX NO: 09

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.

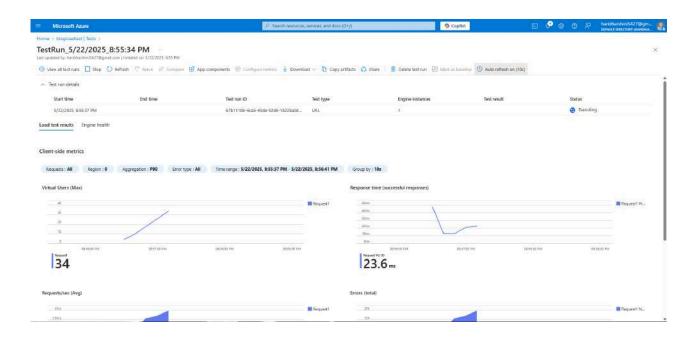
Steps to Create and Run a Load Test:

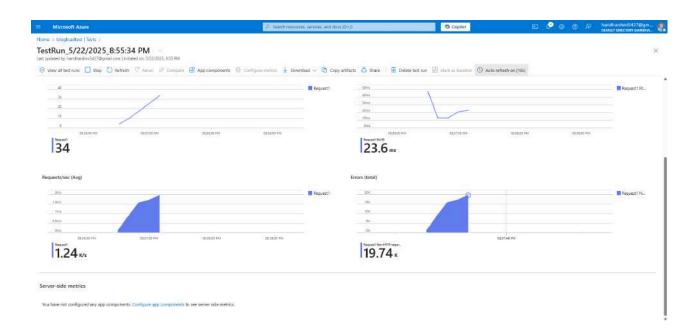
Once your resource is ready:

- 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.

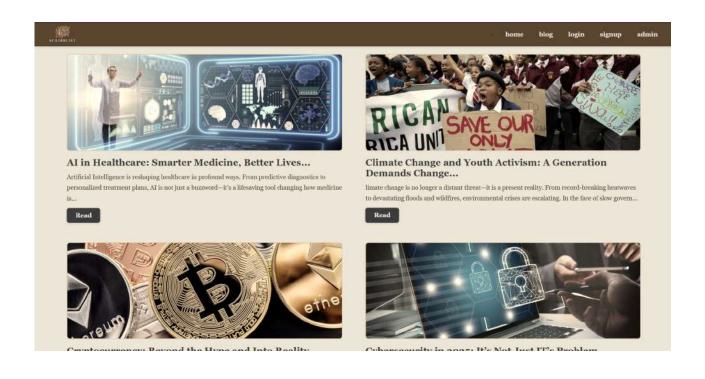
- o Run After Creation: Keep checked.
- 3. Load Settings
 - o *Test URL*: Enter the target endpoint (e.g., https://yourapi.com/products).
- 4. Click Review + Create \rightarrow Create to start the test.

Load Testing













Result:

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

EX NO: 10

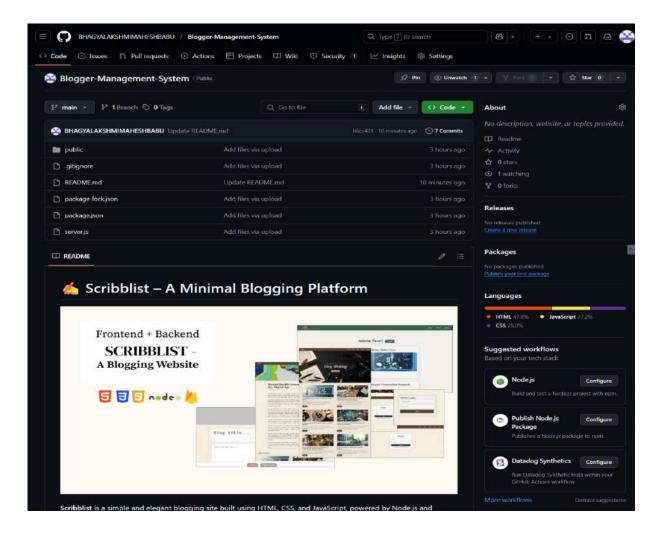
Date: 02/05/2025

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 Blog management 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.