



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING LAB MANUAL

CS23432 – Software Construction

(REGULATION 2023)

**RAJALAKSHMI ENGINEERING COLLEGE
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Year / Branch / Section: 3rd / CSE(CS) / A

Semester: V

Academic Year: 2025 - 2026

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EXP NO: 1

AZURE DEVOPS ENVIRONMENT SETUP

Aim:

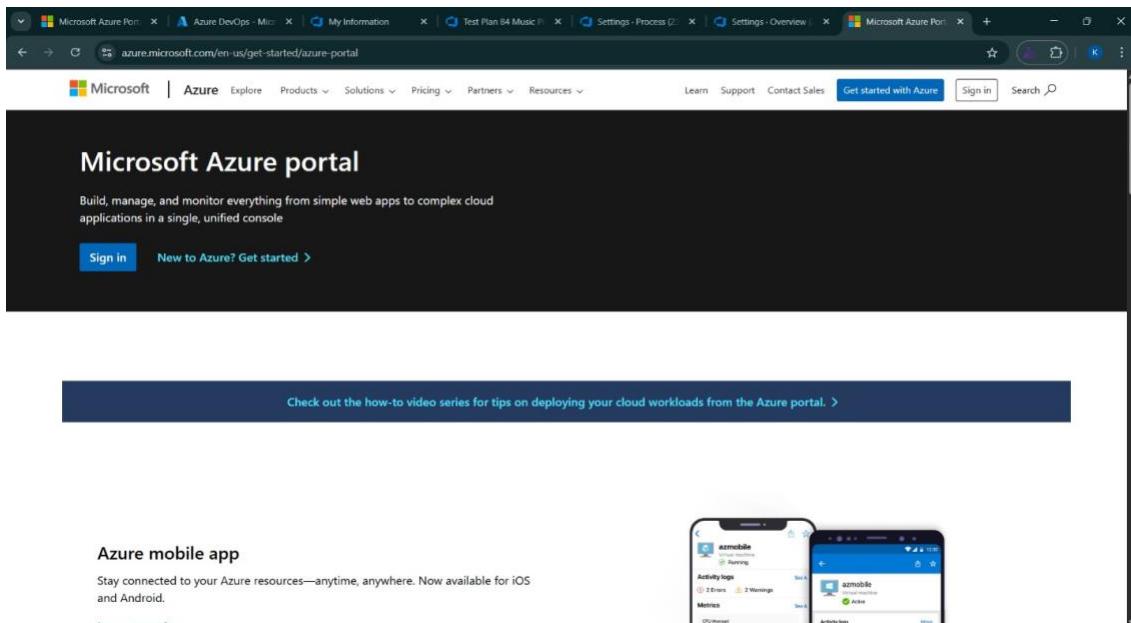
To set up and access the Azure DevOps environment by creating an organization through the Azure portal.

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>



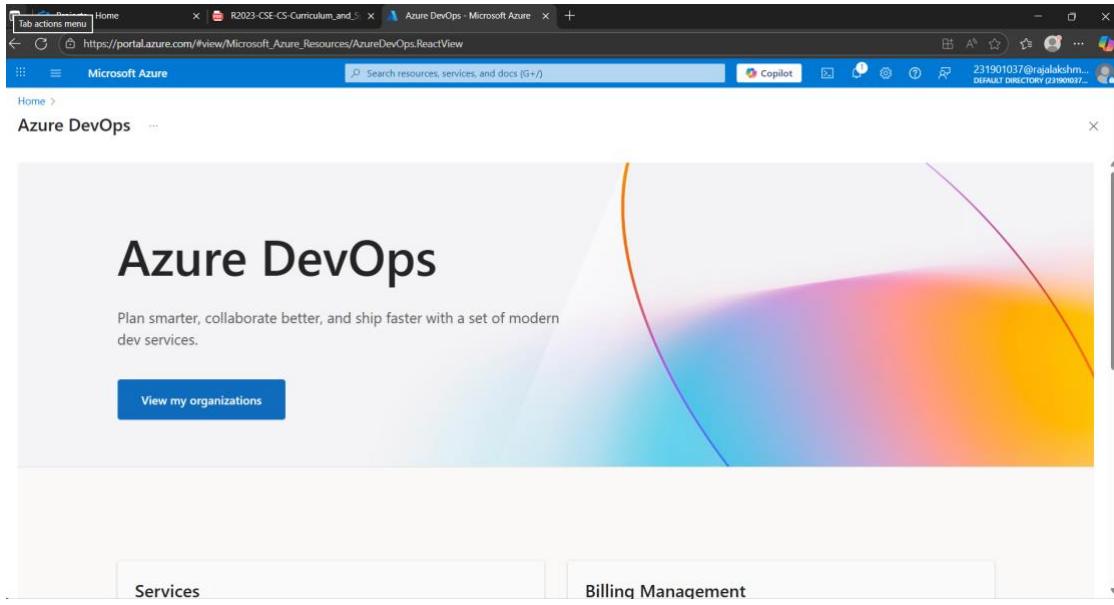
2. Azure home page

The screenshot shows the Microsoft Azure home page. At the top, there's a search bar with the placeholder "Search resources, services, and docs (G+/-)". Below the search bar, there are three main sections: "Start with an Azure free trial", "Manage Microsoft Entra ID", and "Azure for Students". Each section has a small icon and a "Start" button. Below these sections, there's a "Azure services" section with icons for "Create a resource", "Azure DevOps organizations", "Quickstart Center", "Azure AI Foundry", "Kubernetes services", "Virtual machines", "App Services", "Storage accounts", "SQL databases", and "More services". At the bottom, there's a "Resources" section with a "Continue searching in Microsoft Entra ID" button.

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

The screenshot shows the Microsoft Azure home page again, but with the search bar containing the text "devops". The search results are displayed below the search bar, under the "Services" tab. The results include "Managed DevOps Pools", "Azure DevOps organizations", "Azure Native New Relic Service", "Azure Native Dynatrace Service", and "Keywords: devops". There are also sections for "Marketplace" (Static Web App, Rocky Linux 9, SonarQube on Azure, JFrog Software Supply Chain Platform) and "Documentation" (Microsoft Azure troubleshooting documentation, Use an Azure Resource Manager service connection - Azure Pipelines, Use Azure Key Vault secrets in Azure Pipelines - Azure Pipelines). The rest of the page layout is similar to the first screenshot.

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.

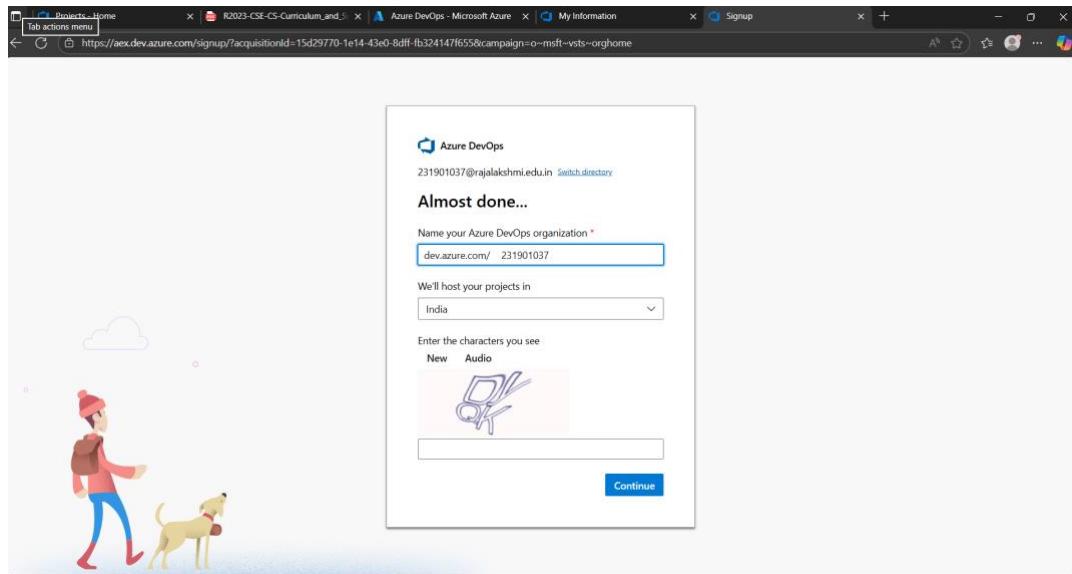
EXP NO: 2

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.

Create new project

X

Project name *

SoftwareConstruction Project

Description

Visibility

Private

Only people you give access to will be able to view this. Want to create a public project? [Try GitHub](#)

^ Advanced

Version control [?](#)

Git

Work item process [?](#)

Agile

Cancel

Create

- 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.

Azure DevOps

231901037

New organization

Projects My work items My pull requests

+ New project

Filter projects

SoftwareConstruction Project

4. Project dashboard

Azure DevOps 231901037 / SoftwareConstruction Project / Overview / Summary

Search

Private Invite

SP SoftwareConstruction ... +

Overview

Summary

Dashboards

Wiki

Boards

Repos

Pipelines

Test Plans

Artifacts

+ Add Project Description

About this project

Help others to get on board!

Describe your project and make it easier for other people to understand it.

Project stats

Period: Last 7 days

Boards

0 Work items

0 Work items

Members 3

SM PM GD

Project settings

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.

c.

Invite members to SoftwareConstruction Project

Search and add users, service principals, or managed identities to your SoftwareConstruction Project project

Users

 Use semicolons to separate multiple members.



Guru sai charan D
231901501@rajalakshmi.edu.in



Saravanan MD
231901046@rajalakshmi.edu.in



Priyanga M
231901037@rajalakshmi.edu.in



Result:

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

EXP NO: 3

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

The screenshot shows the Azure DevOps interface for the 'SoftwareConstruction Project'. The left sidebar is collapsed, and the main area displays a table of work items. The table has columns for ID, Title, Assigned To, State, Area Path, and Tags. The first item listed is 'EPIC 18: Sustainable Shopping & Lifestyle Ecosystem'.

ID	Title	Assigned To	State	Area Path	Tags
18	Sustainable Shopping & Lifestyle Ecosystem	Unassigned	New	SoftwareConstruction Project	
19	Eco-Friendly Product Marketplace	Unassigned	New	SoftwareConstruction Project	
20	Circular Fashion & Pre-Owned Exchange	Unassigned	New	SoftwareConstruction Project	
21	Luxury Rental Marketplace	Unassigned	New	SoftwareConstruction Project	
22	As a user, I should be able to view a product's carbon footprint and eco-score.	Priyanga M	New	SoftwareConstruction Project	
23	As a system, it should suggest greener alternatives if available.	Saravanan MD	New	SoftwareConstruction Project	
24	As a user, I should be able to list my branded pre-owned item for resale.	Guru sai charan D	New	SoftwareConstruction Project	
25	As a system, it should verify authenticity of uploaded branded items.	Priyanga M	New	SoftwareConstruction Project	
26	As a user, I should be able to rent clothing or gadgets for a specific time period.	Guru sai charan D	New	SoftwareConstruction Project	
27	As an admin, I should be able to manage rental logistics, return tracking, and billing.	Saravanan MD	New	SoftwareConstruction Project	
34	User Login with valid credentials	Priyanga M	Design	SoftwareConstruction Project	
35	New User Registration	Priyanga M	Design	SoftwareConstruction Project	

1. Fill in Epics

The screenshot shows the details of the 'EPIC 18: Sustainable Shopping & Lifestyle Ecosystem' work item. The 'Planning' section includes fields for Priority (1), Risk, and Effort. The 'Deployment' section provides instructions on tracking releases. The 'Development' section includes a 'Add link' button and a note about linking to Azure Repos.

EPIC 18
18 Sustainable Shopping & Lifestyle Ecosystem
No one selected | 0 Comments | Add Tag
Status: New | Area: SoftwareConstruction Project | Updated by Priyanga M: 14 Oct
Reason: New | Iteration: SoftwareConstruction Project

Description
A platform enabling eco-conscious users to buy eco-friendly products, exchange branded pre-owned items, and rent luxury goods, while tracking their environmental impact.

Planning
Priority: 1 | Risk | Effort
Business Value
Time Criticality
Start Date
Select a date...
Target Date
Select a date...

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.

2. Fill in Features

Azure DevOps 231901037 / SoftwareConstruction Project / Boards / Work items

Search 3 of 21

SoftwareConstruction ... + Recently updated Back to Work Items

FEATURE 20
20 Circular Fashion & Pre-Owned Exchange

No one selected 0 Comments Add Tag

Save Follow Options More

Updated by Priyanga M: 14 Oct

Details

State: New Area: SoftwareConstruction Project

Reason: New Iteration: SoftwareConstruction Project

Description	Planning	Deployment
Click to add Description.	Priority: 2 Risk: Effort: Business Value: Time Criticality: Start Date: Select a date... Target Date: Select a date...	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
Discussion	Add link	Development
<p>Add a comment. Use # to link a work item, @ to mention a person, or ! to link a pull request.</p> <p>switch to Markdown editor</p>	<p>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.</p>	

3. Fill in User Story Details

Azure DevOps 231901037 / SoftwareConstruction Project / Boards / Work items

Search

Recently updated | Back to Work Items

7 of 21 ↑ ↓

USER STORY 24

24 As a user, I should be able to list my branded pre-owned item for resale/exchange.

Guru saicharan D 0 Comments Add Tag

Save Follow Details

Updated by Priyanka M: 15 Oct

Description

Click to add Description.

Planning

Story Points

Priority 3

Risk

Acceptance Criteria

Classification

Value area Business

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.

switch to Markdown editor

Result:

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

EXP NO: 4

SPRINT PLANNING

Aim:

To assign user story to specific sprint for the Sustainable Shopping & Lifestyle Ecosystem project

Sprint Planning

Sprint 1

The screenshot shows the Azure DevOps Taskboard for the SoftwareConstruction Project. The left sidebar is open with the 'Sprints' section selected. The main area displays a taskboard for 'Iteration 1' with four columns: New, Active, Resolved, and Closed. Three user stories are visible in the 'New' column:

- User Story 22: As a user, I should be able to view a product's environmental and economic rating before purchase. Assigned to Priyanga M.
- User Story 23: As a system, it should suggest greener alternatives if available. Assigned to Saravanan MD.
- User Story 24: As a user, I should be able to list my branded products for resell/recharge. Assigned to Guru sai charan D.

Sprint 2

The screenshot shows the Azure DevOps Taskboard for the SoftwareConstruction Project. The left sidebar is open with the 'Sprints' section selected. The main area displays a taskboard for 'Iteration 2' with four columns: New, Active, Resolved, and Closed. Three user stories are visible in the 'New' column:

- User Story 25: As a system, it should verify authenticity of products using Blockchain (A) image check / blockchain. Assigned to Priyanga M.
- User Story 42: As a user, I should earn Green Points for eco-friendly purchases, rentals, or exchanges. Assigned to Saravanan MD.
- User Story 43: As a user, I should be able to redeem my Green Points for discounts or donations to NGOs. Assigned to Guru sai charan D.

Result:

The Sprints are created for the Sustainable Shopping & Lifestyle Ecosystem project.

EXP NO: 5

POKER ESTIMATION

Aim:

Create Poker Estimation for the user stories – Sustainable Shopping & Lifestyle Ecosystem Project.

Poker Estimation

The screenshot shows the Azure DevOps Work Items interface. On the left, there's a sidebar with various project management options like Boards, Work items, Sprints, and Queries. The main area displays a work item titled "USER STORY 25". The description of the story is: "As a system, it should verify authenticity of uploaded branded items (AI image check / blockchain). (5 points)". The work item is assigned to "Priyanga M" and has 0 comments. It is in the "New" state under the "SoftwareConstruction Project" area, iteration "SoftwareConstruction Project\Iteration 2". The "Planning" section shows "Story Points" and "Priority" (set to 3). The "Deployment" section provides instructions on tracking releases. The "Classification" section lists "Value area" and "Business". The "Development" section includes a link to Azure Repos. A comment box at the bottom allows users to add comments using specific syntax.

Result:

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

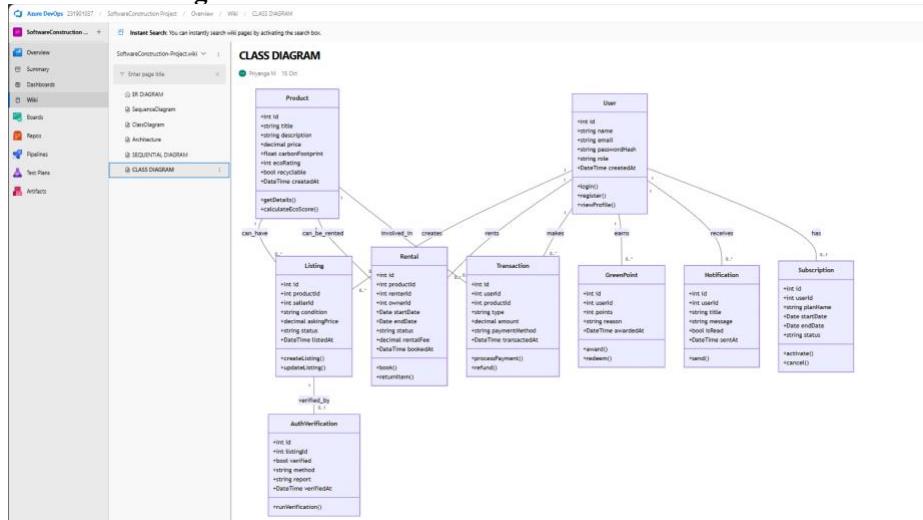
EXP NO: 6

DESIGNING CLASS AND SEQUENCE DIAGRAMS FOR PROJECT ARCHITECTURE

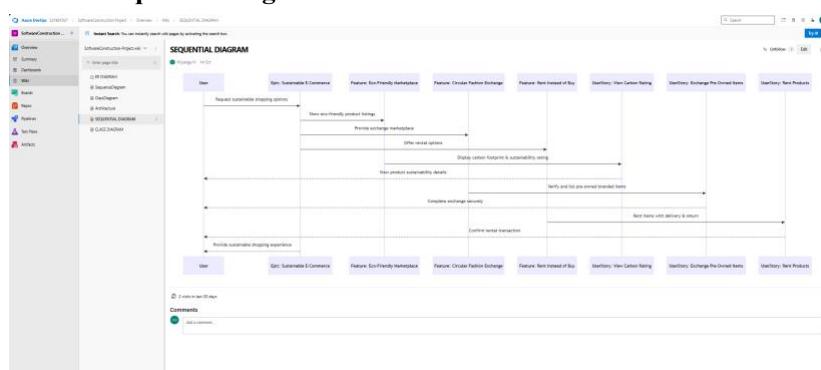
Aim:

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 Sustainable Shopping & Lifestyle Ecosystem

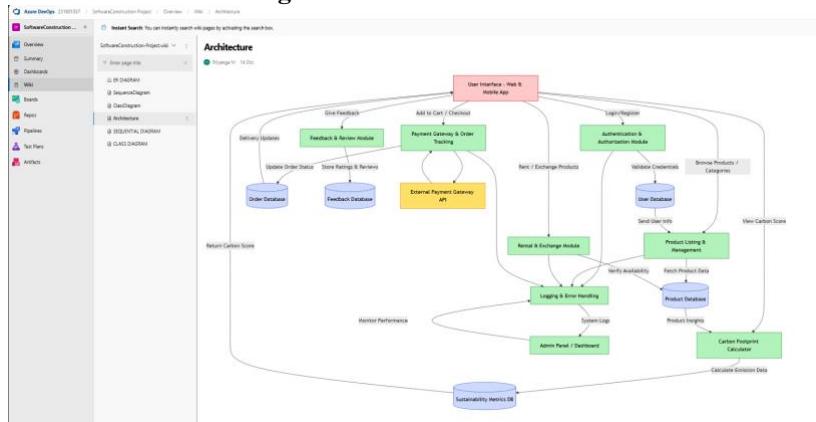
EXP NO: 7

DESIGNING ARCHITECTURAL AND ER DIAGRAMS FOR PROJECT STRUCTURE

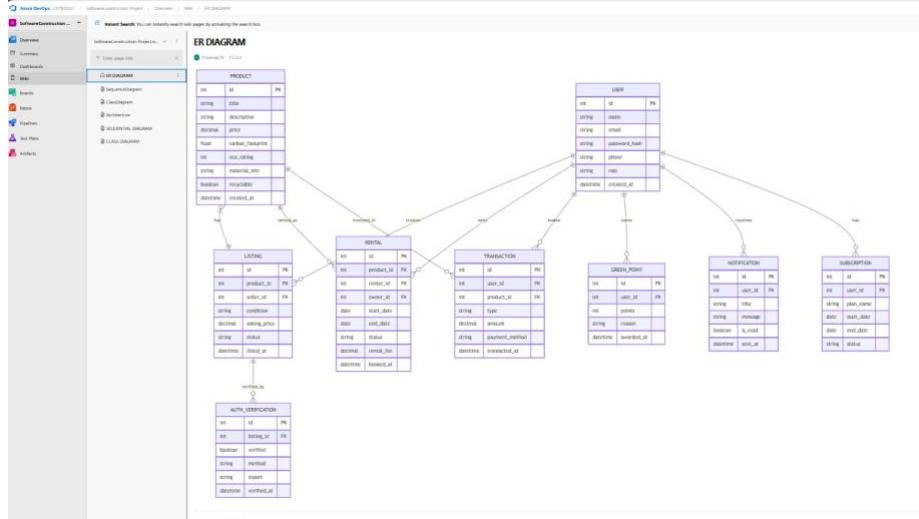
Aim:

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 the Sustainable Shopping & Lifestyle Ecosystem.

EXP NO: 8

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 Design Procedure

Project: Sustainable Commerce Platform (GreenLoop)

1. Understand Core Features of the Application

The Sustainable Commerce Platform enables eco-conscious consumers to shop, rent, exchange, and track their carbon footprint. The major features under test include:

- User Authentication and Profile Management
- Product Search, Filter, and View
- Add to Cart and Checkout Process
- Rent or Exchange Product Workflow
- Carbon Footprint Tracking
- Reward Points and Sustainability Badges

2. Define User Interactions

Each test case is designed to simulate real-world user actions across multiple modules:

- Logging in or registering with valid and invalid data
- Searching and filtering sustainable products
- Adding or removing items from the cart
- Completing checkout with valid and invalid payment details
- Renting or exchanging products
- Viewing the sustainability dashboard and carbon footprint statistics
- Redeeming eco-reward points

3. Design Happy Path Test Cases

Verify that all modules function correctly under normal conditions.

Test ID	Test Description
TC01	Register with valid user details
TC02	Login with valid credentials
TC03	Search product by name and category
TC04	Filter products by sustainability rating
TC05	Add product to cart successfully
TC06	Checkout with valid payment details
TC07	Request a product for rent successfully
TC08	Exchange product with correct conditions
TC09	Track carbon footprint correctly after purchase
TC10	Redeem reward points for eco-friendly actions

4. Design Error Path Test Cases

Simulate invalid data or user mistakes to verify system resilience and validation.

Test ID	Test Description
TC11	Register with missing required fields
TC12	Login with invalid password
TC13	Search for unavailable product
TC14	Add out-of-stock product to cart
TC15	Checkout with expired card details
TC16	Rent product with invalid duration input
TC17	Exchange request without uploading proof of ownership
TC18	Access dashboard without login
TC19	Attempt to redeem more points than available
TC20	Upload invalid file format for exchange product

5. Break Down Steps and Expected Results

Each test case includes:

- **Preconditions:** For example, user is logged in or product available in catalog.
- **Test Steps:** Sequential actions such as "Click Login", "Enter Details", "Click Submit".
- **Expected Result:**
 - Success message or correct data displayed.
 - Error message displayed for invalid inputs.

Example:

TC06 – Checkout with Valid Payment Details

- Steps:
 1. Add a product to the cart.
 2. Go to checkout page.
 3. Enter valid card details.
 4. Click "Confirm Payment".
- Expected Result:
 - Payment succeeds.
 - Confirmation message displayed.
 - Order ID generated.

6. Use Clear Naming and IDs

All test cases follow consistent naming for easy mapping in Azure Test Plans.

Format: TCXX – Module – Action

Example: TC04 – Product Filter – By Sustainability Rating

7. Separate Test Suites

Organized based on core functionalities for modular testing and easier tracking in Azure DevOps Test Plans.

Test Suite	Modules Covered
Login and Registration	TC01–TC02, TC11–TC12
Product Search and Filter	TC03–TC04, TC13
Cart and Checkout	TC05–TC06, TC14–TC15
Rent and Exchange	TC07–TC08, TC16–TC17
Carbon Tracking and Rewards	TC09–TC10, TC18–TC20

8. Prioritize and Review

- **High Priority:** Login, Checkout, Rent/Exchange, and Reward Redemption
 - **Medium Priority:** Product Search, Filter, and Carbon Tracking
 - **Low Priority:** Profile Updates and UI Visuals
- All test cases were reviewed for:
- Complete feature coverage
 - Traceability to user stories
 - Accurate validation steps
 - Reusability for automation

1. New test plan

The screenshot shows a 'NEW TEST CASE' dialog. At the top, there's a text input field with placeholder text 'Register with valid user details'. Below it, the owner is listed as 'Priyanga M'. There are buttons for '0 Comments' and 'Add Tag'. On the right, there's a 'Save and Close' button. Below these, there are several filter and search fields: 'State' (Design selected), 'Reason' (New), 'Area' (SoftwareConstruction Project), and 'Iteration' (SoftwareConstruction Project). At the bottom, there are tabs for 'Steps' (selected), 'Summary', and 'Associated Automation'. Under the 'Steps' tab, there's a section titled 'Recent test results' with a link to 'get started'. Another section titled 'Deployment' provides instructions on how to track releases. A large text area at the bottom is labeled 'Click or type here to add a step'.

2. Test case

Test Suite TS01 – User Authentication

User Story ID: US01

Title: As a user, I want to securely sign up and log in so that I can access the platform and manage eco-commerce activities.

Test Case TC01 – Successful Sign Up

Type: Happy Path

Steps:

1. Navigate to the Sign-Up page.
 2. Enter valid name, email, and password.
 3. Click on Sign Up.
- Expected Result: Account is created and user is redirected to the homepage/dashboard.

Test Case TC02 – Sign Up with Existing Email

Type: Error Path

Steps:

1. Navigate to the Sign-Up page.
2. Enter an already registered email.

3. Click on Sign Up.
Expected Result: Error message displayed — “Email is already registered.”

Test Suite TS02 – Product Browsing and Filtering

User Story ID: US02

Title: As a user, I want to search and filter sustainable products to find items based on eco-ratings and categories.

Test Case TC03 – Successful Product Search

Type: Happy Path

Steps:

1. Log in to the platform.
2. Enter a valid product name in the search bar.
3. Click on Search.
Expected Result: Matching products are displayed with name, image, and eco-rating.

Test Case TC04 – Filter Products by Sustainability Rating

Type: Happy Path

Steps:

1. Log in to the platform.
2. Open product listing page.
3. Select filter “Sustainability Rating ≥ 4 ”.
Expected Result: Products with sustainability rating 4 and above are displayed.

Test Case TC05 – Search Product Not Found

Type: Error Path

Steps:

1. Enter an invalid or unavailable product name.
2. Click on Search.
Expected Result: Message displayed — “No products found.”

Test Suite TS03 – Cart and Checkout Process

User Story ID: US03

Title: As a user, I want to add items to the cart and checkout securely.

Test Case TC06 – Add Product to Cart

Type: Happy Path

Steps:

1. Log in.
2. Search and open a product.
3. Click on Add to Cart.

Expected Result: Product added to cart and confirmation message shown.

Test Case TC07 – Checkout with Valid Payment Details

Type: Happy Path

Steps:

1. Go to the Cart page.
2. Click on Checkout.
3. Enter valid payment details.
4. Click on Pay Now.

Expected Result: Payment succeeds and order confirmation is displayed.

Test Case TC08 – Checkout with Invalid Card

Type: Error Path

Steps:

1. Go to Checkout.
2. Enter expired card details.
3. Click on Pay Now.

Expected Result: Payment fails and an error message is shown — “Invalid card details.”

Test Suite TS04 – Rent and Exchange Workflow

User Story ID: US04

Title: As a user, I want to rent or exchange items with other users for sustainable consumption.

Test Case TC09 – Rent Product Successfully

Type: Happy Path

Steps:

1. Log in.
2. Select a rentable product.
3. Choose rental duration.
4. Click on Rent Now.

Expected Result: Rental request is created and confirmation displayed.

Test Case TC10 – Exchange Product Successfully

Type: Happy Path

Steps:

1. Log in.
2. Go to Exchange Section.
3. Select item for exchange and upload ownership proof.
4. Click on Submit Request.

Expected Result: Exchange request submitted successfully.

Test Case TC11 – Exchange Without Proof Document

Type: Error Path

Steps:

1. Log in.
2. Try to submit exchange request without uploading proof.
Expected Result: Error message shown — “Ownership proof required.”

Test Suite TS05 – Carbon Footprint and Rewards

User Story ID: US05

Title: As a user, I want to track my carbon footprint and earn reward points for sustainable purchases.

Test Case TC12 – Carbon Footprint Tracking After Purchase

Type: Happy Path

Steps:

1. Log in.
2. Complete a product purchase.
3. Go to Carbon Dashboard.
Expected Result: Dashboard updates showing CO₂ saved and footprint reduced.

Test Case TC13 – Redeem Reward Points

Type: Happy Path

Steps:

1. Log in.
2. Go to Rewards Section.
3. Redeem available points for a voucher.
Expected Result: Points redeemed and voucher generated.

Test Case TC14 – Redeem Insufficient Points

Type: Error Path

Steps:

1. Log in.
2. Try to redeem more points than available.
Expected Result: Message displayed — “Not enough points to redeem.”

Test Suite TS06 – System Access and Alert

User Story ID: US06

Title: As a user, I want to receive notifications for rent expiry, delivery status, and account alerts.

Test Case TC15 – Receive Rent Expiry Alert

Type: Happy Path

Steps:

1. Log in.
2. Check notifications for rented items nearing end date.
Expected Result: Alert displayed — “Your rental period expires in 2 days.”

Test Case TC16 – No Alert for Completed Rentals

Type: Error Path

Steps:

1. Log in after rental period has expired.
Expected Result: No alert shown; status updated as “Completed.”

Test Cases

The screenshot shows the Azure DevOps Test Plans interface. On the left, there's a sidebar with various project management and testing tools like Overview, Boards, Repos, Pipelines, Test Plans, Test plans, Progress report, Parameters, Configurations, Runs, and Artifacts. The 'Test Plans' section is currently selected. In the main area, a 'Test Suites' list is shown with one item: 'Sustainable Commerce Platform - Full'. Underneath it, a 'Test Cases' list is displayed with three items: 'User Login with valid credentials' (Order 1, Test Case Id 34), 'New User Registration' (Order 2, Test Case Id 35), and 'User Login with invalid password' (Order 3, Test Case Id 39). A 'New Test Case' button is visible at the top right of the test cases table.

1. Installation of test

The screenshot shows the Microsoft Edge Add-ons store page for the 'Test & Feedback' extension. At the top, there are navigation links for Microsoft, Edge Add-ons, Discover, Extensions, and Themes, along with a search bar and a user profile icon. The extension itself is listed with a purple icon featuring a flask and a checkmark. It is labeled as 'Featured' and 'Extension | Microsoft Corporation'. It has a rating of ★★★★ (29) and over 1,30,000 users. The category is listed as 'Developer tools'. Below the extension details, there's a preview image showing a browser window with a video player and annotation tools. To the right, the version is listed as 'Version 1.0.256.1', updated on '6 May 2025', and available in '1 language'. There are also links for 'Terms', 'Privacy policy', 'Developer', and 'Report abuse'. A large 'Get' button is prominently displayed at the top right.

Click to go back, hold to see history | Microsoft Edge Add-ons

Discover Extensions Themes

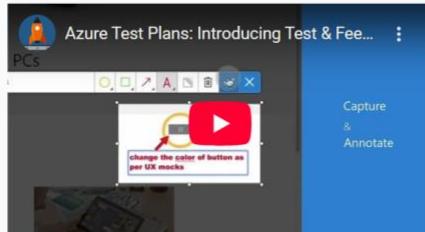
Search extensions, themes, and more

Test & Feedback Featured

Extension | Microsoft Corporation

★★★★☆ (29) | 1,30,000+ Users | Developer tools

Remove Add-on already installed on your browser



Version 1.0.256.1
Updated 6 May 2025
Available in 1 language

Terms
Privacy policy

Developer
More add-ons from Microsoft Corporation (958)

Report abuse

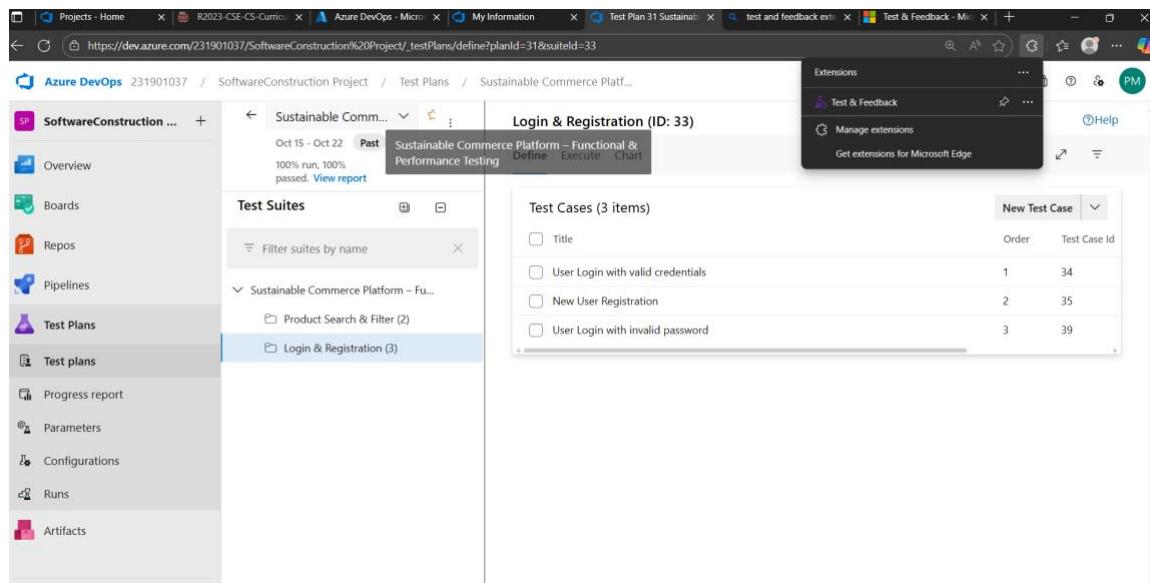
Description

Now everyone on the team can own quality. Capture findings, create issues, and collaborate with the team, directly from the browser.

Test & Feedback - Now everyone on the team can own quality. Capture findings, create issues, and collaborate with the team, directly from the browser.

Test and feedback

Showing it as an extension



The screenshot shows the Microsoft Edge browser with multiple tabs open. The active tab is 'Azure DevOps - 23190103 / SoftwareConstruction Project / Test Plans / Sustainable Commerce Plat...'. In the top right corner, the 'Test & Feedback' extension icon is visible. The main content area displays a test plan for 'Sustainable Commerce Platform' with a 'Test Suites' section and a 'Test Cases (3 items)' table.

Title	Order	Test Case Id
User Login with valid credentials	1	34
New User Registration	2	35
User Login with invalid password	3	39

1. Running the test cases

Login & Registration (ID: 33)

Define Execute Chart ⚡ Help

Test Points (3 items)

Title	Outcome	Order	Test Case Id	State	Configuration	Current Tester
User Login with valid credentials	Passed	1	34	Design	Windows 10	Priyanga M
New User Registration	Passed	2	35	Design	Windows 10	Priyanga M
User Login with invalid password	Passed	3	39	Design	Windows 10	Priyanga M

Run for web application

More options

- View execution history
- Mark Outcome
- Run
- Reset test to active
- Edit test case
- Assign tester
- View test result

Runner - Test Plans - Profile 3 - Microsoft Edge

https://dev.azure.com/231901037/SoftwareConstruction%20Project/_testExecution/Index

Save and clo... Create bug

34: User Login with valid credentials

1. Go to login page
2. Enter valid email & password
3. Click Login

EXPECTED RESULT

User should be redirected to dashboard/home page

1. Recording the test case

Runner - Test Plans - Profile 3 - Microsoft Edge

https://dev.azure.com/231901037/SoftwareConstruction%20Project/_testExecution/Index

Save and clo... Create bug

Recording: 00:00 / 10:00 minutes

34: User Login with valid credentials

1. Go to login page
2. Enter valid email & password
3. Click Login

EXPECTED RESULT

User should be redirected to dashboard/home page

Choose what to share with Test & Feedback

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

Microsoft Edge Tab Window Entire Screen

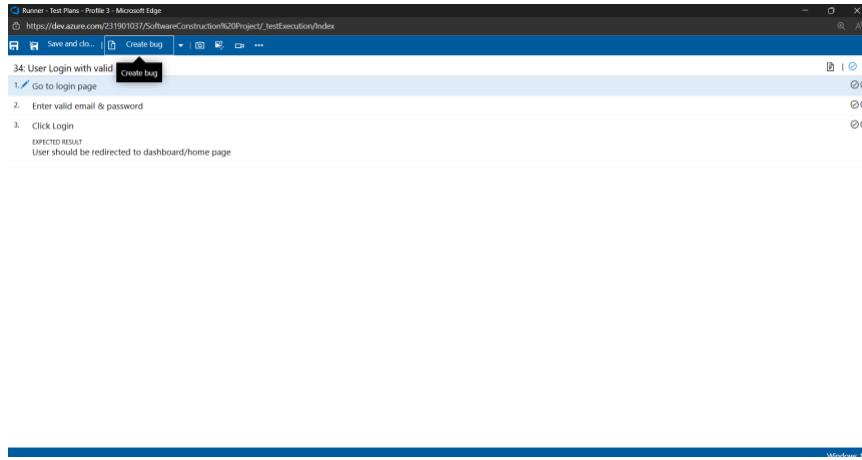
Entire screen

Share Cancel

2. Creating the bug

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1. Test report summary

ID	Title	Assigned To	State	Area Path
35	New User Registration	Priyanga M	Design	SoftwareConstruction Project
37	Product Search	Priyanga M	Design	SoftwareConstruction Project
38	Filter by Sustainability Rating	Priyanga M	Design	SoftwareConstruction Project
39	User Login with invalid password	Priyanga M	Design	SoftwareConstruction Project
40	Green Points & Gamification	Unassigned	New	SoftwareConstruction Project
41	User Notifications & Eco-Impact Dashboard	Unassigned	New	SoftwareConstruction Project
42	As a user, I should earn Green Points for eco-friendly purchases, renta	Saravanan MD	New	SoftwareConstruction Project
43	As a user, I should be able to redeem my Green Points for discounts o	Guru sai charan D	New	SoftwareConstruction Project
44	As a user, I should receive notifications about new offers, rental due d	Priyanga M	New	SoftwareConstruction Project
45	As a user, I should be able to view my eco-impact dashboard showing	Guru sai charan D	New	SoftwareConstruction Project

- Assigning bug to the developer and changing state

2. Progress report

Summary

- 1 Test plans
- 5 Test points
- 5 (5 / 5) Test points run
- 100% Run
- 100% (5 / 5) Pass rate

Outcome trend

Last 14 Days

Date	Tests
2025-10-13	0
2025-10-14	5
2025-10-15	5
2025-10-16	5
2025-10-17	5
2025-10-18	5
2025-10-19	5
2025-10-20	5
2025-10-21	5
2025-10-22	5
2025-10-23	5
2025-10-24	5
2025-10-25	5
2025-10-26	5
2025-10-27	5

Legend: Passed (Green)

1. Changing the test template

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The screenshot shows the 'Organization Settings' page in Azure DevOps, specifically the 'Process' section. The left sidebar has 'General' and 'Security' sections. The main area lists 'All processes' under 'Processes'. It includes a search bar, a help link, and a filter by process name button. The table lists four process templates: 'Basic (default)', 'Agile', 'Scrum', and 'CMMI'. Each row shows the template name, a description, and the number of team projects.

Name	Description	Team projects
Basic (default)	This template is flexible for any process and great for teams...	0
Agile	This template is flexible and will work great for most teams ...	1
Scrum	This template is for teams who follow the Scrum framework.	0
CMMI	This template is for more formal projects requiring a frame...	0

Result:

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

EXP NO: 9

LOAD TESTING AND PIPELINES

Aim:

To create an Azure Load Testing resource and run a load test to evaluate the performance of a target endpoint and to create and demonstrate an Azure DevOps pipeline for automating application builds, tests, and deployment.

Load Testing

Azure Load Testing:

Azure Load Testing allows you to simulate high traffic and stress tests for your web applications and APIs to understand how they perform under load. It helps identify performance bottlenecks, scalability issues, and optimize resource usage before deployment.

Steps to Create an Azure Load Testing Resource:

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

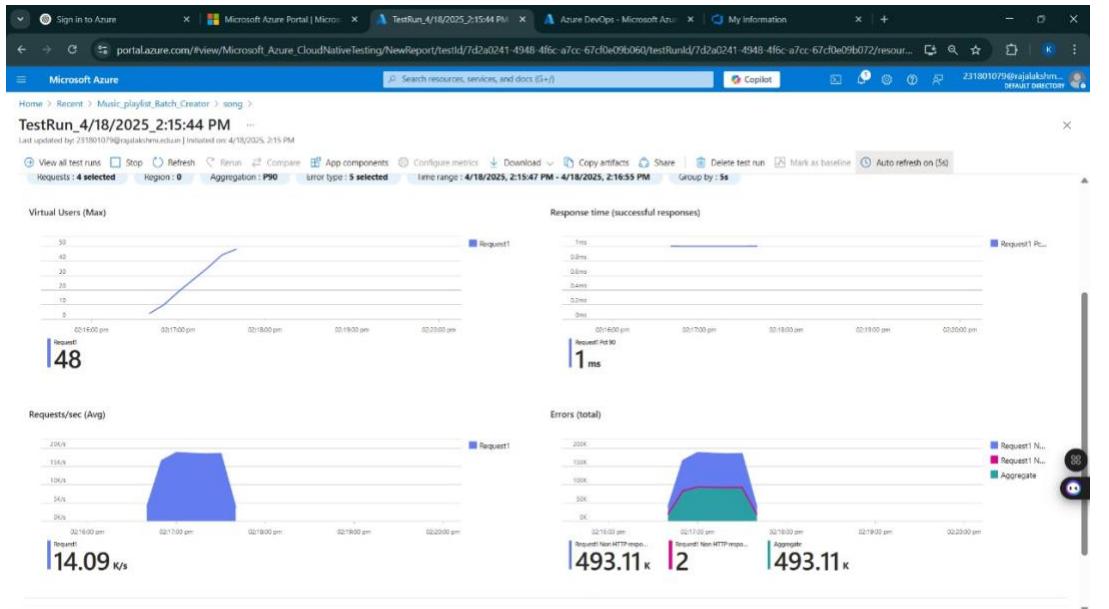
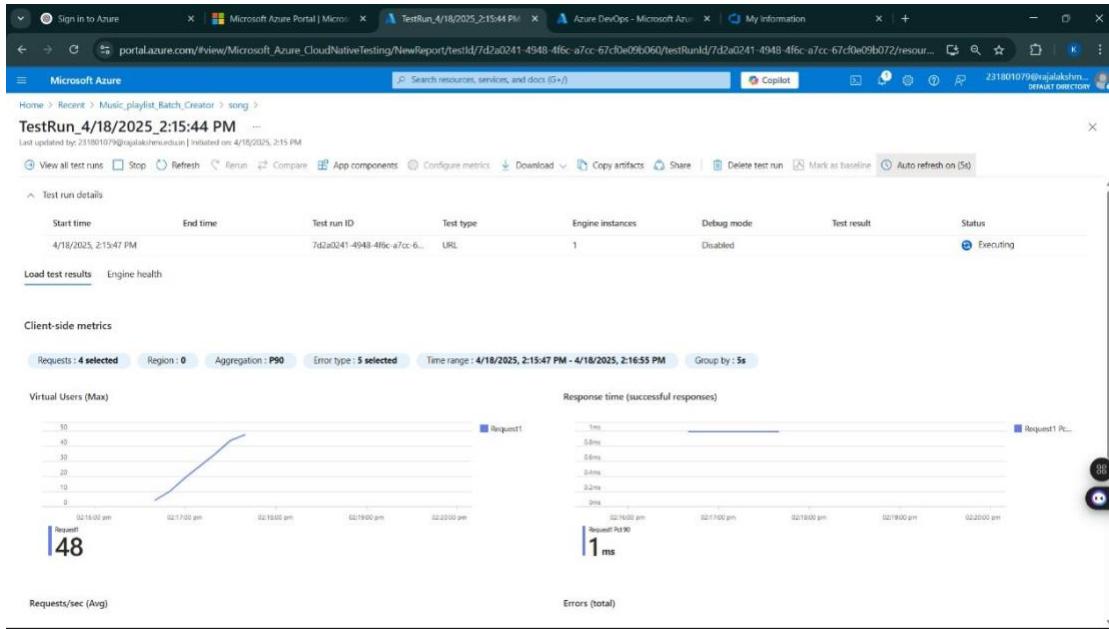
1. Sign in to Azure Portal
Go to <https://portal.azure.com> and log in.
2. Create the Resource
 - o Go to *Create a resource* → Search for “Azure Load Testing”.
 - o Select Azure Load Testing and click Create.
3. Fill in the Configuration Details
 - o *Subscription*: Choose your Azure subscription.
 - 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 → Create to start the test.

Load Testing



Pipelines

Description:

This experiment demonstrates how to connect a GitHub-hosted Flask-based music recommendation project with Azure DevOps. The pipeline will automatically install dependencies, run basic tests, and publish artifacts. This ensures that every commit triggers checks for reliability and smooth deployment.

Steps:

1. Connect GitHub to Azure DevOps:
 - o In Azure DevOps, create a new project.
 - o Create a pipeline and select GitHub as the source.
 - o Authorize access to your GitHub repository, ensuring that Azure DevOps can pull the repository for your pipeline.
2. Create azure-pipelines.yml in Your Repo Root:
 - o In your GitHub repository, create a new file called azure-pipelines.yml in the root directory.
 - o Add the following basic pipeline configuration for Python and Flask:

yml Code

```
trigger:  
  - main  
  
pool:  
  vmImage: 'ubuntu-latest'  
  
steps:  
  - checkout: self  
  
  - script: echo "Azure Pipeline for Contract Management System is running!"  
    displayName: 'Run sample script'
```

3. Pipeline Tasks Include:
 - o Setting up the Python environment using the UsePythonVersion task.
 - o Installing project dependencies from project/requirements.txt. Make sure the path to requirements.txt is correct (it is located under the project folder).
 - o Running a simple Python script to verify that Python is set up correctly and the pipeline works.
4. Run and Monitor Pipeline:
 - o Commit changes to the main branch of your repository to trigger the pipeline in Azure DevOps.
 - o Monitor the logs in the Azure DevOps portal to view logs, errors, or success messages and ensure everything runs smoothly.

Pipeline

Project Management System > Pipelines > Balajinamesh120 > 20260504.1

Search

≡ ⌂ ⓘ ⓘ 88 86

Summary Code Coverage



Individual CI

Repository and version

∅ Balajinamesh120

▀ b3e89175610ffdr<12534275SQFCS4F7A4C> C

∅ main

Time started and set at

⌚ Today at 11:14 AM

Duration

⌚ 2m 8s

View change



0 errors

No hosted parallelism has been purchased or granted. To request a free parallelism grant, please fill out the following form: <https://aka.ms/azpipelines-parallelism-request>:20260504.1

Disable this check by following this build runs

Jobs

Job

Status

Status



Job

Succeeded

Succeeded

Result:

Successfully created the Azure Load Testing resource and executed a load test to assess the performance of the specified endpoint and also demonstrated pipelines in azure devops.

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EXP NO: 10

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 Contract Management System project.

GitHub Project Structure

The screenshot shows a GitHub repository page for '231801018-CS23432-SOFTWARE-CONSTRUCTION'. The repository is public and has two commits from 'BalajiRamesh120'. The commit history includes 'Initial commit' and 'Set up CI with Azure Pipelines'. The repository features a README file with the text '231801018-CS23432-SOFTWARE-CONSTRUCTION'. The sidebar on the right provides basic repository statistics: 1 star, 0 forks, 1 watching, and 0 releases. It also links to 'Readme', 'Activity', and 'Packages'.

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.

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