

EXP NO: 1

AZURE DEVOPS ENVIRONMENT SETUP

Aim:

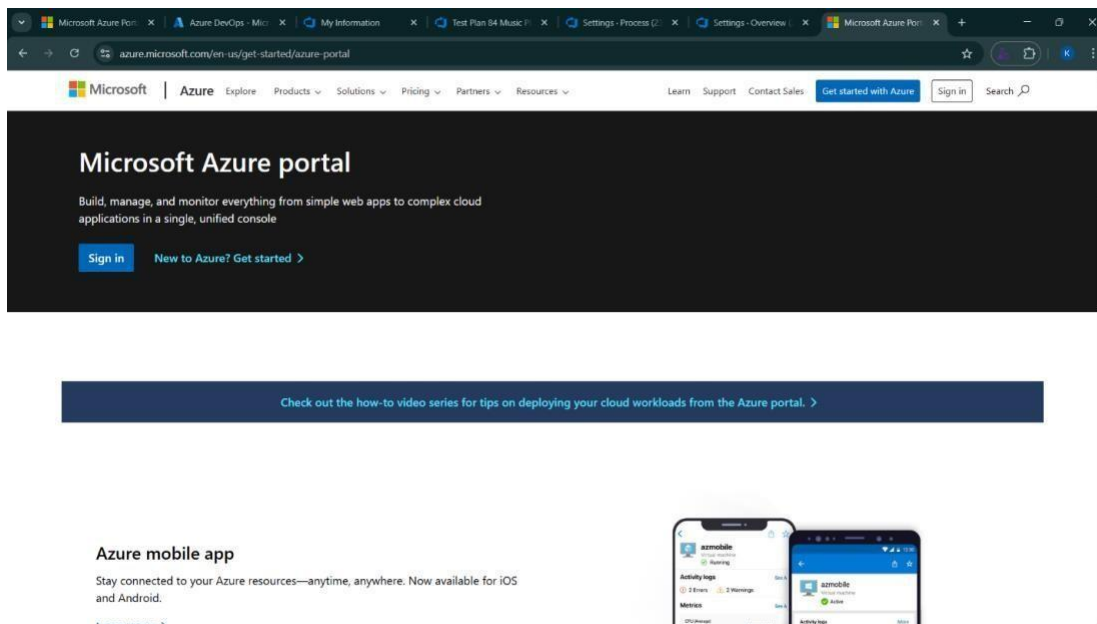
To set up and access the Azure DevOps environment by creating an organization through the Azure portal.

INSTALLATION

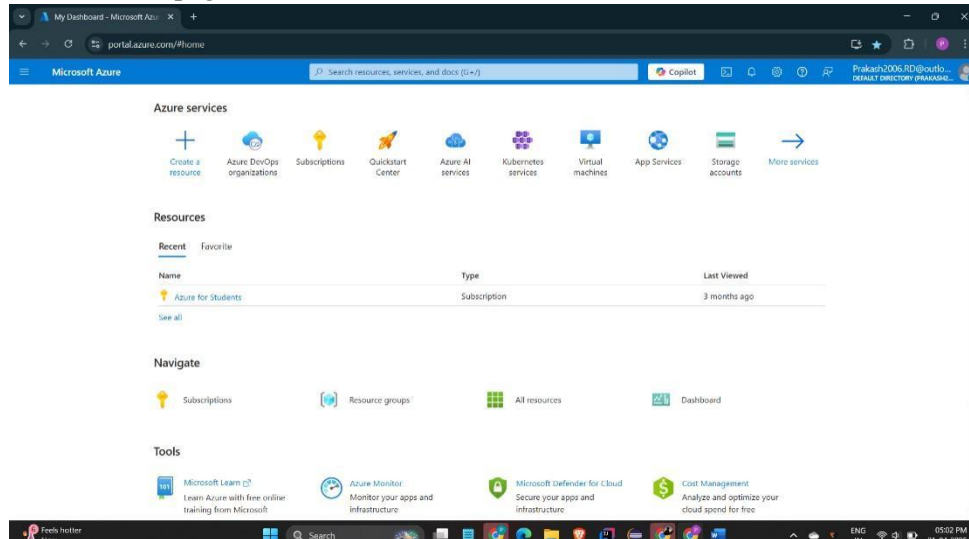
1. Open your web browser and go to the Azure website: <https://azure.microsoft.com/en-us/getstarted/azureportal>.

Sign in using your Microsoft account credentials.

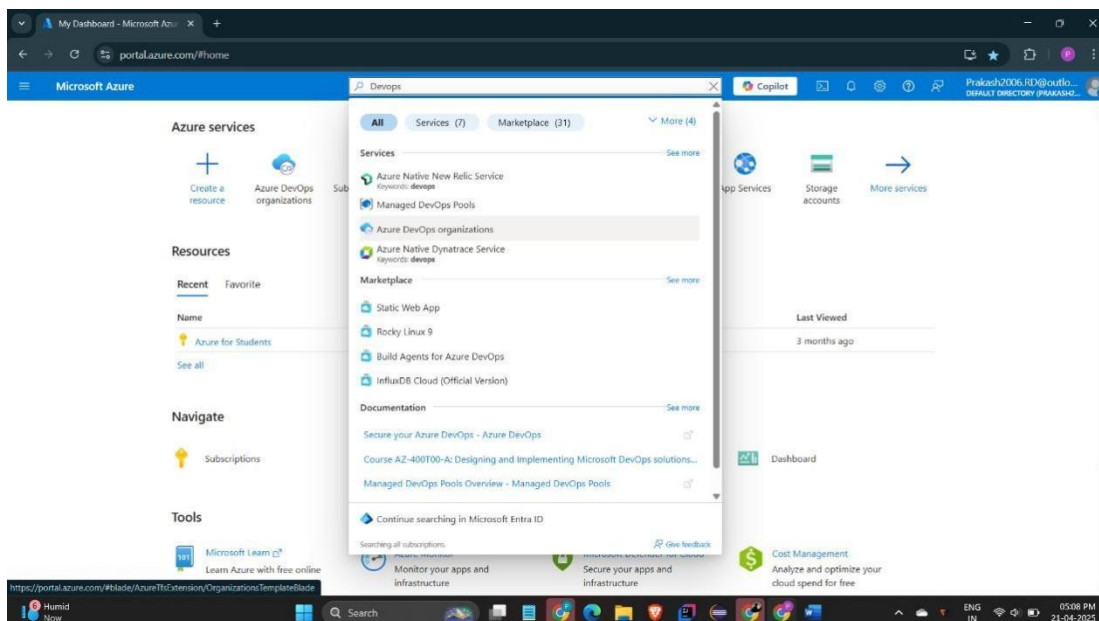
If you don't have a Microsoft account, you can create one here: <https://signup.live.com/?lic=1>



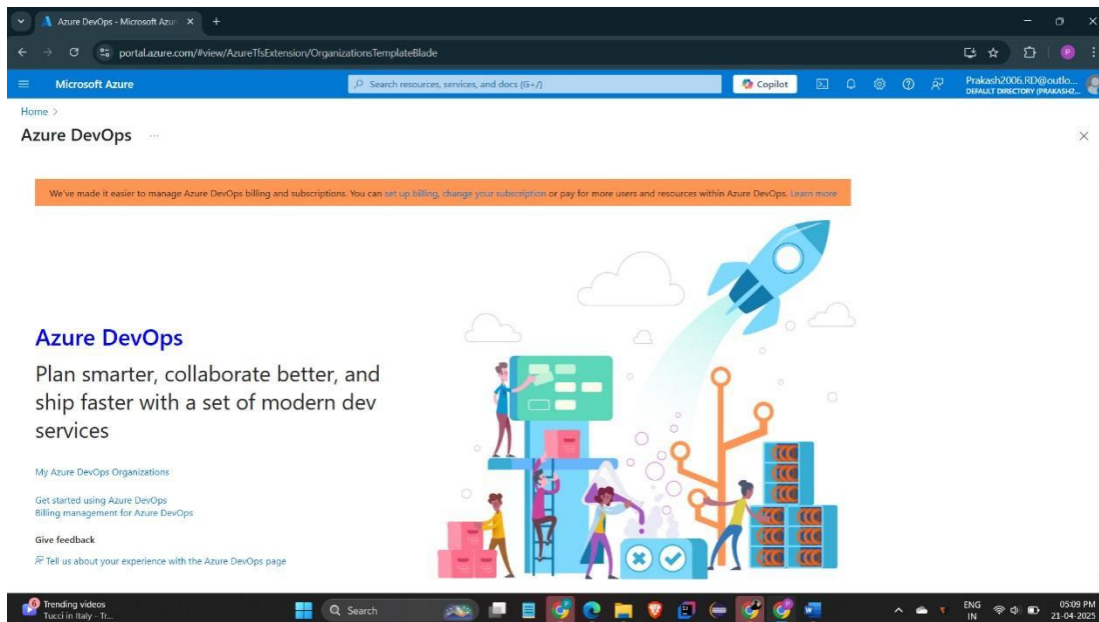
2. Azure home page



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.

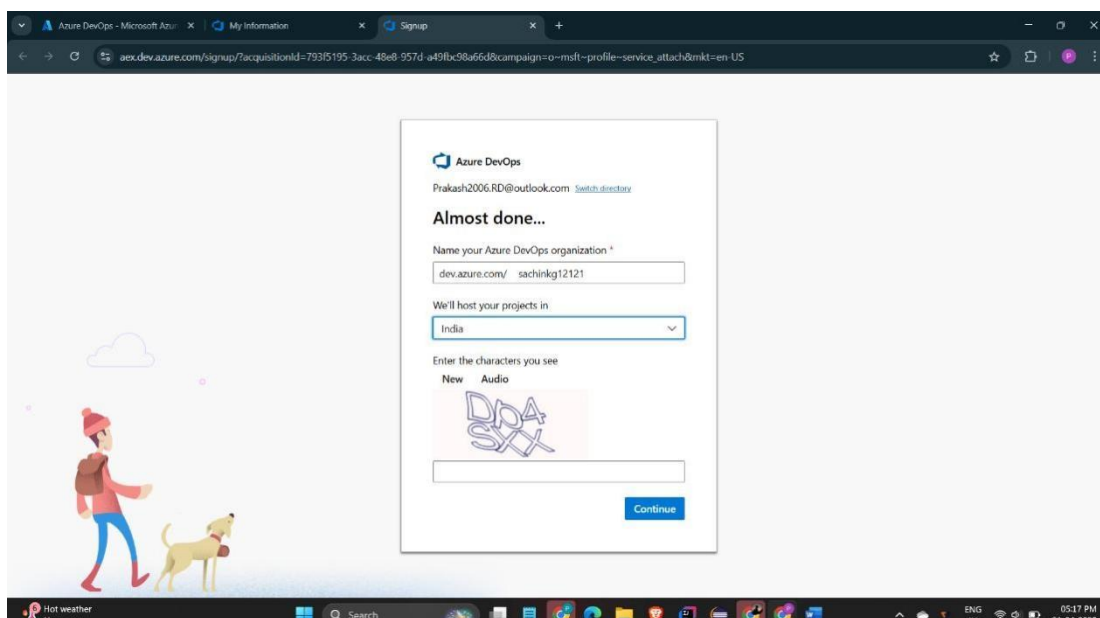
EXP NO: 2

AZURE DEVOPS PROJECT SETUP AND USER STORY MANAGEMENT

Aim:

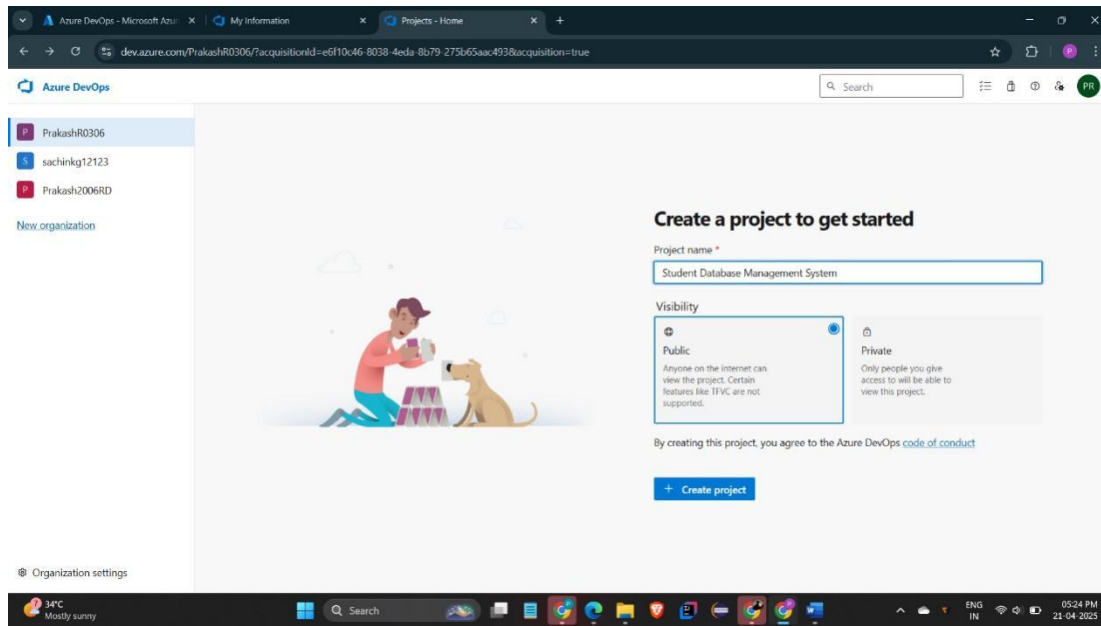
To set up an Azure DevOps project for efficient collaboration and agile work management.

1.Create An Azure Account

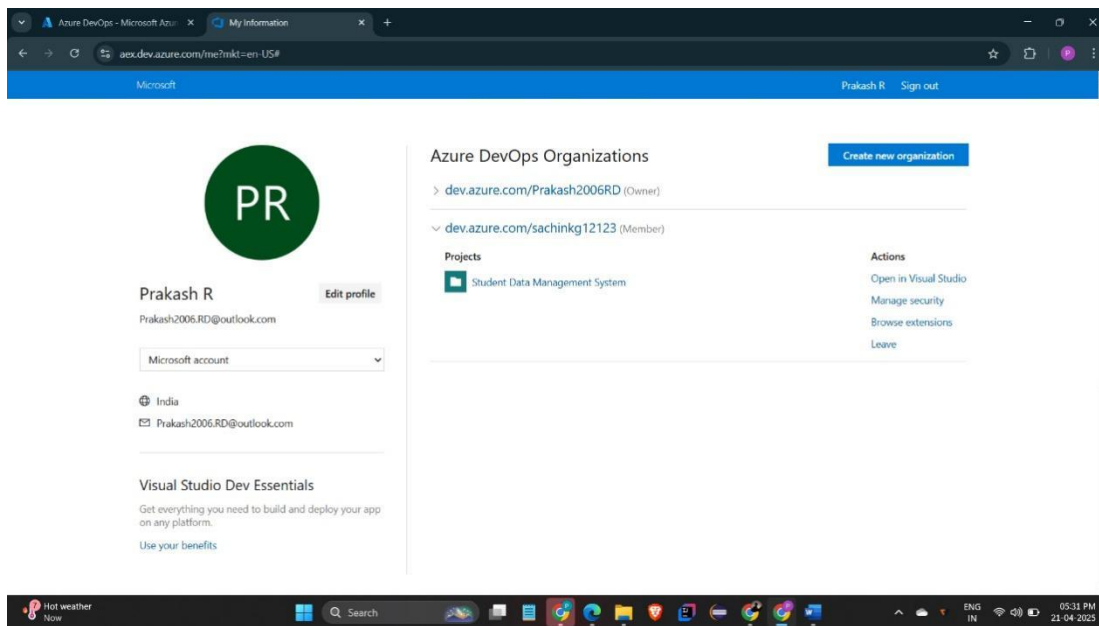


2.Create the First Project in Your Organization

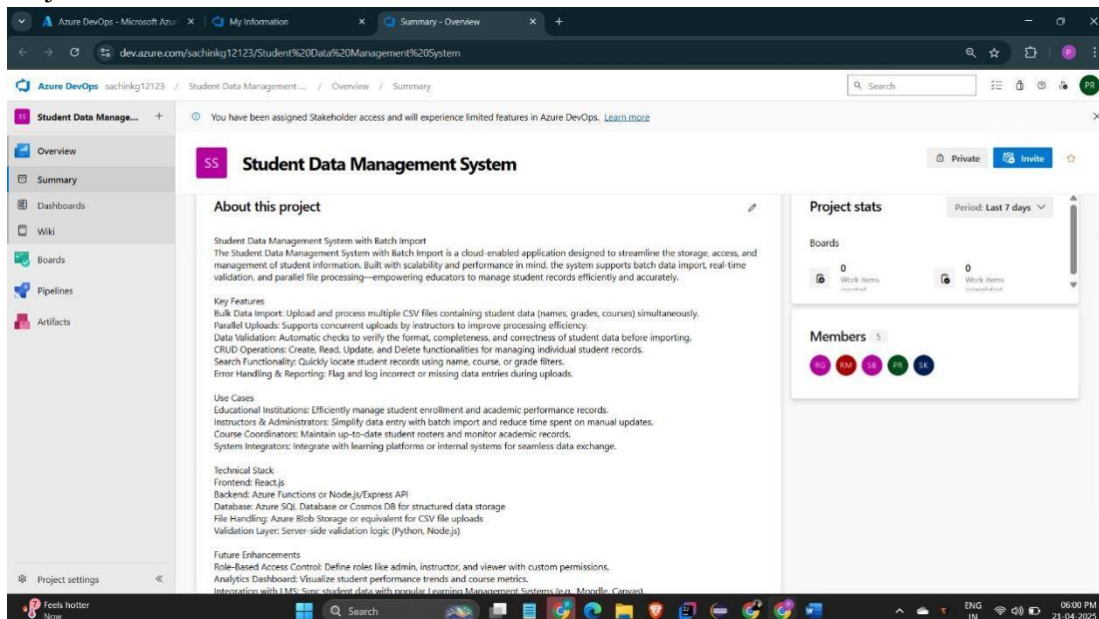
- After the organization is set up, you'll need to create your first **project**. This is where you'll begin to manage code, pipelines, work items, and more.
- On the organization's **Home page**, click on the **New Project** button.
- Enter the project name, description, and visibility options:
 - Name:**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



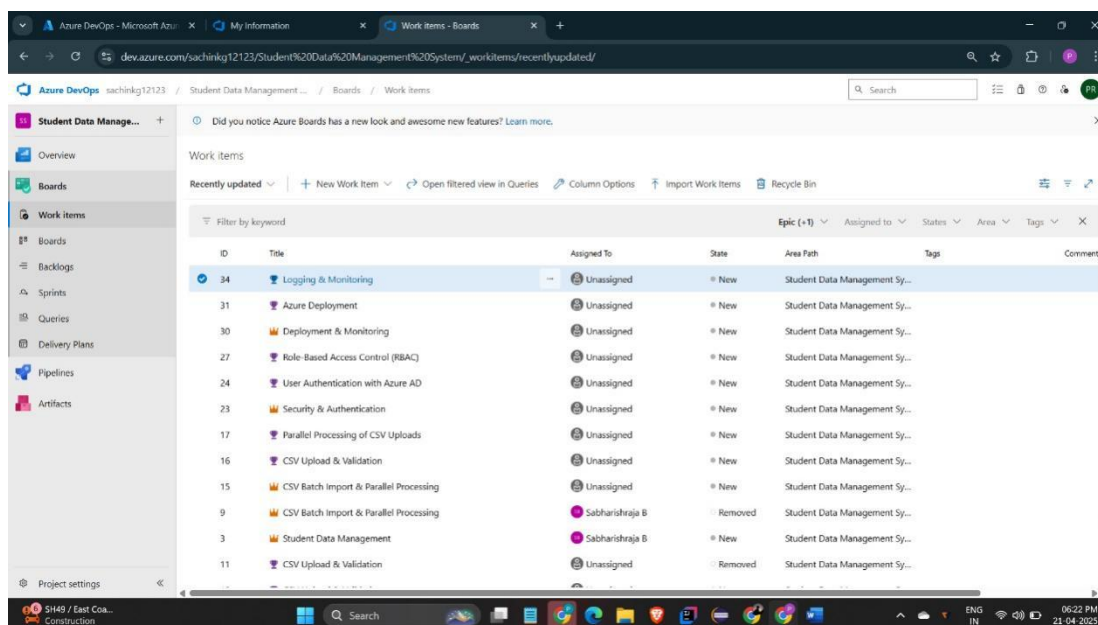
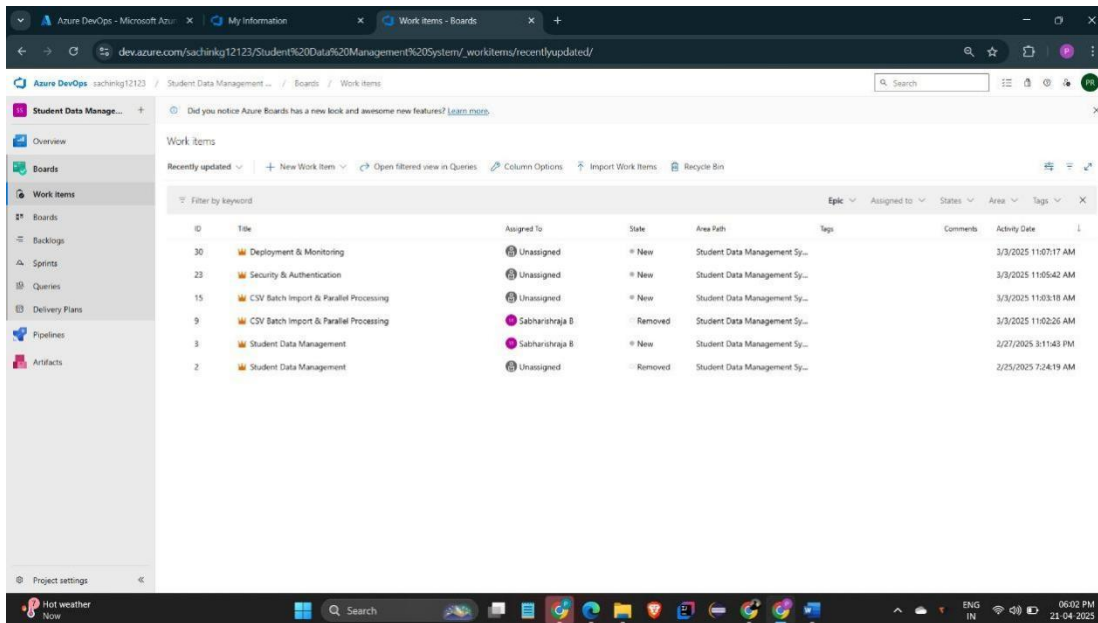
4. Project dashboard



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.

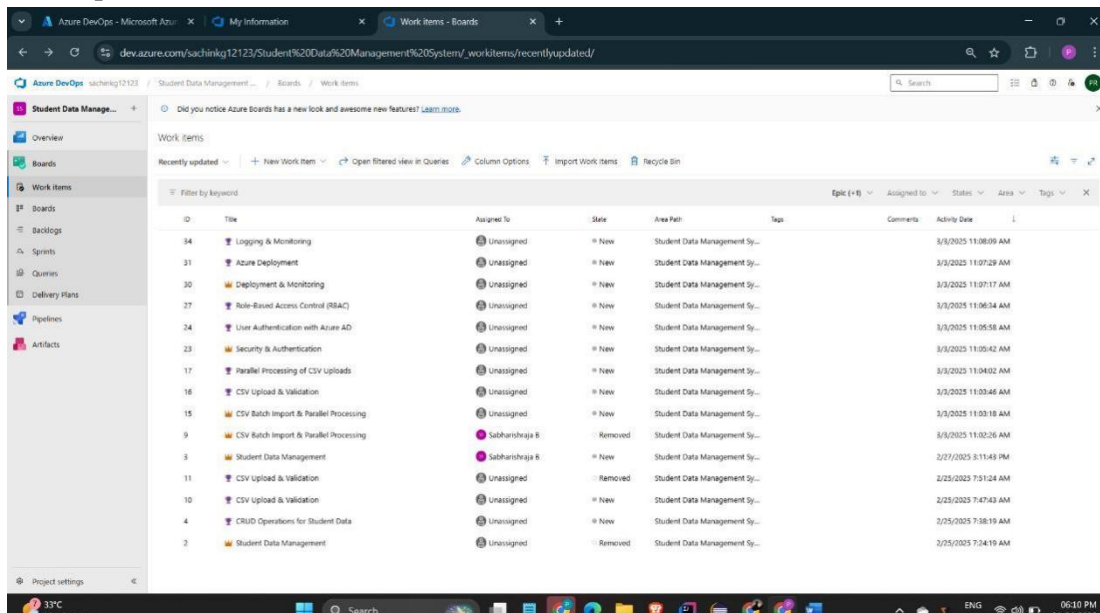
EXP NO: 3

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

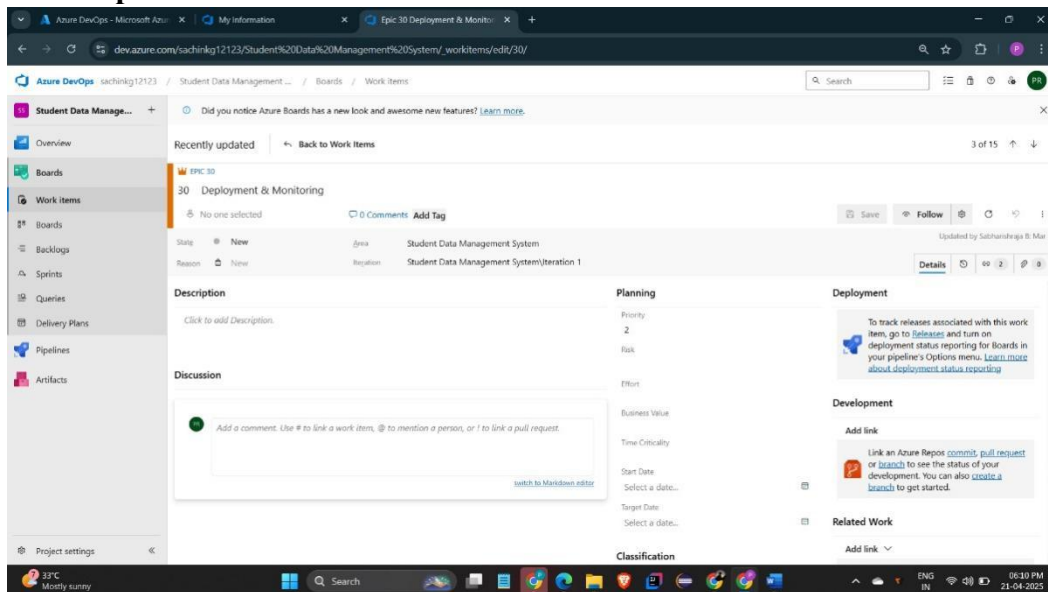
Aim:

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

Create Epic, Features, User Stories, Task



1.Fill in Epics



2.Fill in Features

The screenshot shows the Azure DevOps interface for a project named "Student Data Management System". The left sidebar contains navigation options: Overview, Boards, Work Items, Backlogs, Sprints, Queries, Delivery Plans, Pipelines, and Artifacts. The main area displays "Feature 34: Logging & Monitoring" with a status of "New". The description field is empty, and the discussion section shows a placeholder for adding a comment. The right sidebar includes sections for Planning (Priority: 2, Risk), 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), and Related Work (Add link, Parent: 30 Deployment & Monitoring, Child: 35 As a system admin, I want to monitor API logs so that I can... Updated Mar 3 @ New, 36 As a system admin, I want to track the number of CSV upl... Updated Mar 3 @ New).

3.Fill in User Story Details

The screenshot shows the Azure DevOps interface for creating a new User Story. The left sidebar is the same as in the previous screenshot. The main area displays "New User Story" with a title "As an instructor, I want to upload a CSV file containing student details, So that I can import all student records into the system efficiently without entering them one by one." The description field is empty, and the acceptance criteria section shows a placeholder for adding acceptance criteria. The right sidebar includes sections for Planning (Story Points, Priority: 2, Risk), 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), and Related Work (Add link, Add an existing work item as a parent).

Result:

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

EXP NO: 4

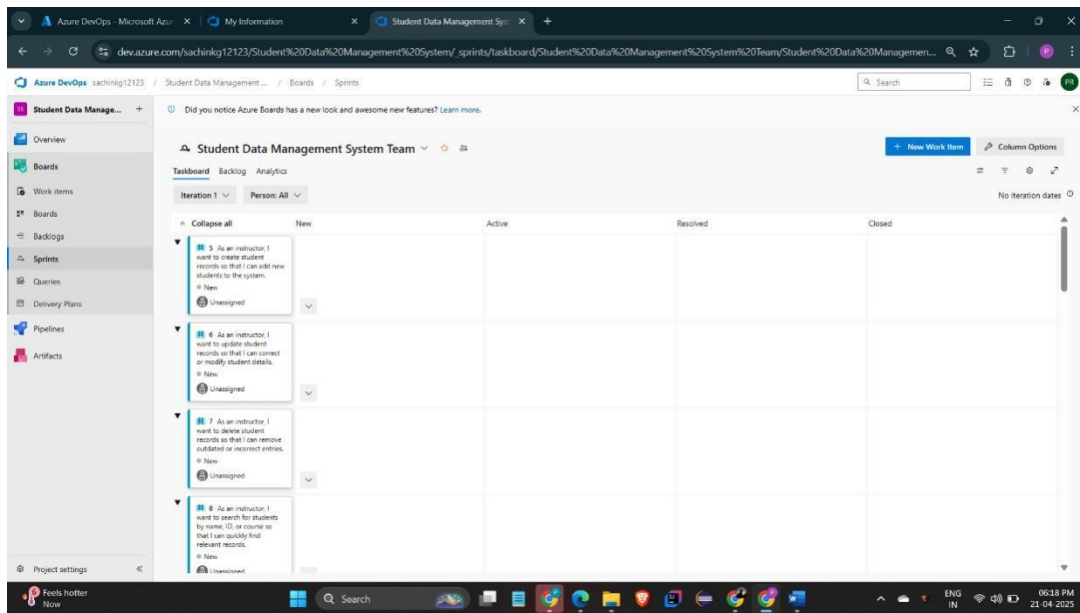
SPRINT PLANNING

Aim:

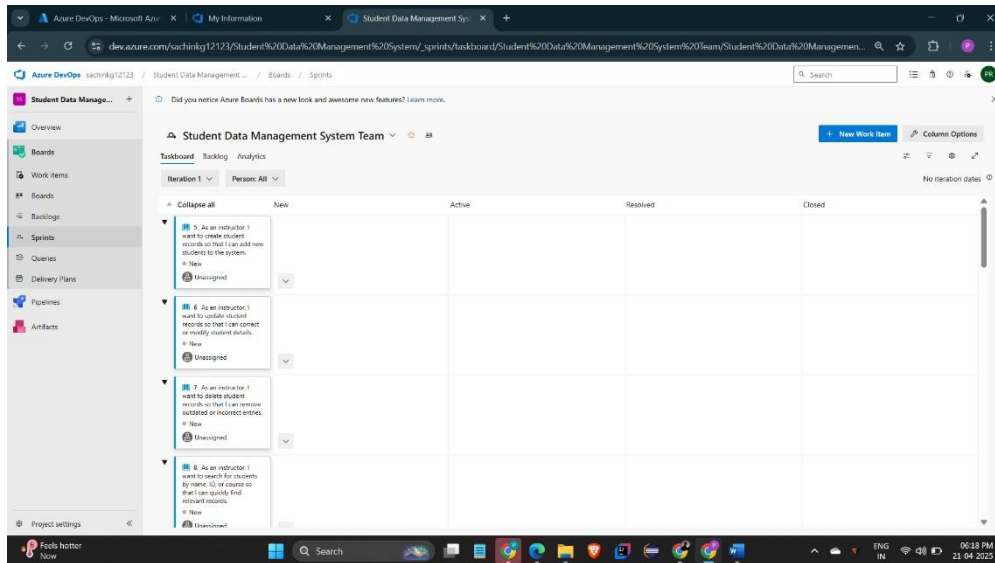
To assign user story to specific sprint for the Student Database Management System Project.

Sprint Planning

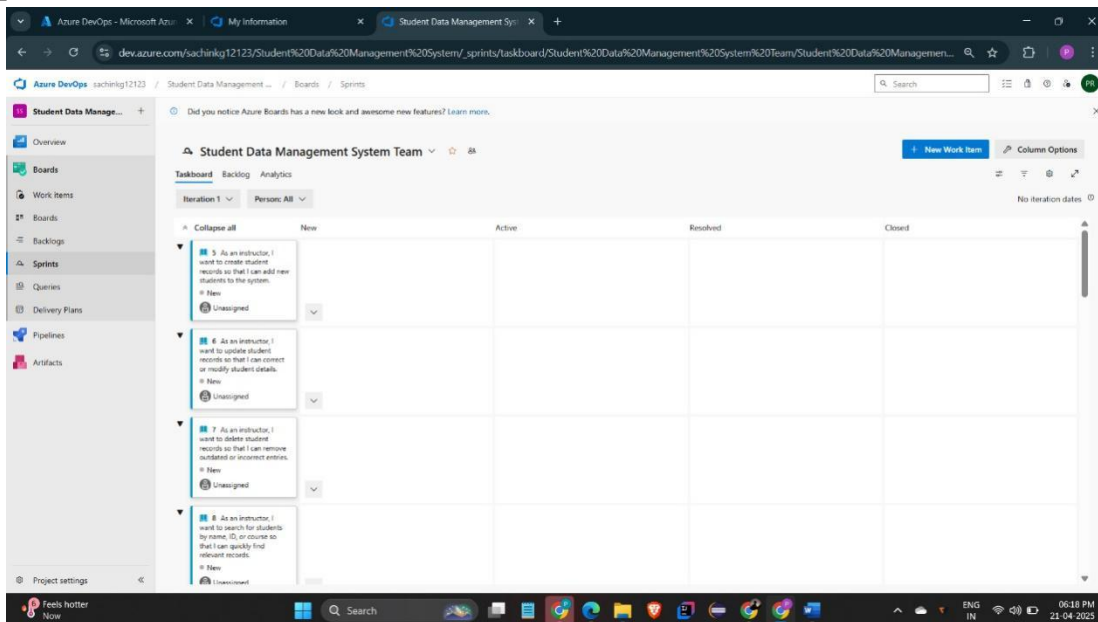
Sprint 1



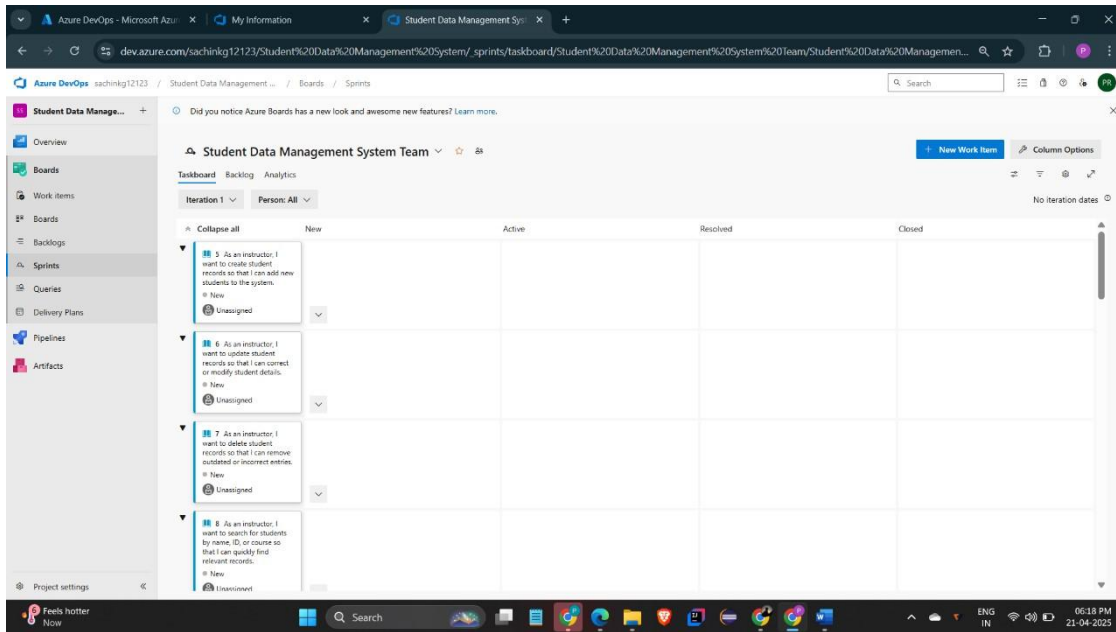
Sprint 2



Sprint 3



Sprint 4



Result:

The Sprints are created for the Student Database Management System Project.

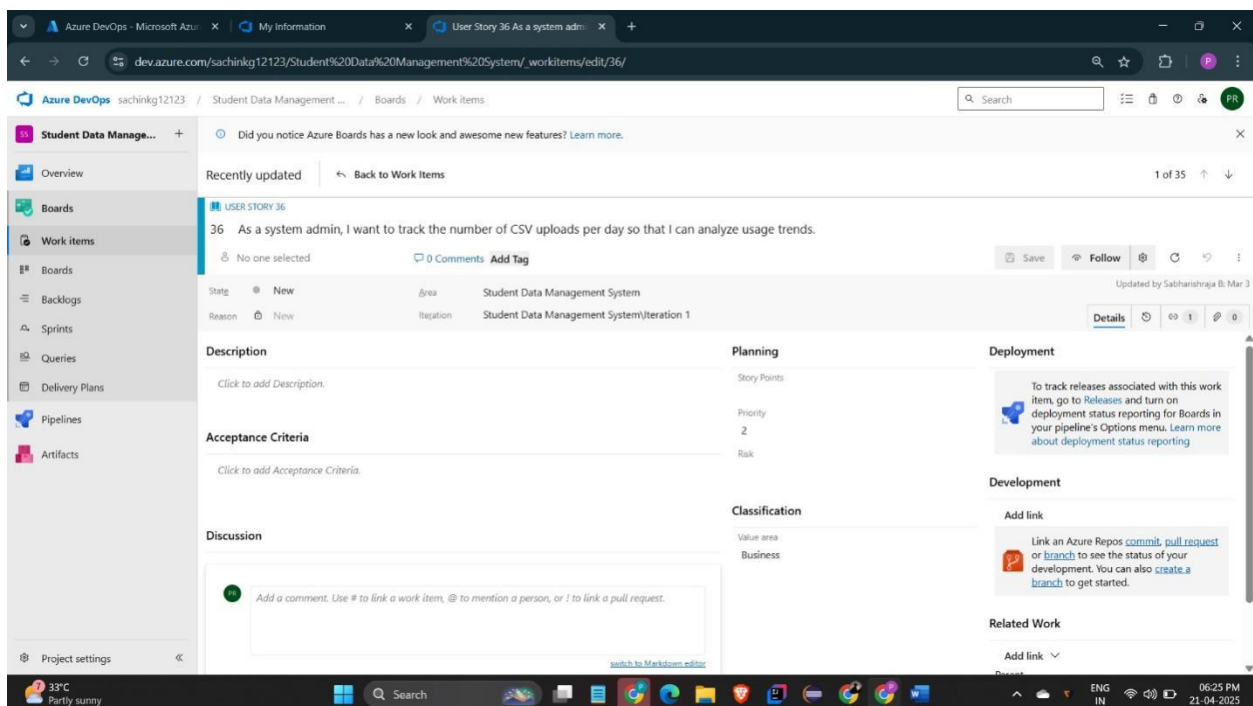
EXP NO: 5

POKER ESTIMATION

Aim:

Create Poker Estimation for the user stories - Student Database Management System Project.

Poker Estimation



Result:

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

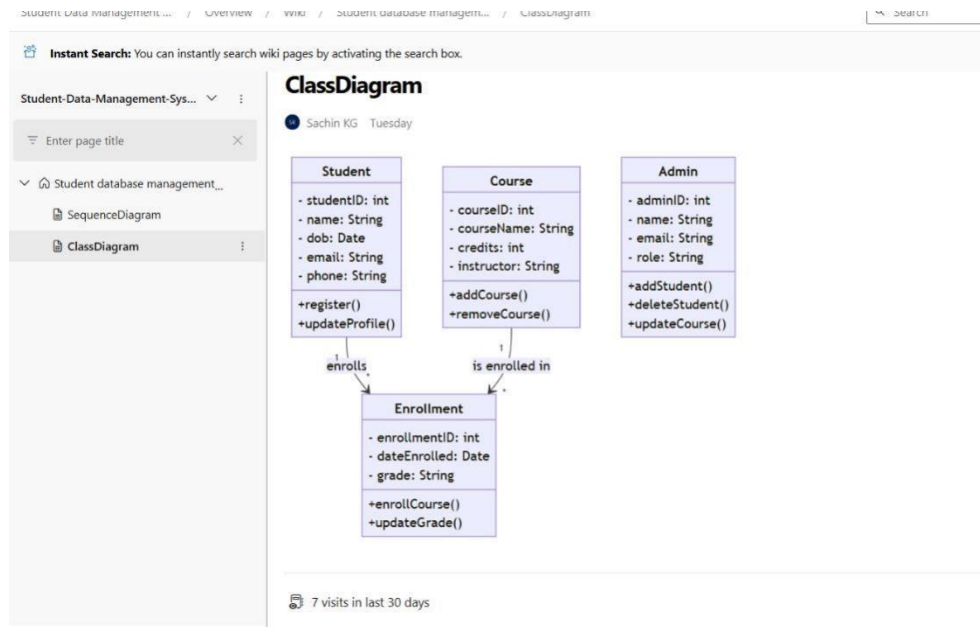
EXP NO: 6

DESIGNING CLASS AND SEQUENCE DIAGRAMS FOR PROJECT ARCHITECTURE

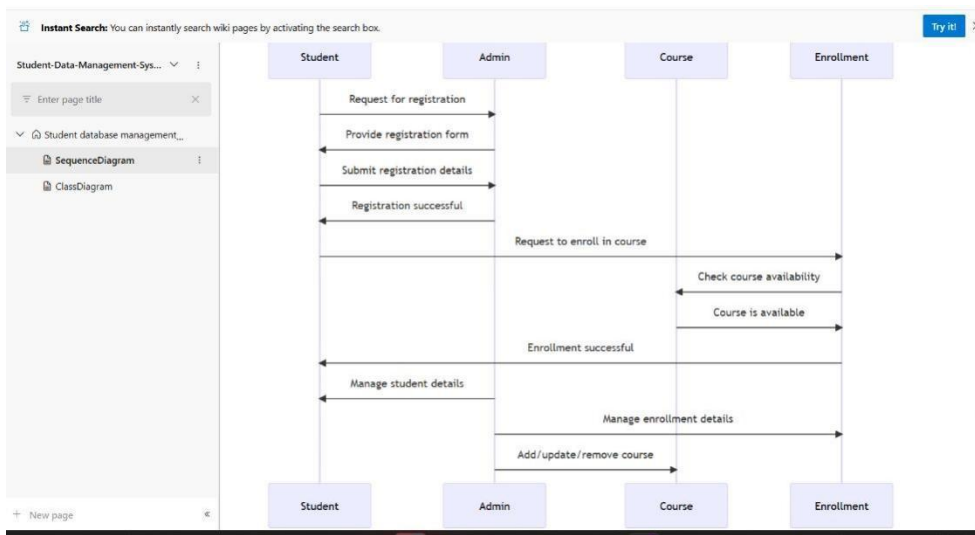
Aim:

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 Student Database Management System.

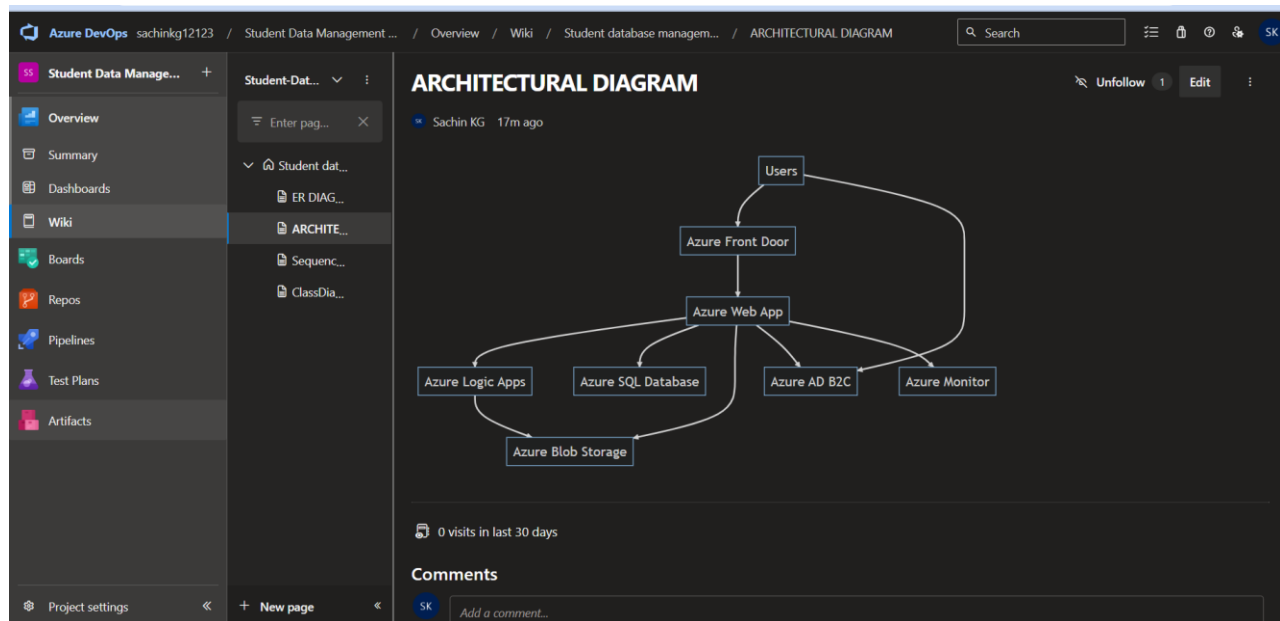
EXP NO: 7

DESIGNING ARCHITECTURAL AND ER DIAGRAMS FOR PROJECT STRUCTURE

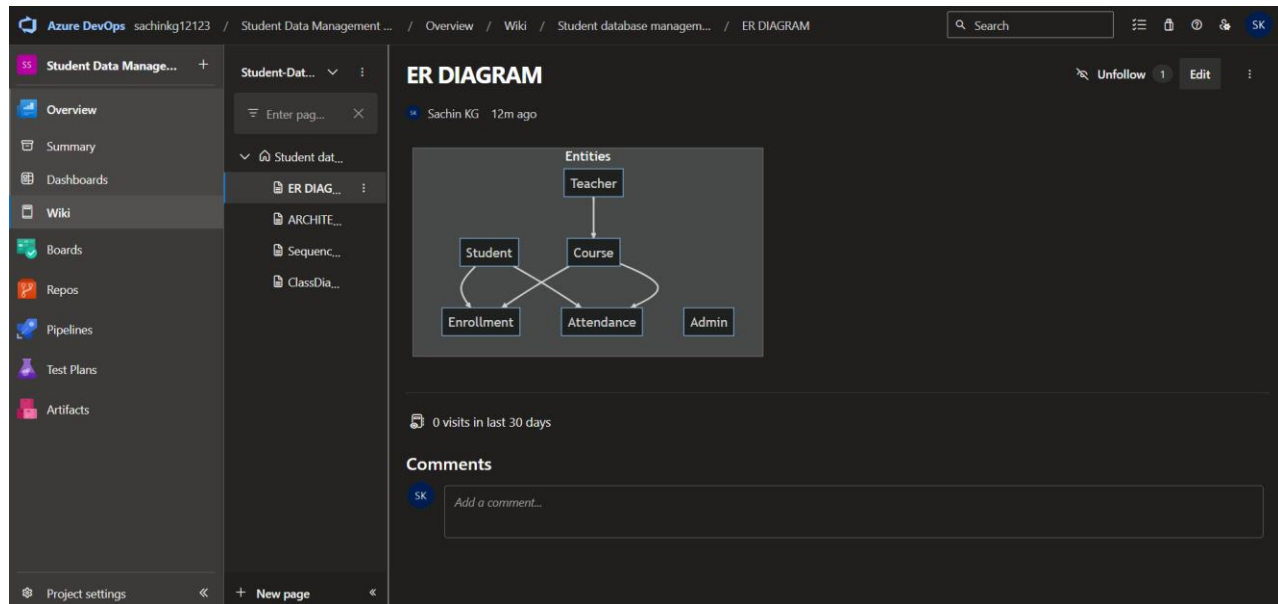
Aim:

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 Music Playlist Batch Creator

EXP NO: 8

TESTING – TEST PLANS AND TEST CASES

Aim:

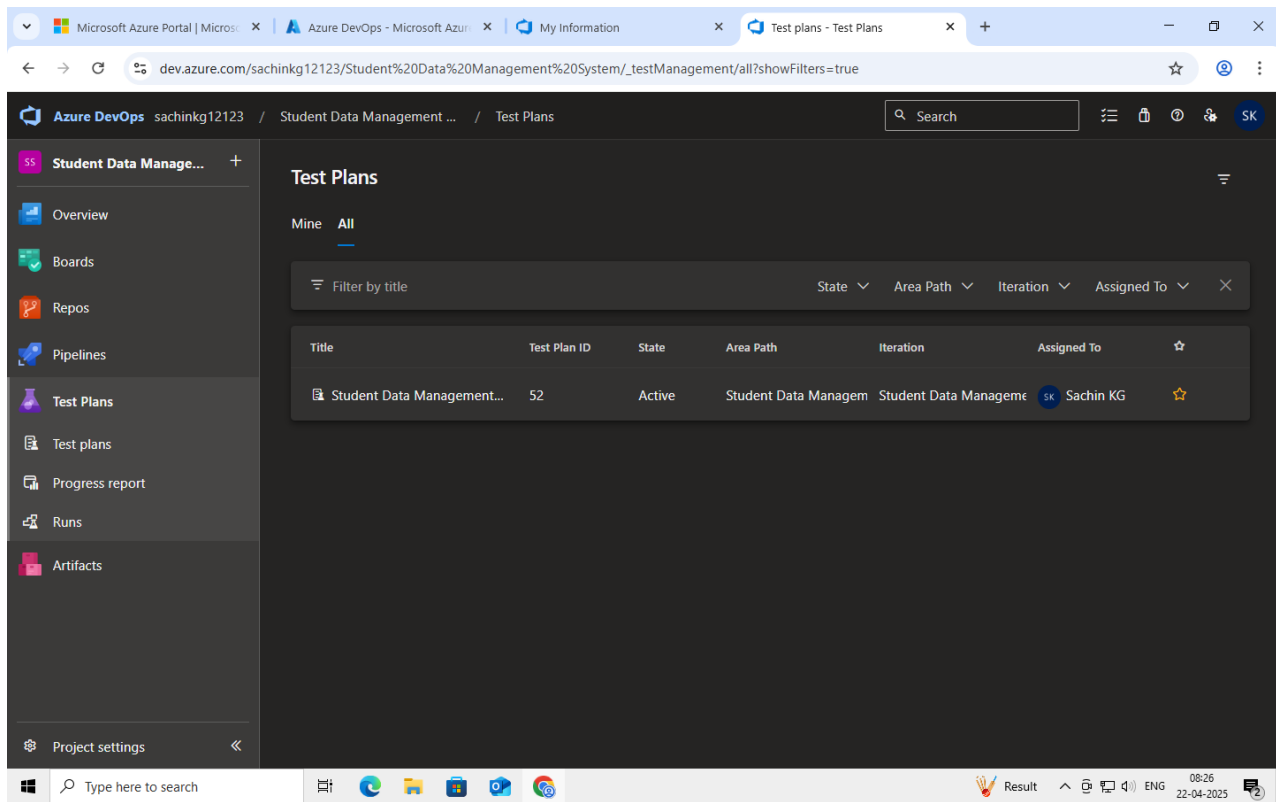
Test Plans and Test Case and write two test cases for at least five user stories showcasing the happy path and error scenarios in azure DevOps platform.

Test Planning and Test Case Test Case Design Procedure

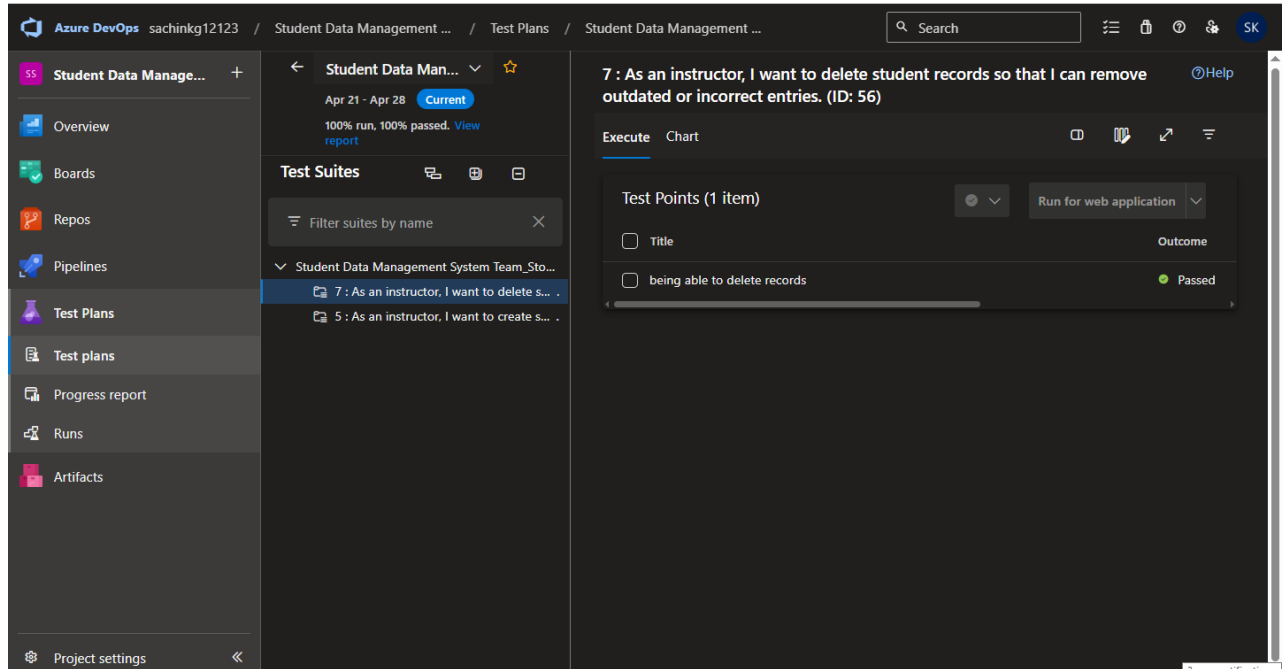
- 1. Understand Core Features of the Application** ○ User Signup & Login ○ Viewing and Managing Playlists ○ Fetching Real-time Metadata ○ Editing playlists (rename, reorder, record)
 - Creating smart audio playlists based on categories (mood, genre, artist, etc.)
- 2. Define User Interactions** ○ Each test case simulates a real user behaviour (e.g., logging in, renaming a playlist, adding a song).
- 3. Design Happy Path Test Cases** ○ Focused on validating that all features function as expected under normal conditions.
 - Example: User logs in successfully, adds item to playlist, or creates a category-based playlist.
- 4. Design Error Path Test Cases** ○ Simulate negative or unexpected scenarios to test robustness and error handling.
 - Example: Login fails with invalid credentials, save fails when offline, no recommendations found.
- 5. Break Down Steps and Expected Results** ○ Each test case contains step-by-step actions and a corresponding expected outcome.
 - Ensures clarity for both testers and automation scripts.
- 6. Use Clear Naming and IDs** ○ Test cases are named clearly (e.g., TC01 – Successful Login, TC10 – Save Playlist Fails).
 - Helps in quick identification and linking to user stories or features.

- 7. **Separate Test Suites** ○ Grouped test cases based on functionality (e.g., Login, Playlist Editing, Recommendation System).
 - Improves organization and test execution flow in Azure DevOps.
- 8. **Prioritize and Review** ○ Critical user actions are marked high-priority.
 - Reviewed for completeness and traceability against feature requirements.

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.

Student Database Management System – Test Plans

USER STORIES

- As a user, I want to sign up and log in securely so that I can access my playlists (ID: 79).
- As a user, I need to see my playlist in one place (ID: 76).
- As a user, I should be able to create an audio playlist as needed (ID: 73).
- As a user, I should be able to rename, record, and change the playlist (ID: 68).
- As a user, I need to have real-time metadata (ID: 65).

Test Suites

Test Suit: TS01 - User Login (ID: 86)

1. TC01 – Successful Sign Up ○ Action:

- Go to the Sign-Up page.
- Enter valid name, email, and password.
- Click "Sign Up".

○ Expected Results:

- Sign-Up form is displayed.
- Fields accept values without error.

- Account is created, and the user is redirected to the dashboard.

- **Type:** Happy Path

2. TC02 – Secure Login

- **Action:**

- Go to the Login page.
- Enter valid email and password.
- Click on "Login".

- **Expected Results:**

- Login form is displayed.
- Fields accept data without error.
- User is logged in and redirected to the dashboard.

- **Type:** Happy Path

3. TC03 – Sign Up with Existing Email

- **Action:**

- Go to the Sign-Up page.
- Enter a name and an already registered email.
- Click on "Sign Up".

- **Expected Results:**

- Fields accept data.
- Error message "Email already registered" is displayed.

- **Type:** Error Path

4. TC04 – Login with Wrong Password

- **Action:**

- Go to the Login page.
- Enter valid email and incorrect password.
- Click on "Login".

- **Expected Results:**

- Input is accepted.
- Error message "Invalid username or password" is shown.

- **Type:** Error Path

Test Suit: TS02 - View Playlists (ID: 87)

1. TC05 – View Playlist Page

- **Action:**
 - Log in successfully.
 - Navigate to "My Playlists" section.
- **Expected Results:**
 - SAll created playlists are displayed clearly.
- **Type:** Happy Path

2. TC06 – Playlist Loading Failure

- **Action:**
 - Disconnect from the internet.
 - Navigate to "My Playlists".
- **Expected Results:**
 - Network is offline.
 - Error message "Unable to load playlists" is shown.
- **Type:** Error Path

Test Suit: TS03 - Real-Time Metadata (ID: 88)

1. TC07 – Real-Time Metadata Display ○

Action:

- Play a song.
- Observe the metadata panel.

○ **Expected Results:**

- Metadata (title, artist, album, duration) is displayed and updates in real time.

○ **Type:**

Happy Path

2. TC08 – Metadata Not Updating ○

Action:

- Play a different song.
- Observe the metadata panel.

○ **Expected Results:**

- Metadata remains static or shows default/fallback message.

○ **Type:** Error Path

Test Suit: TS04 - Playlist Editing (ID: 89)

1. TC09 – Rename Playlist Successfully ○

Action:

- Navigate to "My Playlists".
- Click "Rename" next to a playlist.
- Enter a new name and click "Save".

○ Expected Results:

- Playlist name updates successfully.

○ Type: Happy Path

2. TC10 – Rename with Blank Name ○

Action:

- Click "Rename" on a playlist.
- Leave the field blank.
- Click "Save".

○ Expected Results:

- Error message "Playlist name cannot be empty" is shown.

○ Type: Error Path

3. TC11 – Change Playlist Order ○

Action:

- Open a playlist.
- Drag and drop songs to reorder.
- Click "Save".

○ Expected Results:

- Playlist order is updated and saved.

○ Type: Happy Path

4. TC12 – Change Playlist Order Fails ○

Action:

- Login and go to “My Playlists”.
- Select a playlist.
- Go offline or simulate server error. □ Reorder songs and click “Save Order”.

○ Expected Results:

- Error message: "Failed to update order. Please check your connection".

○ Type: Error Path

Test Suit: TS05 - Smart Playlist Creation (ID: 90)

1. TC13 – Generate Playlist Based on Various Categories ○

Action:

- Login with valid credentials.
- Click on "Generate Playlist".
- Select categories.
- Click "Generate Playlist".

○ Expected Results:

- Playlist is generated based on selected mood and categories.

○ Type: Happy Path

2. TC14 – Fail to Generate Playlist Due to Missing Category Selection or Invalid Input ○

Action:

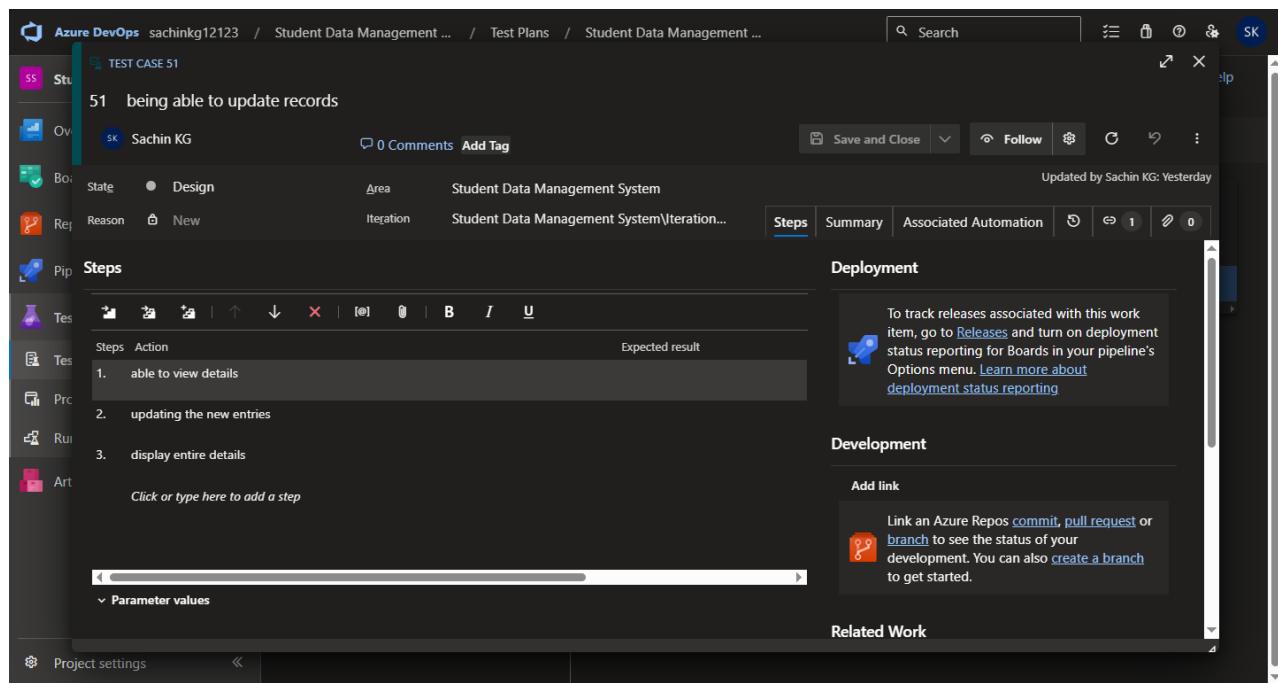
- Login with valid credentials.
- Click on "Generate Playlist".
- Select categories.
- Click "Generate Playlist".

○ Expected Results:

- Error message: "Please select at least one valid category" or "No recommendations found for the selected filters".

○ Type: Error Path

Test Cases



Microsoft Azure Portal | Microsoft Azure DevOps - Microsoft Azure | My Information | Test plans - Test Plans

dev.azure.com/sachinkg12123/Student%20Data%20Management%20System/_testManagement/all?showFilters=true

Azure DevOps sachinkg12123 / Student Data Management ... / Test Plans

Search

Test Plans

Mine All

Filter by title State Area Path Iteration Assigned To

Title	Test Plan ID	State	Area Path	Iteration	Assigned To	
Student Data Management...	52	Active	Student Data Managem	Student Data Managem	Sachin KG	☆

Type here to search

Result 08:26 22-04-2025

4.Installation of test

chrome web store

Search extensions and themes

Discover Extensions Themes

Test & Feedback

Add to Chrome

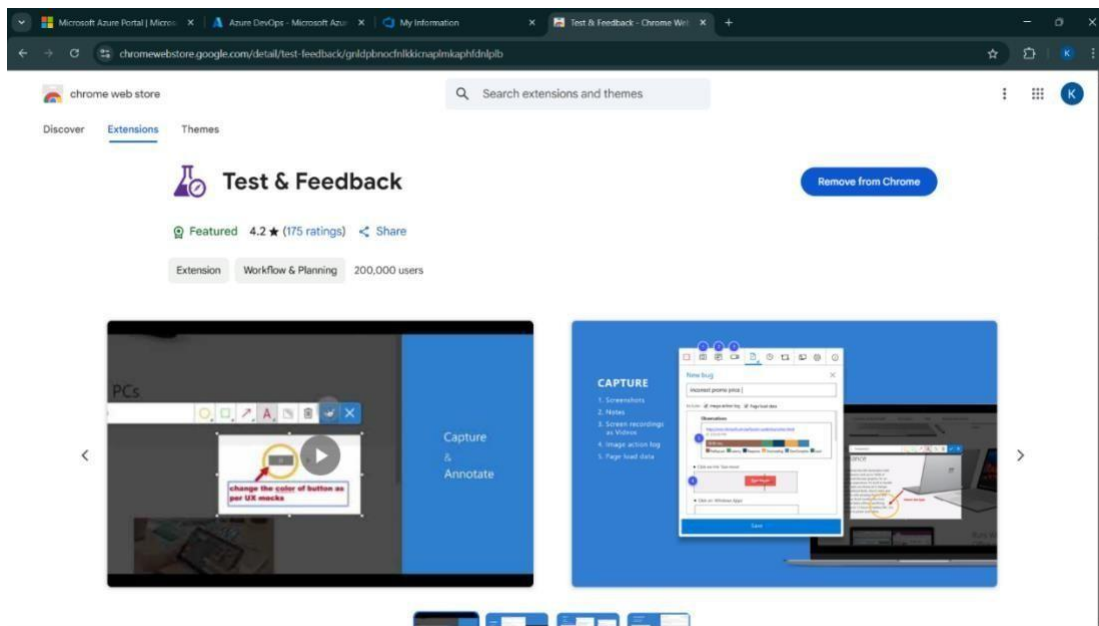
Featured 4.2★ (175 ratings) Share

Extension Workflow & Planning 200,000 users

Capture & Annotate

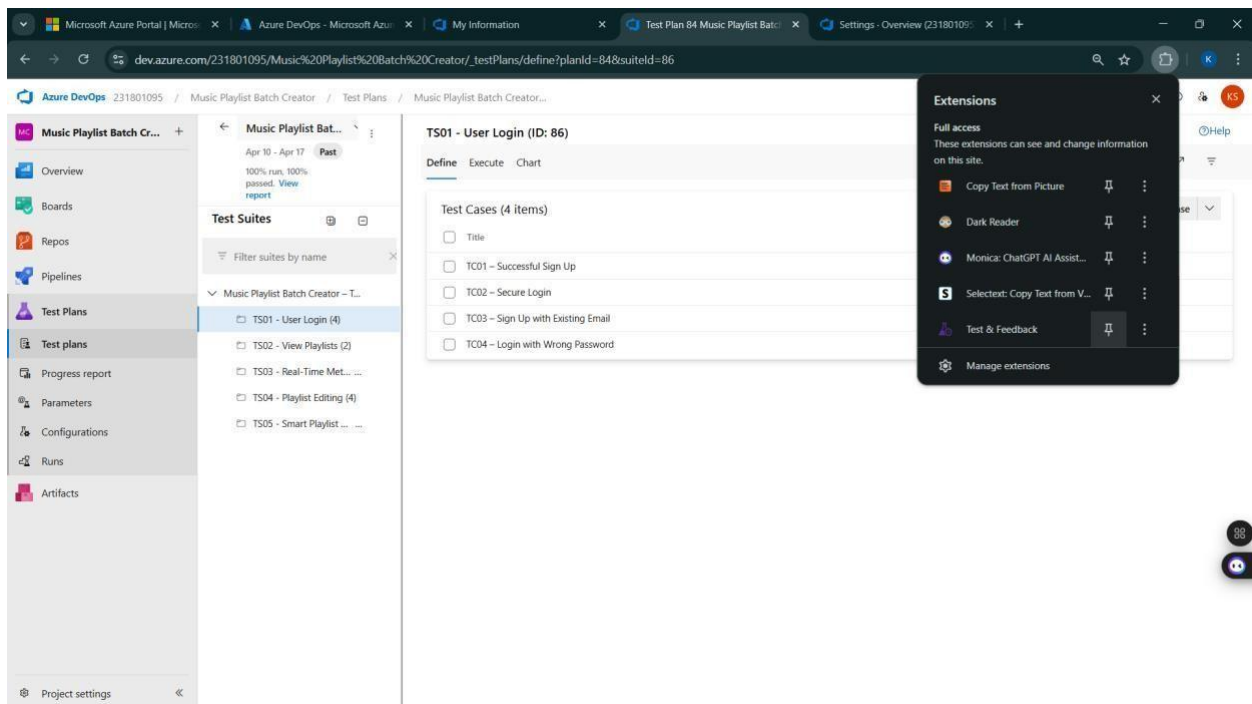
CAPTURE

- 1. Screenshots
- 2. Notes
- 3. Screen recordings
- 4. Images
- 5. Image action log
- 6. Page load data



Test and feedback

Showing it as an extension



5. Running the test cases

Test Suites

Filter suites by name

- Music Playlist Batch Creator - T...
- TS01 - User Login (4)
- TS02 - View Playlists (2)
- TS03 - Real-Time Met... ..
- TS04 - Playlist Editing (4)
- TS05 - Smart Playlist

TS02 - View Playlists (ID: 87)

Define Execute Chart

Test Points (2 items)

Title	Outcome	Order	Test Case Id	Configuration	Tester
TC05 - View Playlist Page	Passed	1	75	Windows 10	Mallu karthick B...
TC06 - Playlist Loading Failure	Passed	2	77	Windows 10	Mallu karthick B...

Context menu options:

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

Run sub-menu options:

- Run for web application
- Run for desktop application
- Run with options

Runner - Test Plans - Google Chrome

dev.azure.com/231801095/Music%20Playlist%20Batch%20Creator/_testExecution/Index

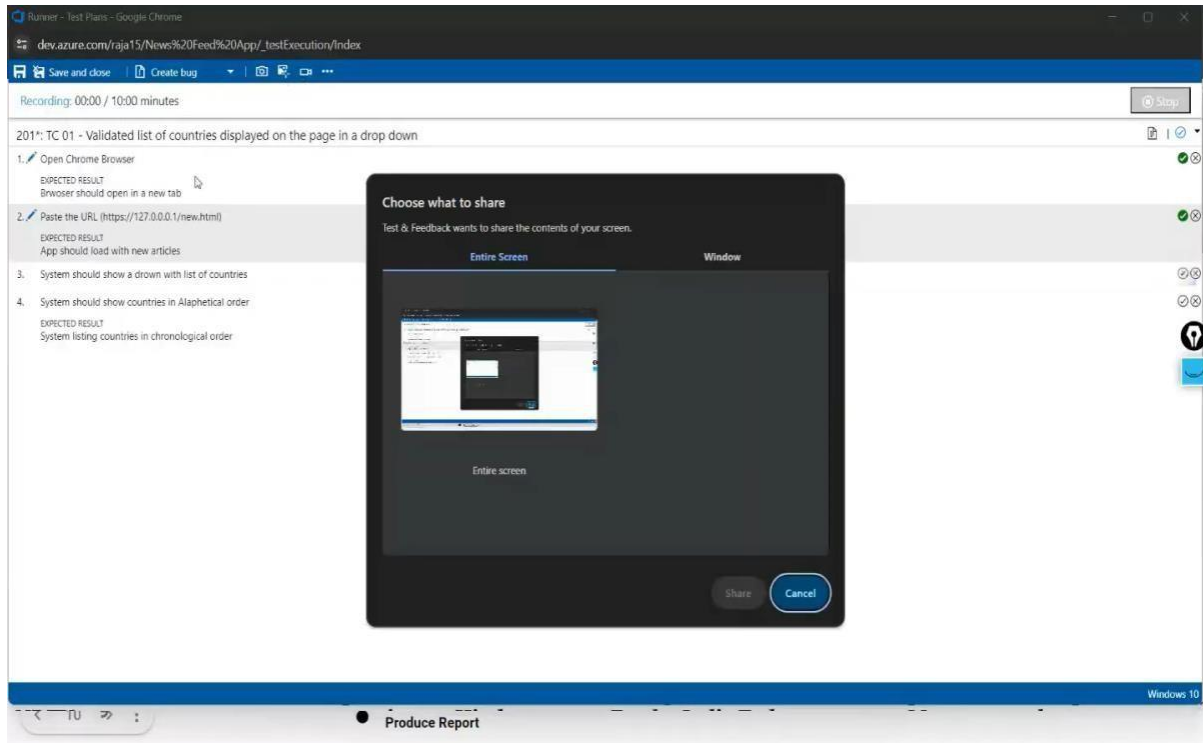
75: TC05 - View Playlist Page

- Log in successfully
EXPECTED RESULT
User is redirected to dashboard
- Navigate to "My Playlists" section
EXPECTED RESULT
All created playlists are displayed clearly

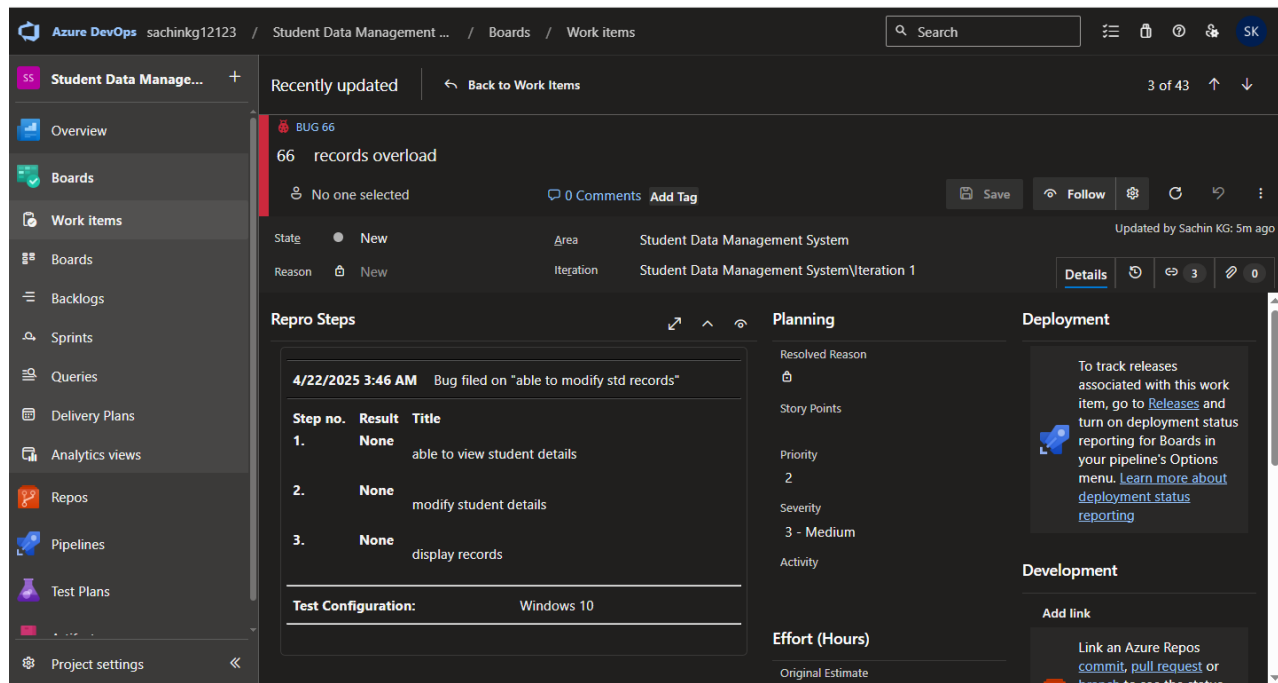
76: TC06 - Playlist Loading Failure

EXPECTED RESULT
All created playlists are displayed clearly

6. Recording the test case



7.Creating the bug



Azure DevOps | sachinkg12123 | Student Data Management ... | Test Plans | Student Data Management ...

6 : As an instructor, I want to update student records so that I can correct or modify student details. (ID: 58)

Execute | Chart

Test Points (1 item)

Title	Outcome
able to modify std records	Failed

Test Suites

Filter suites by name

- Student Data Management System Team_Sto...
 - 13 : As the system, I want to validate ...
 - 8 : As an instructor, I want to search f...
 - 12 : As an instructor, I want to uploa...
 - 6 : As an instructor, I want to update ...
 - 7 : As an instructor, I want to delete s...
 - 5 : As an instructor, I want to create s...

8. Test case results

Azure DevOps | sachinkg12123 | Student Data Management ... | Test Plans | Runs

Recent test runs

8 runs (1 selected)

Test runs | Filter

State	Run I...	Title	Completed Date
Completed	13	13 : As the system, I want to validate the CSV file format so that only correc...	4/22/2025 3:48:38 AM
Completed	12	8 : As an instructor, I want to search for students by name, ID, or course so ...	4/22/2025 3:47:41 AM
Needs investigat...	11	6 : As an instructor, I want to update student records so that I can correct o...	4/22/2025 3:46:48 AM
Needs investigat...	8	6 : As an instructor, I want to update student records so that I can correct o...	4/22/2025 3:35:35 AM
Needs investigat...	7	6 : As an instructor, I want to update student records so that I can correct o...	4/22/2025 3:35:28 AM
Completed	5	7 : As an instructor, I want to delete student records so that I can remove o...	4/22/2025 2:50:31 AM
Completed	4	5 : As an instructor, I want to create student records so that I can add new s...	4/21/2025 4:54:37 PM
In progress	2	5 : As an instructor, I want to create student records so that I can add new s...	4/21/2025 4:53:12 PM

Recent test runs

Recent exploratory sessions

9. Test report summary

The screenshot shows the Azure DevOps interface for a bug report. The left sidebar contains navigation links: Overview, Boards, Work items, Backlogs, Sprints, Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, and Project settings. The main area displays a bug titled '66 records overload' with ID 'BUG 66'. It is categorized as 'New' and belongs to the 'Student Data Management System' area. The bug was updated by Sachin KG 5m ago. The 'Repro Steps' section lists three steps: 1. 'able to view student details', 2. 'modify student details', and 3. 'display records'. The 'Test Configuration' is set to 'Windows 10'. The 'Planning' section shows 'Resolved Reason', 'Story Points', 'Priority 2', 'Severity 3 - Medium', and 'Activity'. The 'Deployment' section provides instructions on how to track releases and turn on deployment status reporting. The 'Development' section includes a link to add an Azure Repos commit, pull request, or branch to see the status.

Bug Details:

- ID:** BUG 66
- Title:** 66 records overload
- Status:** New
- Area:** Student Data Management System
- Reason:** New
- Iteration:** Student Data Management System\Iteration 1
- Updated by:** Sachin KG (5m ago)

Repro Steps:

Step no.	Result	Title
1.	None	able to view student details
2.	None	modify student details
3.	None	display records

Test Configuration: Windows 10

Planning:

- Resolved Reason
- Story Points
- Priority: 2
- Severity: 3 - Medium
- Activity

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

10. Progress report

The screenshot shows the Azure DevOps Test Plans progress report. The left sidebar contains navigation links: Overview, Boards, Repos, Pipelines, Test Plans, Test plans, Progress report, Runs, and Artifacts. The main area displays the 'Progress report' for the 'Student Data Management System Team_Stories_Ite...' test plan. The report includes a summary of test plans and points, a donut chart showing the progress of test points run (83%), and a donut chart showing the pass rate (80%). The 'Outcome trend' section shows a line graph of tests over the last 14 days, with a legend for 'Not run', 'Passed', and 'Failed'.

Progress report

Student Data Management System Team_Stories_Ite... | Test Suites | Outcome | Configuration | Tester | < > X

Summary

- 1 Test plans
- 6 Test points
- 5 (5 / 6) Test points run
- 83% Run
- 80% (4 / 5) Pass rate
- 4 Passed
- 1 Failed

Outcome trend

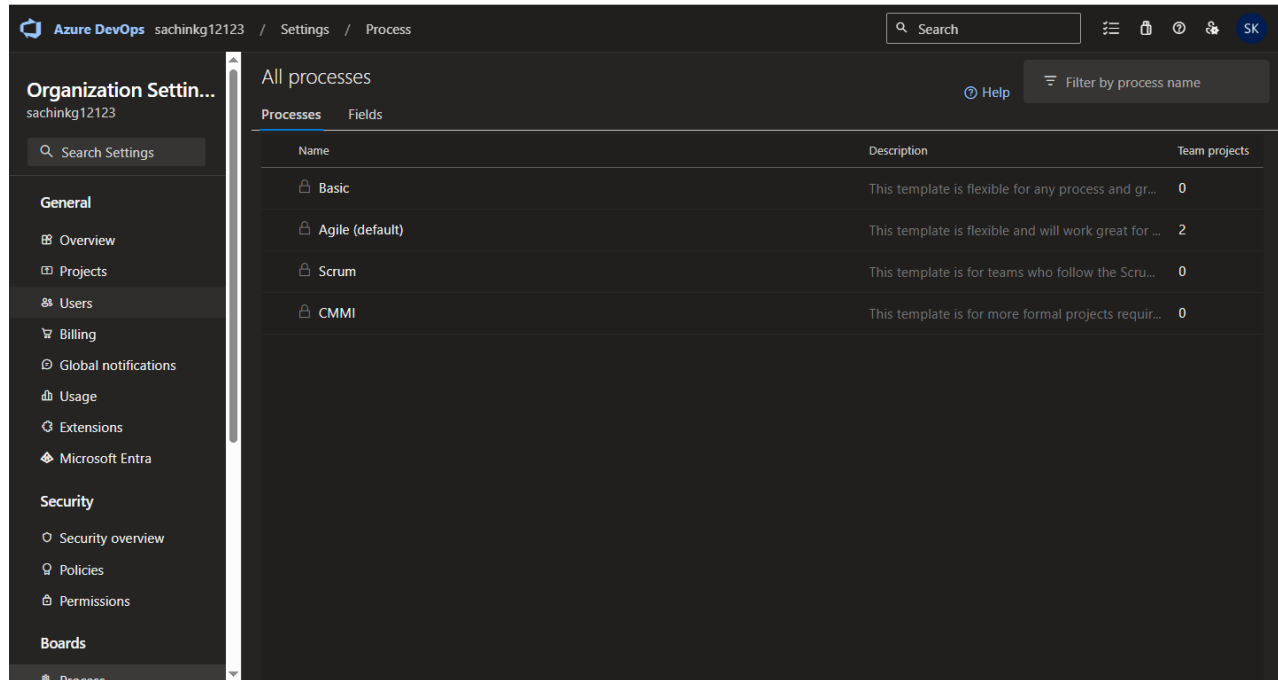
Last 14 Days

Tests

2025-04-08 2025-04-09 2025-04-10 2025-04-11 2025-04-12 2025-04-13 2025-04-14 2025-04-15 2025-04-16 2025-04-17 2025-04-18 2025-04-19 2025-04-20 2025-04-21 2025-04-22

Not run Passed Failed

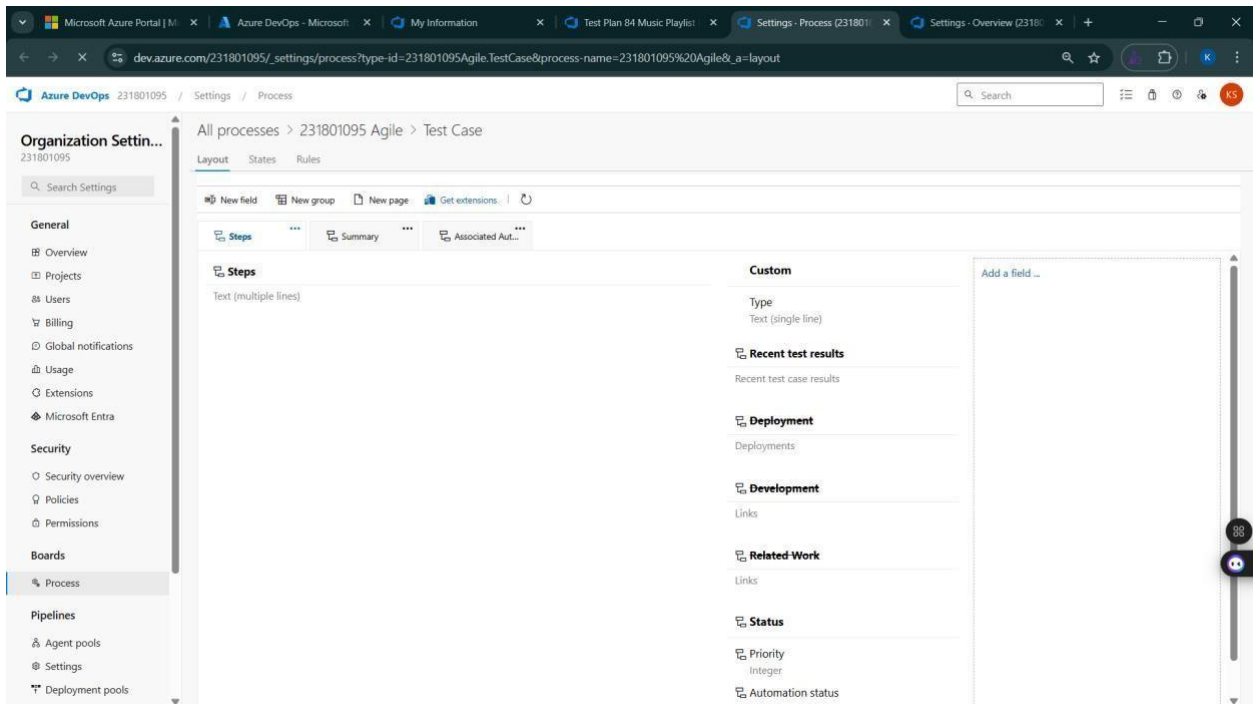
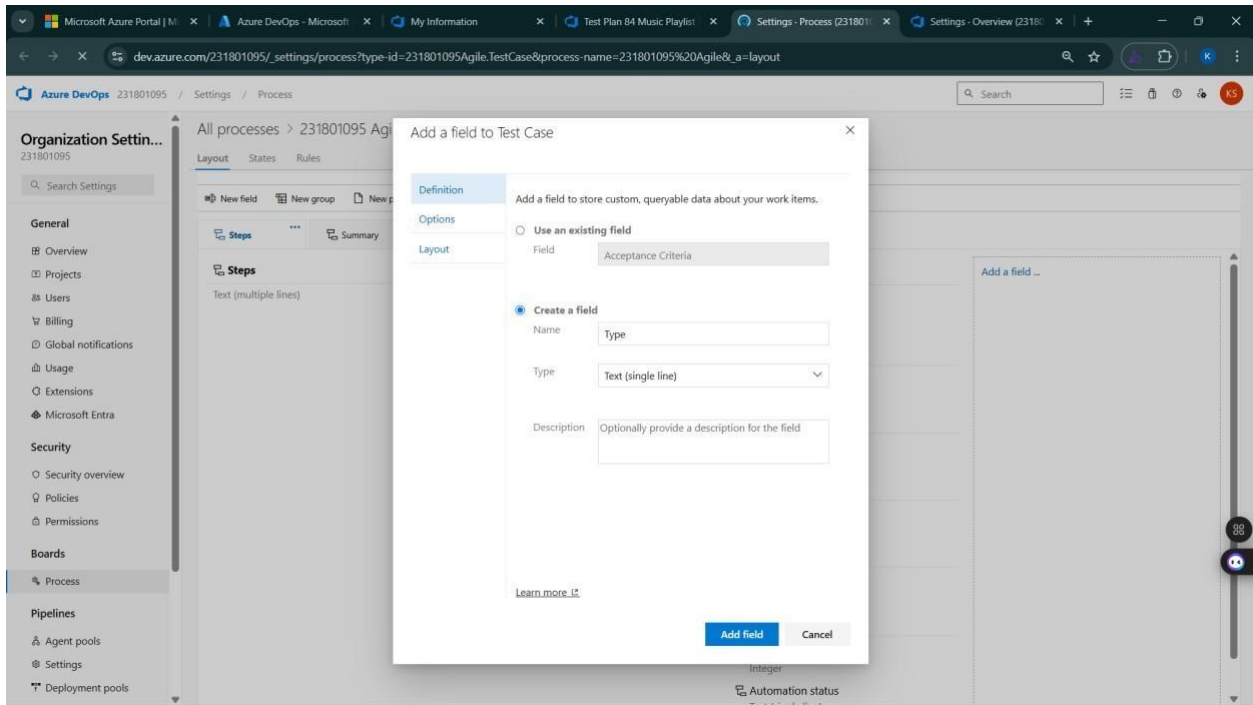
11.Changing the test template



The screenshot shows the Azure DevOps interface for the 'All processes' page. The left sidebar contains the 'Organization Settings' menu with options like General, Overview, Projects, Users, Billing, Global notifications, Usage, Extensions, Microsoft Entra, Security, and Boards. The main content area displays a table of available process templates. The 'Agile (default)' template is highlighted, indicating it is the selected template.

Name	Description	Team projects
Basic	This template is flexible for any process and gr...	0
Agile (default)	This template is flexible and will work great for ...	2
Scrum	This template is for teams who follow the Scru...	0
CMMI	This template is for more formal projects requir...	0

12.View the new test case template



Result:

The screenshot shows the 'Process' settings page in Azure DevOps. The left sidebar contains the 'Organization Settings' menu with options like General, Overview, Projects, Users, Billing, Global notifications, Usage, Extensions, Microsoft Entra, Security, and Boards. The main content area is titled 'All processes > Agile' and shows a table of work item types. A blue banner at the top of the main area states: 'System processes cannot be customized. To add customization create an inherited process.'

Name	Description
online grocery store	We are developing a mobile and web app for our grocery store to offer customers an easy way...
Student Data Management System	Student Data Management System with Batch Import The Student Data Management System ...

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 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 ○ 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 :

portal.azure.com/#@ralakmuthugmail.onmicrosoft.com/resource/subscriptions/99af76e2-8bda-472c-aa5a-4f0c1e55a84d/resourcegroups/Stu...

Microsoft Azure Search resources, services, and docs (G+/)

Home > Microsoft.CloudNativeTesting1745293013778 | Overview >

StudentDataMangement

Azure Load Testing

Search Refresh Delete resource Manage budget Give feedback

Overview

- Activity log
- Access control (IAM)
- Tags
- Resource visualizer
- Tests
- Settings
- Monitoring
- Automation
- Help

Install the new VS Code extension to create Locust test scripts using GitHub Copilot and run load tests at scale on Azure Load Testing. [Get extension](#)

Essentials

Resource group ([move](#))
[StudentDataManagementLoadTest](#)

Status

Location
Central India

Subscription ([move](#))
[Azure for Students](#)

Subscription ID
99af76e2-8bda-472c-aa5a-4f0c1e55a84d

VUH usage (current month)
[0 / No limit](#)

JSON View

Get started Test runs Tutorials

Load test your application and infrastructure

<https://portal.azure.com/#@ralakmuthugmail.onmicrosoft.com/resource/subscriptions/99af76e2-8bda-472c-aa5a-4f0c1e55a84d/resourcegroups/StudentDataManagementLoadTest>

Microsoft Azure Search resources, services, and docs (G+/)

Home > Microsoft.CloudNativeTesting1745293013778 | Overview > StudentDataMangement >

TestRun_4/22/2025_9:48:46 AM

Last updated by: ralakmuthu@gmail.com | Initiated on: 4/22/2025, 9:48 AM

View all test runs Stop Refresh Rerun Compare App components Configure metrics Download Copy artifacts Share

Requests/sec (Avg)

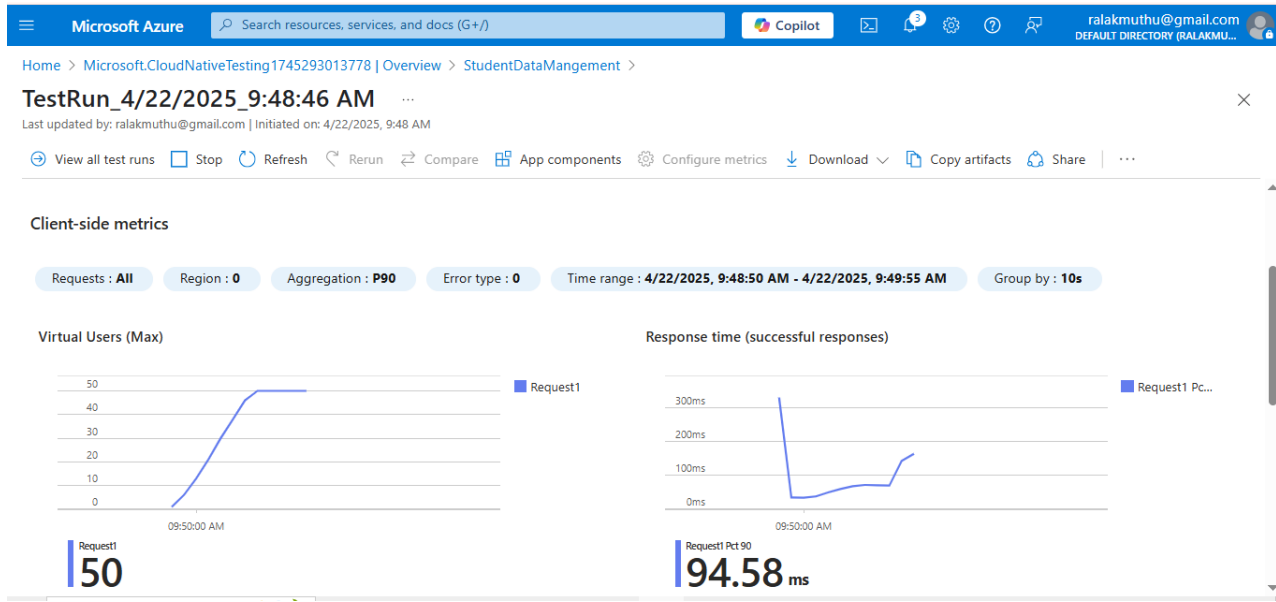
Request1

643.9/s

Errors (total)

0

Server-side metrics



Result:

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

EXP NO:10

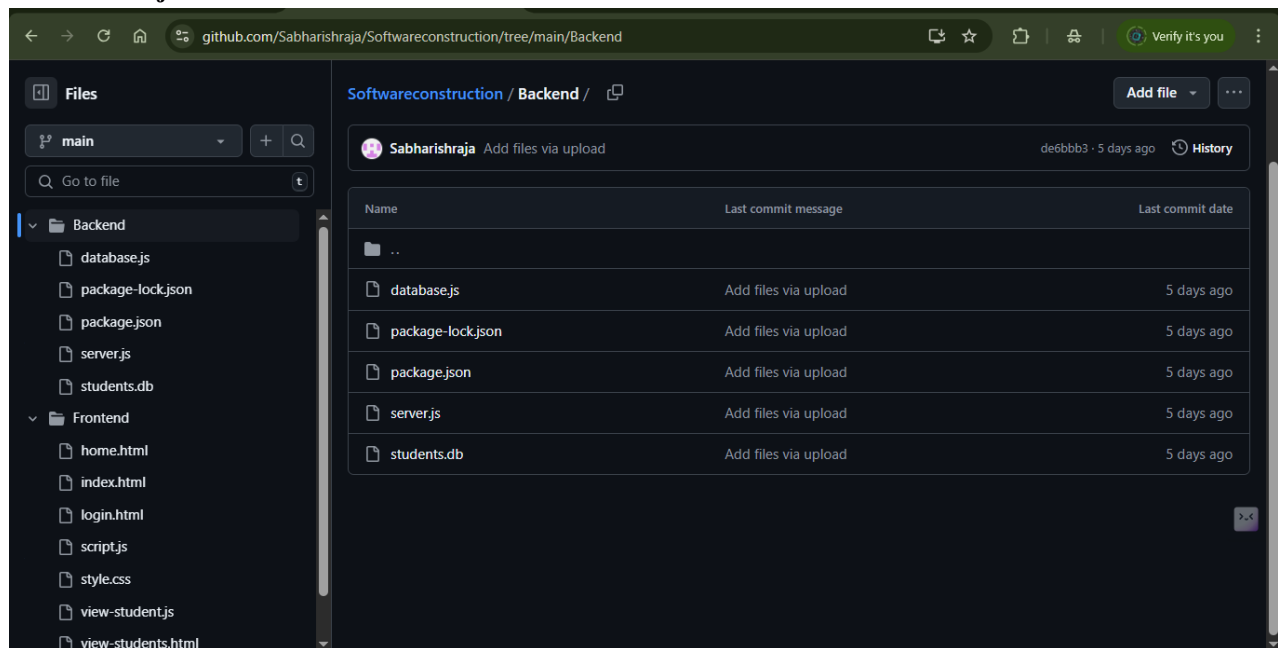
GITHUB: PROJECT STRUCTURE & NAMING

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 Student Database 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.