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9.	Load Testing and Pipelines.
10.	GitHub: Project Structure & Naming Conventions.

EXP NO: 1

AZURE DEVOPS ENVIRONMENT SETUP

Aim:

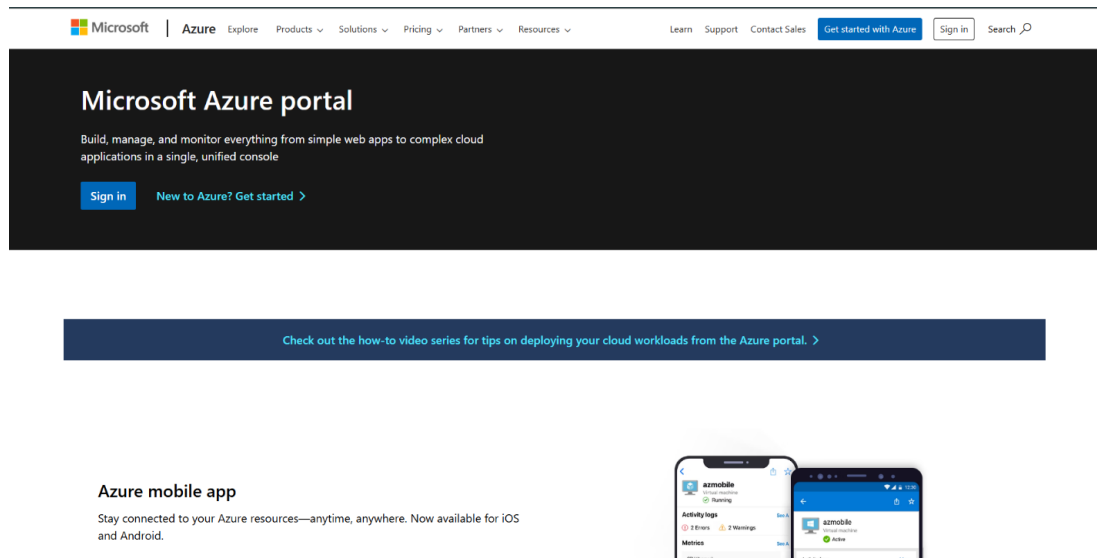
To set up and access the Azure DevOps environment by creating an organization through the Azure portal.

INSTALLATION

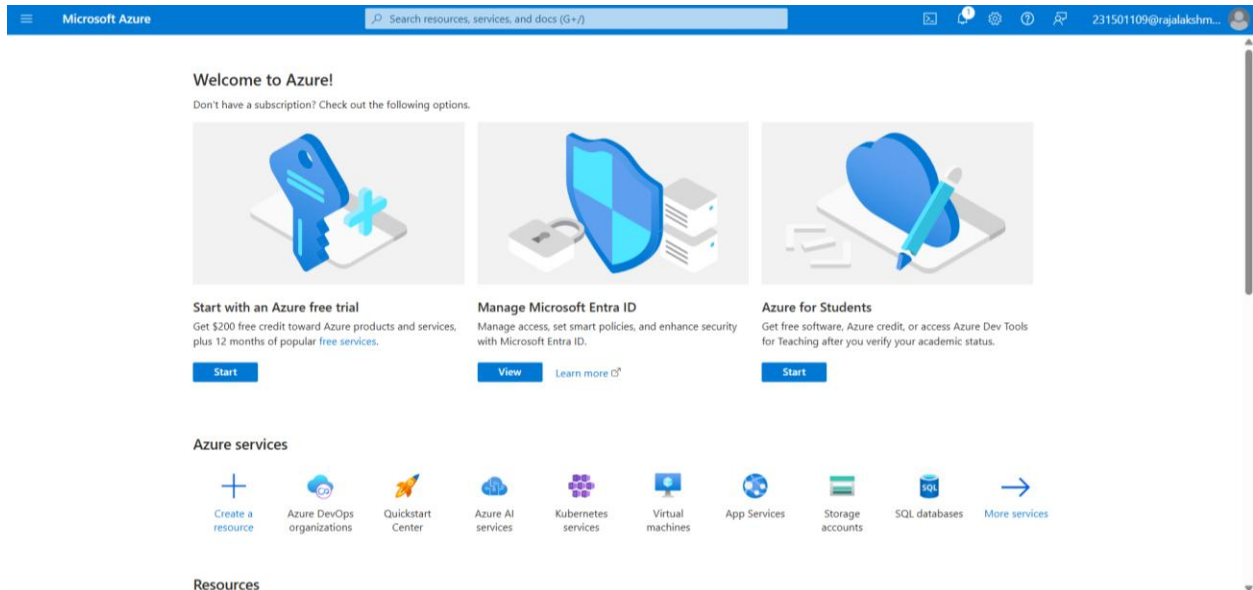
1. Open your web browser and go to the Azure website: <https://azure.microsoft.com/en-us/get-started/azure-portal>.

Sign in using your Microsoft account credentials.

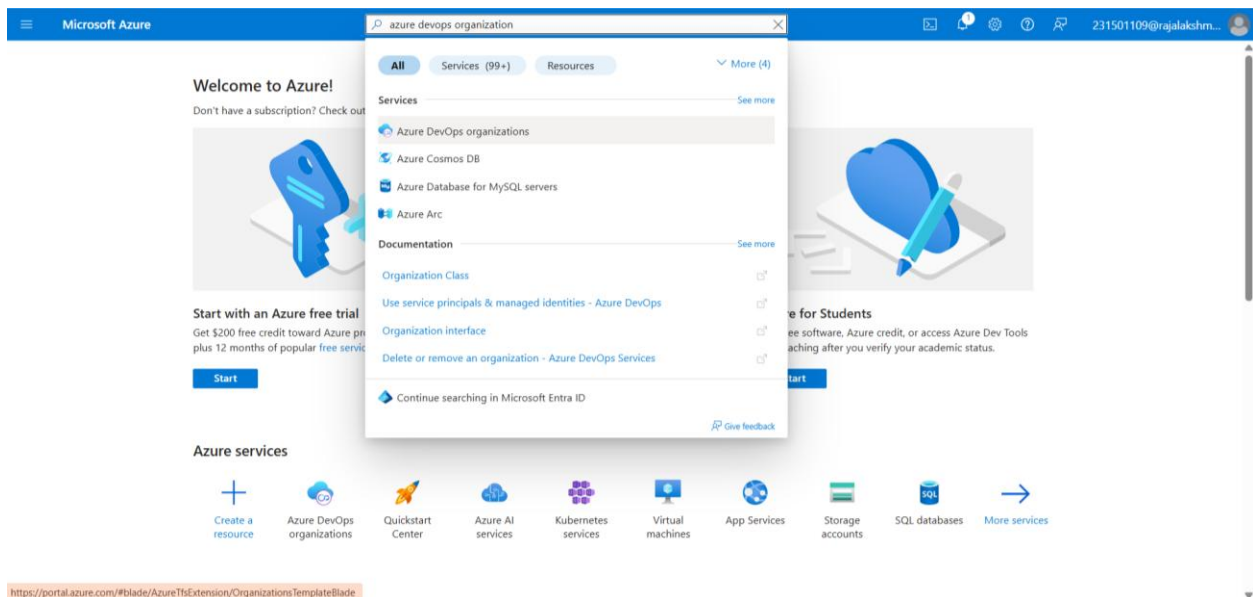
If you don't have a Microsoft account, you can create one here: <https://signup.live.com/?lic=1>



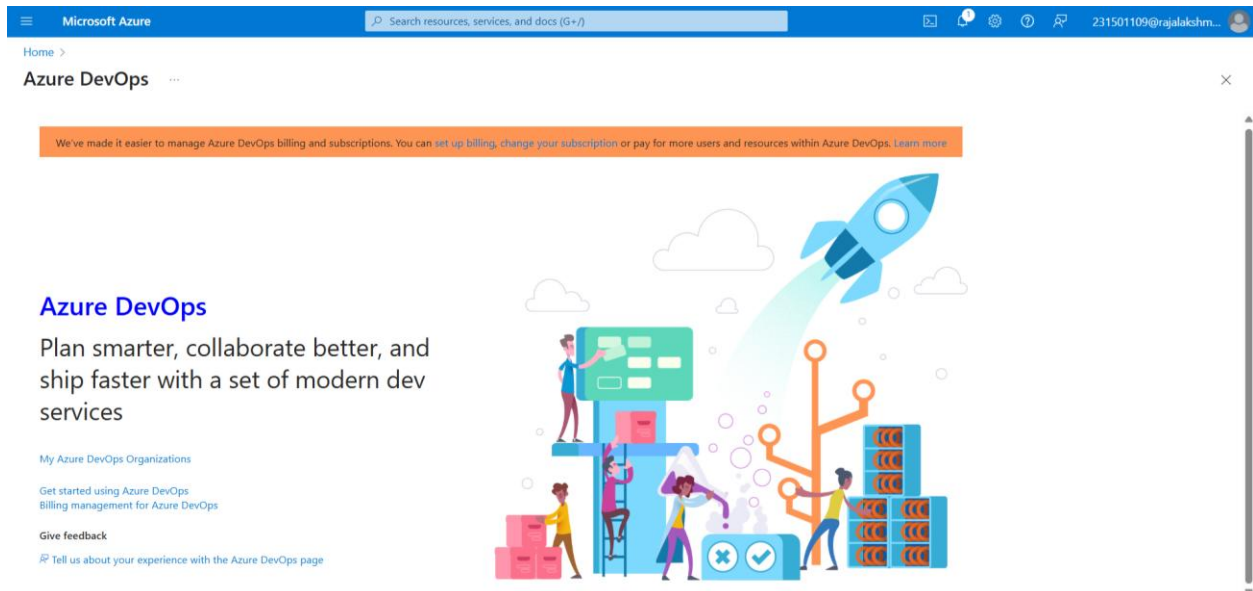
2. Azure home page



3. Open a 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.

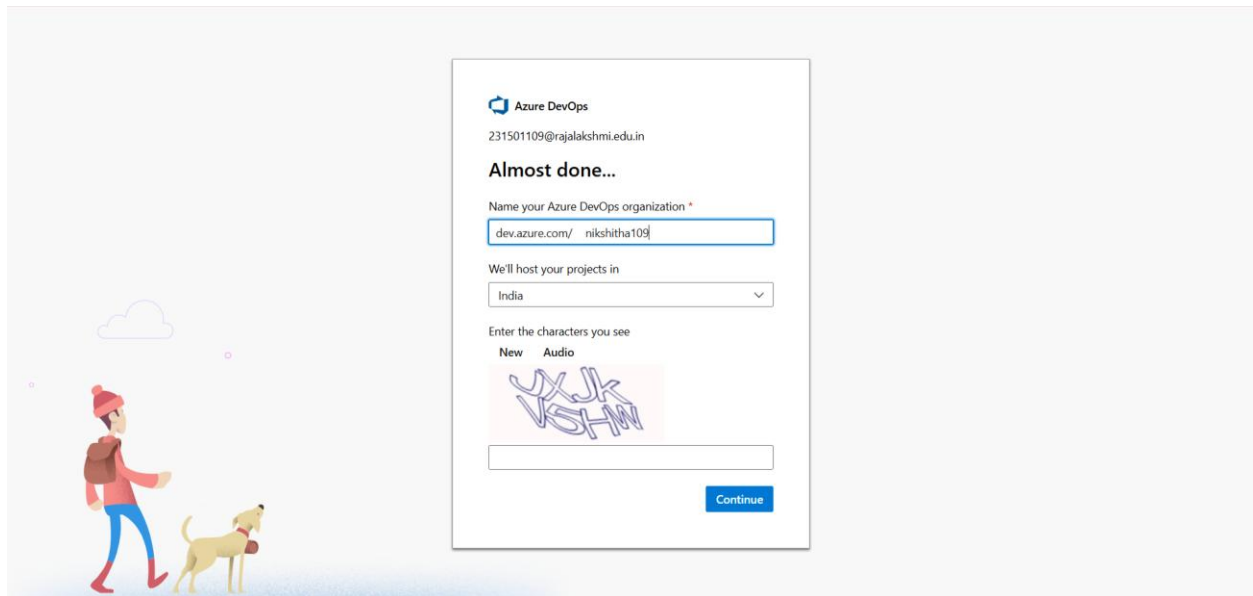
EXP NO: 2

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.

Create new project



Project name *

Batch Data Analysis and Visualizations

Description

Visibility



Public

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



Private

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



Public projects are disabled for your organization. You can turn on public visibility with [organization policies](#).

^ Advanced

Version control ?

Git



Work item process ?

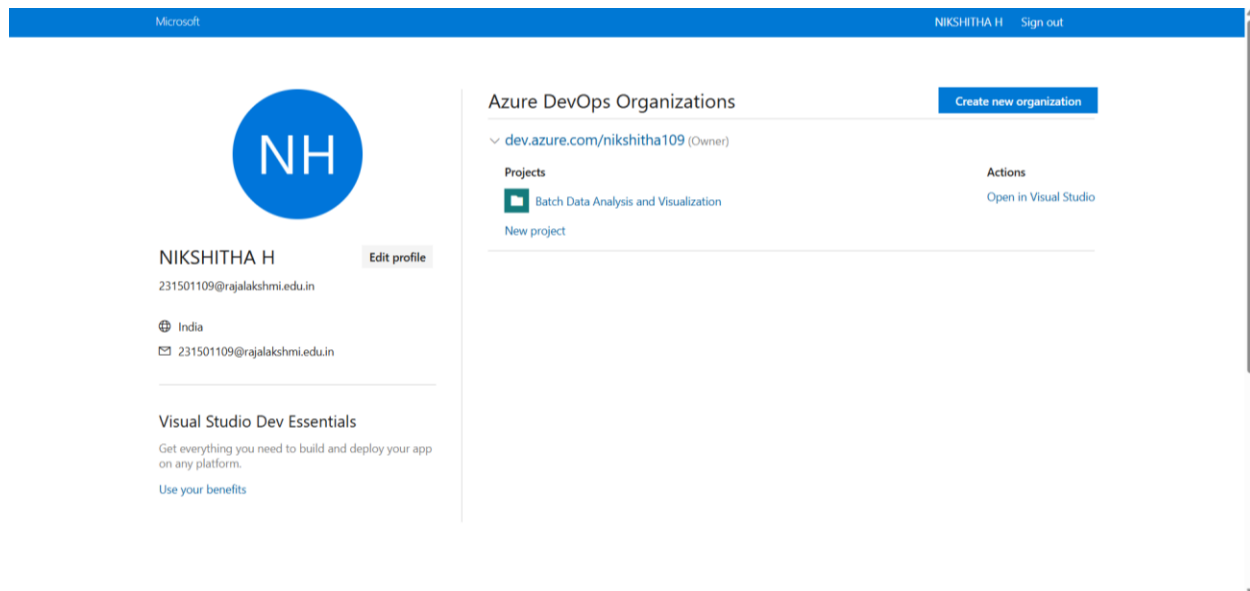
Agile



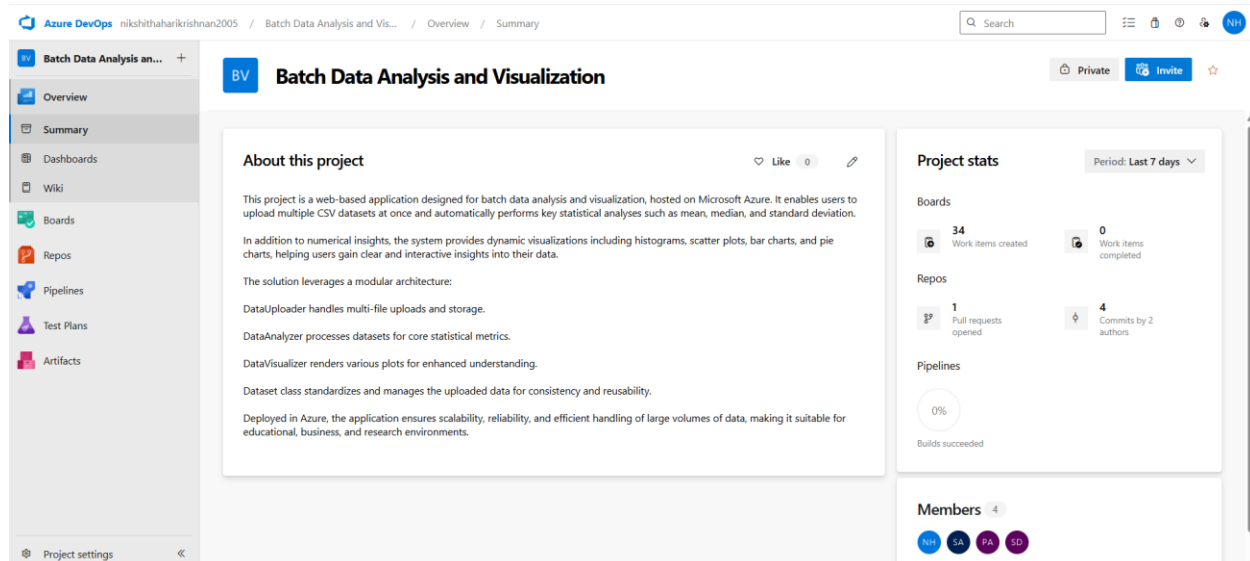
Cancel

Create

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.



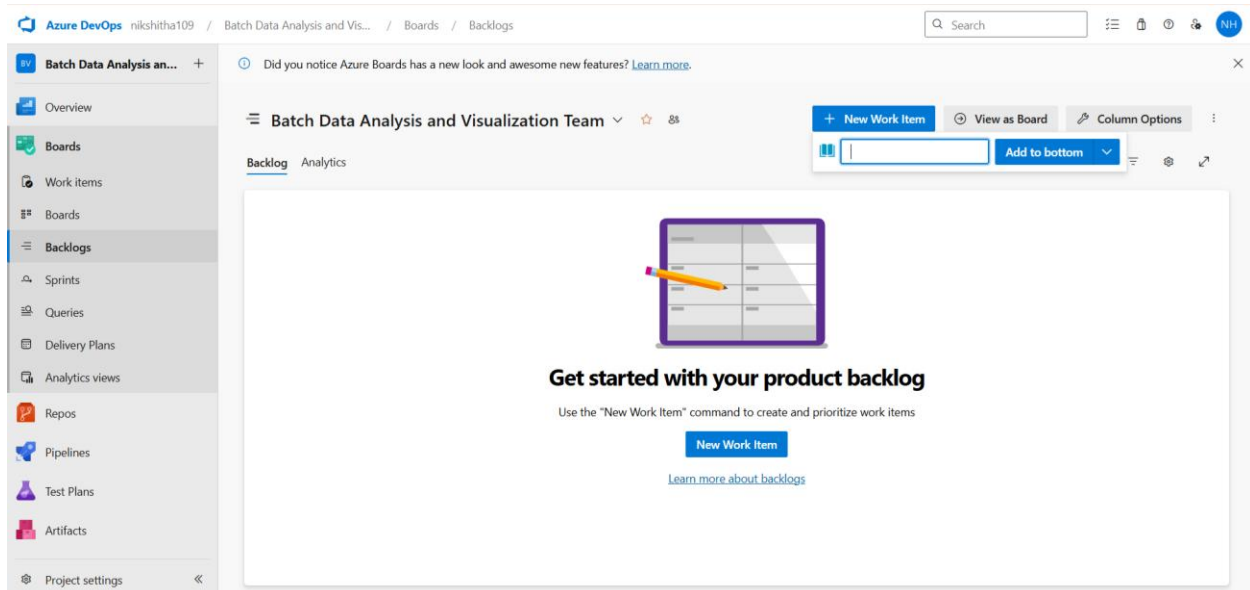
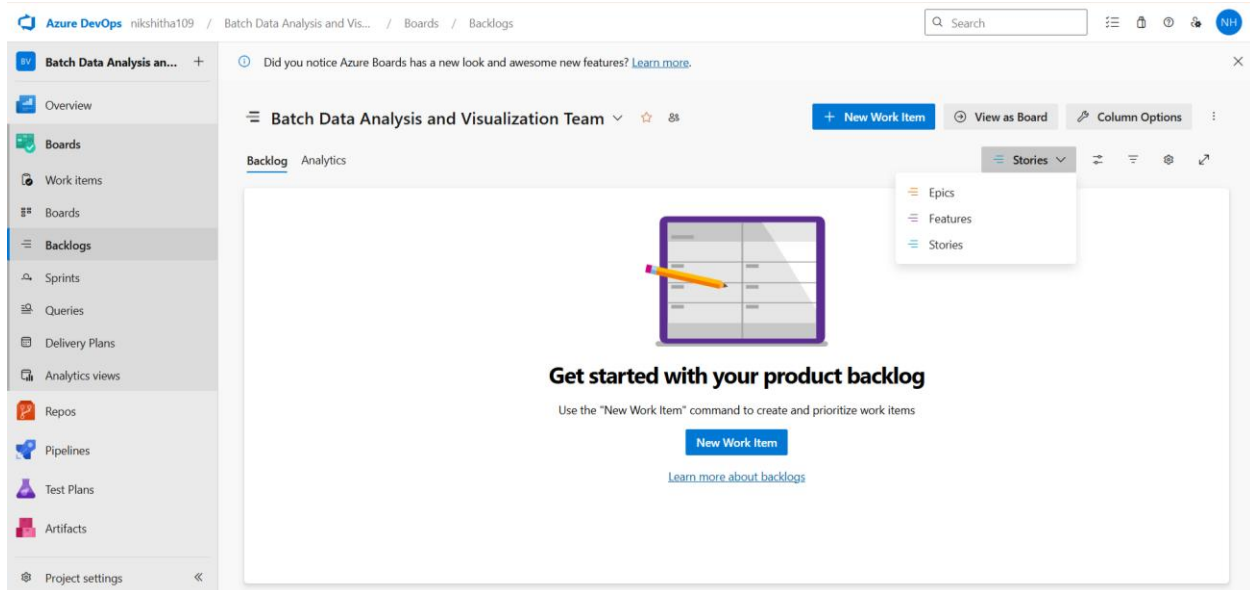
4. Project dashboard



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 create epics, user stories, features, and tasks for the project, Batch Data Analysis and Visualization.

Create Epic, Features, User Stories, Task

The screenshot shows the Azure DevOps interface for a team named 'Batch data analysis and visualization Team'. The 'Backlog' tab is selected, displaying a list of work items. The items are organized into two main sections, numbered 1 and 2. Section 1 includes an Epic 'Data Loading & Handling' with sub-items: Feature 'File Upload & Selection', User Story 'As a user, I want to be able to upload multiple CSV file...', Task 'Upload Multiple CSV Files', User Story 'As a user, I want to select specific columns from the u...', and Task 'Select Specific Columns for Analysis and Visualization'. Section 2 includes an Epic 'Basic Statistical Analysis' with sub-items: Feature 'Data Preview & Validation', User Story 'As a user, I want to calculate the mean, median, and st...', Task 'Calculate Mean, Median, and Standard Deviation', User Story 'As a user, I want to view the calculated statistics in a t...', Task 'View Calculated Statistics in a Tabular Format', and Feature 'Correlation Analysis'. Each item has a 'New' state and is associated with the 'Business' value area.

Order	Work Item Type	Title	State	Effort	Busin...	Value Area	Tags
1	Epic	Data Loading & Handling	New			Business	
	Feature	File Upload & Selection	New			Business	
	User Story	As a user, I want to be able to upload multiple CSV file...	New			Business	
	Task	Upload Multiple CSV Files	New				
	User Story	As a user, I want to select specific columns from the u...	New			Business	
	Task	Select Specific Columns for Analysis and Visualization	New				
2	Epic	Basic Statistical Analysis	New			Business	
	Feature	Data Preview & Validation	New			Business	
	User Story	As a user, I want to calculate the mean, median, and st...	New			Business	
	Task	Calculate Mean, Median, and Standard Deviation	New				
	User Story	As a user, I want to view the calculated statistics in a t...	New			Business	
	Task	View Calculated Statistics in a Tabular Format	New				
	Feature	Correlation Analysis	New			Business	

1. Fill in Epics

The screenshot shows the same Azure DevOps interface, but now only the two Epic work items are visible in the backlog. The first Epic is 'Data Loading & Handling' and the second is 'Basic Statistical Analysis'. Both are in the 'New' state and associated with the 'Business' value area. The sub-items (Features, User Stories, and Tasks) have been filtered out.

Order	Work Item Type	Title	State	Effort	Busin...	Value Area	Tags
1	Epic	Data Loading & Handling	New			Business	
2	Epic	Basic Statistical Analysis	New			Business	

2. Fill in Features

Azure DevOps nikshitha109 / Batch Data Analysis and Vis... / Boards / Backlogs

NEW FEATURE *

File Upload & Selection

No one selected 0 Comments Add Tag Save and Close

Statg New Area Batch Data Analysis and Visualization Reason New Iteration Batch Data Analysis and Visualization/Iteration 1

Description Click to add Description.

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

Planning Priority 2 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.

Related Work

3. Fill in User Stories

Azure DevOps nikshitha109 / Batch Data Analysis and Vis... / Boards / Backlogs

NEW USER STORY *

As a user, I want to be able to upload multiple CSV files at once, so I can analyze them together.

No one selected 0 Comments Add Tag Save and Close

Statg New Area Batch Data Analysis and Visualization Reason New Iteration Batch Data Analysis and Visualization/Iteration 1

Description Click to add Description.

Acceptance Criteria Click to add Acceptance Criteria.

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

Planning Story Points Priority 2 Risk

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.

Related Work

Result:

Thus, epics, features, user stories, and tasks have been created successfully.

EXP NO: 4

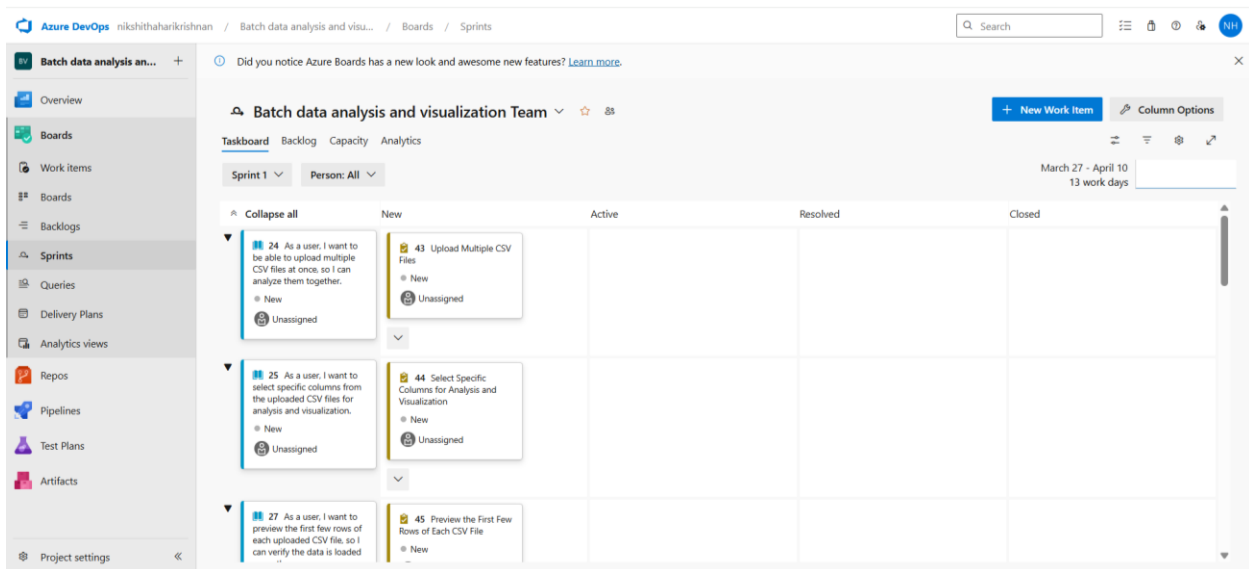
SPRINT PLANNING

Aim:

To assign a user story to a specific sprint for the project, Batch Data Analysis and Visualization.

SPRINT PLANNING

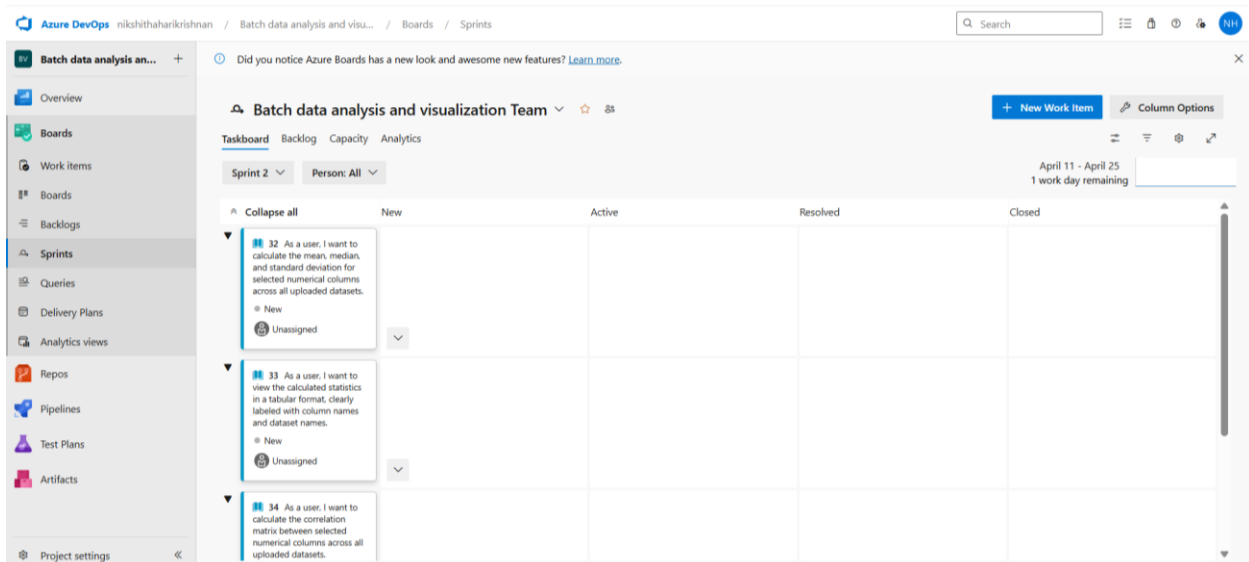
Sprint 1



The screenshot shows the Azure DevOps Sprints board for 'Batch data analysis and visualization Team'. The board is set for 'Sprint 1' from March 27 to April 10, with 13 work days remaining. The board is organized into columns: New, Active, Resolved, and Closed. There are three user stories in the 'New' column, each with a corresponding task in the 'Active' column.

User Story	Task
24 As a user, I want to be able to upload multiple CSV files at once, so I can analyze them together.	41 Upload Multiple CSV Files
25 As a user, I want to select specific columns from the uploaded CSV files for analysis and visualization.	44 Select Specific Columns for Analysis and Visualization
27 As a user, I want to preview the first few rows of each uploaded CSV file, so I can verify the data is loaded.	45 Preview the First Few Rows of Each CSV File

Sprint 2



The screenshot shows the Azure DevOps Sprints board for 'Batch data analysis and visualization Team'. The board is set for 'Sprint 2' from April 11 to April 25, with 1 work day remaining. The board is organized into columns: New, Active, Resolved, and Closed. There are three user stories in the 'New' column, each with a corresponding task in the 'Active' column.

User Story	Task
32 As a user, I want to calculate the mean, median, and standard deviation for selected numerical columns across all uploaded datasets.	
33 As a user, I want to view the calculated statistics in a tabular format, clearly labeled with column names and dataset names.	
34 As a user, I want to calculate the correlation matrix between selected numerical columns across all uploaded datasets.	

Sprint 3

The screenshot shows the Azure DevOps Sprints interface. The left sidebar contains navigation links: Overview, Boards, Work items, Boards, Backlogs, Sprints (selected), Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, and Artifacts. The main area displays the 'Batch data analysis and visualization Team' sprint board. At the top, there's a notification about new features and a search bar. Below the team name, there are tabs for Taskboard, Backlog, Capacity, and Analytics. The 'Taskboard' tab is active, showing a Kanban board for 'Sprint 3' (April 28 - May 12, 13 work days). The board has four columns: New, Active, Resolved, and Closed. Three items are currently in the 'New' column:

- Item 38: As a user, I want to generate histograms for selected numerical columns to visualize their distributions. (New, Unassigned)
- Item 39: As a user, I want to create scatter plots to visualize the relationships between pairs of numerical columns. (New, Unassigned)
- Item 41: As a user, I want to generate bar charts to visualize the counts of categories in selected categorical columns. (New, Unassigned)

Result:

The Sprints are created for the project, Batch Data Analysis and Visualization.

EXP NO: 5

POKER ESTIMATION

Aim:

Create Poker Estimation for the user stories for the project, Batch Data Analysis and Visualization.

Poker Estimation

The screenshot displays an Azure DevOps interface for a work item. The left sidebar shows the navigation menu with options like Overview, Boards, Work Items, Backlogs, Sprints, Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, and Artifacts. The main content area shows a 'Recently updated' work item titled 'USER STORY 43*'. The work item details include a description, acceptance criteria, and a discussion section. The right sidebar contains sections for Planning, Deployment, Development, and Related Work. The work item is currently in the 'Resolved' state.

Work Item Details:

- Title:** USER STORY 43*
- State:** Resolved
- Reason:** Code complete and un...
- Area Path:** Batch Data Analysis and Visualization
- Iteration Path:** Batch Data Analysis and Visualization/iteration 1
- Description:** Click to add Description.
- Acceptance Criteria:** Click to add Acceptance Criteria.
- Discussion:** Add a comment. Use * to link a work item, @ to mention a person, or ! to link a pull request.

Result:

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

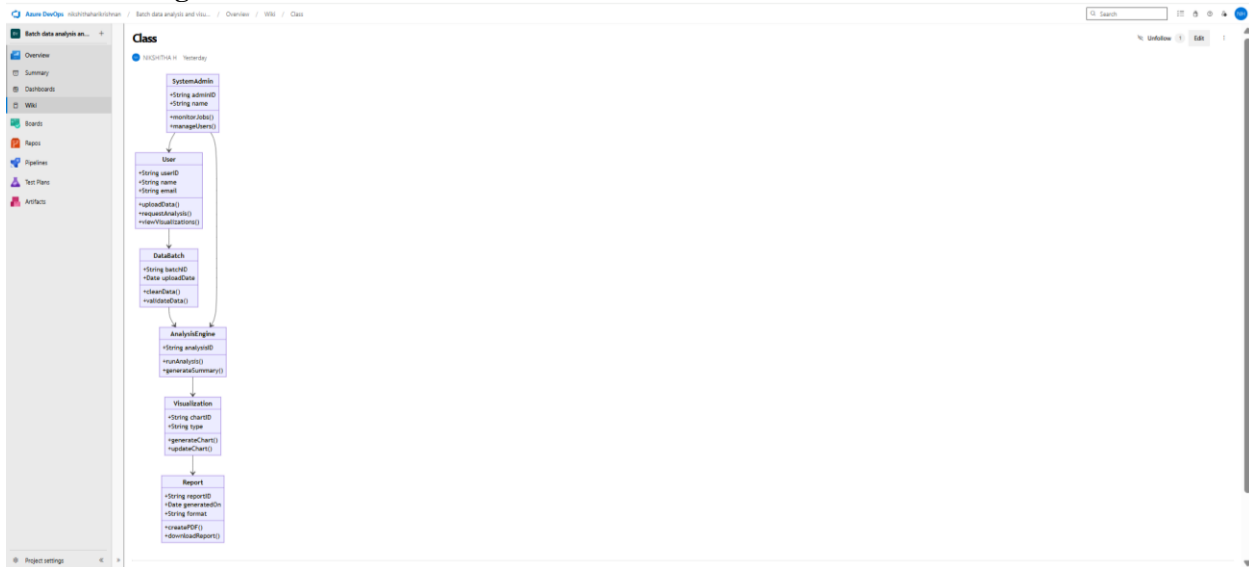
EXP NO: 6

DESIGNING CLASS DIAGRAM AND SEQUENCE DIAGRAM

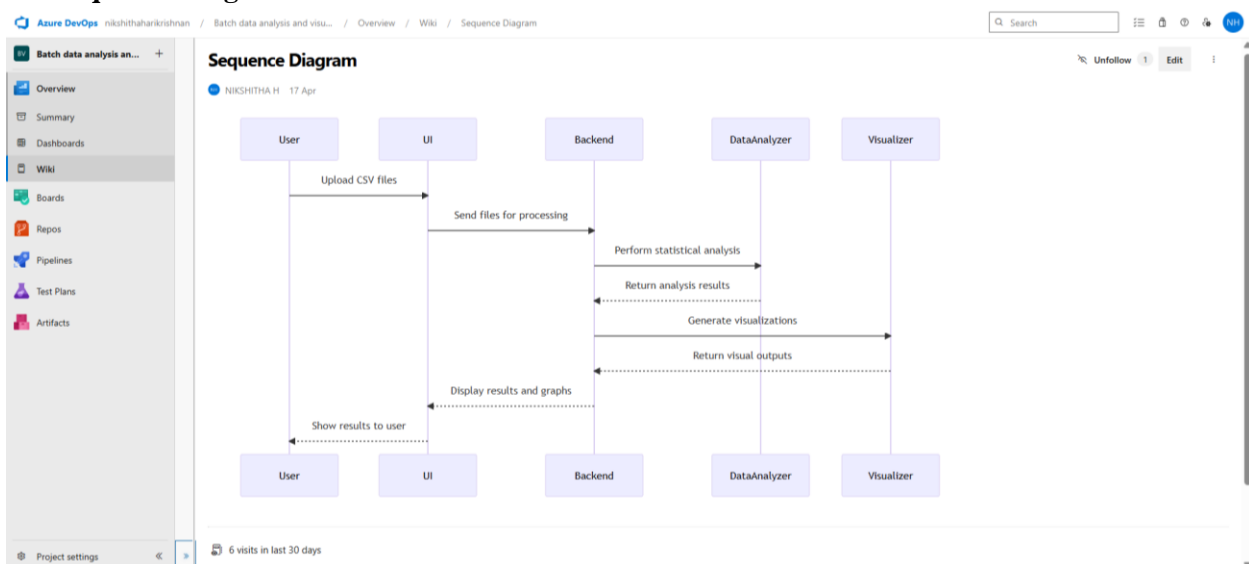
Aim:

To design a Class Diagram and Sequence Diagram for the project, Batch Data Analysis and Visualization.

6A. Class Diagram



6B. Sequence Diagram



Result:

The Class and Sequence Diagrams are designed successfully for the project, Batch Data Analysis and Visualization.

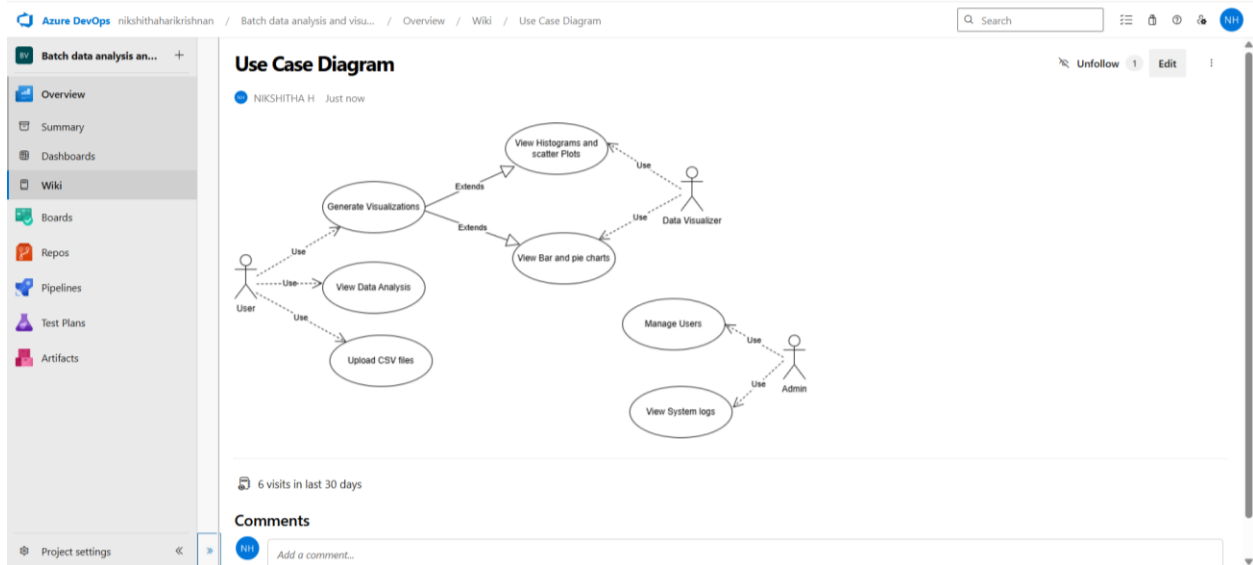
EXP NO: 7

DESIGNING USE CASE DIAGRAM AND ACTIVITY DIAGRAM

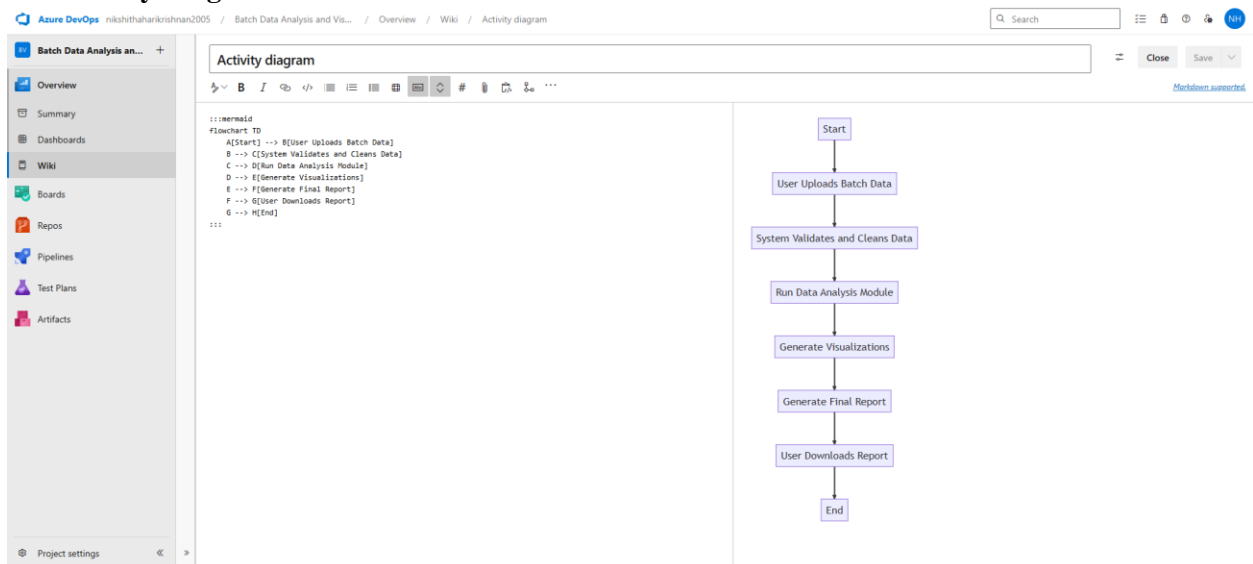
Aim:

To design a Use Case Diagram and an Activity Diagram for the project, Batch Data Analysis and Visualization.

7A. Use Case Diagram



7B. Activity Diagram



Result:

The Use Case and Activity Diagrams are designed successfully for the project, Batch Data Analysis and Visualization.

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 Authentication
- Uploading and Managing Batch Data Files
- Running Batch Analysis Jobs
- Viewing Interactive Visualizations and Charts
- Exporting Analysis Results

2. Define User Interactions

- Simulate real scenarios (e.g., upload dataset, trigger job, download result).

3. Design Happy Path Test Cases

- Validate all main functions work properly (e.g., successful login, upload, and visualization).

4. Design Error Path Test Cases

- Simulate unexpected or invalid user behavior (e.g., upload fails, unsupported file, job timeout).

5. Break Down Steps and Expected Results

- Each test case includes step-by-step actions and expected outcomes.

6. Use Clear Naming and IDs

- Example: TC01 – Successful File Upload, TC08 – Visualization Fails.

7. Separate Test Suites

- Suites grouped by modules (Login, File Upload, Job Execution, Visualization, Export).

8. Prioritize and Review

- Critical test cases marked as High Priority.
- Mapped to user stories in Azure DevOps.

1. New test plan

Azure DevOps nikshithaharikrishnan2005 / Batch Data Analysis and Vis... / Test Plans

Search

Batch Data Analysis an... +

- Overview
- Boards
- Repos
- Pipelines
- Test Plans**
 - Test plans
 - Progress report
 - Parameters
 - Configurations
 - Runs
 - Artifacts
- Project settings

New Test Plan

Name *

BatchDataAnalysis

Area Path *

Batch Data Analysis and Visualization

Iteration *

Batch Data Analysis and Visualization\Iteration 1

Create Cancel

2. Test suite

Azure DevOps nikshithaharikrishnan2005 / Batch Data Analysis and Vis... / Test Plans / BatchDataAnalysis

Search

Batch Data Analysis an... +

- Overview
- Boards
- Repos
- Pipelines
- Test Plans**
 - Test plans
 - Progress report
 - Parameters
 - Configurations
 - Runs
 - Artifacts
- Project settings

BatchDataAnalysis May 17 - May 24 **Current**

Test Suites

Filter suites by name

BatchDataAnalysis

- New Suite
 - Static suite
 - Requirement based suite
 - Query based suite
- Assign configurations
- Export
- Assign testers to run all tests
- Import test suites

TS02- Logout Functionality (ID: 47)

Define Execute Chart

Test Cases (2 items)

	Order	Test Case Id	Assigned To	State
<input type="checkbox"/> Title	1	49	NIKSHITHA H	Design
<input type="checkbox"/> TC03- Successfull logout and redirect	2	50	NIKSHITHA H	Design

New Test Case

3. Test case

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

Batch Data Analysis and Visualization – Test Plans

USER STORIES

- As a user, I want to log in using my username and password so that I can access my account.
- As a user, I should not be able to submit the login form with empty fields so that I can provide the required data.
- As a user, I want to log out when I click the logout button so that I can end my session securely.
- As a user, I want to be redirected to the login page after logging out so that I know my session has ended and I can log in again if needed.
- As a user, I want to be able to upload multiple CSV files at once, so I can analyze them together.

Test Suites

Test Suite: TS01 - User Authentication (ID: 54)

1. TC01 – Successful Login (ID: 57)

- **Action:**
 - Navigate to the login page
 - Enter valid credentials
 - Click "Login"
- **Expected Results:**
 - User redirected to dashboard.
- **Type:** Happy Path

2. TC02 – Prevent Login with Empty Fields (ID:58)

- **Action:**
 - Navigate to the login page.
 - Leave username and/or password fields empty.
 - Click on "Login".
- **Expected Results:**
 - Validation error message is shown, prompting the user to fill the required fields.
- **Type:** Error Path
-

Test Suite: TS02 - Logout Functionality (ID: 47)

1. TC03 – Successful Logout and Redirect (ID: 49)

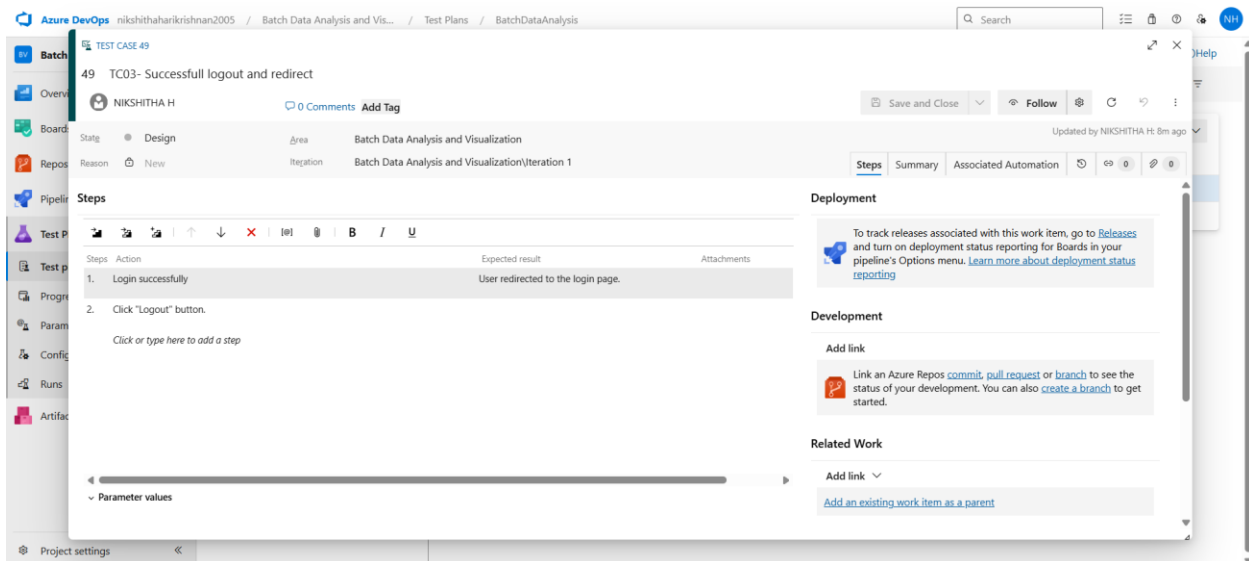
- **Action:**
 - Log in successfully.
 - Click the "Logout" button.
- **Expected Results:**
 - User session ends.
 - User is redirected to the login page.

- **Type:** Happy Path
- 2. **TC04– Access Protected Page After Logout (ID: 50)**
 - **Action:**
 - Logout.
 - Attempt to navigate back to a protected page (e.g., dashboard) via browser back button or URL.
 - **Expected Results:**
 - User is redirected to the login page and denied access.
 - **Type:** Error Path

Test Suite: TS03 - CSV Upload Functionality (ID: 74)

- 1. **TC05 – Upload Multiple Valid CSV Files (ID: 75)**
 - **Action:**
 - Log in successfully
 - Navigate to the CSV upload section
 - Select multiple valid .csv files
 - Click "Upload"
 - **Expected Results:**
 - All files are uploaded successfully.
 - Files are listed and ready for analysis.
 - **Type:** Happy Path
- 2. **TC06 – Upload Attempt Without Selecting Files (ID: 76)**
 - **Action:**
 - Navigate to the CSV upload section
 - Click "Upload" without selecting any files.
 - **Expected Results:**
 - Validation message prompting the user to select at least one file.
 - **Type:** Error Path

Test Cases



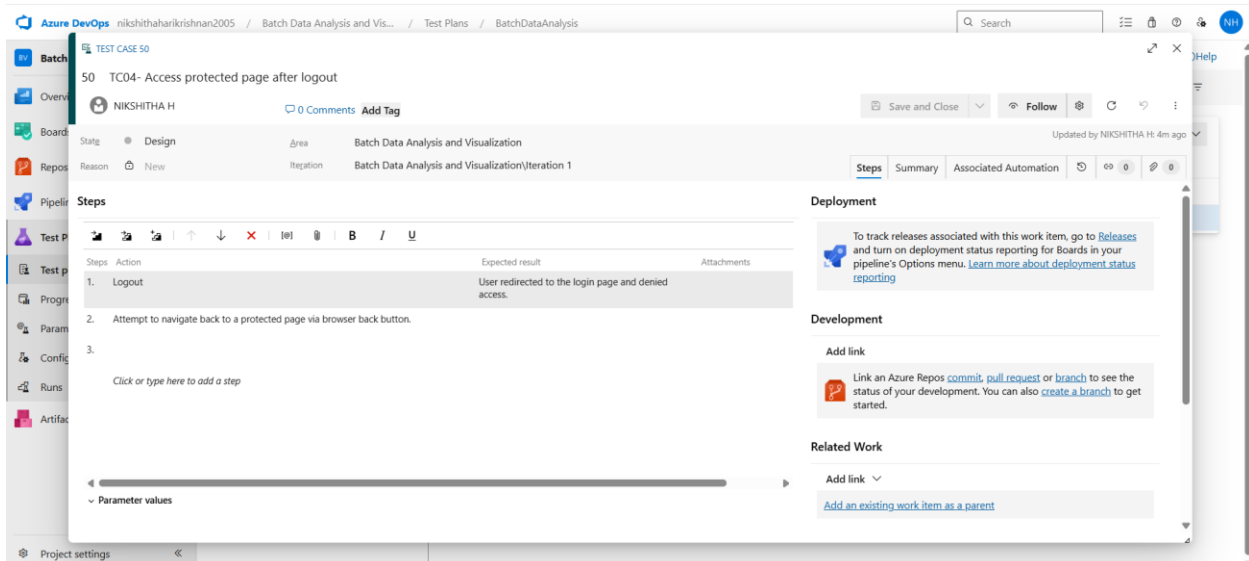
This screenshot shows the Azure DevOps interface for Test Case 49, titled "TC03- Successful logout and redirect". The test case is owned by NIKSHITHA H and has 0 comments. It is located within the "Batch Data Analysis and Visualization" area, specifically under the iteration "Batch Data Analysis and Visualization/Iteration 1".

The "Steps" section contains the following actions:

Steps	Action	Expected result	Attachments
1.	Login successfully	User redirected to the login page.	
2.	Click "Logout" button.		

Below the steps, there is a prompt: "Click or type here to add a step".

The right-hand sidebar contains sections for "Deployment", "Development", and "Related Work". The "Deployment" section includes a link to "Releases" and a note about deployment status reporting. The "Development" section has an "Add link" button and a note about linking Azure Repos commit, pull request, or branch. The "Related Work" section also has an "Add link" button and a link to "Add an existing work item as a parent".



This screenshot shows the Azure DevOps interface for Test Case 50, titled "TC04- Access protected page after logout". The test case is owned by NIKSHITHA H and has 0 comments. It is located within the "Batch Data Analysis and Visualization" area, specifically under the iteration "Batch Data Analysis and Visualization/Iteration 1".

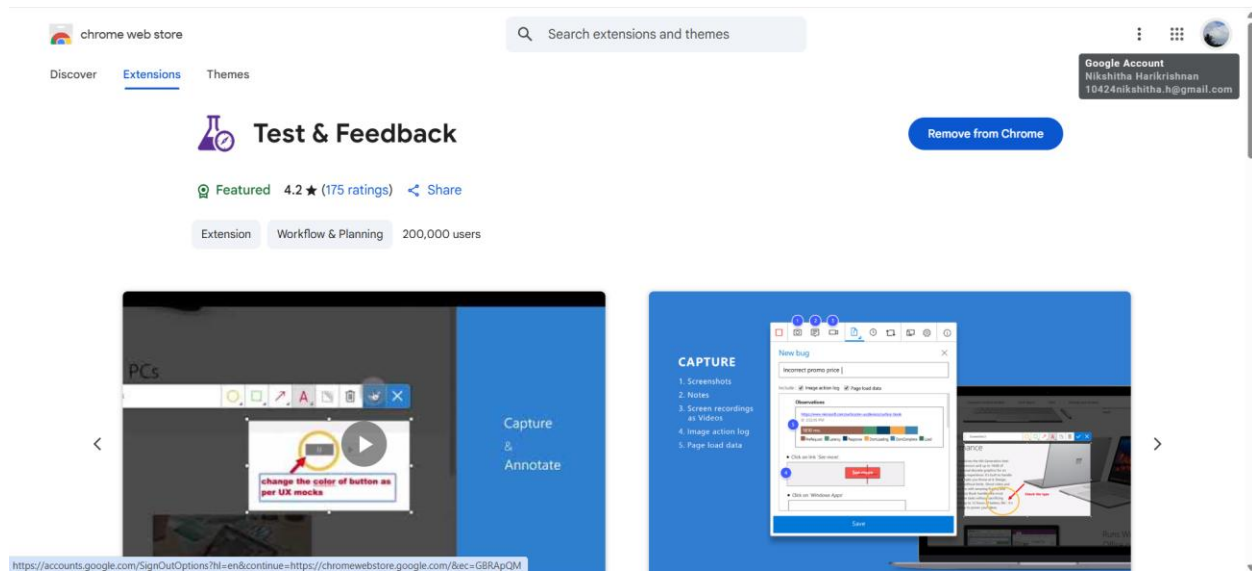
The "Steps" section contains the following actions:

Steps	Action	Expected result	Attachments
1.	Logout	User redirected to the login page and denied access.	
2.	Attempt to navigate back to a protected page via browser back button.		
3.			

Below the steps, there is a prompt: "Click or type here to add a step".

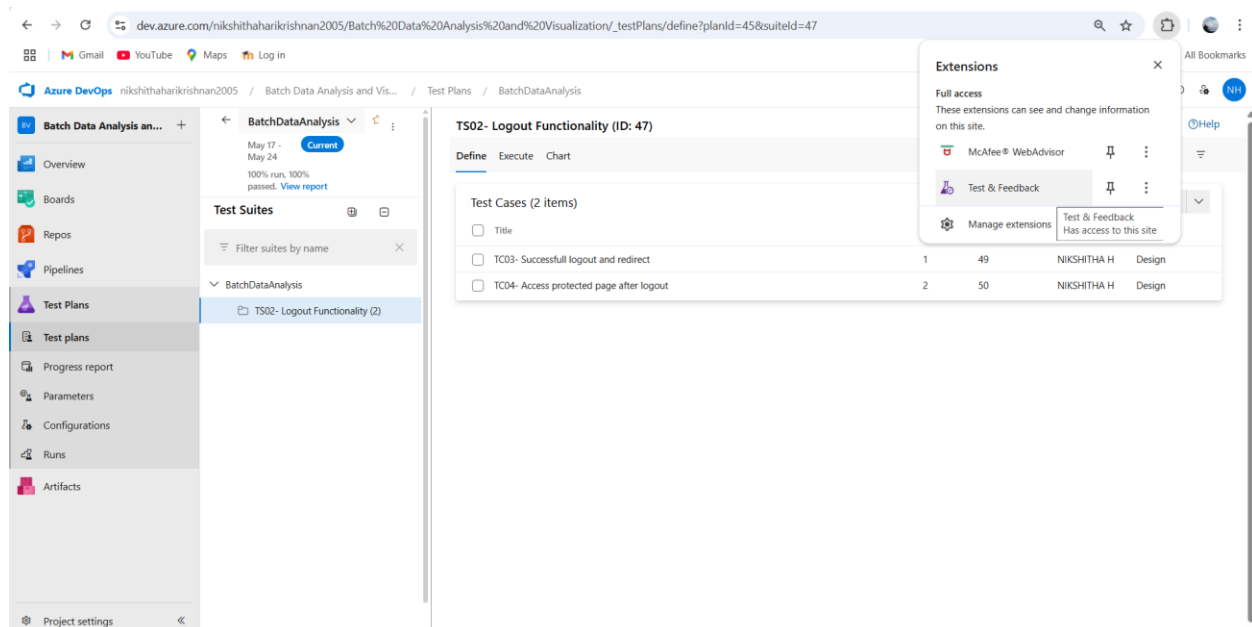
The right-hand sidebar contains sections for "Deployment", "Development", and "Related Work". The "Deployment" section includes a link to "Releases" and a note about deployment status reporting. The "Development" section has an "Add link" button and a note about linking Azure Repos commit, pull request, or branch. The "Related Work" section also has an "Add link" button and a link to "Add an existing work item as a parent".

4. Installation of test



Test and feedback

Showing it as an extension



5. Running the test cases

The screenshot displays the Azure DevOps Test Plans interface. The left sidebar shows the navigation menu with 'Test Plans' selected. The main area is titled 'TS02- Logout Functionality (ID: 47)' and shows a table of test points. Below the table, a detailed view of test case '49: TC03- Successfull logout and redirect' is shown, including its steps and expected results.

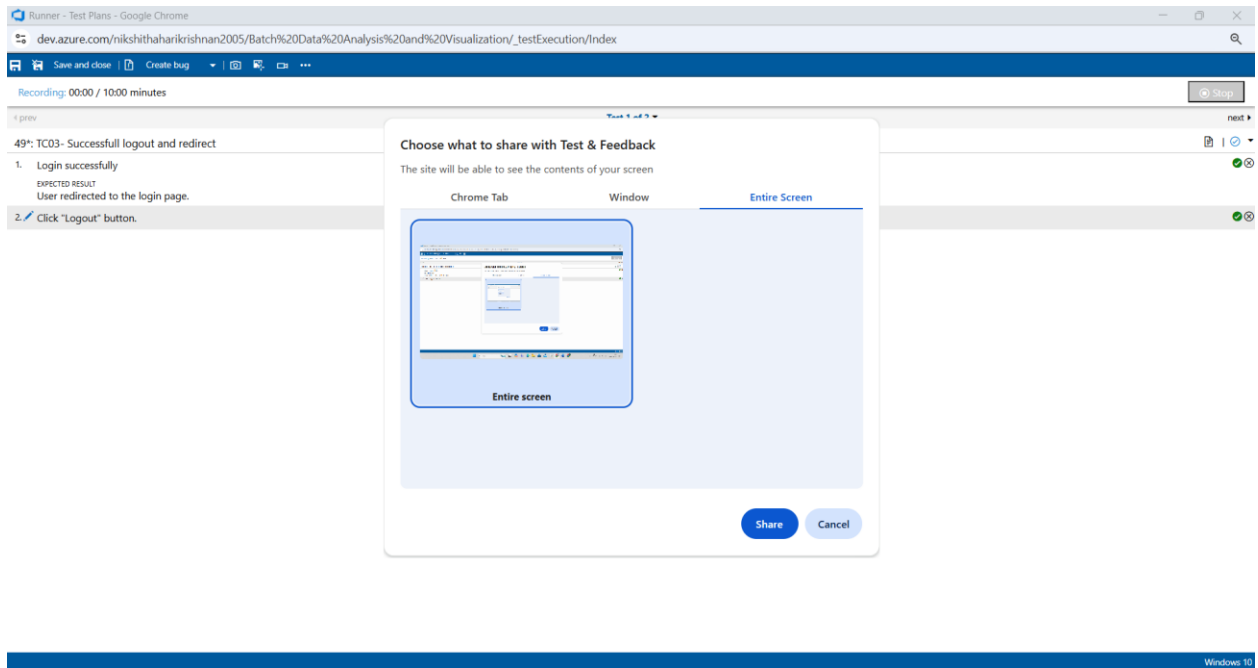
Test Points (2 items)

Title	Outcome	Order	Test Case Id	Configuration	Tester
TC03- Successfull logout and redirect	Passed	1	49	Windows 10	NIKSHITHA
TC04- Access protected page after logout	Passed	2	50	Windows 10	NIKSHITHA

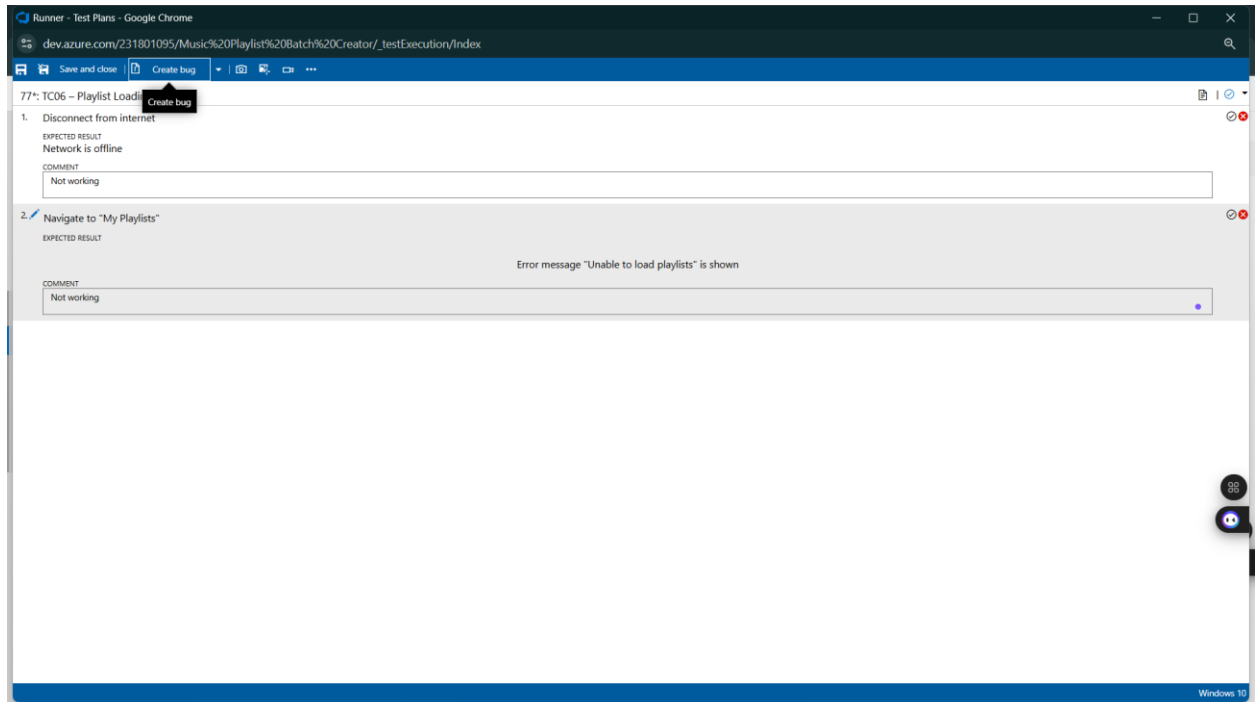
49: TC03- Successfull logout and redirect

1. Login successfully
EXPECTED RESULT
User redirected to the login page.
2. Click "Logout" button.

6. Recording the test case



7. Creating the bug



Runner - Test Plans - Google Chrome

dev.azure.com/nikshithaharikrishnan2005/Batch%20Data%20Analysis%20and%20Visualization/_testExecution/Index

49% TC03 - Successful logout and redirect

1. Login s
EXPECTED
User re

2. Click T

NEW BUG +

Logout Does Not End Session Properly

Unassigned 0 comments Add tag Save & Close

Status: New Reason: New Area: Batch Data Analysis and Visualization Iteration: Batch Data Analysis and Visualization/Iteration 1 Details

Repro Steps

5/17/2025 10:21 AM Bug filed on "TC03 - Successful logout and redirect"

Step no.	Result	Title
1.	Passed	Login successfully
		Expected Result
		User redirected to the login page.
2.	Passed	Click "Logout" button.

Test Configuration: Windows 10

System Info

Browser - Name	Google Chrome 136
Browser - Language	en-IN
Browser - Height	832
Browser - Width	1552
Browser - User agent	Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/136.0.0.0 Safari/537.36
Operating system - Name	Windows NT 10.0; Win64; x64
Operating system - Architecture	x86_64
Operating system - Processor model	11th Gen Intel(R) Core(TM) i5-1135G7 @ 2.40GHz
Operating system - Number of processors	8
Memory - Available	1043017728
Memory - Capacity	8299257856
Display - Pixels per inch (X axis)	120
Display - Pixels per inch (Y axis)	120
Display - Device pixel ratio	1.25

Planning

Resolved Reason

Story Points

Priority 2

Severity 3 - Medium

Activity

Effort (Hours)

Original Estimate

Remaining

Completed

Deployment

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

Development

+ Add link

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

Related Work

+ Add link

Add an existing work item as a parent

Tested By

49 TC03 - Successful logout and redirect Updated 21 minutes ago. Design

System Info

Found in Build

Integrated in Build

Discussion

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

8. Test case results

The screenshot displays the Azure DevOps interface for a test plan named 'BatchDataAnalysis'. The left sidebar shows the navigation menu with 'Test Plans' selected. The main area shows the test plan details, including a list of test suites and test points. A modal window titled 'TC03- Successfull logout and redirect' is open, showing the 'Test Case Results' for the selected test point. The results table shows four test runs, all of which passed.

Outcome	TimeSta...	Configuration	Run by	Tester	Test
Passed	Just now	Windows 10	NIKSHITHA H	NIKSHITHA H	BatchDataAnalysis
Failed	Just now	Windows 10	NIKSHITHA H	NIKSHITHA H	BatchDataAnalysis
Passed	7m ago	Windows 10	NIKSHITHA H	NIKSHITHA H	BatchDataAnalysis
Passed	24m ago	Windows 10	NIKSHITHA H	NIKSHITHA H	BatchDataAnalysis

9. Test report summary

The screenshot displays the Azure DevOps Boards interface. The left sidebar shows the navigation menu with 'Boards' selected. The main area shows a work item titled '56 Logout Does Not End Session Properly'. The work item details include a description, a list of repro steps, and a test configuration. The right sidebar shows the 'Planning' and 'Deployment' sections, which provide additional context and links for the work item.

Repro Steps

Step no.	Result	Title
1.	Passed	Login successfully
		Expected Result
		User redirected to the login page.
2.	Passed	Click "Logout" button.

Test Configuration: Windows 10

- Assigning bug to the developer and changing state

Azure DevOps nikshithaharikrishnan2005 / Batch Data Analysis and Vis... / Boards / Work Items

Did you notice Azure Boards has a new look and awesome new features? [Learn more.](#)

Recently updated | [Back to Work Items](#) 3 of 45

BUG 56

56 Logout Does Not End Session Properly

NIKSHITHA H 0 Comments Add Tag

Save Follow

Updated by NIKSHITHA H: 4m ago

Details

State: New Area: Batch Data Analysis and Visualization Reason: New Iteration: Batch Data Analysis and Visualization/Iteration 1

Repro Steps

5/17/2025 10:21 AM Bug filed on "TC03- Successful logout and redirect"

Step no.	Result	Title
1.	Passed	Login successfully
		Expected Result
		User redirected to the login page.
2.	Passed	Click "Logout" button.

Test Configuration: Windows 10

Planning

Resolved Reason

Story Points

Priority

Severity

3 - Medium

Activity

Effort (Hours)

Original Estimate

Deployment

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

Development

Add link

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

Related Work

10. Progress report

Azure DevOps nikshithaharikrishnan2005 / Batch Data Analysis and Vis... / Test Plans / Progress report

Progress report

BatchDataAnalysis Test Suites Outcome Configuration Tester Priority Assigned To

Summary

1 Test plans 2 Test points

2 (2 / 2) Test points run 100% Run

100% (2 / 2) Pass rate 2 Passed

Outcome trend

Last 14 Days

Tests

2

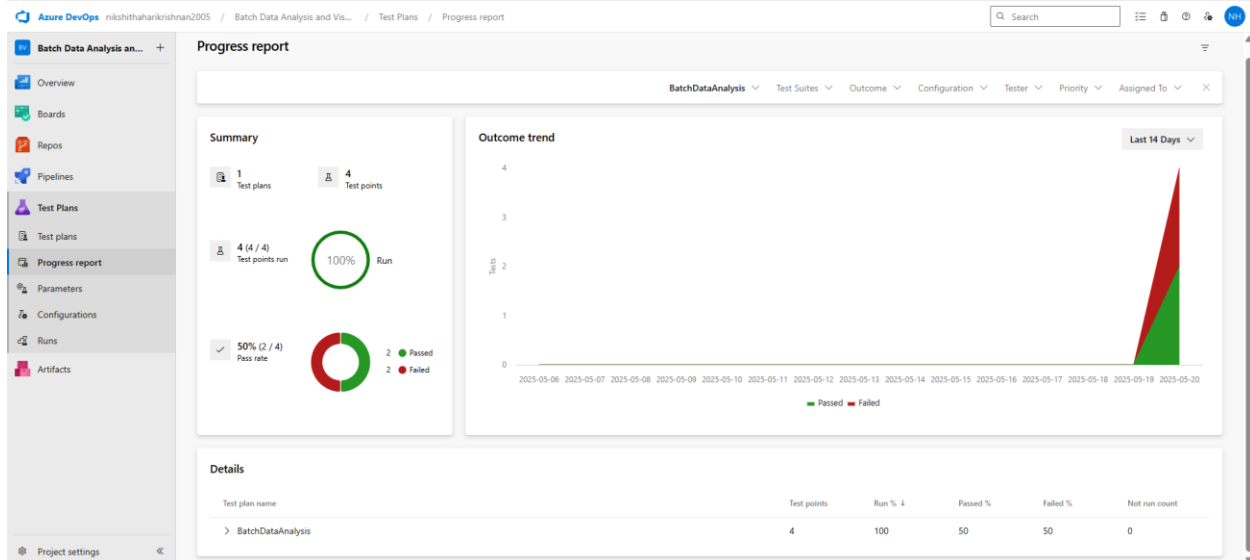
1

0

2025-05-03 2025-05-04 2025-05-05 2025-05-06 2025-05-07 2025-05-08 2025-05-09 2025-05-10 2025-05-11 2025-05-12 2025-05-13 2025-05-14 2025-05-15 2025-05-16 2025-05-17

Passed

Details



11. Changing the test template

Azure DevOps nikshithaharikrishnan2005 / Settings / Process

Search

Organization Settings nikshithaharikrishnan2005

Search Settings

General

Overview
Projects
Users
Billing
Global notifications
Usage
Extensions
Microsoft Entra

Security

Security overview
Policies
Permissions

Boards

Process

Pipelines

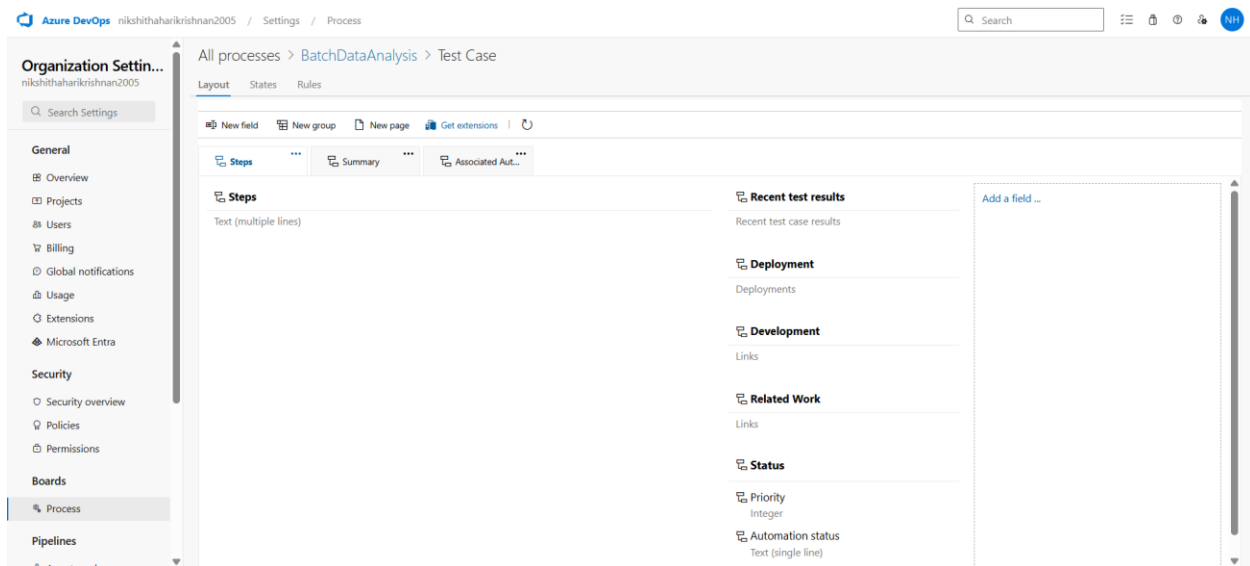
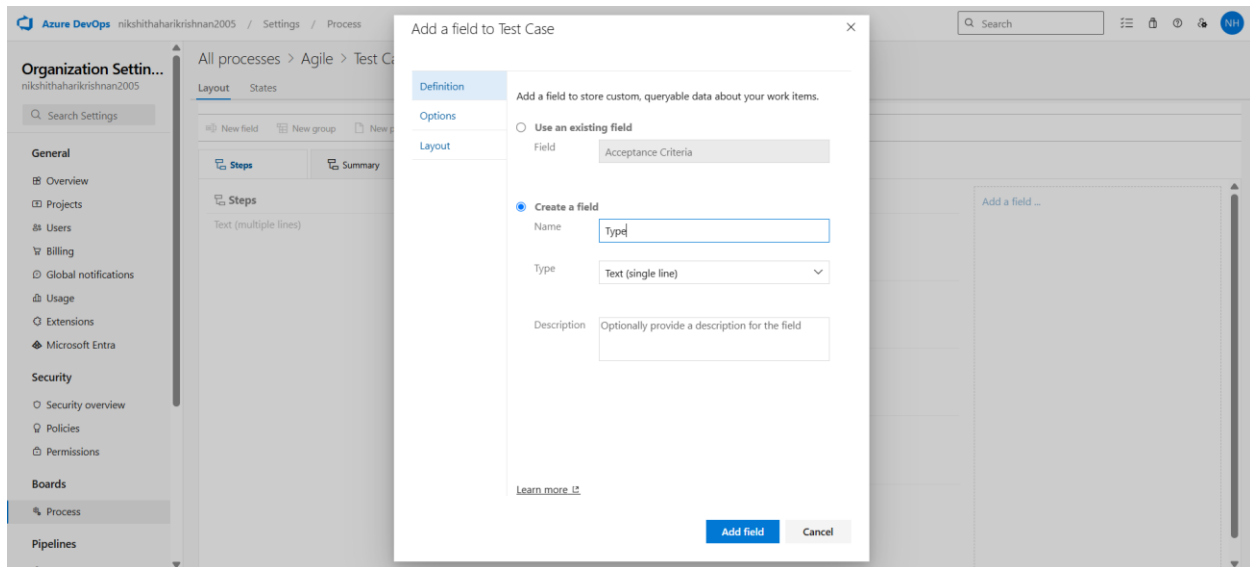
All processes

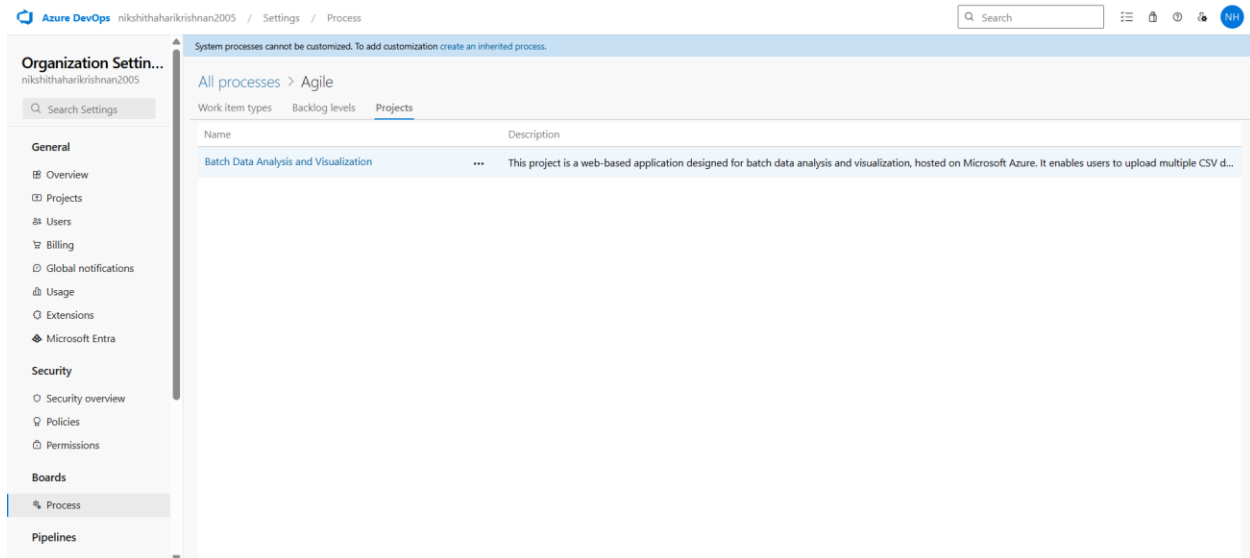
Processes Fields

Filter by process name

Name	Description	Team proje...
Basic	This template is flexible for any process and great for teams getting started with Azure DevOps.	0
Agile	This template is flexible and will work great for most teams using Agile planning methods, including those pract...	1
Agile plus	...	0
BatchDataAnalysis (default)		0
Scrum	This template is for teams who follow the Scrum framework.	0
CMMI	This template is for more formal projects requiring a framework for process improvement and an auditable reco...	0

12. View the new test case template





Result:

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

EXP NO: 9

CI/CD PIPELINES IN AZURE

Aim:

To implement a Continuous Integration and Continuous Deployment (CI/CD) pipeline in Azure DevOps for automating the build, testing, and deployment process of the Student Management System, ensuring faster delivery and improved software quality.

Procedure:

Steps to Create and implement pipelines in Azure:

1. Sign in to Azure DevOps and Navigate to Your Project
Log in to dev.azure.com, select your organization, and open the project where your Batch Data Analysis code resides.
2. Connect a Code Repository (Azure Repos or GitHub)
Ensure your application code is stored in a Git-based repository such as Azure Repos or GitHub. This will be the source for triggering builds and deployments in your pipeline.
3. Create a New Pipeline
Go to the Pipelines section on the left panel and click “Create Pipeline”.
Choose your source (e.g., Azure Repos Git or GitHub), and then select the repository containing your project code.
4. Choose the Pipeline Configuration
You can select either the YAML-based pipeline (recommended for version control and automation) or the Classic Editor for a GUI-based setup.
If using YAML, Azure DevOps will suggest a template or allow you to define your own.
5. Define Build Stage (CI - Continuous Integration) from the YAML file
6. Install dependencies (e.g., npm install, dotnet restore)
7. Build the application (dotnet build, npm run build)
8. Run unit tests (dotnet test, npm test)
9. Publish build artifacts to be used in the release stage

10. Save and Run the Pipeline for the First Time

Save the YAML or build definition and click “Run”.

Azure will fetch the latest code and execute the defined build and test stages.

11. Configure Continuous Deployment (CD)

Navigate to the Releases tab under Pipelines and click “New Release Pipeline”.

Add an Artifact (from the build stage) and create a new Stage (e.g., Development, Production).

12. Configure the CD stage with deployment tasks such as deploying to Azure App Service, running database migrations or scripts, and restarting services using the Azure App Service Deploy the task linked to your subscription and app details.

13. Set Triggers and Approvals

Enable a continuous deployment trigger so the release pipeline runs automatically after a successful build.

For production environments, configure pre-deployment approvals to ensure manual verification before release.

14. Monitor Pipelines and Manage Logs

View all pipeline runs under the Runs section.

Check logs for build/test/deploy stages to debug any errors.

You can also integrate email alerts or Microsoft Teams notifications for build failures.

15. Review and Maintain Pipelines

Regularly update your pipeline tasks or YAML configurations as your application grows.

Ensure pipeline runs are clean and artifacts are stored securely.

Integrate quality gates and code coverage policies to maintain code quality.

Pipeline

The screenshot displays the Azure DevOps web interface for a project named "Batch Data Analysis and Visualization". The left sidebar contains navigation links for Overview, Boards, Repos, Pipelines, Environments, Library, Test Plans, and Artifacts. The main content area shows a pipeline run titled "#20250517.1 • Set up CI with Azure Pipelines" with a green success icon. Below the title, a message states: "This run is being retained as one of 3 recent runs by main (Branch)." with a "View retention leases" link. The "Summary" tab is active, showing details for an "Individual CI by NIKSHITHA H" repository. It lists the repository as "Batch Data Analysis and Visualization", the branch as "main", and the commit as "aa225b1d". The build status is "Just now" and "20s". It also shows "0 work items" and "0 artifacts". A "View 4 changes" link is present. Below the summary, the "Jobs" section shows a single job named "Job" with a status of "Success" and a duration of "2s".

#20250517.1 • Set up CI with Azure Pipelines

Batch Data Analysis and Visualization (5)

This run is being retained as one of 3 recent runs by main (Branch). [View retention leases](#)

Summary Code Coverage

Individual CI by **NIKSHITHA H**

Repository and version
Batch Data Analysis and Visualization
main aa225b1d

Time started and elapsed
Just now
20s

Related
0 work items
0 artifacts

Tests and coverage
[Get started](#)

[View 4 changes](#)

Jobs

Name	Status	Duration
Job	Success	2s

Result:

Thus, the pipelines for the given project, “Batch Data Analysis and Visualization” has been executed successfully

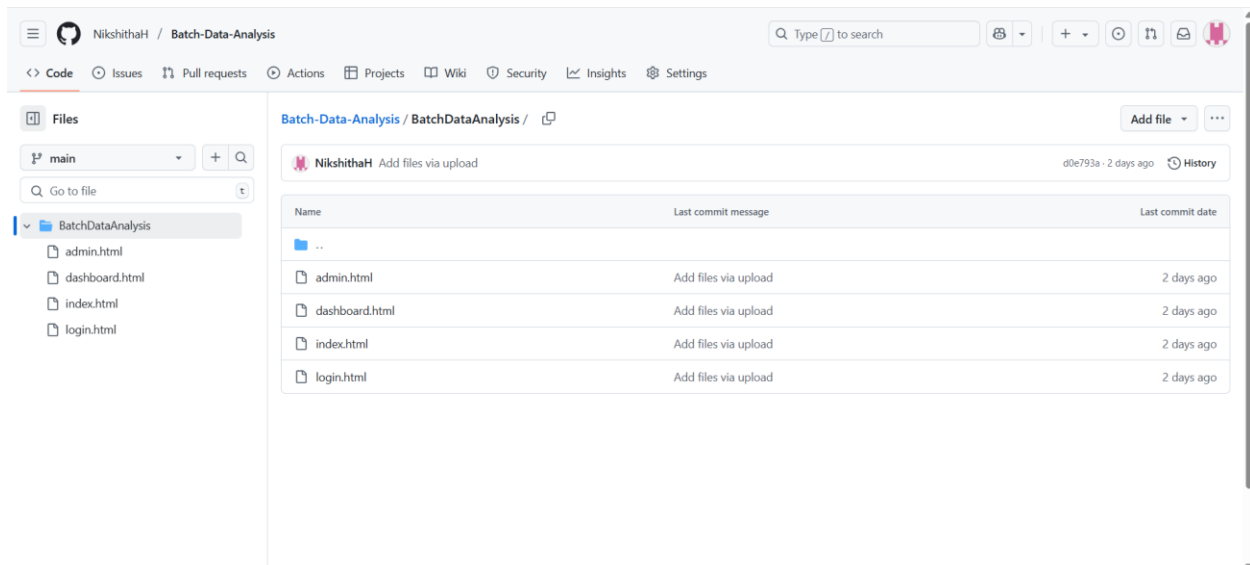
EXP NO: 10

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 project- Batch Data Analysis and Visualization.

GitHub Project Structure



Result:

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