



RAJALAKSHMI
ENGINEERING COLLEGE
An AUTONOMOUS Institution
Affiliated to ANNA UNIVERSITY, Chennai

DEPARTMENT OF INFORMATION TECHNOLOGY
LAB MANUAL

CS23432 – Software Construction

(REGULATION 2023)

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Exp.No: 1	AZURE DEVOPS ENVIRONMENT SETUP
Date:22/01/2025	

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

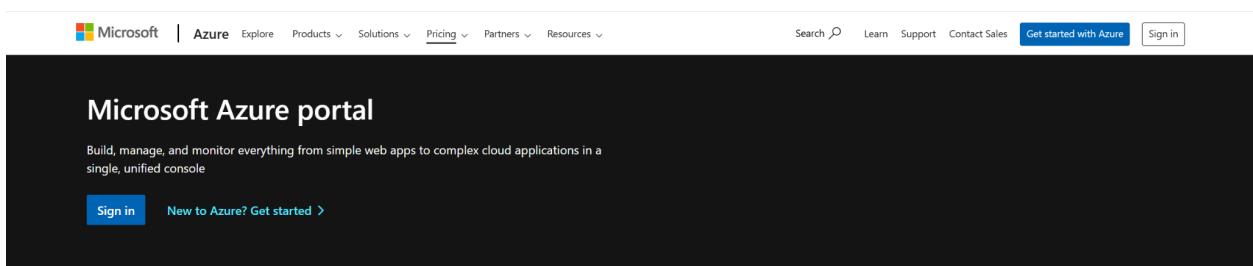
INSTALLATION

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

<https://azure.microsoft.com/en-us/getstarted/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>



Azure mobile app

Stay connected to your Azure resources—anytime, anywhere. Now available for iOS and Android.

[Learn more >](#)



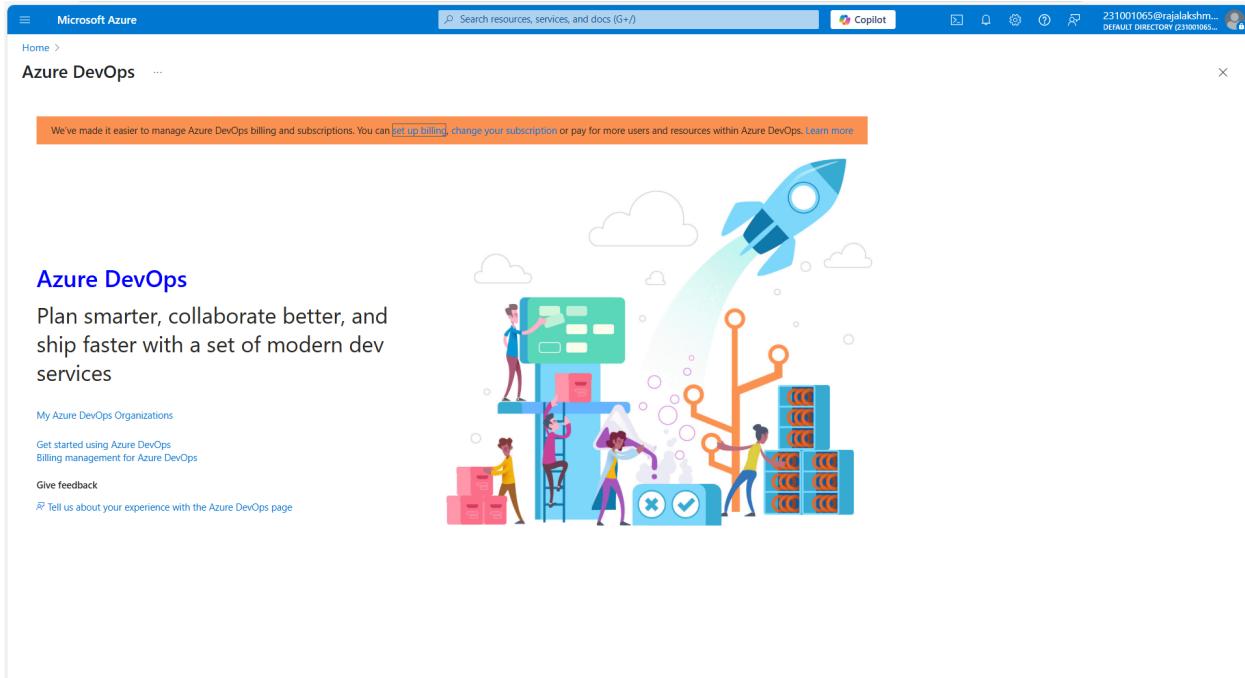
2. Azure home page

The screenshot shows the Microsoft Azure home page. At the top, there's a search bar and a Copilot button. Below the search bar, the "Azure services" section includes icons for Create a resource, Azure Load Testing, Resource groups, Quickstart Center, Azure AI foundry, Kubernetes services, Virtual machines, App Services, Storage accounts, and More services. The "Resources" section shows a list of recent resources: Expense-Tracker-App (Azure Load Testing, 11 minutes ago) and Expense_Tracker_App (Resource group, 12 minutes ago). The "Navigate" section has links for Subscriptions, Resource groups, All resources, and Dashboard. The "Tools" section includes Microsoft Learn, Azure Monitor, Microsoft Defender for Cloud, and Cost Management. The "Useful links" section provides links to Technical Documentation, Azure Services, Recent Azure Updates, and the Azure mobile app available on the App Store and Google Play.

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 with the search bar set to "devops". The search results are displayed in the center, showing "Services" (Azure Native New Relic Service, Managed DevOps Pools, Azure DevOps organizations, Azure Native Dynatrace Service), "Marketplace" (Static Web App, Rocky Linux 9, Build Agents for Azure DevOps, Azure Native New Relic Service), and "Documentation" (Introduction to DevOps - Training, Course AZ-400T00-A Designing and Implementing Microsoft DevOps solutions - T...). The rest of the page layout remains the same, including the Azure services, Resources, Tools, and Useful links sections.

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
Date: 07/02/2025

AZURE DEVOPS PROJECT SET UP AND USER STORY MANAGEMENT

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

STEPS:

- 1.Create An Azure Account

The screenshot shows the 'Almost done...' step of creating an Azure DevOps organization. It includes fields for the organization name (dev.azure.com/ 2310010650554), location (India), and a CAPTCHA challenge (DKW3) with a text input field below it. A 'Continue' button is at the bottom right.

Azure DevOps
231001065@rajalakshmi.edu.in [Switch directory](#)

Almost done...

Name your Azure DevOps organization *

dev.azure.com/ 2310010650554

We'll host your projects in

India

Enter the characters you see

New Audio

DKW3

Continue

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

Project name *

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.

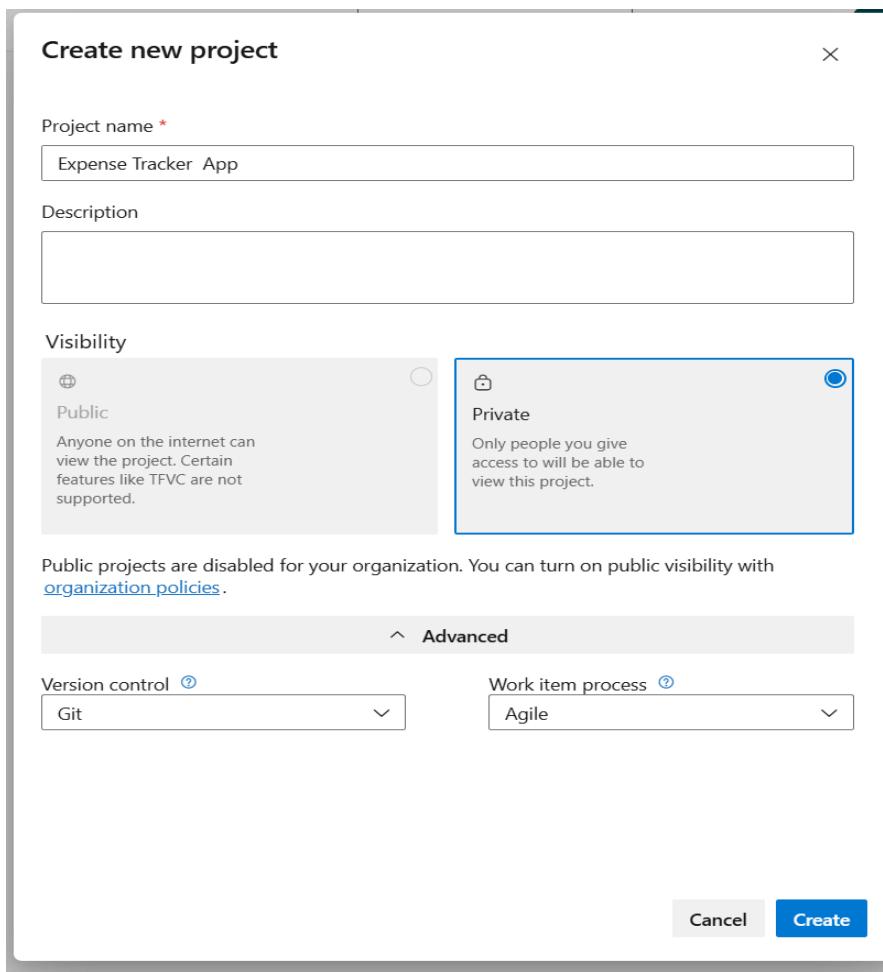
Public projects are disabled for your organization. You can turn on public visibility with [organization policies](#).

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.

The screenshot shows the Azure DevOps Organization Home page. On the left, there is a user profile card for 'Indhujhaneelaranayanan' with a large circular icon containing a white letter 'I'. The profile includes the email '231001065@rajalakshmi.edu.in' and a dropdown menu set to 'Microsoft account'. Below the profile, there is a section for 'Visual Studio Dev Essentials' with a link to 'Use your benefits'. On the right, the 'Azure DevOps Organizations' dashboard is displayed, featuring a list of projects under the heading 'Projects'. The first project listed is 'the expense tracker app'. There is also a 'Actions' section with a link to 'Open in Visual Studio'. A 'Create new organization' button is located at the top right of the dashboard area.

4. Project dashboard

The screenshot shows the Azure DevOps Project Overview page for 'the expense tracker app'. The top navigation bar includes 'Azure DevOps 231001065 / the expense tracker app / Overview / Summary'. The main content area has a title 'the expense tracker app'. On the left, a sidebar menu lists 'Overview', 'Summary' (which is selected), 'Dashboards', 'Wiki', 'Boards', 'Repos', 'Pipelines', 'Test Plans', and 'Artifacts'. At the bottom of the sidebar is a 'Project settings' link. The main content area is divided into several sections: 'About this project' (with sections for 'About this project', 'Project Description', 'Transaction Management', 'Budget and Reports', 'Data Sync and Authentication', and 'Each module is designed for flexibility, maintainability, and ease of use.'), 'Project stats' (showing 'Boards' with 106 work items and 0 work items, and a 'Members' section with three users: HP, JR, and I), and a search bar at the top right.

5. To manage user stories:

- 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.
- 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 this user story.

The screenshot shows the Azure Boards interface for the 'the expense tracker app' project. The left sidebar includes links for Overview, Boards, Work items, Boards, Backlogs, Sprints, Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, and Artifacts. The main area displays the 'Backlog' tab under 'the expense tracker app Team'. A table lists six backlog items, all categorized as 'Epic':

#	Work Item Type	Title	State	Effort	Business Value
1	Epic	> User and Role Management	New		Business Value
2	Epic	> System Configuration	New		Business Value
3	Epic	> Expense Categorization	New		Business Value
4	Epic	> Reimbursement Processing	New		Business Value
5	Epic	> Budget Planning	New		Business Value
6	Epic	> Advanced Reports and Insights	New		Business Value

On the right side, there's a 'Planning' section with a message about dragging and dropping work items into a sprint, followed by a list of sprints: 'sprint_121-05-2025 - 21-06-2025' (Planned Effort: 023 working days), 'Iteration 1' (Planned Effort: 0), 'Iteration 2' (No work scheduled yet), and 'Iteration 3' (No work scheduled yet). A '+ New Sprint' button is also present.

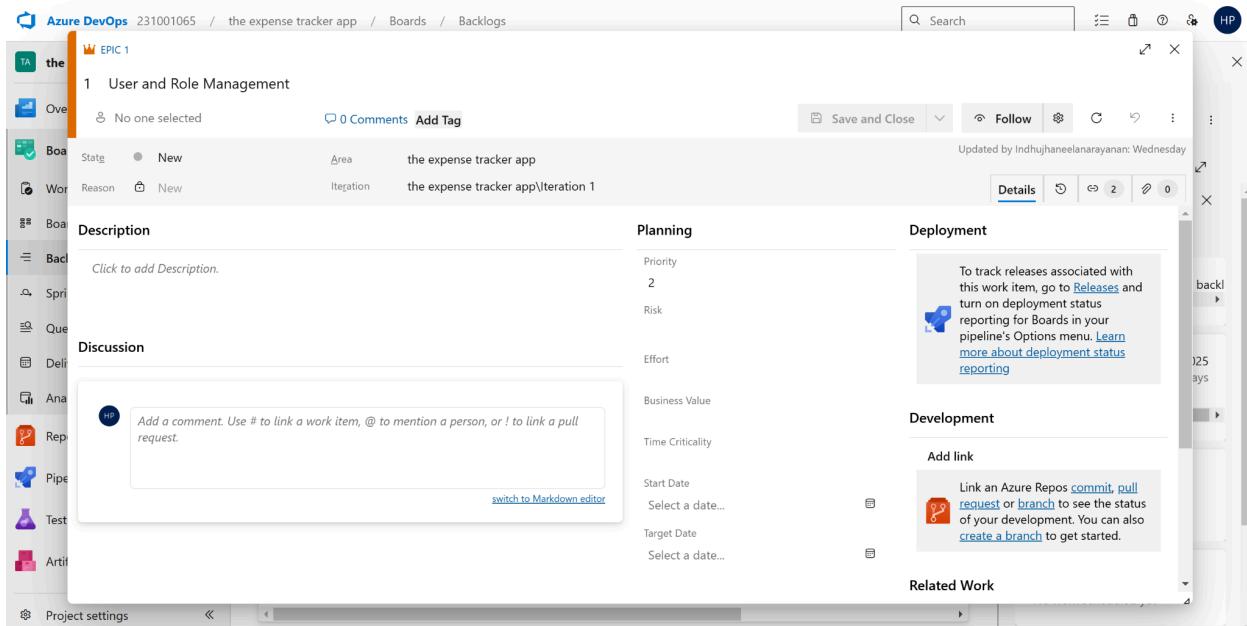
RESULT: Successfully created an Azure DevOps project with user story management and agile workflow setup.

Exp.No: 3
Date: 14/02/2025

SETTING UP EPICS FEATURES AND USER STORIES FOR PROJECT PLANNING

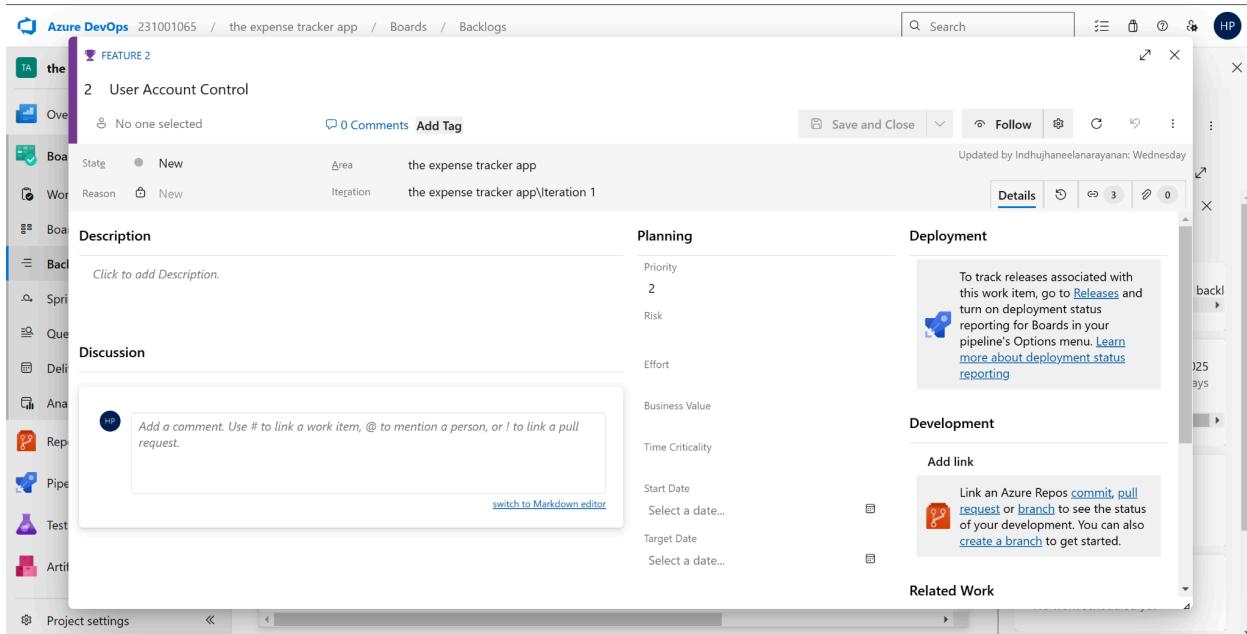
AIM: To learn about how to create epics, user story, features, backlogs for your assigned project.

1.Fill in Epics



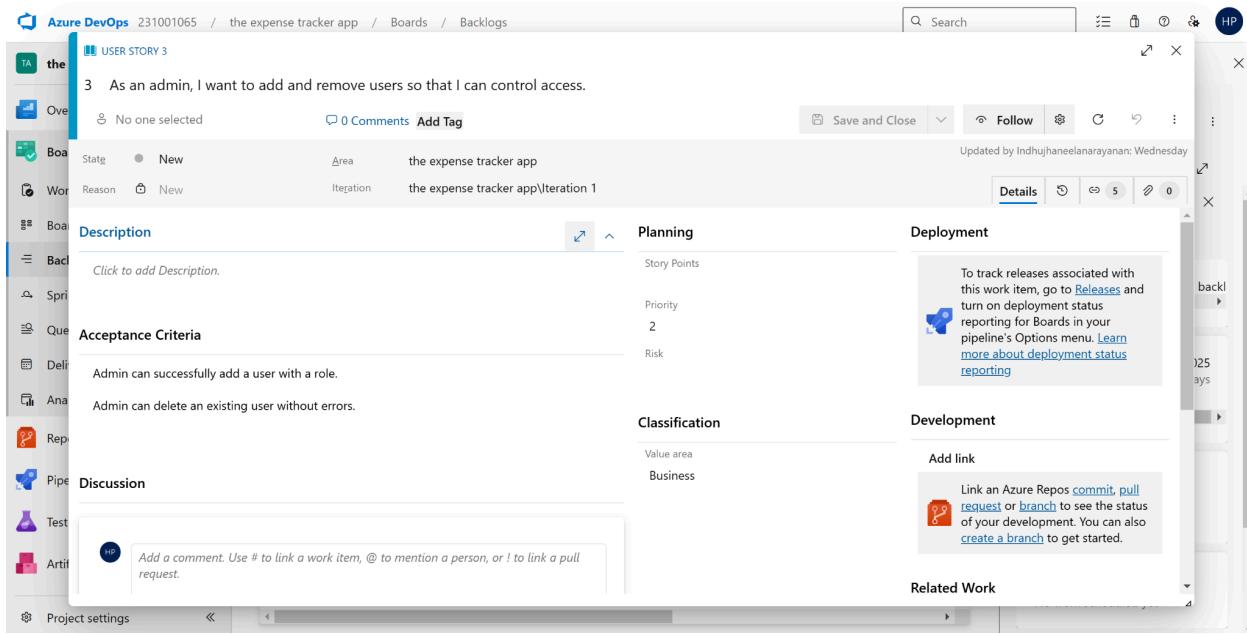
The screenshot shows the Azure DevOps Backlogs interface. A new work item is being created under the 'Backlogs' section. The title of the work item is 'EPIC 1' and its description is 'User and Role Management'. The 'Planning' section includes fields for Priority (set to 2), Risk, Effort, Business Value, and Time Criticality. The 'Deployment' section provides instructions on tracking releases. The 'Development' section includes an 'Add link' button and a note about linking to Azure Repos. The 'Related Work' section is currently empty. The left sidebar lists various project management sections like Boards, Work, Backlogs, Sprints, Queries, Delivers, Analytics, Reports, Pipelines, Tests, and Artifacts. The bottom navigation bar includes 'Project settings' and other standard DevOps navigation links.

2.Fill in Features



Screenshot of the Azure DevOps interface showing the creation of a new Feature. The URL is [https://dev.azure.com/IndhuJhaneelaranayanan/_work/items/edit/231001065](#). The feature title is "2 User Account Control". The "Description" field contains the user story: "As an admin, I want to add and remove users so that I can control access." The "Planning" section shows a priority of 2. The "Deployment" section includes a note about tracking releases via [Releases](#) and [Deployment status reporting](#). The "Development" section provides instructions for linking to Azure Repos [commit](#), [pull request](#), or [branch](#). The "Related Work" section is currently empty.

3.Fill in User Story Details



Screenshot of the Azure DevOps interface showing the creation of a new User Story. The URL is [https://dev.azure.com/IndhuJhaneelaranayanan/_work/items/edit/231001065](#). The user story title is "3 As an admin, I want to add and remove users so that I can control access.". The "Description" field contains the acceptance criteria: "Admin can successfully add a user with a role." and "Admin can delete an existing user without errors.". The "Acceptance Criteria" field also lists these criteria. The "Planning" section shows a priority of 2. The "Classification" section indicates a "Business" value area. The "Deployment" section includes a note about tracking releases via [Releases](#) and [Deployment status reporting](#). The "Development" section provides instructions for linking to Azure Repos [commit](#), [pull request](#), or [branch](#). The "Related Work" section is currently empty.

4.Fill in Task Details

The screenshot shows the Azure DevOps interface for a task titled 'TASK 4'. The task description is '4 Design the user registration and deletion UI.' It is categorized under 'the expense tracker app' and 'Iteration 1'. The task status is 'New'. The 'Planning' section shows a priority of 2. The 'Effort (Hours)' section indicates an original estimate of 2 hours, with remaining time and completed tasks listed. The 'Implementation' section notes 'Integrated in Build'. The 'Deployment' section provides instructions for tracking releases. The 'Development' section includes an 'Add link' button and a note about linking to Azure Repos. The 'Related Work' section lists a comment from an admin. The left sidebar shows navigation options like Overview, Boards, Work items, Backlog, Sprints, Queries, Delivery, Analytics, Repos, Pipeline, Test Plan, and Artifacts. The bottom navigation bar includes Project settings and other links.

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

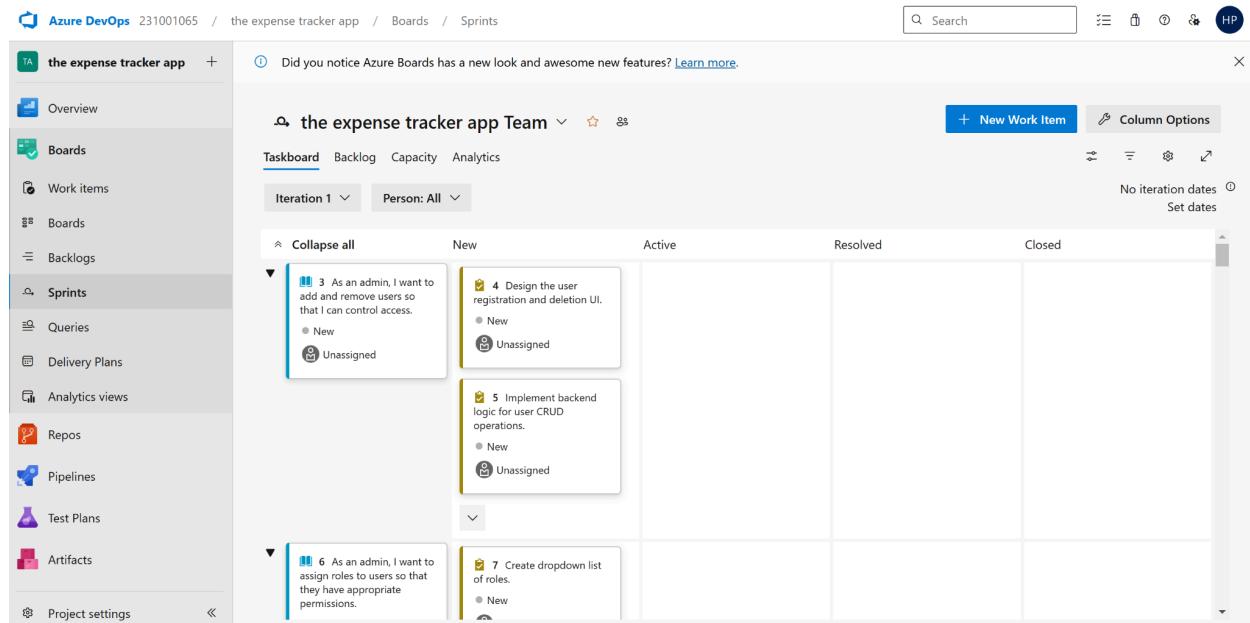
Exp.No: 4
Date: 20/03/2025

SPRINT PLANNING

AIM: To assign user story to specific sprint for the expense tracking Project.

SPRINT PLANNING

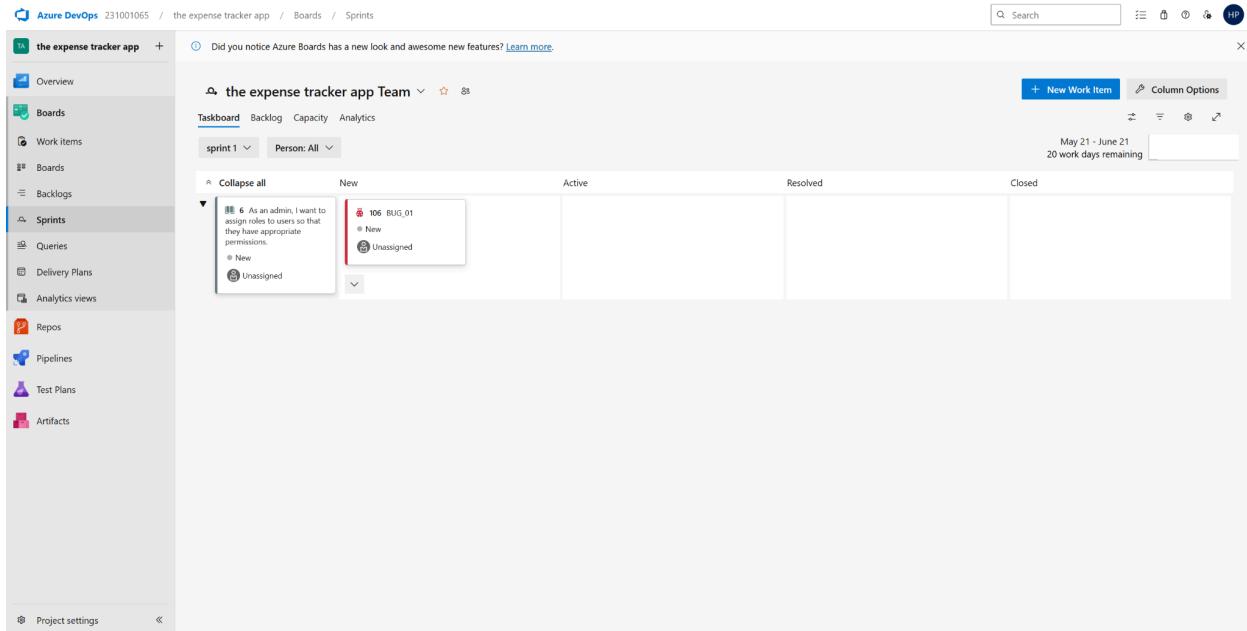
Sprint 1



The screenshot shows the Azure DevOps Boards interface for the project "the expense tracker app". The left sidebar is collapsed, and the main area displays the backlog for "Iteration 1". The backlog is organized into columns: New, Active, Resolved, and Closed. There are four user stories listed:

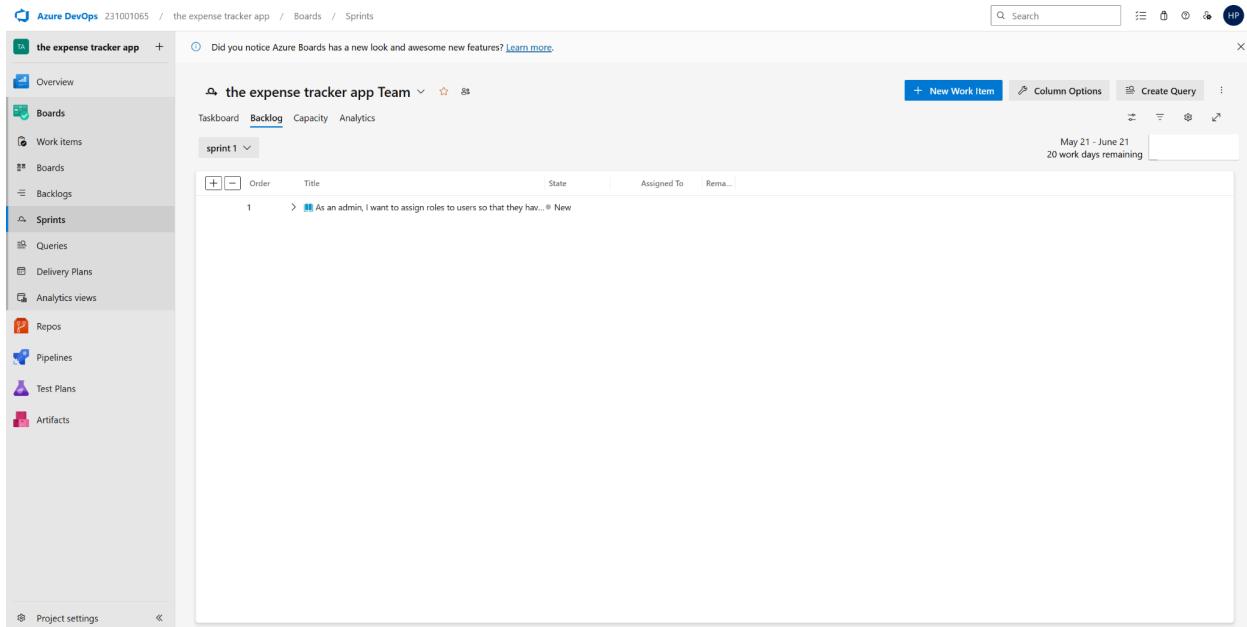
- User Story 3:** As an admin, I want to add and remove users so that I can control access. Status: New, Assigned to Unassigned.
- User Story 4:** Design the user registration and deletion UI. Status: New, Assigned to Unassigned.
- User Story 5:** Implement backend logic for user CRUD operations. Status: New, Assigned to Unassigned.
- User Story 6:** As an admin, I want to assign roles to users so that they have appropriate permissions. Status: New, Assigned to Unassigned.
- User Story 7:** Create dropdown list of roles. Status: New, Assigned to Unassigned.

Sprint 2



A screenshot of the Azure DevOps Boards interface for the "the expense tracker app" project. The left sidebar shows navigation options like Overview, Boards, Work items, Backlogs, Sprints, Queries, Delivery Plans, and Analytics views. The main area displays a Taskboard for "the expense tracker app Team". The board has columns for sprint 1: New, Active, Resolved, and Closed. A tooltip is shown over a card in the New column, indicating it is a bug (BUG_01) created by a new user and is unassigned. The top right shows a summary for May 21 - June 21: 20 work days remaining.

Sprint 3



A screenshot of the Azure DevOps Boards interface for the "the expense tracker app" project. The left sidebar shows navigation options like Overview, Boards, Work items, Backlogs, Sprints, Queries, Delivery Plans, and Analytics views. The main area displays a Taskboard for "the expense tracker app Team". The board has columns for sprint 1: Order, Title, State, Assigned To, and Remarks. A single card is visible in the Order column, showing a bug (BUG_01) titled "As an admin, I want to assign roles to users so that they have appropriate permissions." The status is "New" and it is unassigned. The top right shows a summary for May 21 - June 21: 20 work days remaining.

Sprint 4

The screenshot shows the Azure DevOps interface for the 'the expense tracker app' project. The left sidebar navigation bar is visible, showing options like Overview, Boards, Backlogs, Sprints, Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, and Artifacts. The main area displays the 'Backlog' tab for the 'the expense tracker app Team'. A single work item is listed under the 'sprint 1' backlog:

Order	Title	State	Assigned To	Remainder
1	> As an admin, I want to assign roles to users so that they have... (New)			

At the top right, there are buttons for 'New Work Item', 'Column Options', and 'Create Query'. A status bar at the bottom indicates the sprint duration: 'May 21 - June 21' and '20 work days remaining'.

RESULT: The Sprints are created for the expense tracking Project.

Exp.No: 5
Date: 28/03/2025

POKER ESTIMATION

AIM: Create Poker Estimation for the user stories - expense tracking application Project.

POKER ESTIMATION

The screenshot shows the Azure DevOps interface for creating a User Story. The story is titled "USER STORY 6" and describes the requirement: "As an admin, I want to assign roles to users so that they have appropriate permissions." The story is set to "New" status and belongs to the "the expense tracker app" area and iteration. In the "Planning" section, the "Story Points" are listed as 2. The "Development" section includes a note about tracking releases via Azure Pipelines and a link to Azure Repos for development status. The "Classification" section indicates the value area is "Business". The "Discussion" section is currently empty. The bottom of the screen shows the standard Azure DevOps navigation bar with links like "Project settings" and "Help".

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

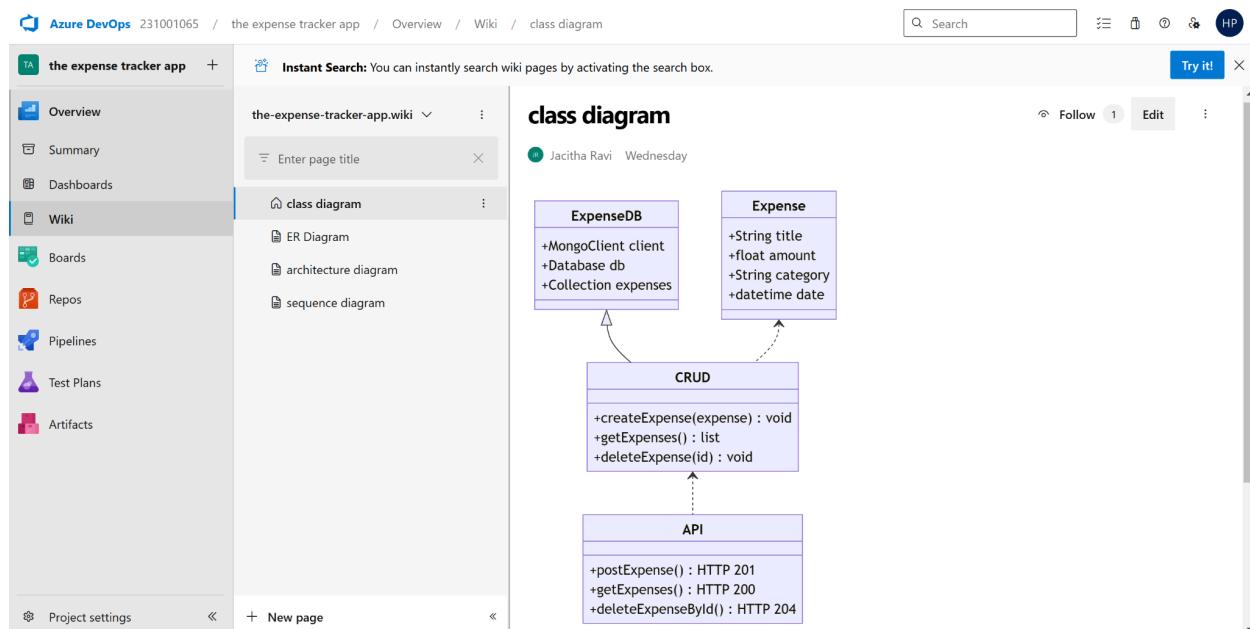
Exp.No: 6

DESIGNING CLASS AND SEQUENCE DIAGRAMS FOR PROJECT ARCHITECTURE

Date: 04/04/2025

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

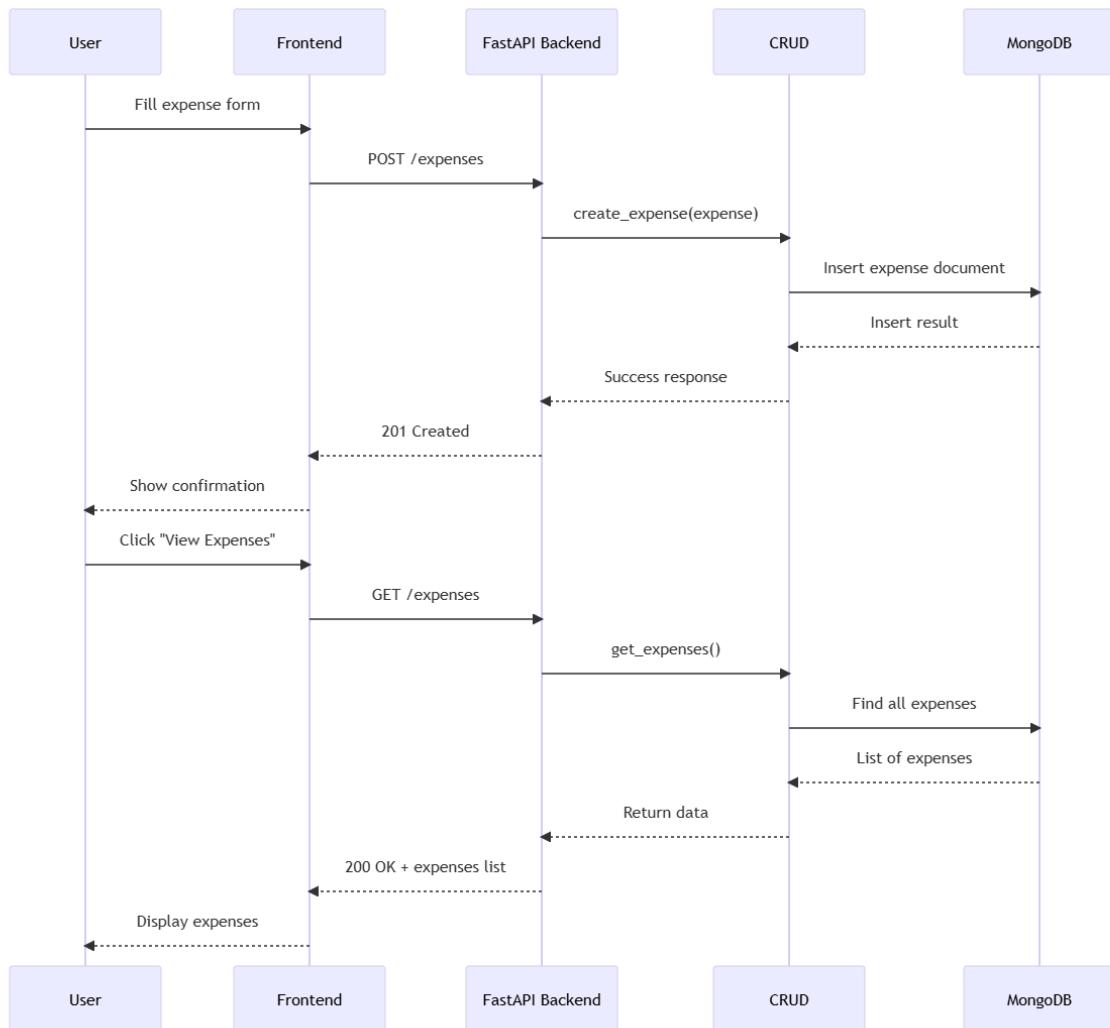
6A. CLASS DIAGRAM



6B. SEQUENCE DIAGRAM

sequence diagram

Jacitha Ravi Wednesday



RESULT: The Class Diagram and Sequence Diagram is designed Successfully for the expense tracking application

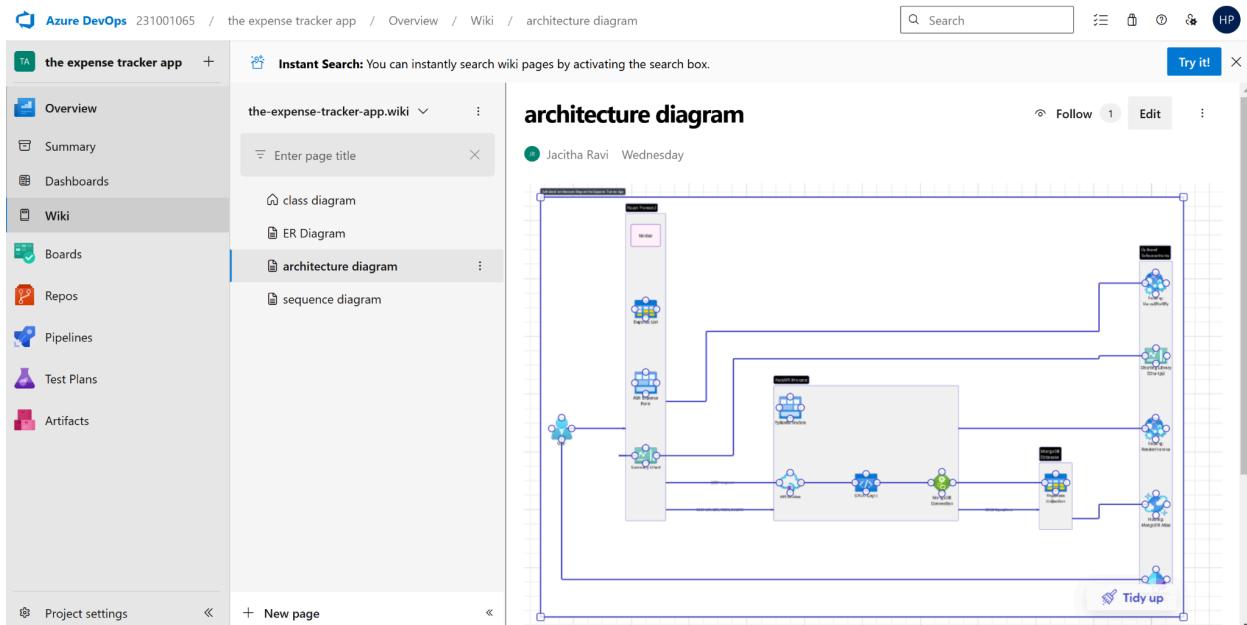
Exp.No: 7

Date: 16/04/2025

DESIGNING ARCHITECTURAL AND ER DIAGRAMS FOR PROJECT STRUCTURE

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

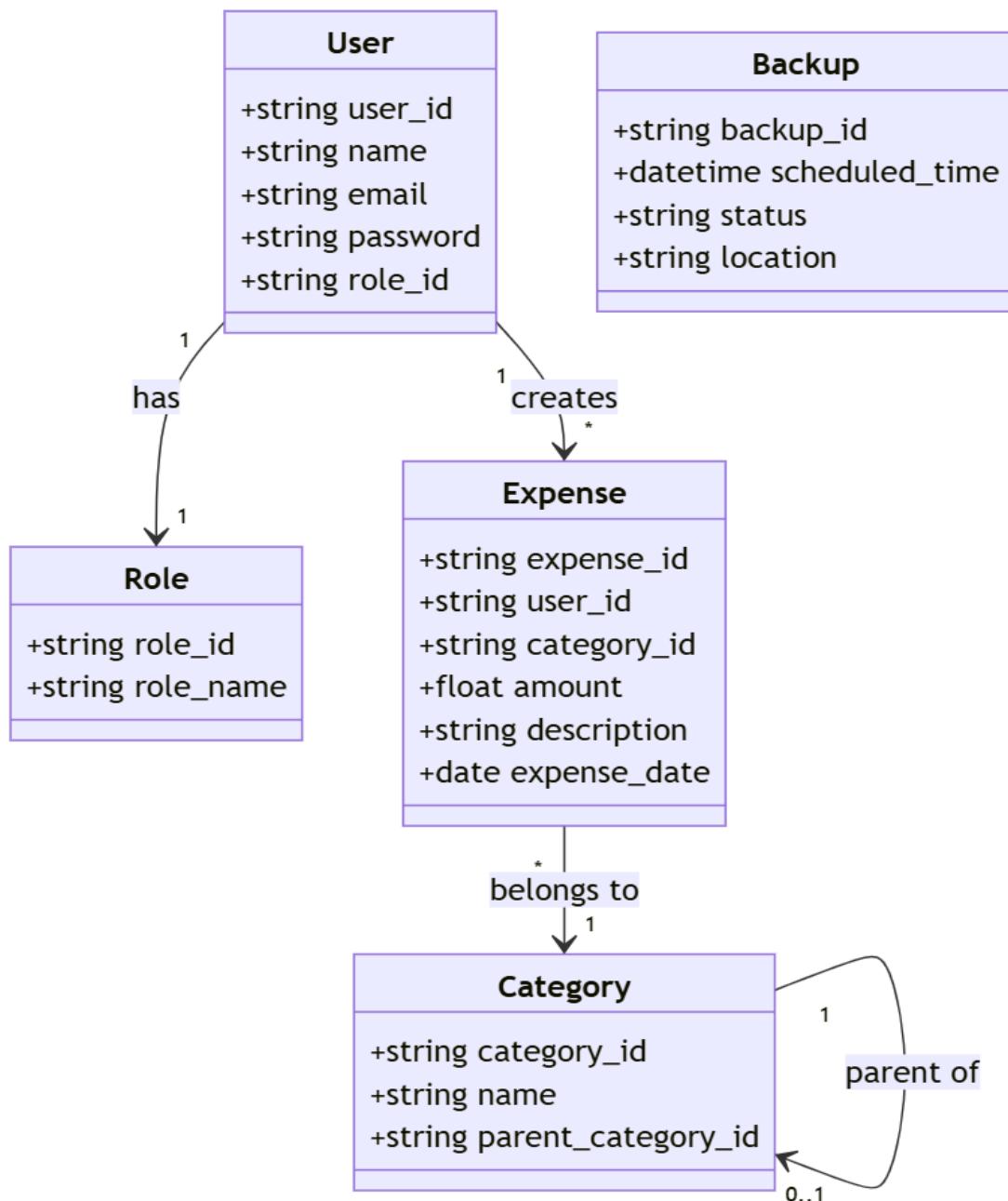
7A. ARCHITECTURAL DIAGRAM



7B. ER DIAGRAM

ER Diagram

Indhujhaneelaranarayanan Friday



RESULT: The Architecture Diagram and ER Diagram is designed Successfully for the expense tracking application

Exp.No: 8	TESTING-TEST PLANS AND TEST CASES
Date: 18/04/2025	

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** (Login, Forgot Password, MFA)
- **Internal & External Fund Transfers** (Transfer to own or other accounts)
- **Mobile Recharge and Bill Payments**
- **Debit/Credit Card Management** (PIN generation, block/unblock, view card info)
- **Loan and Insurance Services** (Apply, view schedules, premium tracking)
- **Investment Options** (Mutual Funds, Fixed Deposits)
- **Account Dashboard** (Balance overview, recent transactions)

2. Define User Interactions

Each test case reflects realistic user actions:

- Logging in securely
- Transferring funds to own or others' accounts

- Paying bills or recharging mobiles
- Blocking cards when lost
- Applying for loans or insurance

3. Design Happy Path Test Cases

- Focused on successful flows where inputs are valid and systems behave as expected.
- Examples:
 - User logs in with valid credentials
 - Transfers funds successfully
 - Views loan schedule or maturity details

4. Design Error Path Test Cases

- Focused on handling invalid, missing, or unexpected inputs.
- Examples:
 - Login fails due to incorrect password
 - Fund transfer fails due to insufficient balance
 - Card unblock denied without authentication

5. Break Down Steps and Expected Results

Each test case includes:

- Clear step-by-step actions
- Specific expected results for each step
This ensures reproducibility and easy automation later.

6. Use Clear Naming and IDs

- Example:
 - TC01 – Login with Valid Credentials
 - TC05 – Fund Transfer Blocked (Insufficient Balance)
 - TC11 – Credit Card Bill Payment Successful
- Helps trace test cases to user stories and features in Azure DevOps

7. Separate Test Suites

Organize test cases based on functional modules:

- TS01 – User Authentication
- TS02 – Fund Transfers & Recharges
- TS03 – Cards & Loans
- TS04 – Investments & Insurance
- TS05 – Account Management & Security

1.New test plan

New Test Plan

Name *

Area Path *

Iteration *

Create **Cancel**

2. Test suite

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 'Expense Tracker T...' test plan is open. A message at the top says: 'Windows Server 2019 support as Microsoft Hosted Images is being deprecated. Customers using Windows Server 2019 images in their pipelines should switch to Windows Server 2022 by 30th June 2025 to avoid disruption. For more information like, the Brownout Schedule and how to identify the impacted pipelines, please follow the [blog](#).'. Below this, it shows a run history from May 21 to Jun 21, with 100% run, 62% passed, and a link to 'View report'. The 'Test Suites' section lists several suites, with '10 : As an admin, I want to ...' selected. This suite has 2 items: '3 : As an admin, I want to ...' and '10 : As an admin, I want to ...'. The '10 : As an admin, I want to ...' item is expanded, showing 2 test points: 'Admin successfully views activity logs for a specific user' (Status: Passed, Order: 1, Test Case Id: 101) and 'Display appropriate message when no logs are found for a selected date range' (Status: Failed, Order: 2, Test Case Id: 102).

3. Test case

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

Online Banking System– Test Plans

User Stories – Banking Application

- **US199:** As an admin, I want to remove and add users, so that I can control access.
- **US196:** As a admin, I want to assign roles to users so that they have appropriate permissions.
- **US198:** As a admin, I want to view user activity logs to monitor usage.
- **US201:** As a user, I want schedule automatic data backups.

TS01 – User Authentication & Role Management

TC01 – Login with Valid Credentials

- **Test Type:** Happy Path

- **Description:** User logs in using correct email and password
- **Steps:**

1. Navigate to login page
2. Enter valid email and password
3. Click "Login"

- **Expected Result:** User is redirected to dashboard

- **Priority:** High

TC02 – Login Fails with Incorrect Password

- **Test Type:** Error Path

- **Description:** Login attempt with incorrect password

- **Steps:**

1. Enter valid email
2. Enter wrong password
3. Click "Login"

- **Expected Result:** Error message "Invalid credentials" is shown

- **Priority:** High

TC03 – Assign Role to User Successfully

- **Test Type:** Happy Path

- **Description:** Admin assigns 'Accountant' role to a user

- **Steps:**

1. Login as admin

2. Go to User Management
 3. Select user and assign 'Accountant' role
- **Expected Result:** Confirmation message “Role assigned successfully”
 - **Priority:** High

TC04 – Role Assignment Fails (Non-existent User)

- **Test Type:** Error Path
 - **Description:** Try assigning a role to a user not in the system
 - **Steps:**
 1. Enter an invalid email in Role Assignment
 2. Try to assign a role
- **Expected Result:** Error message “User not found”
 - **Priority:** Medium

TS02 – User Activity Monitoring

TC05 – View Activity Logs for Existing User

- **Test Type:** Happy Path
- **Description:** Admin views logs of user activity
- **Steps:**

1. Login as admin
 2. Navigate to “Activity Monitoring”
 3. Select user and date range
- **Expected Result:** Logs are displayed with timestamp and actions
 - **Priority:** High

TC06 – No Logs Found for Date Range

- **Test Type:** Error Path
 - **Description:** No activity in selected date range
 - **Steps:**
 1. Select future date range for user logs
- **Expected Result:** “No logs found for selected date range” message
 - **Priority:** Medium

TS03 – Backup & Recovery

TC07 – Schedule Automatic Backup Successfully

- **Test Type:** Happy Path
- **Description:** Admin schedules backup for 2:00 AM daily
- **Steps:**

1. Go to Backup Settings
 2. Set frequency and time
 3. Click Save
- **Expected Result:** “Backup scheduled successfully” confirmation
 - **Priority:** High

TC08 – Backup Fails Due to Invalid Directory

- **Test Type:** Error Path
 - **Description:** Admin sets inaccessible folder as backup path
 - **Steps:**
 1. Set invalid path
 2. Click Save
- **Expected Result:** “Invalid directory path” error
 - **Priority:** Medium

TS04 – Expense & Category Management

TC09 – Add New Expense Successfully

- **Test Type:** Happy Path
- **Description:** User adds an expense to "Food" category

- **Steps:**
 1. Go to Add Expense
 2. Fill in details (amount, date, category)
 3. Submit
- **Expected Result:** “Expense added” message and record appears
- **Priority:** High

TC10 – Add Expense Fails (Missing Amount)

- **Test Type:** Error Path
- **Description:** User submits form without amount
- **Steps:**
 1. Leave amount field empty
 2. Submit
- **Expected Result:** “Amount is required” validation message
- **Priority:** High

Test Cases

TEST CASE 202*

202 Successful Pin Generation

AM Abinaya Manivannan [0 Comments](#) [Add Tag](#)

State: Design Area: OnlineBankingSystem Updated by Abinaya Manivannan: 24m ago
Reason: New Iteration: OnlineBankingSystem\sprint 1

Steps

Steps	Action	Expected result	Attach
1.	Log in to the system and navigate to the "Generate Debit Card PIN" section.	The user is successfully logged in, and the "Generate Debit Card PIN" page or section is displayed.	
2.	Enter the required card details (e.g., card number, expiry date), a new 4-digit PIN, and re-enter the same PIN for confirmation.	The system accepts the card details and both PIN entries without immediate error. The new and confirmation PIN entries should match.	
3.	Click on "Generate PIN" and observe the system feedback.	The system initiates PIN generation and displays a success message: "Debit card PIN generated successfully."	

Click or type here to add a step

Parameter values

[Save and Close](#) [Follow](#) [C](#) [G](#) [...](#)

Custom

Test Type: Happy Path

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.

NEW TEST CASE *

Fund Transfer

Aarthi A P 0 Comments Add Tag

State: Design Area: OnlineBankingSystem
Reason: New Iteration: OnlineBankingSystem\sprint 1

Steps

At

Steps	Action	Expected result
1.	Log in and go to the "Fund Transfer" section	Fund Transfer page is displayed
2.	Select source and destination accounts, enter valid amount	Amount is accepted; no validation error
3.	Click "Transfer" and confirm the transaction	Success message is shown and balances are updated

Click or type here to add a step

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](#)

Status

Priority: 2

NEW TEST CASE *

Fund Transfer – Insufficient Balance

Aarthi A P 0 Comments Add Tag Save and Close

State	Design	Area	OnlineBankingSystem
Reason	New	Iteration	OnlineBankingSystem\sprint 1

Steps

Click or type here to add a step

Steps	Action	Expected result	At
1.	Log in and go to the "Fund Transfer" section	Fund Transfer page is displayed	
2.	Select source account with low balance, enter transfer amount greater than available balance	Validation error or warning message is shown (e.g., "Insufficient balance")	
3.	Click "Transfer" and try to proceed	Transaction is blocked, no funds are deducted	

Custom
Test Type: Error Path

Deployment

Development

Related Work

Status
Priority: 2
Automation status: Not Automated

Gleek
9|eek_

Parameter values

TEST CASE 204*

204 Fund Transfer

Aarthi A P 0 Comments Add Tag Save and Close Follow Updated by Aarthi A P 5m ago

State	Design	Area	OnlineBankingSystem
Reason	New	Iteration	OnlineBankingSystem\sprint 1

Steps

Click or type here to add a step

Steps	Action	Expected result	At
1.	Log in and go to the "Fund Transfer" section	Fund Transfer page is displayed	
2.	Select source and destination accounts, enter valid amount	Amount is accepted; no validation error	
3.	Click "Transfer" and confirm the transaction	Success message is shown and balances are updated	

Custom
Test Type: Happy Path

Deployment

Development

Related Work

Status
Priority: 2
Automation status: Not Automated

Gleek
9|eek_

Parameter values

21162310010_

CS23432

NEW TEST CASE *

PIN mismatch during generation

Abinaya Manivannan 0 Comments Add Tag

Save and Close

State: Design Area: OnlineBankingSystem
Reason: New Iteration: OnlineBankingSystem\sprint 1

Steps Summary Associated Automation

Steps

Steps	Action	Expected result	Attach
1.	Log in to the system and navigate to the "Generate Debit Card PIN" section.	The user is successfully logged in, and the "Generate Debit Card PIN" page or section is displayed.	
2.	Enter the required card details, a new 4-digit PIN, and re-enter a <i>different</i> 4-digit PIN for confirmation.	The system accepts the card details and both PIN entries without immediate error. The new PIN entered in the first instance is different from the confirmation PIN entered in the second instance.	
3.	Click on "Generate PIN" and observe the system feedback.	An error message is displayed to the user indicating that the PIN do not match and the debit card PIN is not generated.	

Parameter values

Custom

Test Type
Error Path

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.

4. Installation of test

Test and feedback

chrome web store

Search extensions and themes

Discover Extensions Themes

Test & Feedback

Featured 4.2 ★ (175 ratings) Share

Extension Workflow & Planning 200,000 users

Add to Chrome

Capture & Annotate

CAPTURE

1. Screenshots
2. Notes
3. Screen recordings
4. Timeline action log
5. Page load data

New bug

incorrect points price

Incl. New action log Page load data

File a bug

Save

Overview

Showing it as an extension

The screenshot shows the Azure DevOps interface for a project named "the expense tracker app". The left sidebar is open, showing options like Overview, Boards, Repos, Pipelines, Test Plans, Test plans, Progress report, Parameters, Configurations, and Runs. The "Test plans" section is currently selected. The main area displays a "Expense Tracker T..." test plan with a status bar indicating "May 21 - Jun 21", "100% run, 62% passed", and a "View report" link. A tooltip message at the top right states: "Windows Server 2019 support as Microsoft Hosted Images is being deprecated. Customers using Windows Server 2019 30th June 2025 to avoid disruption. For more information like, the Brownout Schedule and how to identify the impacted". Below the status bar, there's a "Test Suites" section with a search bar and a list of suites: "Expense Tracker Test Plan", "3 : As an admin, I want to a...", "6 : As an admin, I want to as...", "10 : As an admin, I want to ...", and "25 : As an admin, I want to ...". The "10 : As an admin, I want to view user activity logs to monitor" suite is expanded, showing its details. To the right, the "Execute" tab is selected, displaying a "Test Points (2 items)" table:

Title	Outcome	Order	Test Case Id
Admin successfully views activity logs for a specific user	Passed	1	101
Display appropriate message when no logs are found for a selected date range	Failed	2	102

A context menu is open in the top right corner, listing "Extensions" (React Developer Tools, Test & Feedback), "Manage extensions", and "Get extensions for Microsoft Edge". Other icons in the top right include a lock, a person icon, and a gear icon.

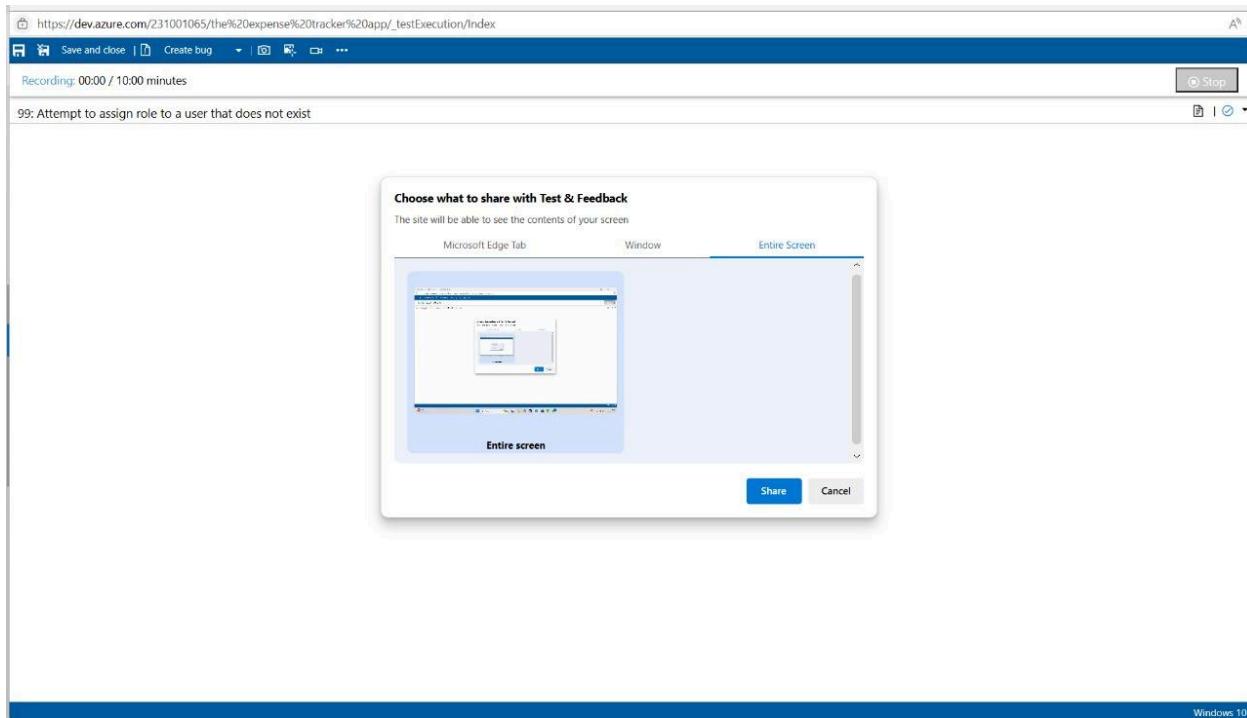
5. Running the test cases

The screenshot shows the Azure DevOps interface for the 'the expense tracker app' project. The left sidebar is the navigation menu. The 'Test Plans' section is selected. In the main area, a 'Test Suites' list is displayed under the 'Expense Tracker Test Plan'. One item, '10 : As an admin, I want to view user activity logs to monitor usage. (ID: 100)', is highlighted with a blue selection bar. To the right, a detailed view of this test case is shown, including its title, status (Passed), and ID (101). A table lists two test points: 'Admin successfully views activity logs for a specific user' (Passed) and 'Display appropriate message when no logs are found for a selected date range' (Failed).

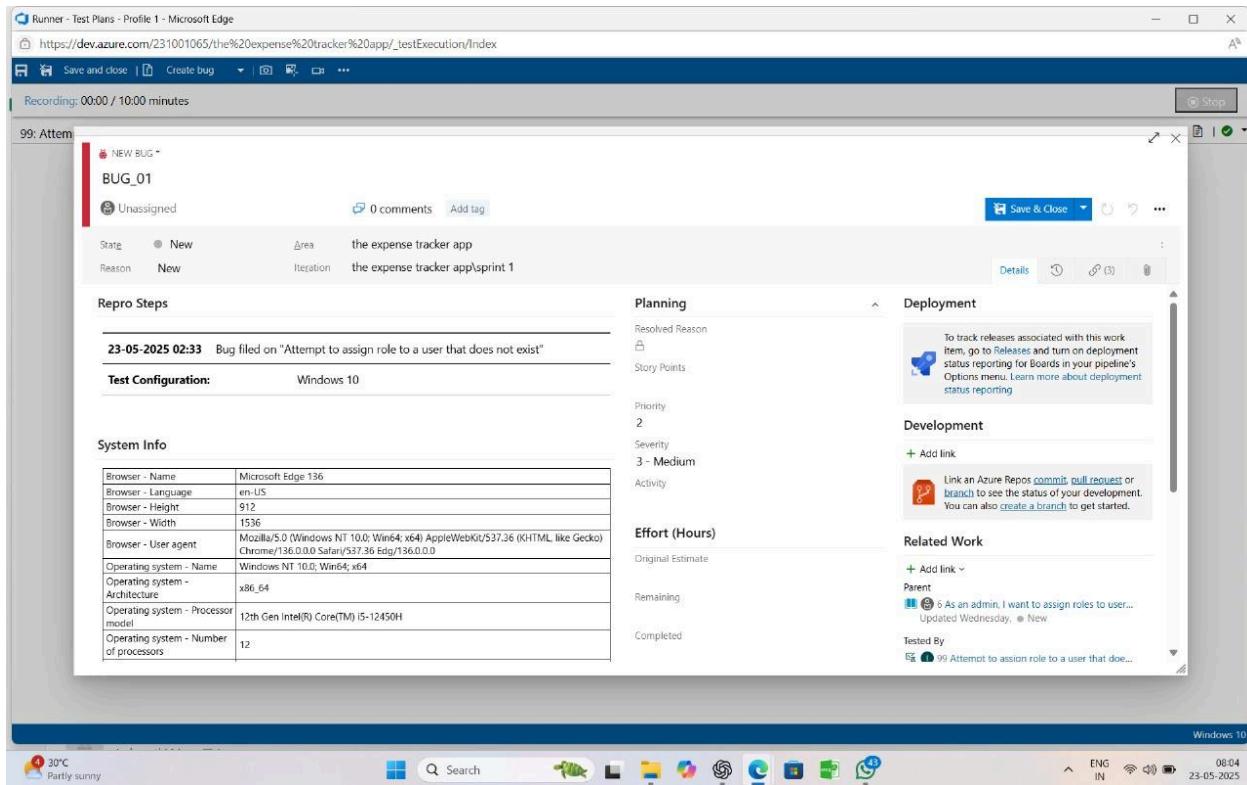
The screenshot shows the Azure DevOps interface for the 'the expense tracker app' project. The left sidebar is the navigation menu. The 'Runs' section is selected. In the main area, the 'Recent test runs' section is visible, showing a list of six recent runs. The first run, '25 : As an admin, I want to schedule automatic data backups. (Manual)', is highlighted with a blue selection bar. The table includes columns for State, Run ID, Title, Completed Date, and Build Number.

State	Run Id.	Title	Completed Date	Build Number
Needs investigation	7	25 : As an admin, I want to schedule automatic data backups. (Manual)	23-05-2025 02:40:46	
Needs investigation	6	10 : As an admin, I want to view user activity logs to monitor usage. (Manual)	23-05-2025 02:40:21	
Needs investigation	5	3 : As an admin, I want to add and remove users so that I can control access...	23-05-2025 02:39:52	
Needs investigation	4	3 : As an admin, I want to add and remove users so that I can control access...	23-05-2025 02:39:35	
Completed	3	6 : As an admin, I want to assign roles to users so that they have appropriate...	23-05-2025 02:35:17	
Completed	2	6 : As an admin, I want to assign roles to users so that they have appropriate...	23-05-2025 02:32:07	

6.Recording the test case



7.Creating the bug



8. Test case results

The screenshot shows the Azure DevOps interface for a test plan. On the left, the navigation bar includes 'OnlineBankingSystem', 'Overview', 'Boards', 'Repos', 'Pipelines', 'Test Plans' (selected), 'Test plans' (under 'Test Plans'), 'Progress report', 'Parameters', 'Configurations', 'Runs', 'Artifacts', and 'Project settings'. The main area displays a test suite named 'TS03 : As a user, I want to generate' with a status of 'Current'. It lists two test points: 'Successful Pin Generation' (Passed) and 'PIN mismatch during generation' (Failed). A table below shows the execution history for the 'Successful Pin Generation' test point, with four entries: a recent pass, a recent fail, and two older passes.

Outcome	TimeSta...	Configuration	Run by	Tester	Test
Passed	Just now	Windows 10	Abinaya Maniv...	Abinaya Maniv...	Online
Failed	Just now	Windows 10	Abinaya Maniv...	Abinaya Maniv...	Online
Passed	21m ago	Windows 10	Abinaya Maniv...	Abinaya Maniv...	Online
Passed	26m ago	Windows 10	Abinaya Maniv...	Abinaya Maniv...	Online

9. Test report summary

The screenshot shows the Azure DevOps interface for work items. The left sidebar includes 'the expense tracker app' (selected), 'Overview', 'Boards', 'Work items' (selected), 'Boards', 'Backlogs', 'Sprints', 'Queries', 'Delivery Plans', 'Analytics views', 'Repos', 'Pipelines', 'Test Plans', 'Artifacts', and 'Project settings'. The main area shows a bug report titled 'BUG_01' (ID 106). The 'Repro Steps' section contains the text '23-05-2025 02:33 Bug filed on "Attempt to assign role to a user that does not exist"'. The 'Test Configuration:' field is set to 'Windows 10'. The 'System Info' table provides details about the test environment, including browser (Microsoft Edge 136), language (en-US), height (912), width (1536), 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 Edg/136.0.0.0), operating system (Windows NT 10.0; Win64; x64), architecture (x86_64), processor model (12th Gen Intel(R) Core(TM) i5-12450H), and number of processors (12). The 'Planning' section shows a resolved reason (empty), story points (empty), priority (2), and severity (3 - Medium). The 'Deployment' section includes a note about tracking releases. The 'Development' section has an 'Add link' button. The 'Effort (Hours)' section shows original estimate (empty), remaining (empty), and completed (empty). The 'Related Work' section also has an 'Add link' button.

- Assigning bug to the developer and changing state

The screenshot shows the Azure DevOps interface for the 'OnlineBankingSystem' project. The left sidebar navigation bar is visible, with 'Work items' selected. The main content area displays a work item titled 'BUG 213 BUG_NO_1'. The work item details include:

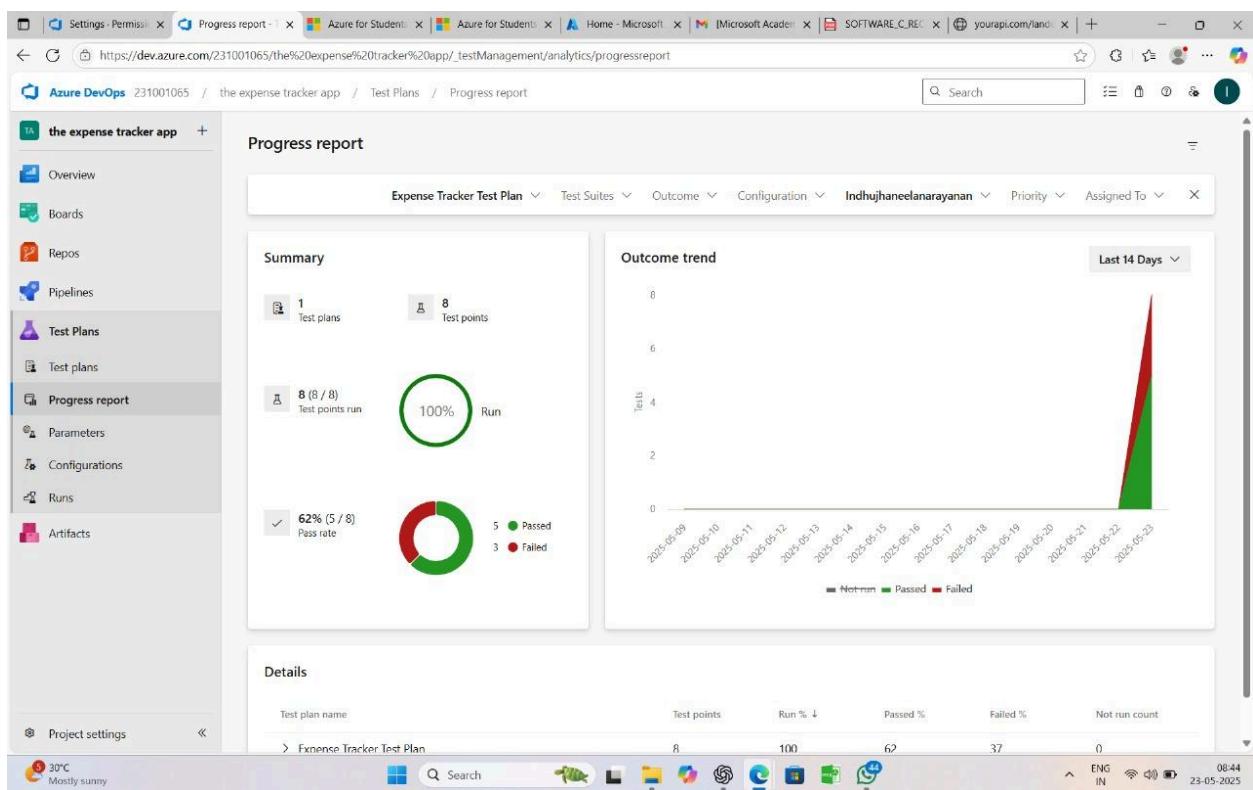
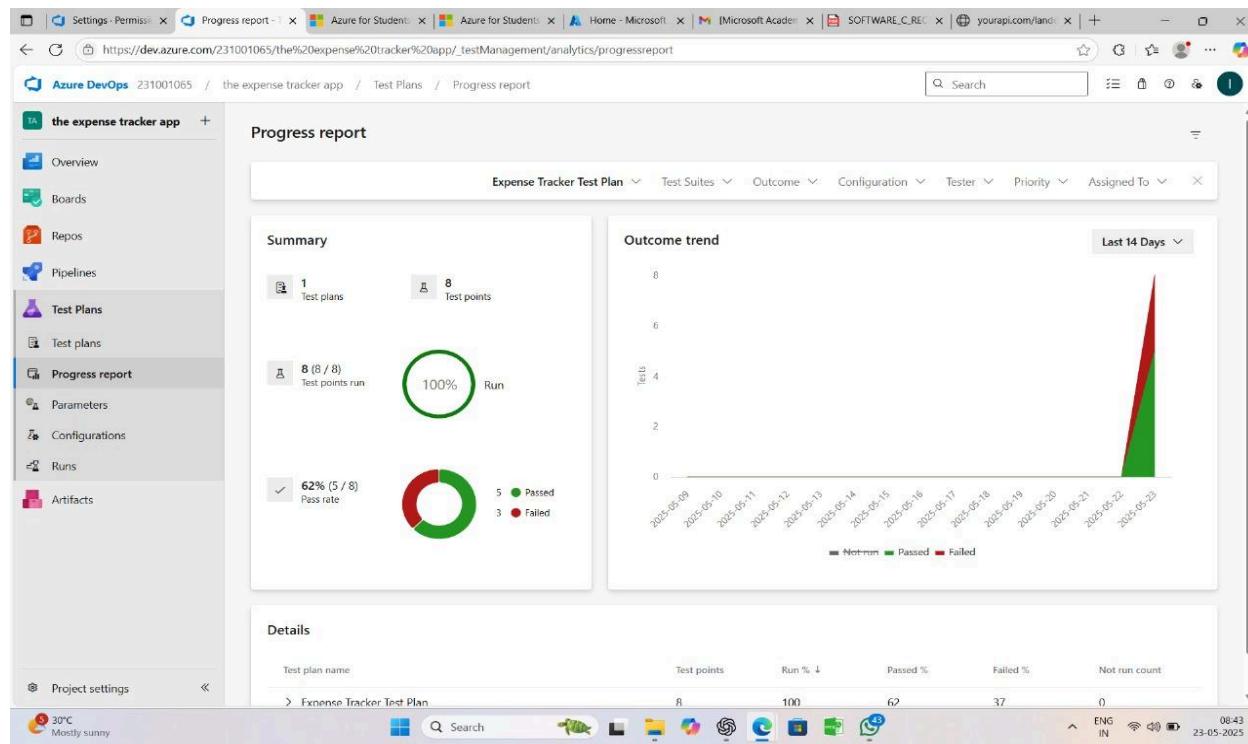
- Title:** BUG 213 BUG_NO_1
- Assignee:** Aarthi A P
- Comments:** 0 Comments
- Add Tag:** Add Tag
- State:** New
- Reason:** New
- Area:** OnlineBankingSystem
- Iteration:** OnlineBankingSystem\sprint 1
- Updated by:** Aarthi A P: May 5

The 'Repro Steps' section contains three steps:

- Step no.**: 1. **Result**: Passed **Title**: Log in and go to the "Fund Transfer" section **Expected Result**: Fund Transfer page is displayed
- Step no.**: 2. **Result**: Failed **Title**: Select source account with low balance, enter transfer amount greater than available balance **Expected Result**: Validation error or warning message is shown (e.g., "Insufficient balance")
- Step no.**: 3. **Result**: Failed **Title**: Click "Transfer" and try to proceed **Expected Result**: Fund transfer

The right side of the page includes sections for 'Planning' (Resolved Reason, Story Points, Priority, Severity, Activity), 'Deployment' (Release status), 'Development' (Add link, Link to Azure Repos commit, pull request, branch), and 'Related Work' (Add link, Parent).

10. Progress report



11.Changing the test template

The screenshot shows the Azure DevOps Settings page for organization 231001065. The left sidebar is titled 'Organization Settings' and includes sections for General, Security, Boards, Pipelines, and Agent pools. The 'Process' section is currently selected. The main area is titled 'All processes' and lists several process templates:

Name	Description	Team projects
Basic (default)	This template is flexible for any process and great for teams getting started with A...	0
Agile	This template is flexible and will work great for most teams using Agile planning m...	0
231001065 Agile		1
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 impro...	0

12.View the new test case template

The screenshot shows the 'Add a field to Test Case' dialog. On the left, there are tabs for 'Definition', 'Options', and 'Layout'. The 'Definition' tab is active, showing the instruction: 'Add a field to store custom, queryable data about your work items.' There are two options: 'Use an existing field' (radio button is unselected) and 'Create a field' (radio button is selected). For 'Create a field', the 'Name' field contains 'Test Type', the 'Type' field is set to 'Text (single line)', and the 'Description' field contains the placeholder 'Optionally provide a description for the field'. At the bottom right are 'Add field' and 'Cancel' buttons.

The screenshot shows the Azure DevOps interface for managing test cases. The left sidebar is titled "Organization Settings" and includes sections for General, Security, Boards, and Pipelines. The main area is titled "All processes > 231001065 Agile > Test Case". It features a toolbar with "New field", "New group", "New page", "Get extensions", and a refresh icon. Below the toolbar are tabs for "Steps", "Summary", and "Associated Aut...". The "Steps" tab is active, showing a text input field labeled "Text (multiple lines)". To the right, there are several sections: "Recent test results" (with a note about recent test case results), "Deployment" (with a note about deployments), "Development" (with a note about links), "Related Work" (with a note about links), and "Status" (with fields for "Priority" and "Automation status"). A vertical scrollbar is visible on the right side of the main content area.

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 PERFORMANCE TESTING
Date: 25/04/2025	

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

LOAD TESTING

Steps to Create an Azure Load Testing Resource:

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

1. Sign in to Azure Portal
Go to <https://portal.azure.com> and log in.
2. Create the Resource
 - o Go to *Create a resource* → Search for “Azure Load Testing”.
 - 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.

Microsoft Azure

Home > Create a resource > Marketplace > Azure Load Testing >

Create a load testing resource

Basics Encryption Tags Review + create

Azure Load Testing is a fully managed load-testing service that makes it easy to generate high-scale load and identify performance bottlenecks. [Learn more](#)

Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription: Azure for Students
Resource group: (New) BankProject

Instance details
Name: MYBANKAPP
Region: East Asia

Previous Next Review + create

Microsoft Azure

Home > Create a resource > Marketplace > Azure Load Testing >

Create a load testing resource

Validation passed.

Basics Encryption Tags Review + create

Basics
Subscription: Azure for Students
Resource group: BankProject
Name: MYBANKAPP
Region: East Asia

Encryption
Encryption type: MMK

Microsoft Azure

Microsoft.CloudNativeTesting1746461401491 | Overview

Deployment

Search Delete Cancel Redeploy Download Refresh

Overview

Your deployment is complete

Deployment name: Microsoft.CloudNativeTesting1746461401491
Subscription: Azure for Students
Resource group: BankProject

Deployment details

Start time: 5/5/2025, 9:40:23 PM
Correlation ID: ab036e0a-0f70-4d67-9550-f59c511ecd62

Next steps

Go to resource

Give feedback
Tell us about your experience with deployment

Cost management
Get notified to stay within your budget and prevent unexpected charges on your bill.
[Set up cost alerts >](#)

Microsoft Defender for Cloud
Secure your apps and infrastructure
[Go to Microsoft Defender for Cloud >](#)

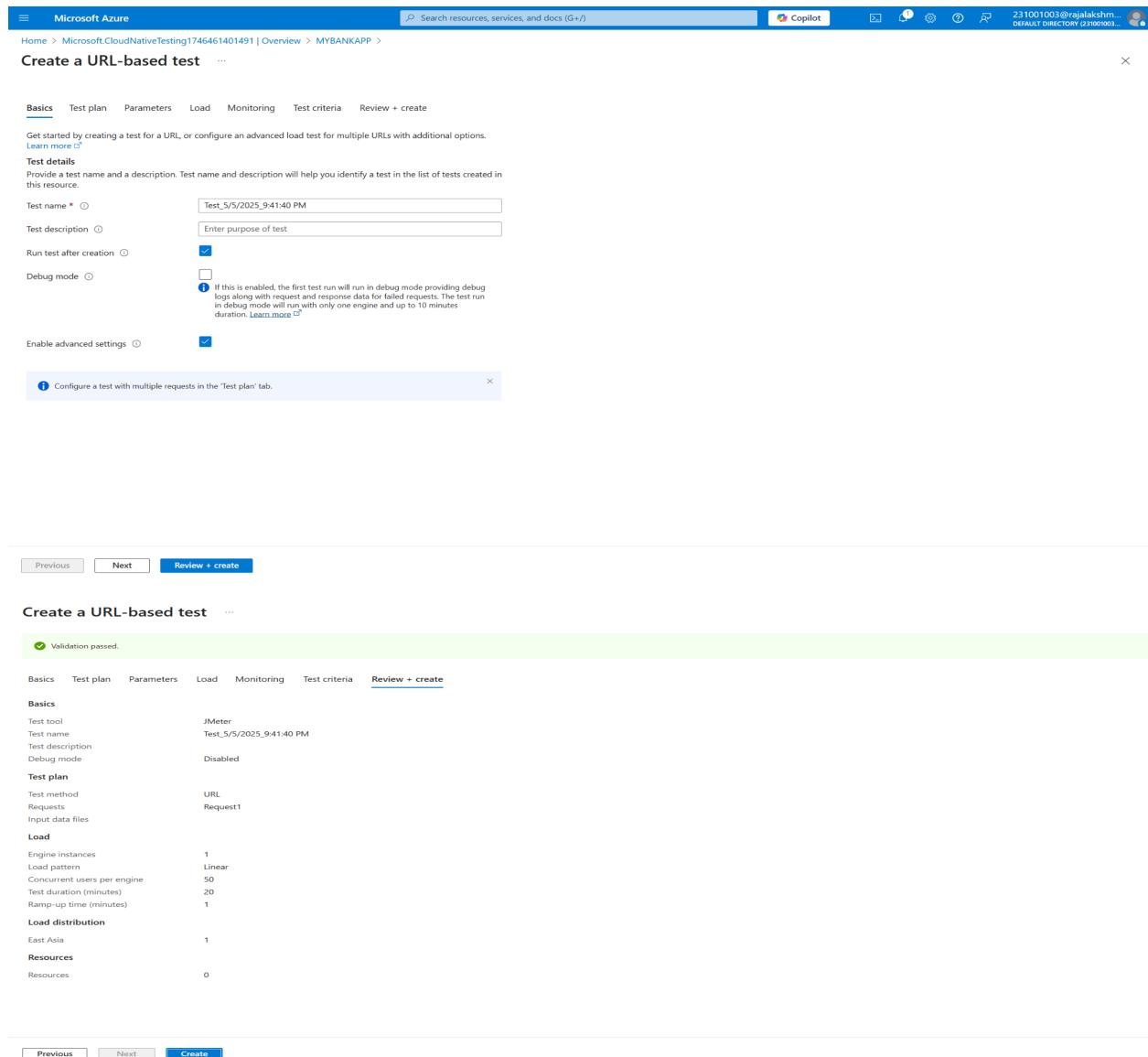
Free Microsoft tutorials
[Start learning today >](#)

Work with an expert
Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support.
[Find an Azure expert >](#)

Steps to Create and Run a Load Test:

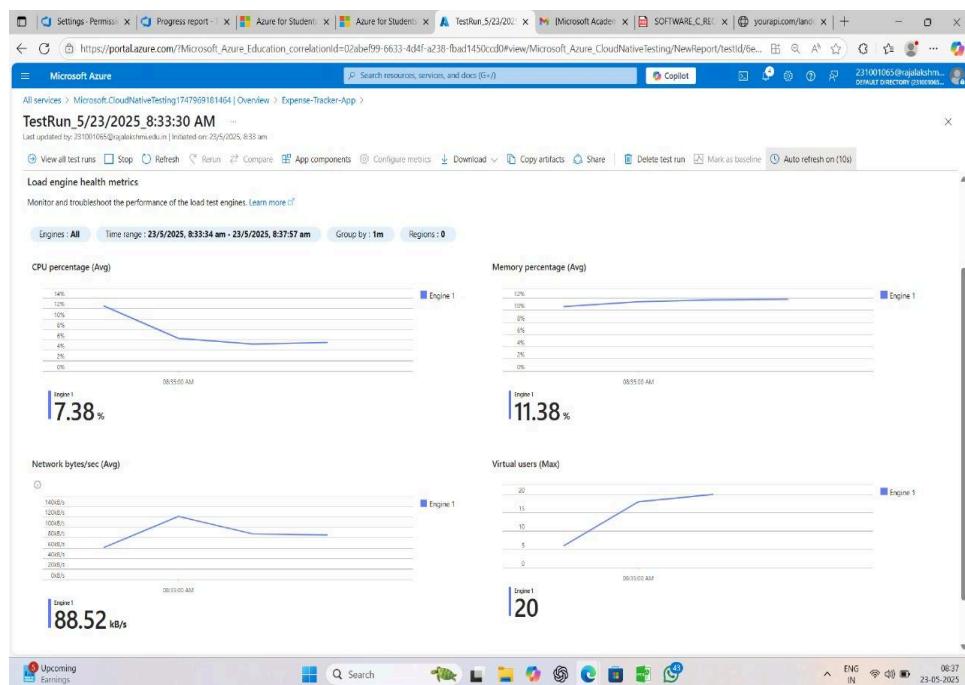
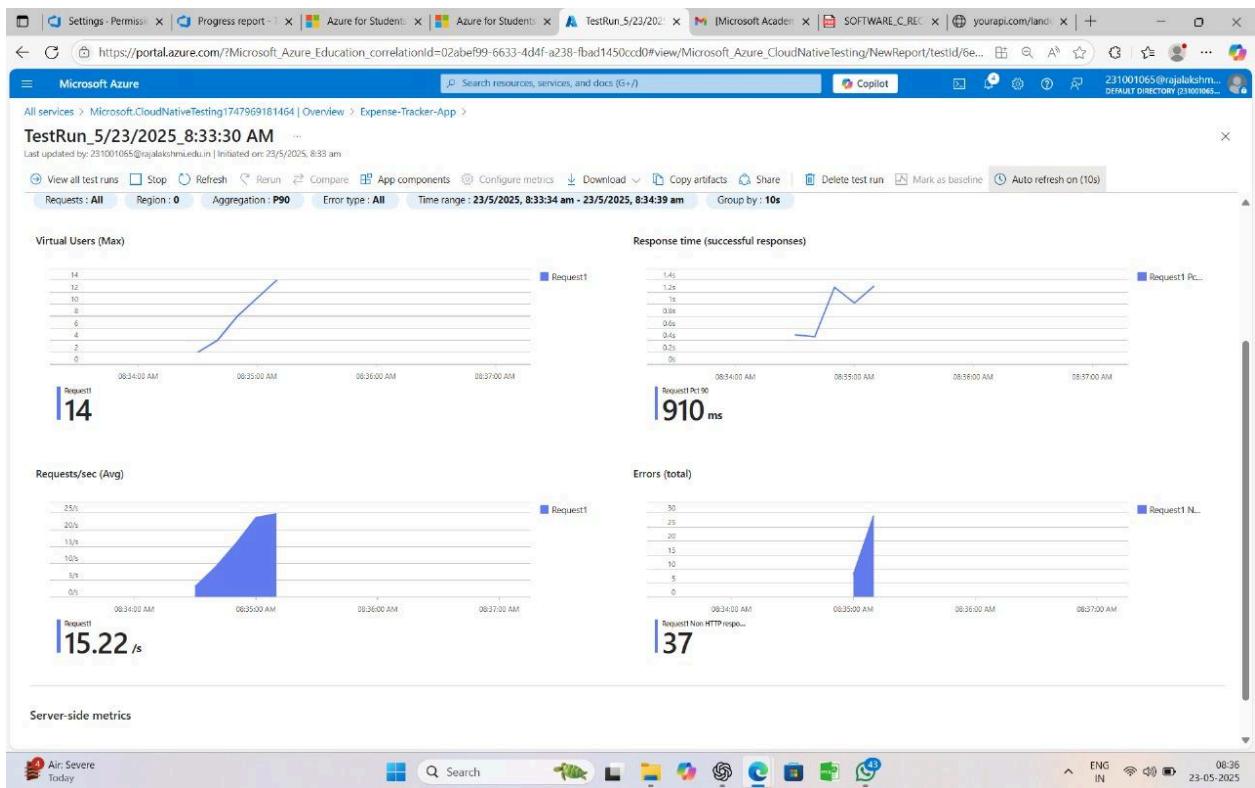
Once your resource is ready:

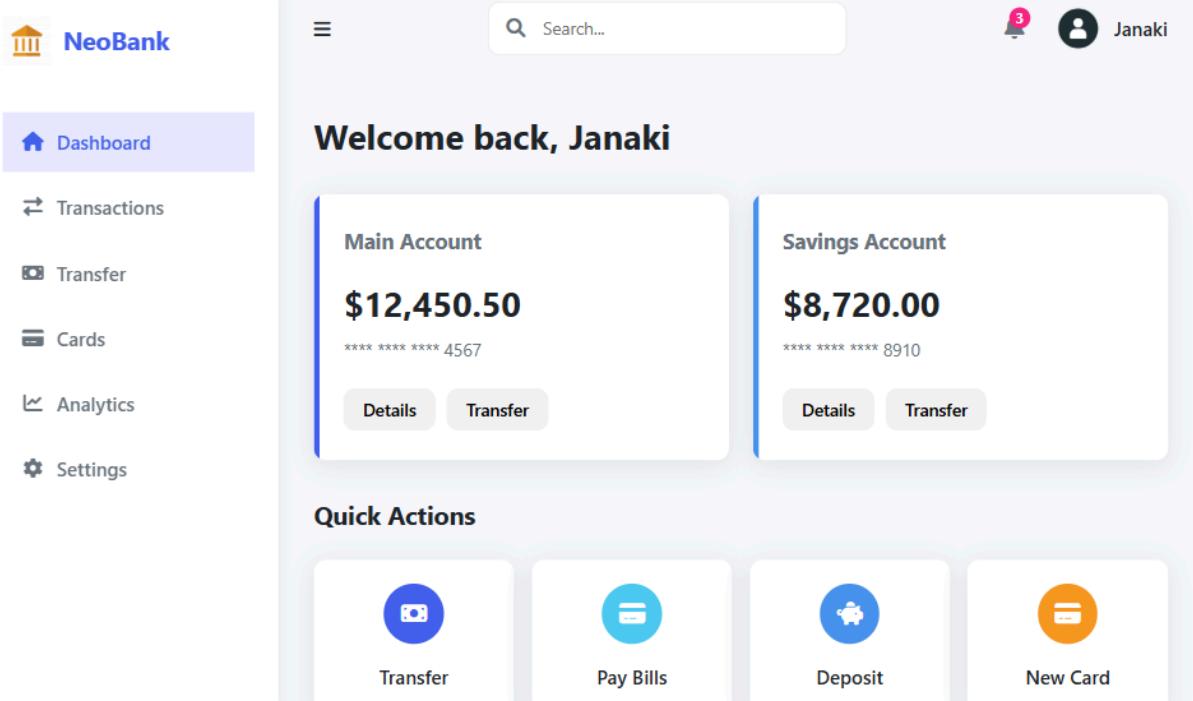
1. Go to your Azure Load Testing resource and click Add HTTP requests > Create.
2. Basics Tab o *Test Name*: Provide a unique name.
 - o *Description*: (Optional) Add test purpose.
 - o *Run After Creation*: Keep checked.
3. Load Settings o *Test URL*: Enter the target endpoint (e.g., https://yourapi.com/products).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



The screenshot shows the 'Create a URL-based test' wizard in the Microsoft Azure portal. The Basics tab is selected. The Test name field contains 'Test_5/5/2025, 9:41:40 PM'. The Test description field is empty. The 'Run test after creation' checkbox is checked. A note below says: 'If this is enabled, the first test run will run in debug mode providing debug logs along with request and response data for failed requests. The test run in debug mode will run with only one engine and up to 10 minutes duration.' A tooltip at the bottom left says: 'Configure a test with multiple requests in the 'Test plan' tab.' At the bottom, there are 'Previous', 'Next', and 'Review + create' buttons.

Load Testing



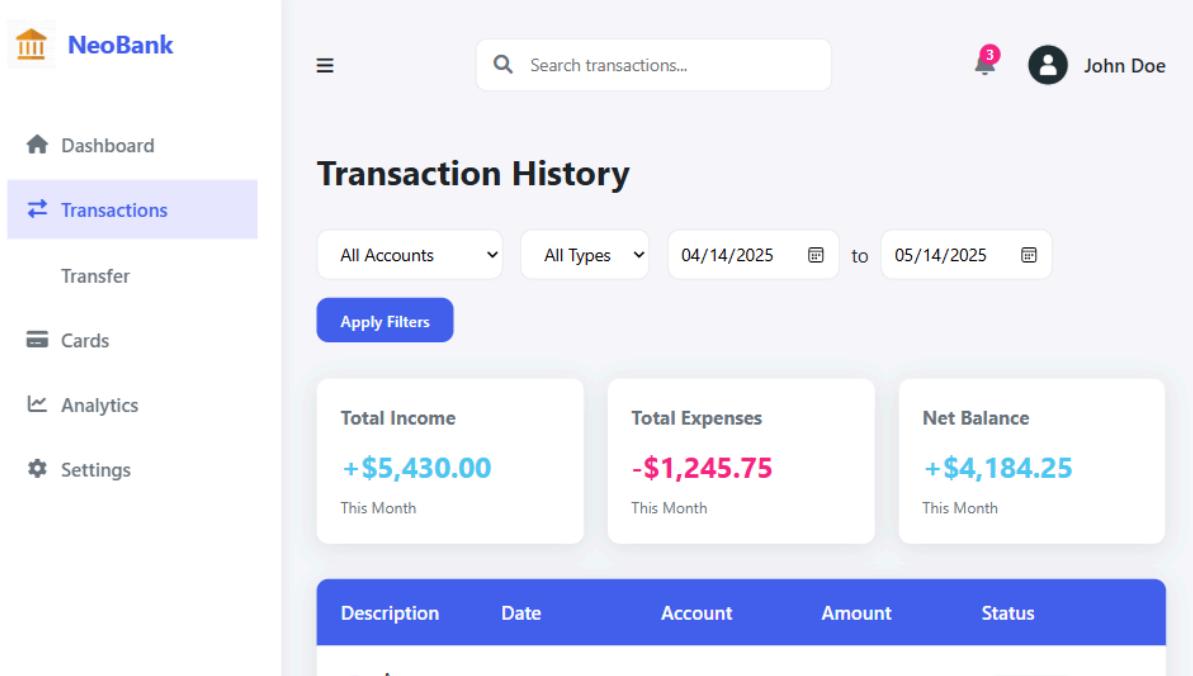


The screenshot shows the NeoBank dashboard for a user named Janaki. The top navigation bar includes a search bar and a notification icon with 3 notifications. The main header says "Welcome back, Janaki". On the left sidebar, "Dashboard" is highlighted. The main content area displays two account summaries: "Main Account" with a balance of \$12,450.50 and "Savings Account" with a balance of \$8,720.00. Below these are "Quick Actions" buttons for Transfer, Pay Bills, Deposit, and New Card.

Main Account	Savings Account
\$12,450.50 ***** 4567	\$8,720.00 ***** 8910
Details Transfer	Details Transfer

Quick Actions

- Transfer
- Pay Bills
- Deposit
- New Card



The screenshot shows the NeoBank transaction history for a user named John Doe. The top navigation bar includes a search bar and a notification icon with 3 notifications. The main header says "Transaction History". The left sidebar has "Transactions" highlighted. The main content area shows summary statistics: Total Income +\$5,430.00, Total Expenses -\$1,245.75, and Net Balance +\$4,184.25, all for the "This Month" period. Below this is a table of transaction details with columns: Description, Date, Account, Amount, and Status. The first row shows a transaction from "Amazon".

Description	Date	Account	Amount	Status
Amazon				

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

Exp.No: 10

Date: 02/05/2025

GITHUB PROJECT STRUCTURE & NAMING CONVENTIONS

AIM: To provide a clear and organized view of the project's folder structure and file naming conventions, helping contributors and users easily understand, navigate, and extend the Online Banking System project.

GITHUB PROJECT STRUCTURE

Name	Last commit message	Last commit date
.gitignore	Add files via upload	4 minutes ago
Diagrams	Create Diagrams	4 minutes ago
Progress report	Create Progress report	2 minutes ago
Test plans and test cases	Create Test plans and test cases	1 minute ago
azure account pic	Create azure account pic	now
eslint.config.js	Add files via upload	4 minutes ago
load testing	Create load testing	3 minutes ago
package-lock.json	Add files via upload	4 minutes ago
package.json	Add files via upload	4 minutes ago
poker estimation	Create poker estimation	3 minutes ago
postcss.config.js	Add files via upload	4 minutes ago
spaces	Create spaces	10 minutes ago
sprint	Create sprint	2 minutes ago
tailwind.config.js	Add files via upload	4 minutes ago
tsconfig.app.json	Add files via upload	4 minutes ago
tsconfig.json	Add files via upload	4 minutes ago
tsconfig.node.json	Add files via upload	4 minutes ago
vite.config.ts	Add files via upload	4 minutes ago

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.