

INDEX

S.No.	Title
1.	Azure DevOps Environment Setup.
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6.	Designing Class Diagram and Sequence Diagram.
7.	Designing Use Case Diagram and Activity Diagram.
8.	Testing – Test Plans and Test Cases.
9.	Load Testing and Pipelines.
10.	GitHub: Project Structure & Naming Conventions.

EXP NO : 01

AZURE DEVOPS ENVIRONMENT SETUP

AIM

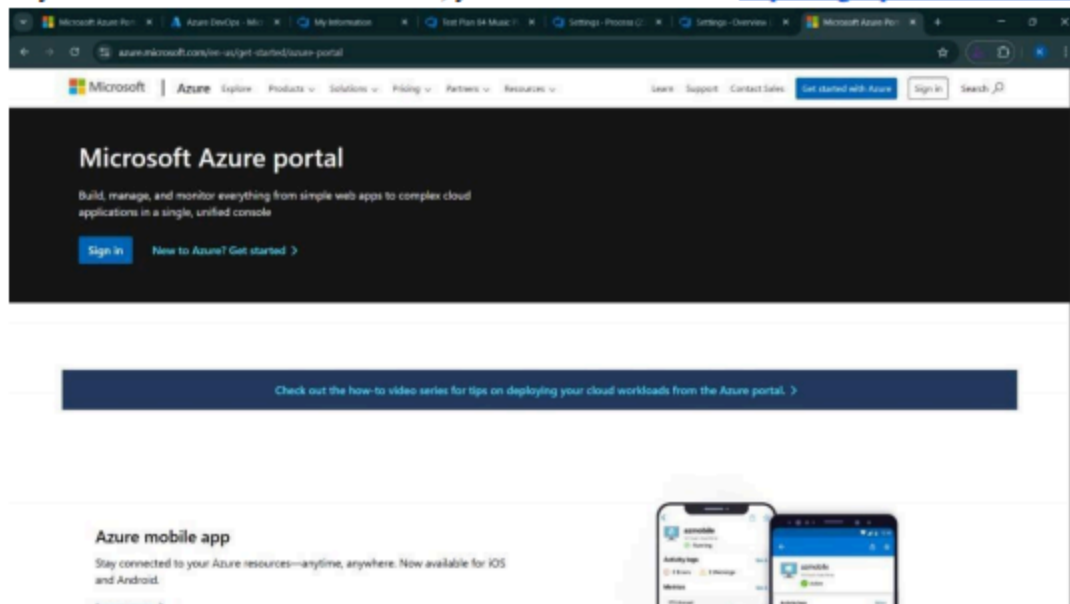
To set up and access the Azure DevOps environment by creating an organization through the Azure portal.

INSTALLATION

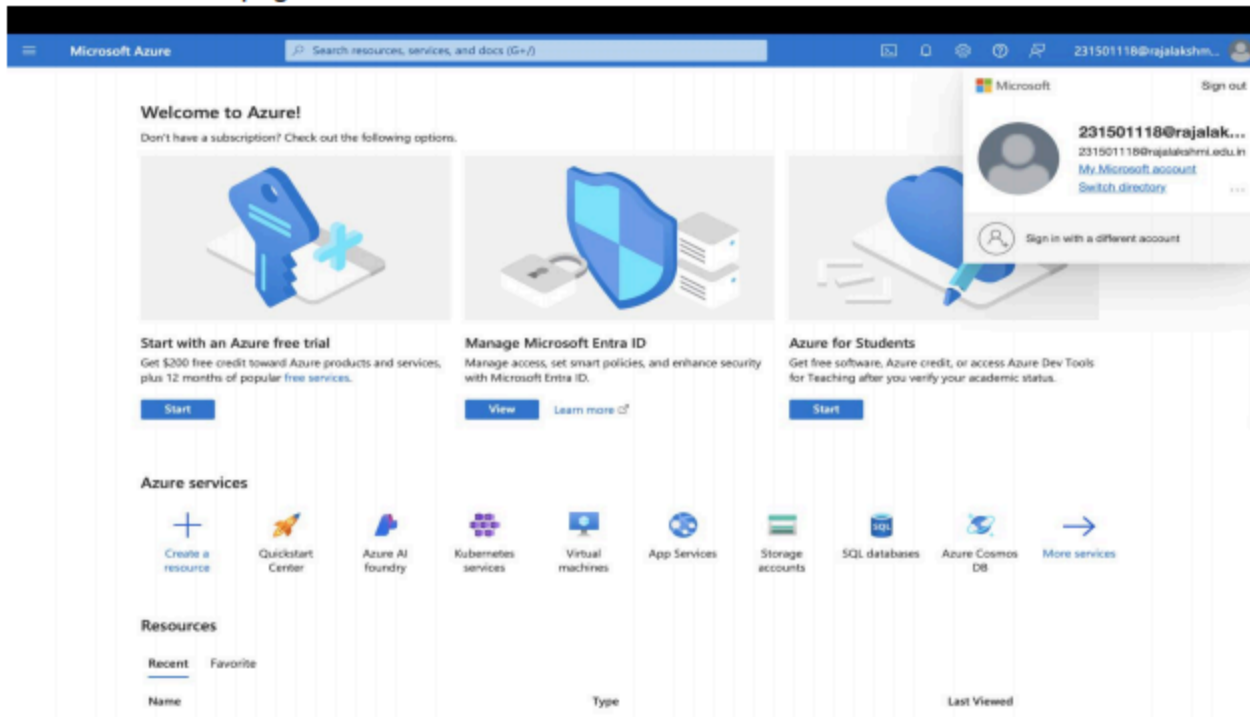
1. Open your web browser and go to the Azure website: <https://azure.microsoft.com/en-us/getstarted/azure-portal>.

Sign in using your Microsoft account credentials.

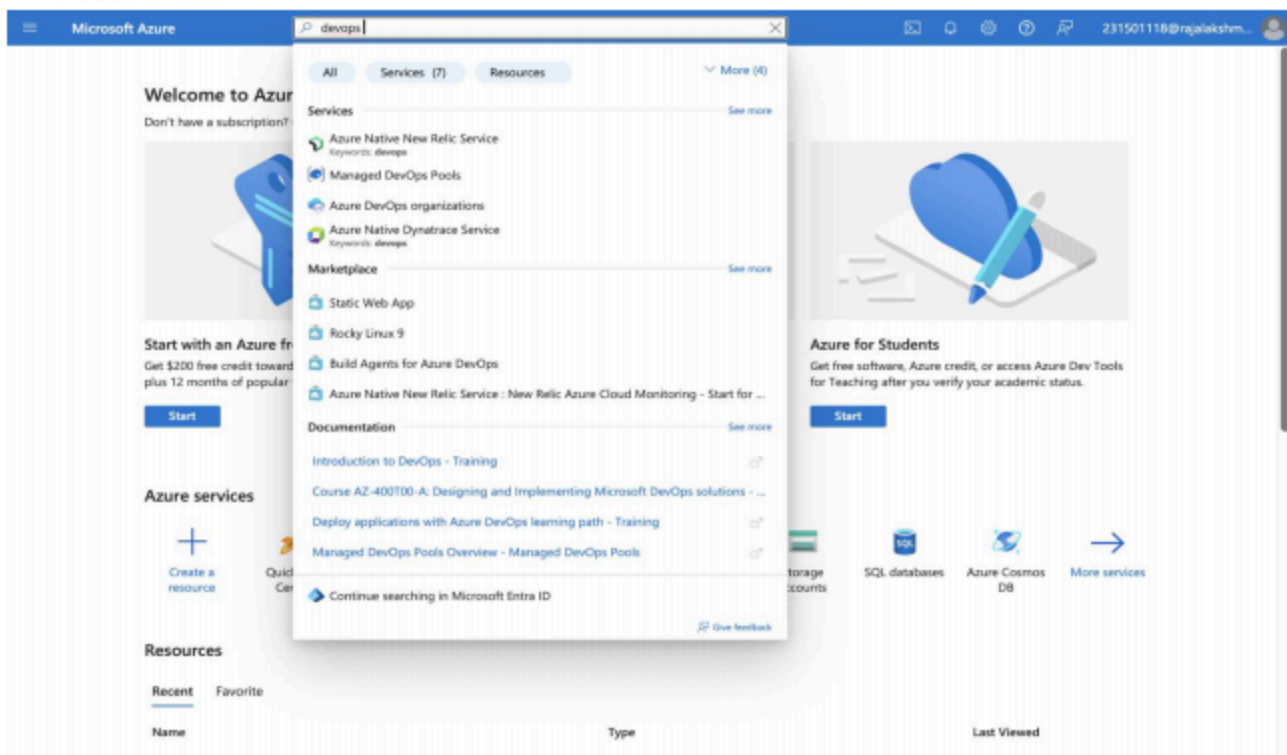
If you don't have a Microsoft account, you can create one here: <https://signup.live.com/?lic=1>



2. Azure home page



3. Open 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.

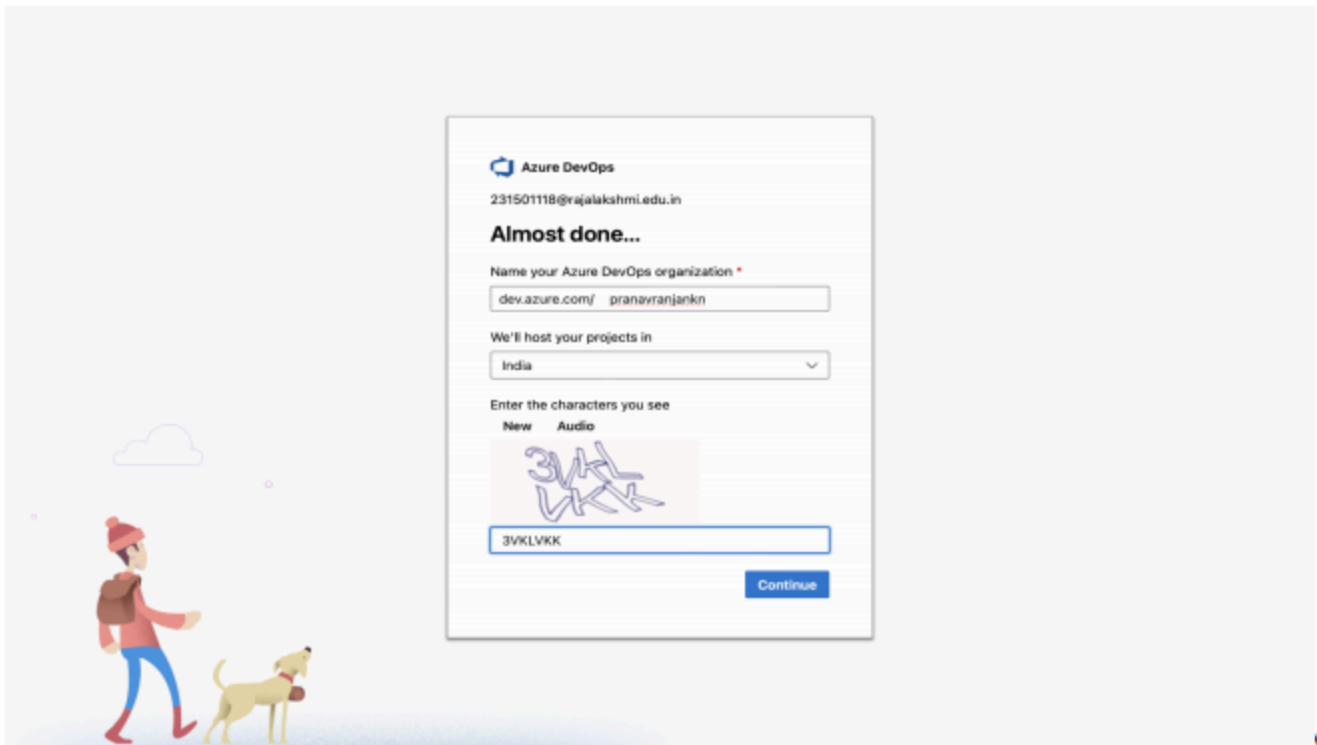
EXP NO:02

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 *

OQS

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 ?

Basic

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.

Microsoft

PRANAV RANJANSign out

PR

PRANAV RANJAN

231501118@rajalakshmi.edu.in

India

231501118@rajalakshmi.edu.in

Visual Studio Dev Essentials

Get everything you need to build and deploy your app on any platform.

Use your benefits

Azure DevOps Organizations

Create new organization

dev.azure.com/pranavranjankn (Owner)

Projects

P2p

New project

Actions

Open in Visual Studio

4. Project dashboard

Azure DevOps2315011493258 / expense tracker / Overview / Summary

Search

PrivateHello

expense tracker

ETexpense tracker

Overview

Summary

Dashboards

Wiki

Boards

Repos

Pipelines

Test Plans

Artifacts

About this project

Like

ytbraadnige

Project stats

Period: Last 7 days

Boards

0Back items created

0Back items completed

Pipelines

0%

Builds succeeded

Members

1

5. To manage user stories:

- a. From the left-hand navigation menu, click on Boards. This will take you to the main Boards page, where you can manage work items, backlogs, and sprints.
- b. On the work items page, you'll see the option to Add a work item at the top. Alternatively, you can find a + button or Add New Work Item depending on the view you're in. From the Add a work item dropdown, select User Story. This will open a form to enter details for the new User Story.

c.

The screenshot shows the Azure DevOps interface for a project named 'P2p'. The left-hand navigation menu is expanded, showing various options including 'Boards', 'Work items', 'Backlogs', 'Sprints', 'Queries', 'Delivery Plans', 'Analytics views', 'Repos', 'Pipelines', 'Test Plans', and 'Artifacts'. The 'Work items' section is selected, displaying a table of work items. The table has columns for ID, Title, Assigned To, State, and Area Path. Two work items are listed: ID 2 with title 'authentication' and ID 1 with title 'login'. Both are assigned to 'Unsigned' and have a state of 'To Do'. The area path for both is 'P2p'. The interface also includes a search bar at the top right and a 'Project settings' link at the bottom left.

ID	Title	Assigned To	State	Area Path
2	authentication	Unsigned	To Do	P2p
1	login	Unsigned	To Do	P2p

RESULT :

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

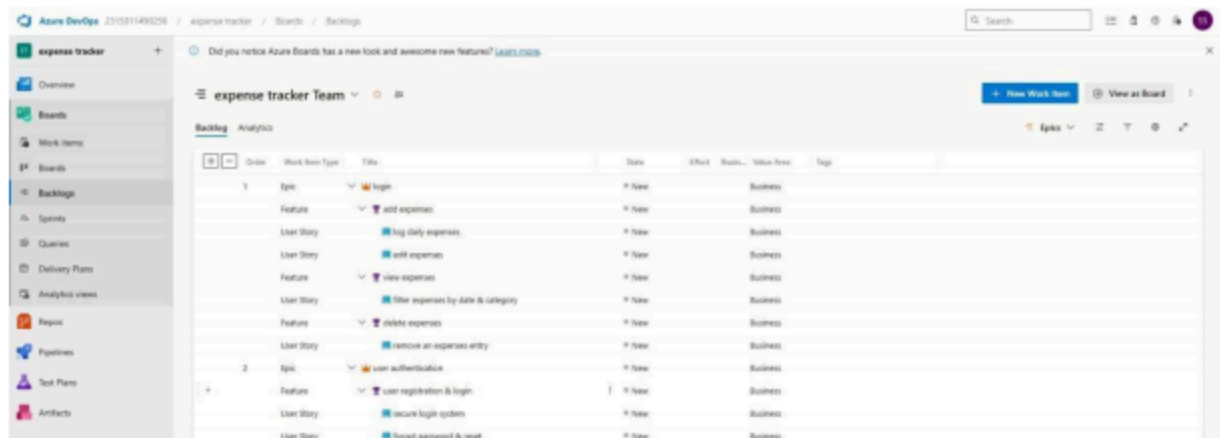
EXP NO:03

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

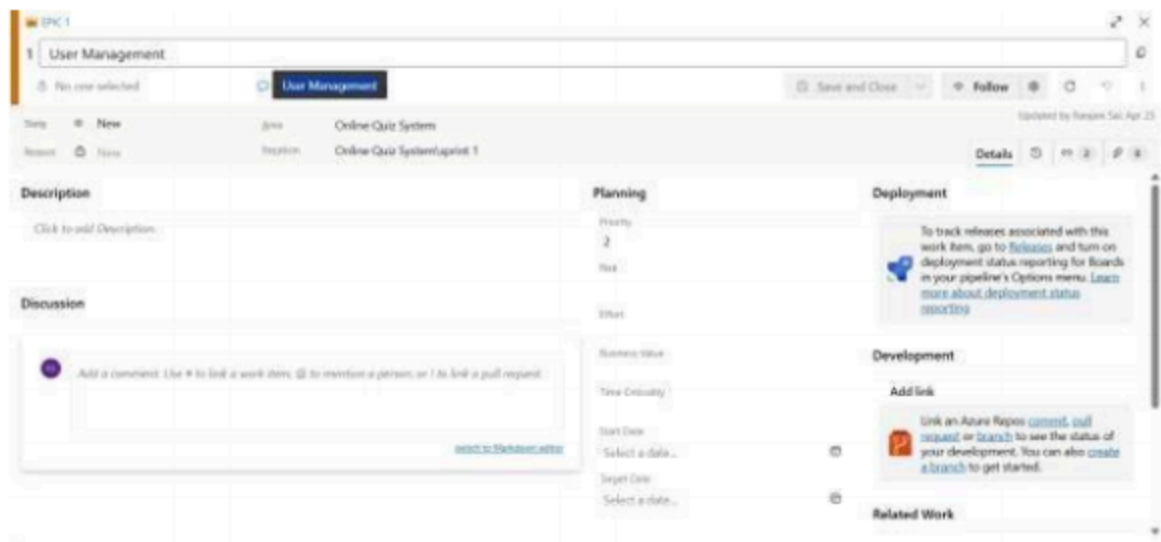
AIM

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

FEATURE 2

2 User Registration & Login

No one selected 0 Comments Add Tag

Save and Close Follow

Updated by Rangini Sat, Apr 25

Story New Area Online Quiz System

Reason None Location Online Quiz System/print 1

Details

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 Story Details

USER STORY 6

6 As an admin, I want to give users the right access so they can use the system properly.

No one selected 0 Comments Add Tag

Save and Close Follow

Updated by Rangini Sat, Apr 25

Story New Area Online Quiz System

Reason None Location Online Quiz System/print 1

Details

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

EXP NO:04

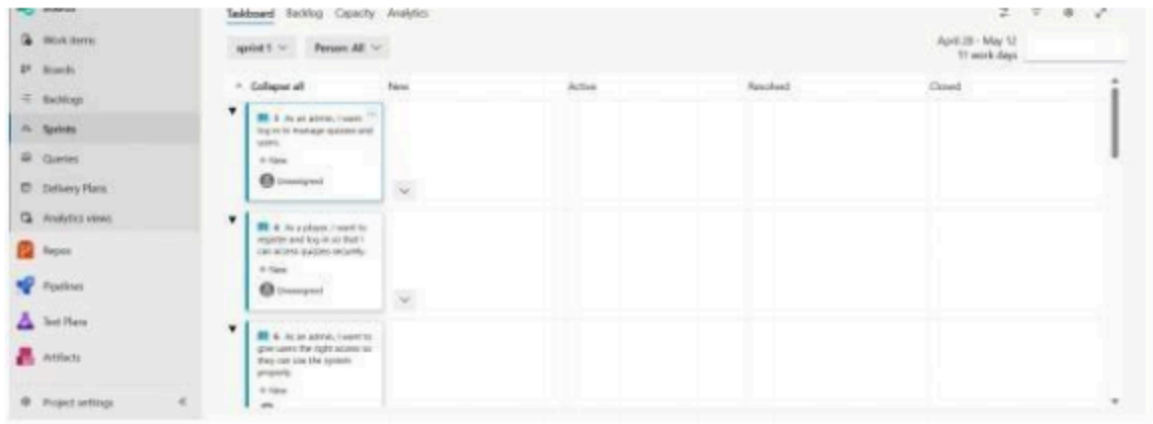
SPRINT PLANNING

AIM

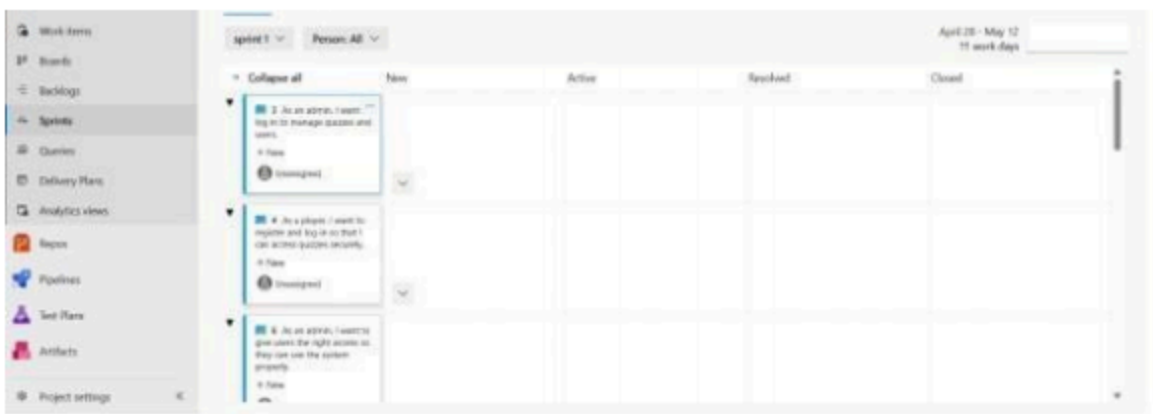
To assign user story to specific sprint for the Online Quiz System.

Sprint Planning

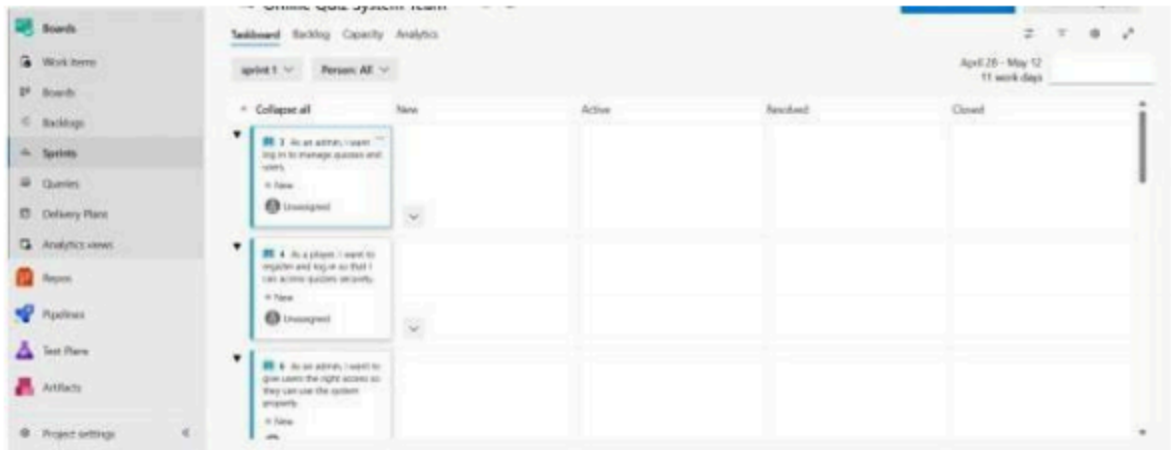
Sprint 1



Sprint 2



Sprint 3



RESULT :

The Sprints have been created for Online Quiz System.

EXP NO :05

POKER ESTIMATION

AIM

Create Poker Estimation for the user stories – Online Quiz System

Poker Estimation

The screenshot displays a user story card titled "13 As an admin, I want to manage a question bank so I can reuse questions easily." The card is part of a backlog for the "Online Quiz System" project. It includes fields for "Description", "Acceptance Criteria", and "Discussion". The "Planning" section shows the story points estimated as "2". The "Classification" section shows the story is categorized as "Business". The "Deployment" and "Development" sections provide additional context and links for tracking releases and development progress.

User Story 13

13 As an admin, I want to manage a question bank so I can reuse questions easily.

No one selected | 0 Comments | Add Tag

Save and Close | Follow

Updated by Karpam Sat, Apr 25

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

Size

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 :

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

EXP NO :06

DESIGNING CLASS AND SEQUENCE DIAGRAMS FOR PROJECT ARCHITECTURE

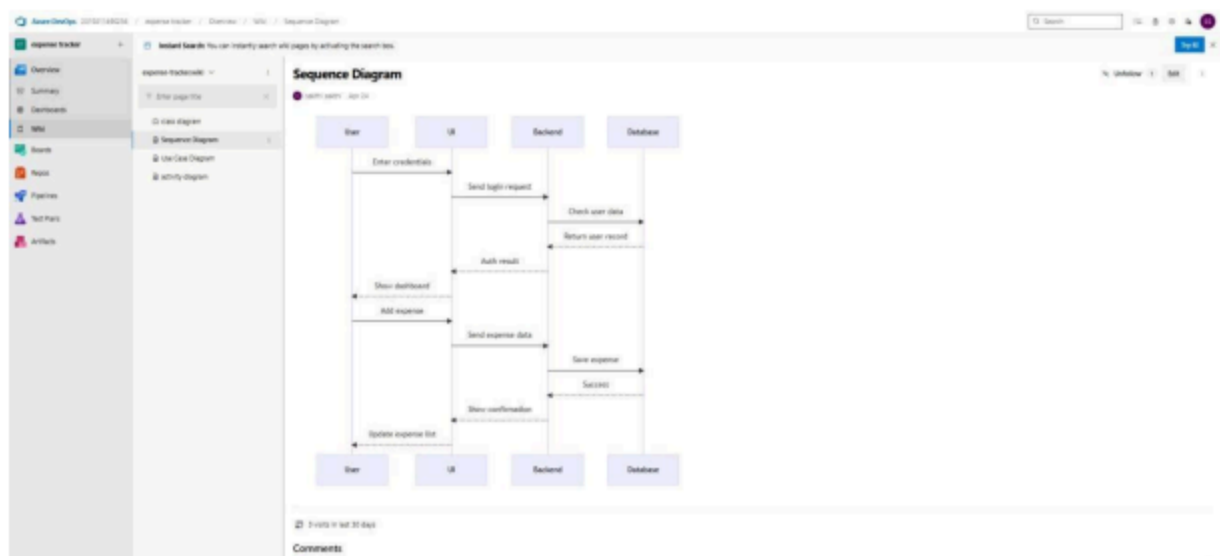
AIM

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

6A. Class Diagram



6B. Sequence Diagram



RESULT :

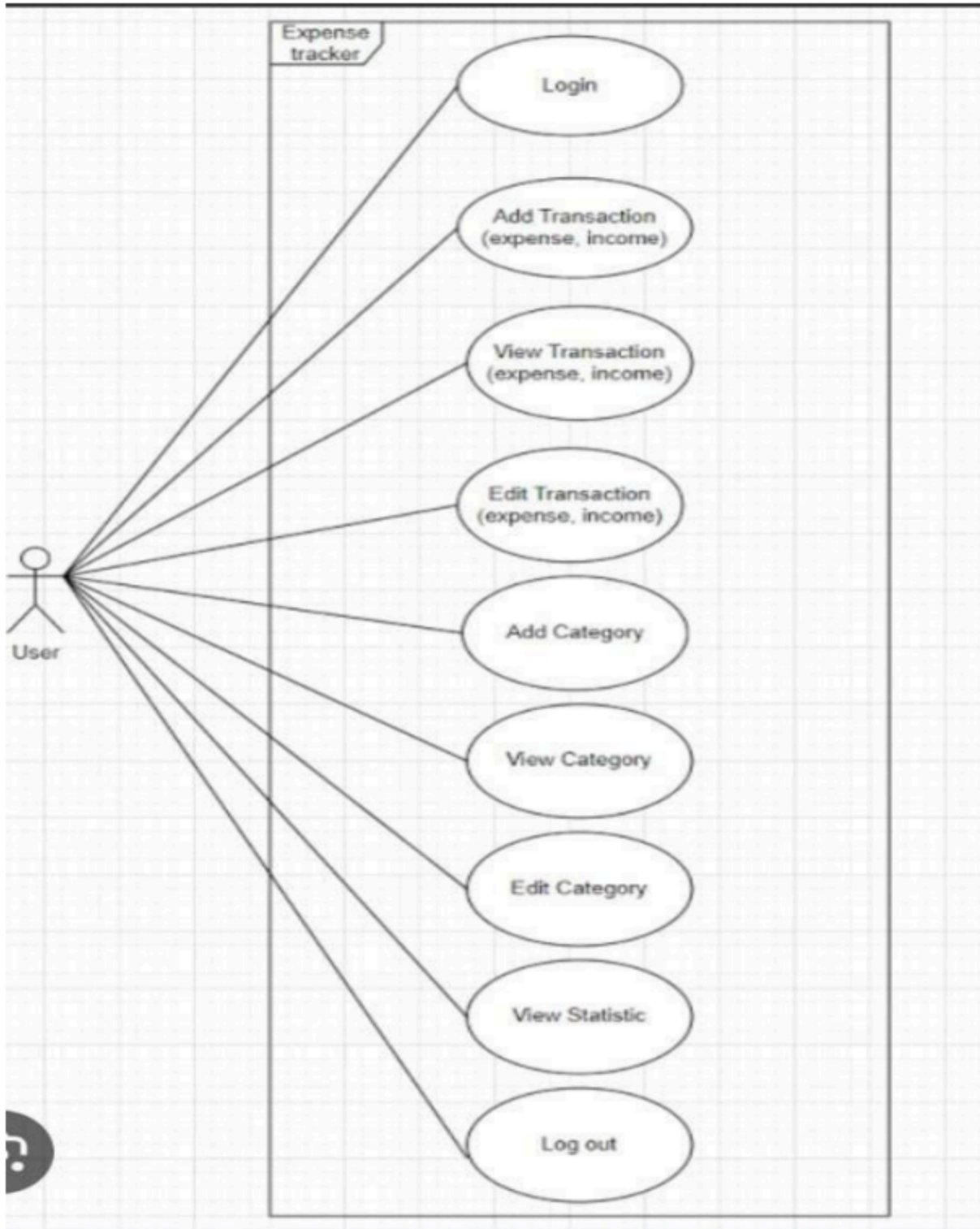
The Class Diagram and Sequence Diagram is designed Successfully for the Online Quiz System.

EXP NO:07	DESIGNING USE-CASE AND ACTIVITY DIAGRAMS FOR PROJECT STRUCTURE
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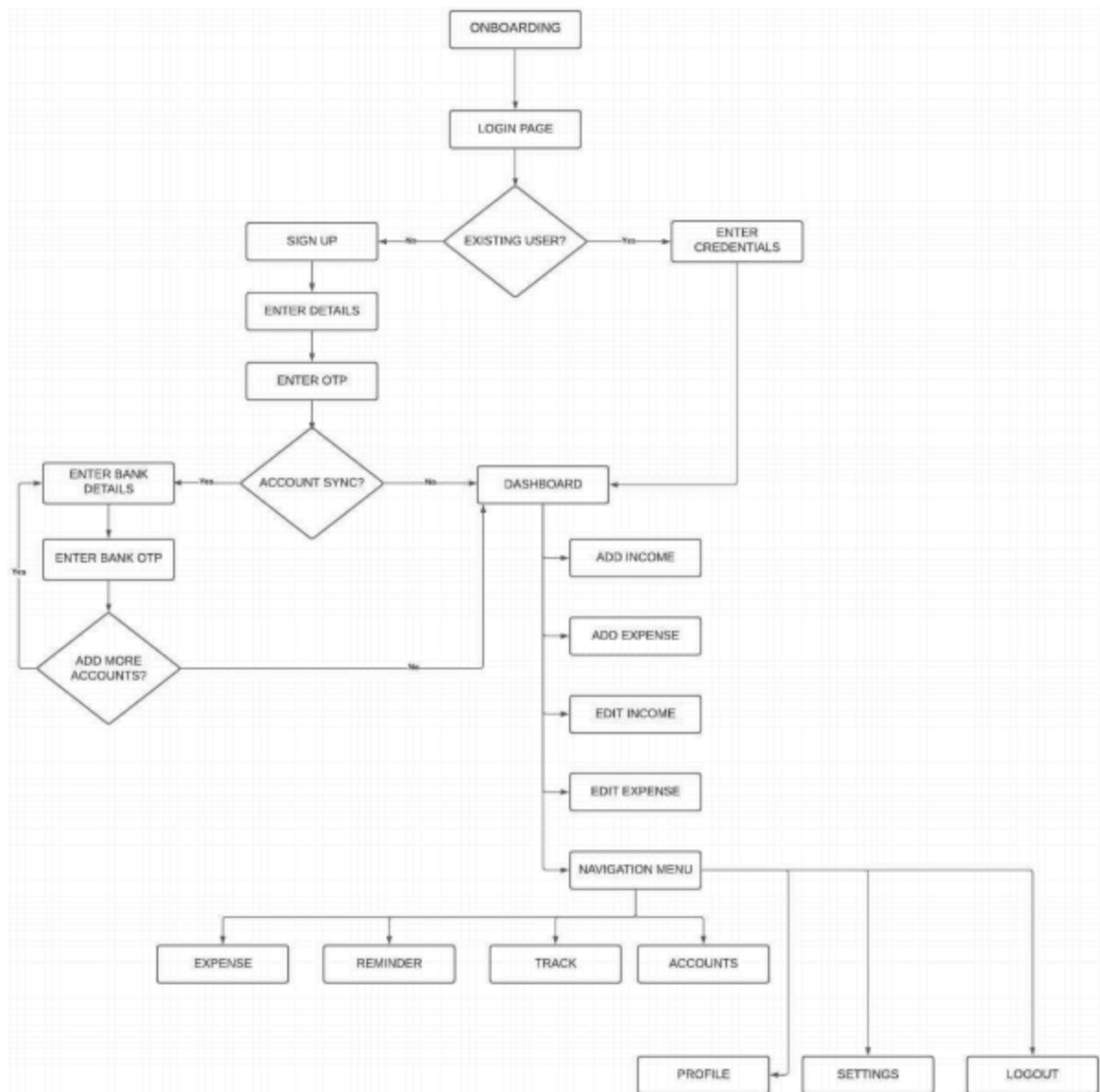
AIM

To Design an Use-Case Diagram and Activity Diagram for the given Project

7A. Use-Case Diagram



7B. Activity Diagram



RESULT :

The Use-Case Diagram and Activity Diagram is designed Successfully for the Online Quiz System.

EXP NO:08	TESTING – TEST PLANS AND TEST CASES
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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 Login •

2. Define User Interactions

- Each test case simulates a real user behaviour (e.g., logging in, submitting quizzes, viewing results)

3. Design Happy Path Test Cases

- Focused on validating that all core functionalities work correctly under normal conditions • Example: Player registers and logs in, submits quizzes and views results

4. Design Error Path Test Cases

- Simulate invalid inputs, system issues or failed actions to ensure proper error handling.
- Example: Login with invalid credentials, submission without attachments, unauthorized access to admin panel.

5. Break Down Steps and Expected Results

- Each test case includes a clear sequence of actions and expected results.
- Ensures both manual testers and automation tools can follow the process easily.

6. Use Clear Naming and IDs

- Test cases are uniquely identifies (e.g., TC01 – Valid Login, TC03 – Invalid Password).
- Facilities easy mapping to features and tracking in Azure DevOps.

7. Separate Test

- Grouped by functionality such as:

o Login and Registration

o Quizzes Submission

o

Viewing Results

o

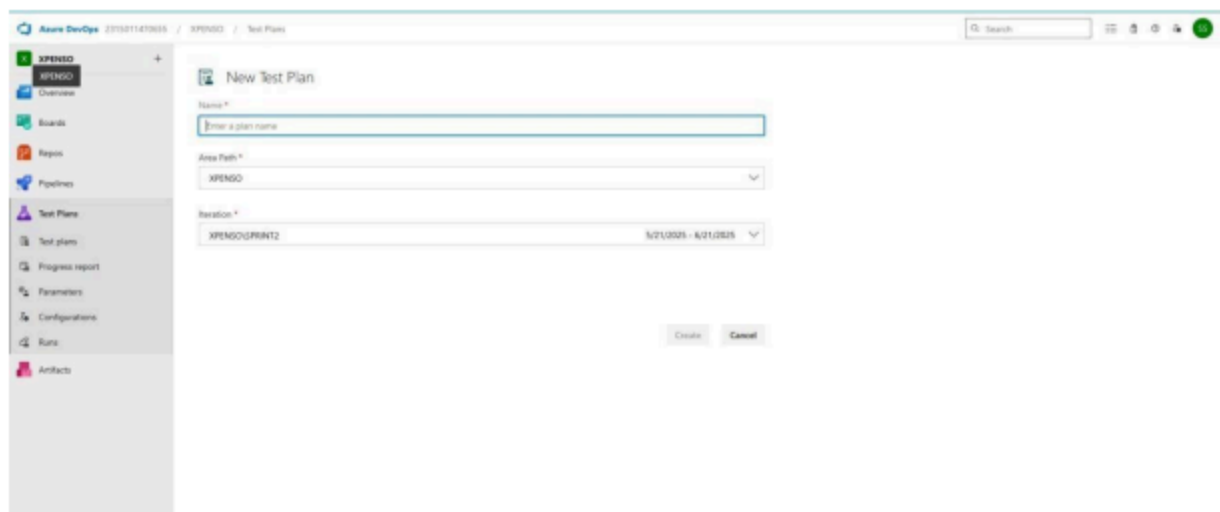
Admin Functions

- Improves organization and enables focused execution in Azure DevOps.

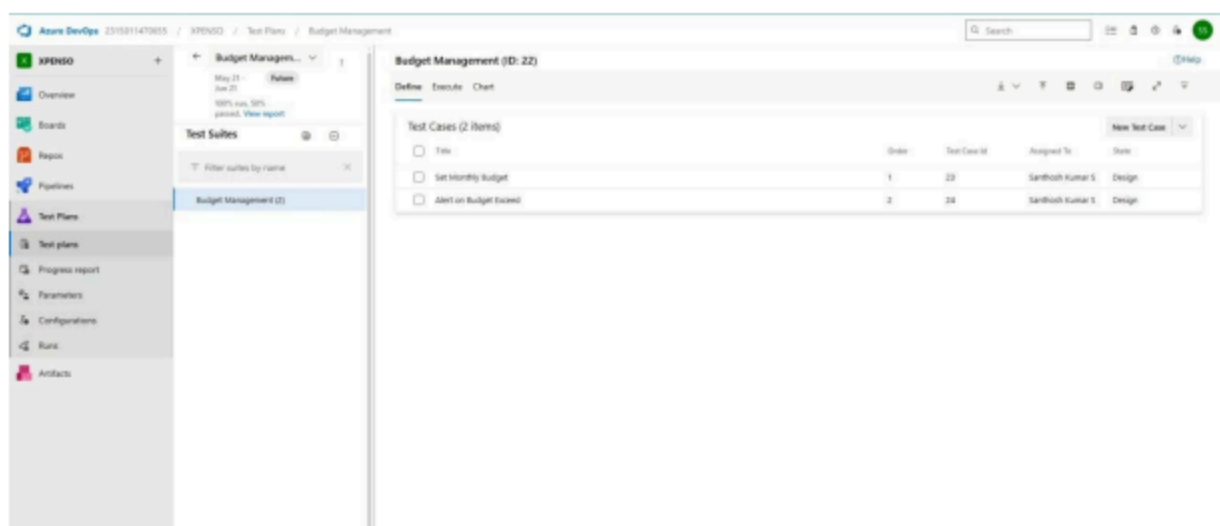
8. Prioritize and Review

- High-priority assigned to critical workflows like login, quizzes and results.
- Reviewed for completeness, accuracy and alignment with user stories and features definition.

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. Online

Quiz System– Test Plans

USER STORIES

- As an admin, I want to log in to manage quizzes and users (ID: 3).
- As a player, I want to register and log in so that I can access quizzes securely (ID: 4).
- As an admin, I want to give users the right access so they can use the system properly (ID: 6).
- As a player, I want to see only my quizzes and progress so that it's easy to use (ID: 7).
- As an admin, I want to create and configure quizzes with time limits so I can control quiz

TEST SUITES Test Suite: TS01 - Login Verification (ID: 23)

1. TC01 –Valid Login

o Action:

- Go to the Sign-Up page.
- Enter valid name, email, and password.
- Click “Login” button.

o Expected Results:

- Login form is displayed.
- Fields accept valid credentials without error.
- Account is successfully logged in and redirected to the dashboard.

o Type:

Happy Path
Invalid Username

2. TC02 –

o Action:

- Go to the Login page.
- Enter invalid or unregistered username.
- Click on "Login" button.

o Expected Results:

- Login form is displayed.
- System displays an error message like “Invalid username”.
- User is not logged in and remains on the login page.

Azure DevOps | 231011470155 | XPENG0 | Test Plans | Budget Management

Budget Management (ID: 22)

Define | Execute | Chart

Test Suites

Filter suites by name

Test Points (2 items)

Test Point	Outcome	Order	Test Case ID	Configuration	Tester
<input type="checkbox"/> Title	Passed	1	22	Windows 10	Santhosh Kumar S
<input type="checkbox"/> Set Monthly Budget	Failed	2	24	Windows 10	Santhosh Kumar S

Azure DevOps | 231011470155 | XPENG0 | Test Plans | Budget Management

Set Monthly Budget

Santhosh Kumar S

Comments | Add Tag

Save and Close | Follow

Updated by Santhosh Kumar S 3h ago

Steps | Summary | Associated Automation

Design | XPENG0 | XPENG0/SPRINT2

Stages

Step | Action | Expected result | Attachments

- Go to "Budgets"
- Select a category
- Enter a budget value
- Budget is saved and visible under Budgets screen

Click or type here to add a step

Parameter values

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 tracking](#)

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](#)

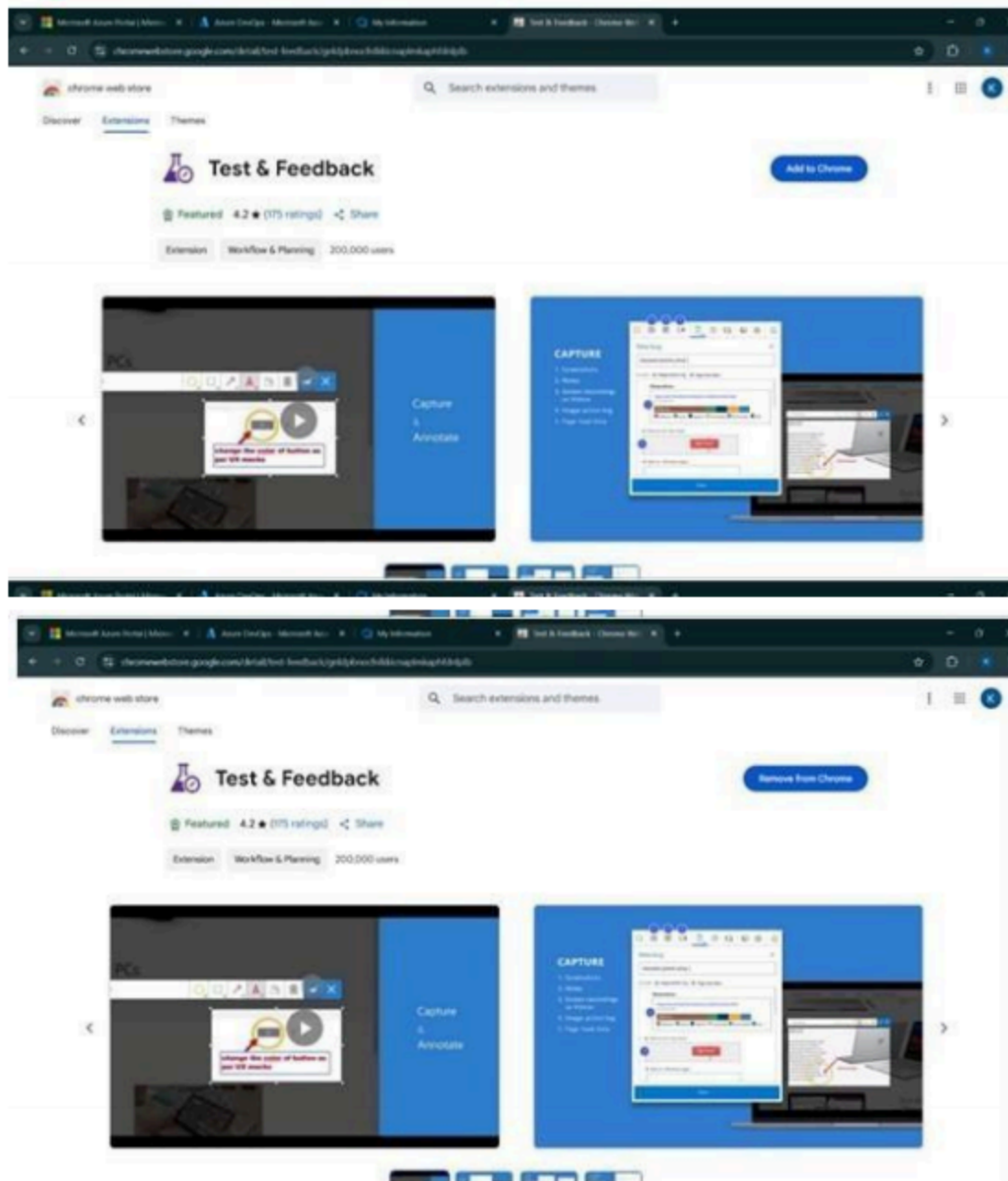
Details

Priority: 2

Automation status: Non Automated

Activate Windows | Go to Settings to activate Windows

4.Installation of test



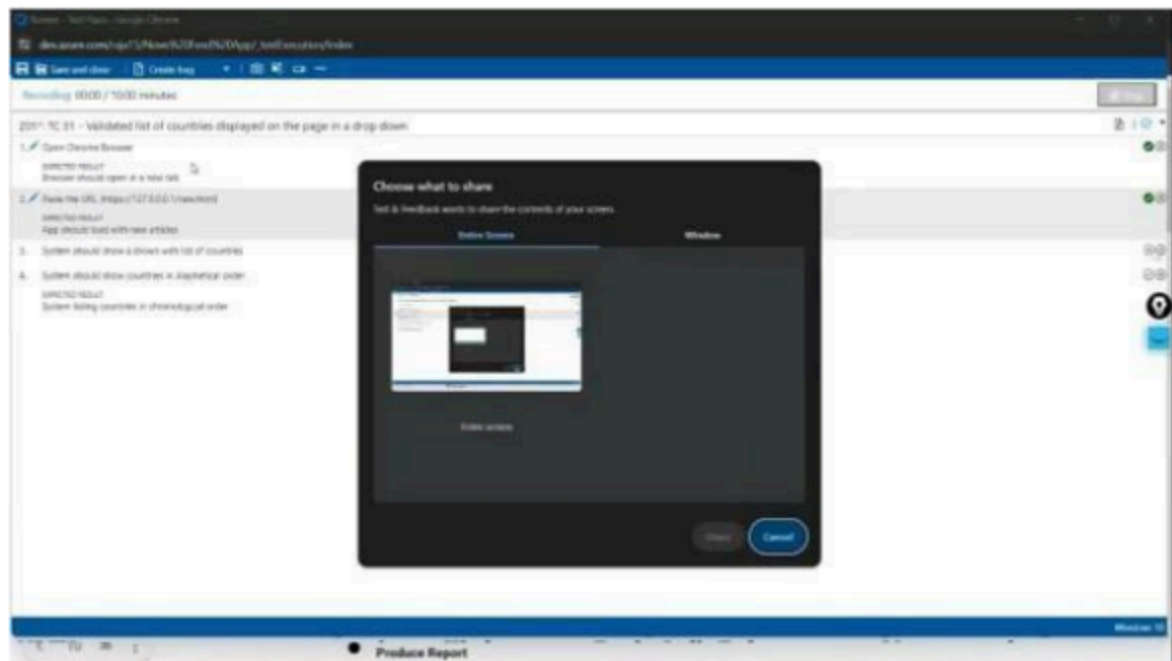
5. Running the test cases

The screenshot displays the Azure DevOps interface for a project named 'XPENG0'. The left sidebar shows the navigation menu with 'Test Plans' selected. The main area is titled 'Budget Management (ID: 22)' and shows a list of test cases. A context menu is open over the first test case, 'Set Monthly Budget', showing options like 'View Linked Items', 'Open test case', 'Remove', 'Edit test case(s) in grid', 'Edit test case(s)', 'Assign configuration', 'Copy test case(s)', 'Export test case(s) to CSV', and 'Export test case(s) to JSON'.

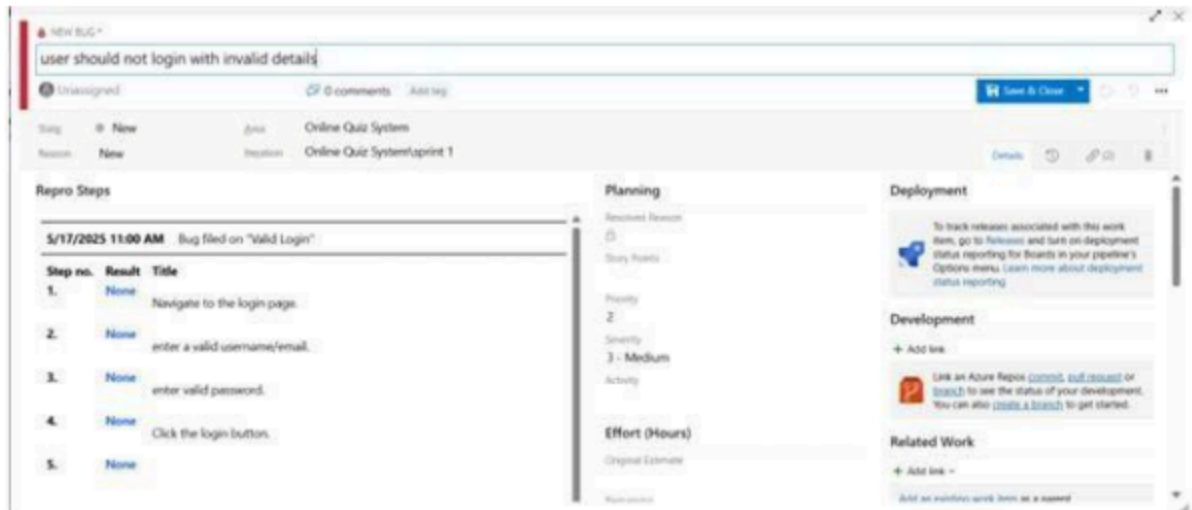
Below the Azure DevOps interface, a browser window titled 'Browser - Test Plans - Google Chrome' is open, displaying a list of test steps for a 'Valid Login' test case. The steps are as follows:

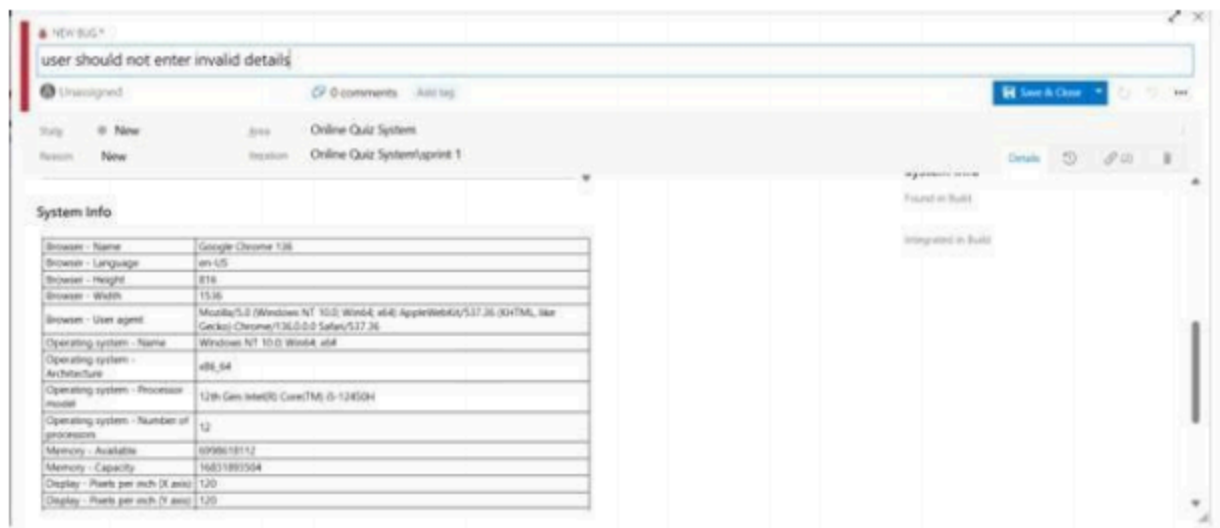
Step	Description
1	Navigate to the login page.
2	enter a valid username/email.
3	enter valid password.
4	Click the login button.
5	EXPECTED Result: User is redirected to the dashboard/homepage.

6. Recording the test case



7. Creating the bug





8. Test case results

State: **New** | Area: TO DO LIST APP WITH REMINDERS
Reason: **New** | Iteration: TO DO LIST APP WITH REMINDERS/iteration 1

Repro Steps

5/15/2025 5:11 AM Bug filed on "Login Verification of correct User"

Step no.	Result	Title
1.	Passed	Open the browser
		Expected Result
		Redirect to the Main SlayListLearn page
2.	Passed	Click the log in Button
3.	Passed	Enter the correct details

Test Configuration: Windows 10

Planning

Resolved Reason

Story Points

Priority

Severity

3 - Medium

Activity

Effort (Hours)

Original Estimate

Remaining

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 Repo 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

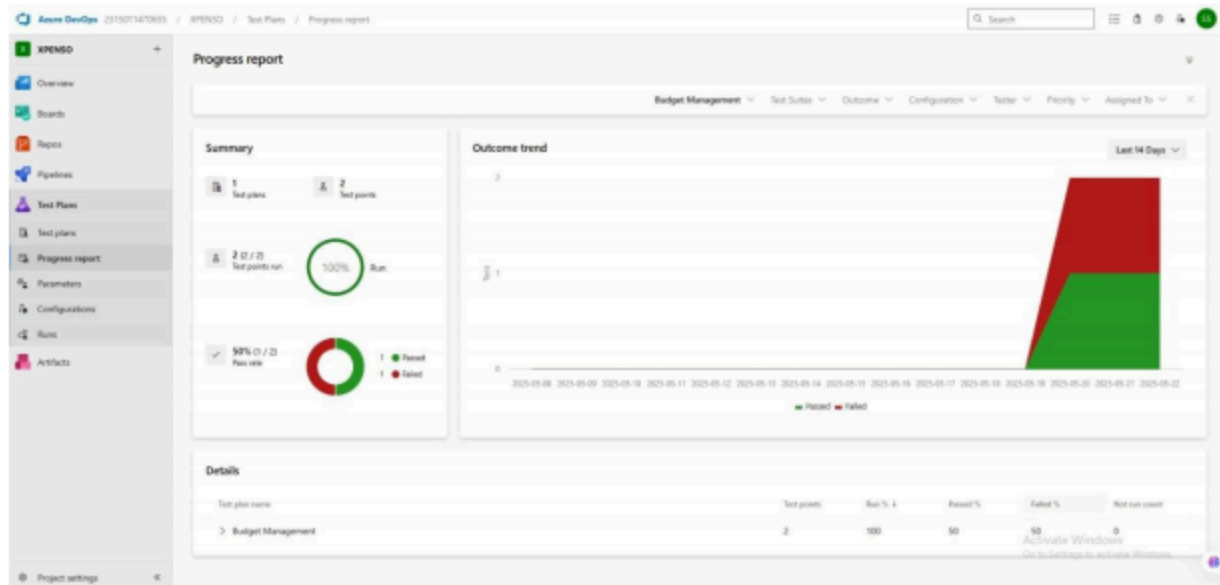
Add an existing work item as a parent

Budget Management (ID: 22)

Define | Execute | Chart

Test Points (2 items)

Test Point	Outcome	Order	Test Case Id	Configuration	Test Case
<input type="checkbox"/> Title					
<input type="checkbox"/> Set Monthly Budget	Passed	1	22	Windows 10	Test Case
<input type="checkbox"/> Alert on Budget Exceed	Failed	2	24	Windows 10	Test Case

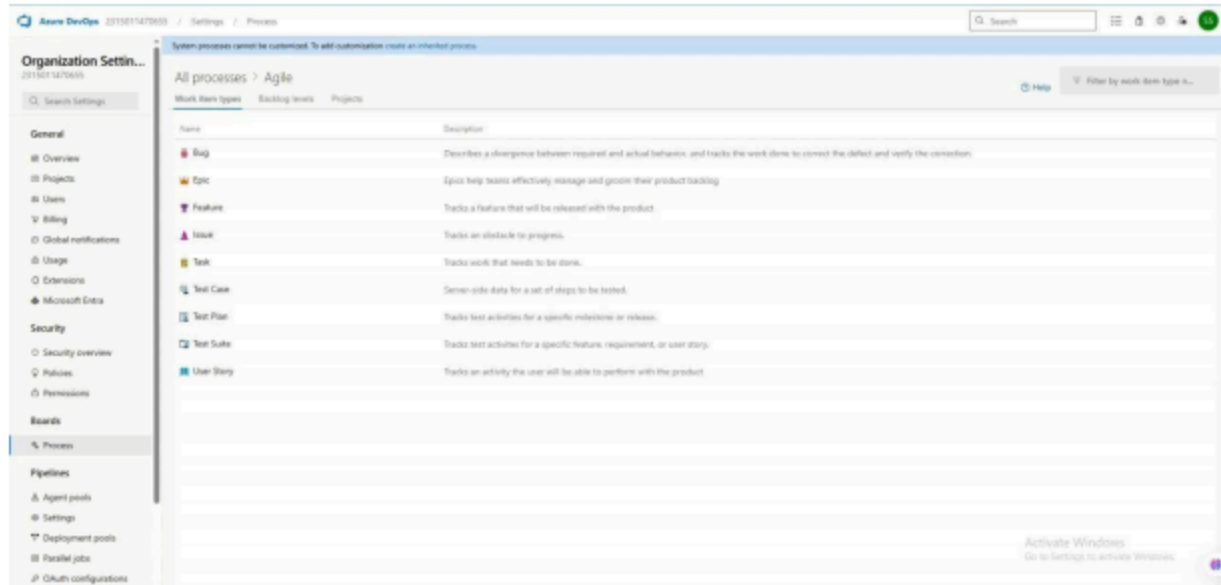


11.Changing the test template

Organization Settings

Processes

Name	Description	Team projects
Basic (default)	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 practicing Scrum.	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 improvement and an auditable record of decisions.	0



RESULT :

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

EXP NO :09

CI/CD PIPELINES IN AZURE

AIM

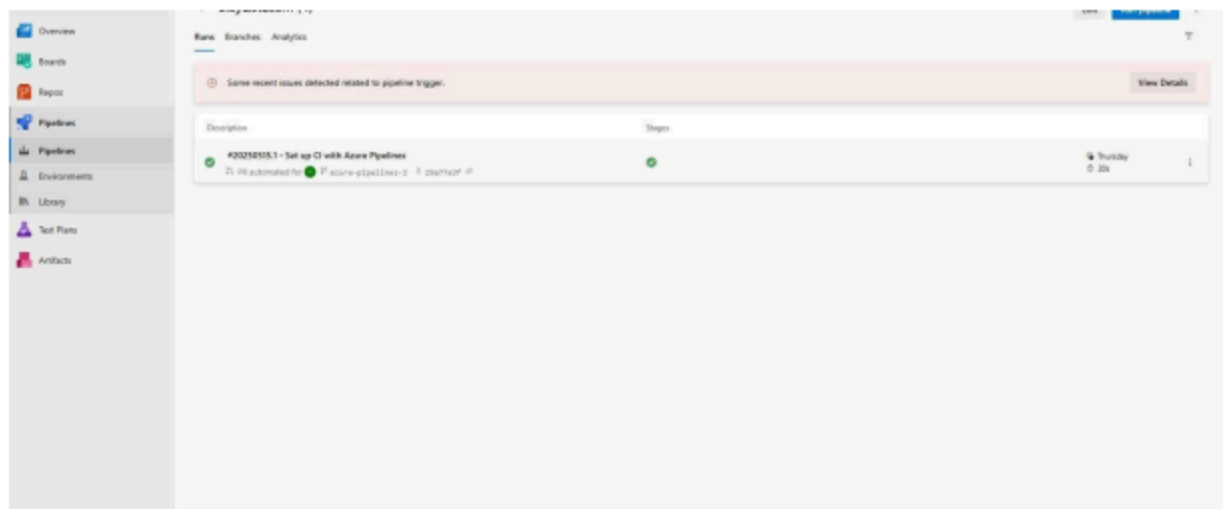
To implement a Continuous Integration and Continuous Deployment (CI/CD) pipeline in Azure DevOps for automating the build, testing, and deployment process of the Student Management System, ensuring faster delivery and improved software quality.

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 Student Management System 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 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 task linked to your subscription and app details.
13. **Set Triggers and Approvals** Enable 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.



RESULT :

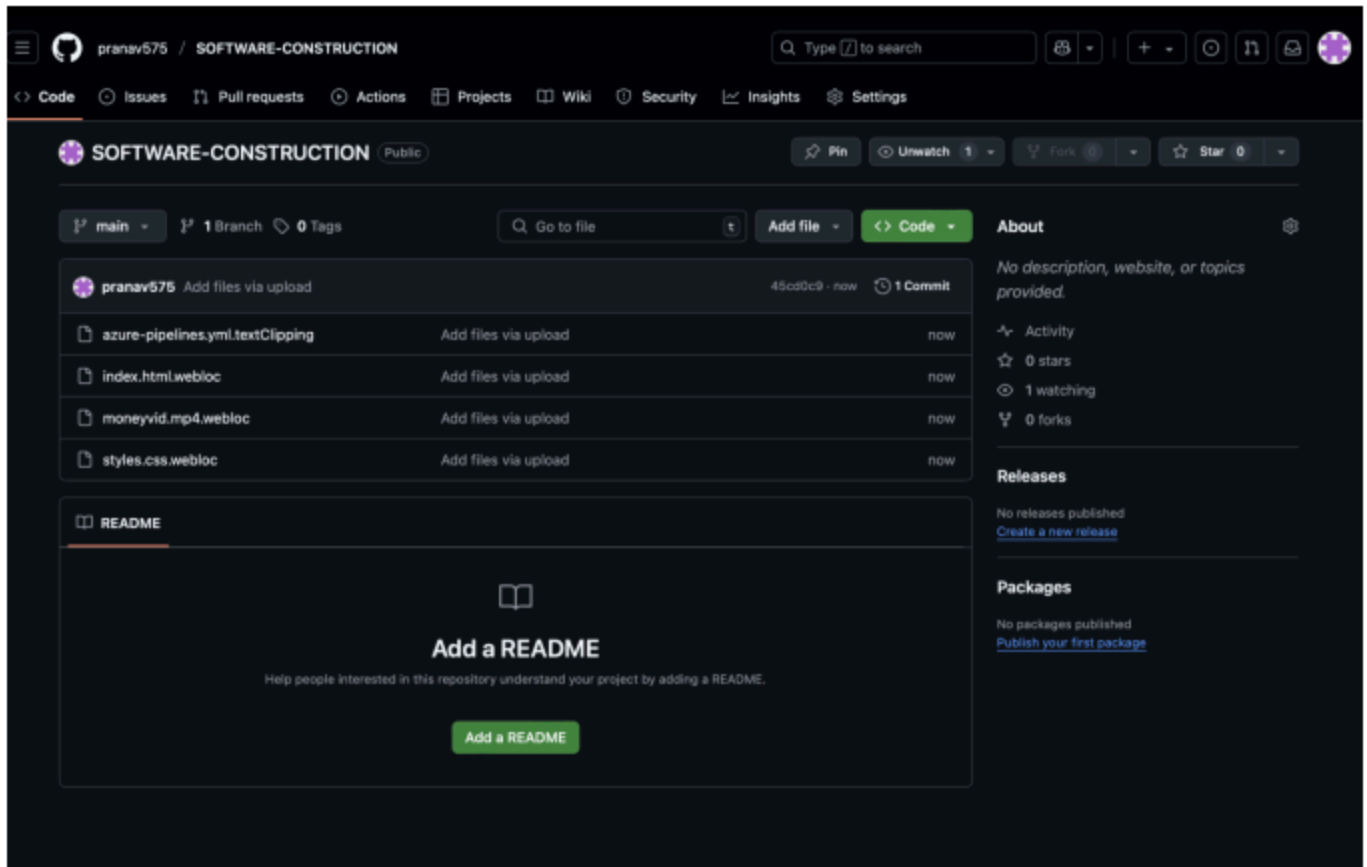
Thus the pipelines for the given project “Online Quiz System” has been executed successfully.

EXP NO: 10	GITHUB: PROJECT STRUCTURE & NAMING CONVENTIONS
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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 Quiz System.

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.