

EXP NO: 1

AZURE DEVOPS ENVIRONMENT SETUP

AIM

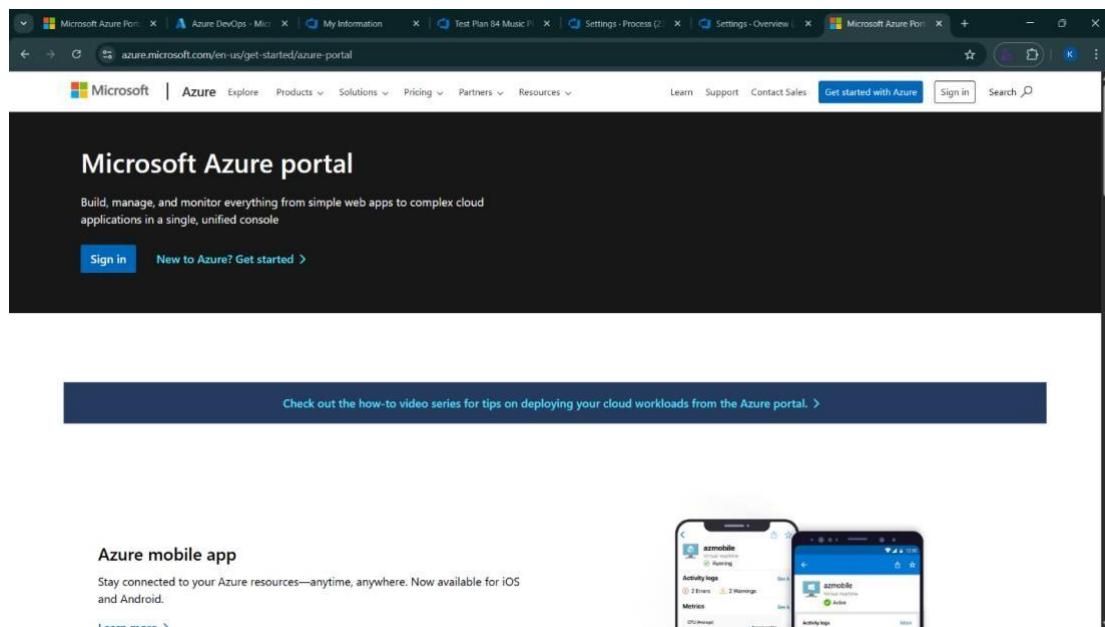
To set up and access the Azure DevOps environment by creating an organization through the Azure portal.

INSTALLATION

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

Sign in using your Microsoft account credentials.

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



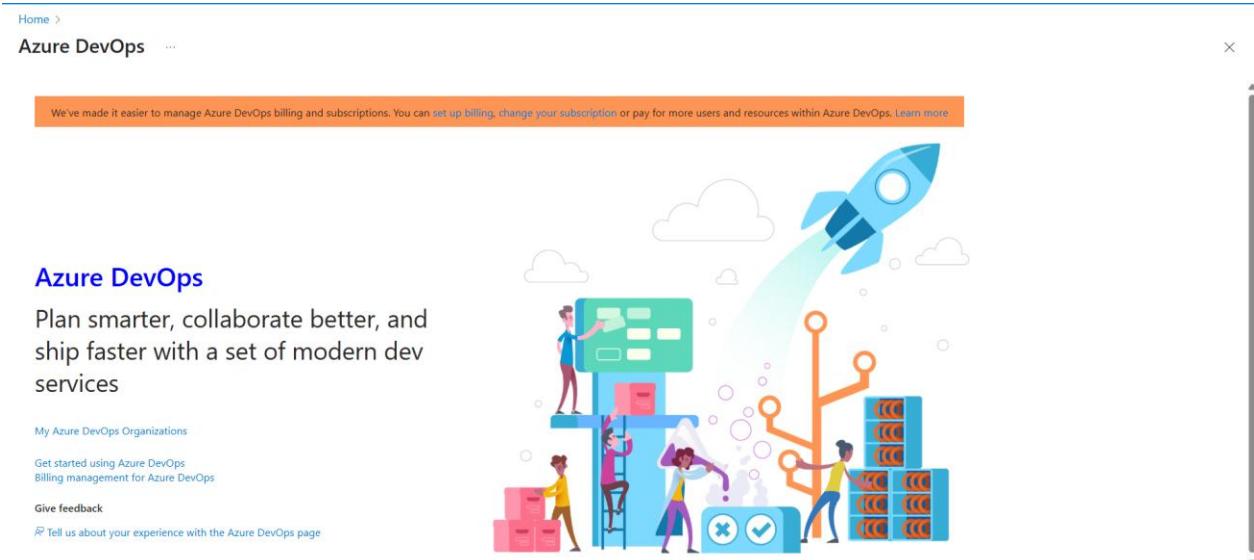
2. Azure home page

The screenshot shows the Microsoft Azure home page. At the top, there's a navigation bar with icons for back, forward, refresh, and search. The search bar contains the text "Search resources, services, and docs (0+)" and a magnifying glass icon. Below the search bar, the title "Microsoft Azure" is displayed. A banner at the top says "Welcome to Azure!" and "Don't have a subscription? Check out the following options." It features three cards: "Start with an Azure free trial" (blue key icon), "Manage Microsoft Entra ID" (blue shield icon), and "Azure for Students" (blue graduation cap icon). Below these cards, there's a section titled "Azure services" with a "Create a resource" button and icons for DevOps organizations, Quickstart Center, AI Foundry, Kubernetes services, Virtual machines, App Services, Storage accounts, SQL databases, and More services. A "Resources" section follows, featuring a large blue pencil icon on a whiteboard.

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

This screenshot is similar to the previous one but with a search bar at the top containing the text "azure dev". The search results are displayed below the bar, under the heading "All Services (99+)". The results include "Azure Device Registry", "Azure DevOps organization" (which is highlighted in light blue), "Azure Database for MySQL servers", and "Education". The "Azure DevOps organization" result has a sub-section titled "Keywords: azure dev tools for teaching". Other search results include "Marketplace", "Build Agents for Azure DevOps", "Azure DevOps Auditing", "Azure DevOps Backup Tool", "Self Hosted Runner for Azure DevOps", "Documentation" (with links to "Install the Azure Developer CLI", "What is Azure Dev/Test offer?", and "Set up Azure Deployment Environments - Azure Deployment Environments"), and "Continue searching in Microsoft Entra ID". The rest of the page content is identical to the first screenshot, including the "Azure services" section and the "Resources" section with its blue pencil icon.

4. Click on the ***My Azure DevOps Organization*** link and create an organization and you should be taken to the Azure DevOps Organization Home page.



RESULT

Successfully accessed the Azure DevOps environment and created a new organization through the Azure portal.

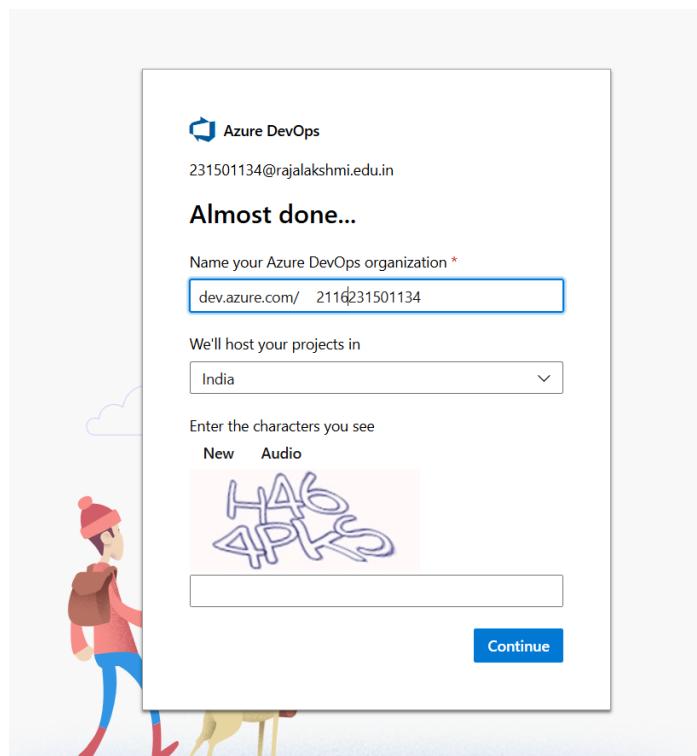
EXP NO: 2

AZURE DEVOPS PROJECT SETUP AND USER STORY MANAGEMENT

AIM

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

1.Create An Azure Account



2.Create the First Project in Your Organization

a. After the organization is set up, you'll need to create your first **project**. This is where you'll begin to manage code, pipelines, work items, and more.

b. On the organization's **Home page**, click on the **New Project** button.

c. Enter the project name, description, and visibility options:

Name: Choose a name for the project (e.g., **LMS**).

Description: Optionally, add a description to provide more context about the project.

Visibility: Choose whether you want the project to be **Private** (accessible only to those invited) or **Public** (accessible to anyone).

d. Once you've filled out the details, click **Create** to set up your first project.

Create new project

X

Project name *

ONLINE QUIZ SYSTEM

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

Reshma Gopinath Sign out

RG

Reshma Gopinath [Edit profile](#)

231501134@rajalakshmi.edu.in

India [231501134@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/231501134 (Owner)

Projects

- Project-1
- Online Quiz
- Online Quiz System

Actions [Open in Visual Studio](#)

231501134@rajalakshmi.edu.in

dev.azure.com/2315011340283 (Owner)

dev.azure.com/2315011340790 (Owner)

4. Project dashboard

Azure DevOps 2315011340790 / ONLINE QUIZ SYSTEM / Overview / Summary

ONLINE QUIZ SYSTEM

OS **ONLINE QUIZ SYSTEM**

[Private](#) [Invite](#)

About this project

The Online Quiz System is a web-based application developed to provide a simple and effective platform for conducting quizzes over the internet. It allows users to log in, attempt multiple-choice questions, and receive instant feedback on their performance. The system ensures secure access through a login mechanism and maintains user session integrity. Once logged in, users can start the quiz, answer a predefined set of questions, and submit their responses. The system then automatically evaluates the answers and displays the final score. Developed using JSP, Servlets, and MySQL, the project applies core principles of software construction such as modularity, reusability, and maintainability. It emphasizes structured design, clean code practices, and efficient interaction between frontend and backend components to ensure a smooth and reliable user experience.

Project stats Period: Last 30 days

Boards: 23 Work items

Repos: 0 Work items

Pipelines: 0 Work items

Test Plans: 0 Work items

Artifacts: 0 Work items

Members 1

RG

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 the new User Story.

The screenshot shows the Azure DevOps Boards Backlog page. The left sidebar is the navigation menu with 'Backlogs' selected. The main area shows the 'Backlog' tab for the 'ONLINE QUIZ SYSTEM Team'. There are three items in the backlog:

Order	Work Item Type	Title	State	Effort	Busin...	Value Area	Tags
1	Epic	> User Management	New			Business	
2	Epic	> Quiz creation & settings	New			Business	
3	Epic	> Quiz Participation & Results	New			Business	

The screenshot shows the Microsoft sign-in page. It displays the user's name, Reshma Gopinath, and email address, 231501134@rajalakshmi.edu.in. There are links for 'My Microsoft account' and 'Switch directory'.

RESULT

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

EXP NO: 3

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

AIM

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

Create Epic, Features, User Stories, Task

The screenshot shows the Azure DevOps Boards backlog for the 'ONLINE QUIZ SYSTEM' team. The backlog is organized into three main sections: Backlog and Analytics. The Backlog section displays a list of work items with columns for Order, Work Item Type, Title, State, Effort, Business Value Area, and Tags. The work items are categorized into three epics:

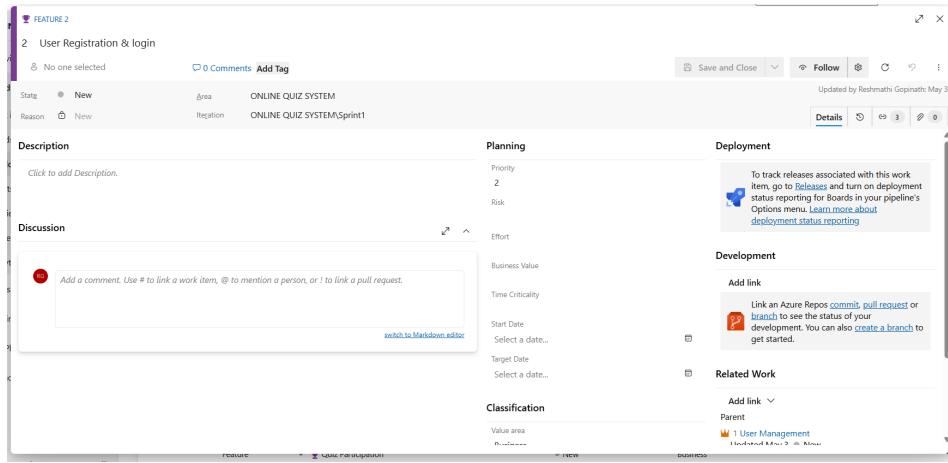
- Epic 1: User Management, containing 5 user stories.
- Epic 2: Quiz creation & settings, containing 5 user stories.
- Epic 3: Quiz Participation & Results, containing 5 user stories.

The user stories are detailed with descriptions such as 'As an admin I want to manage quizzes and users' and 'As a player I want to register and login so that I can access my profile'. The Business Value Area for most items is 'Business'.

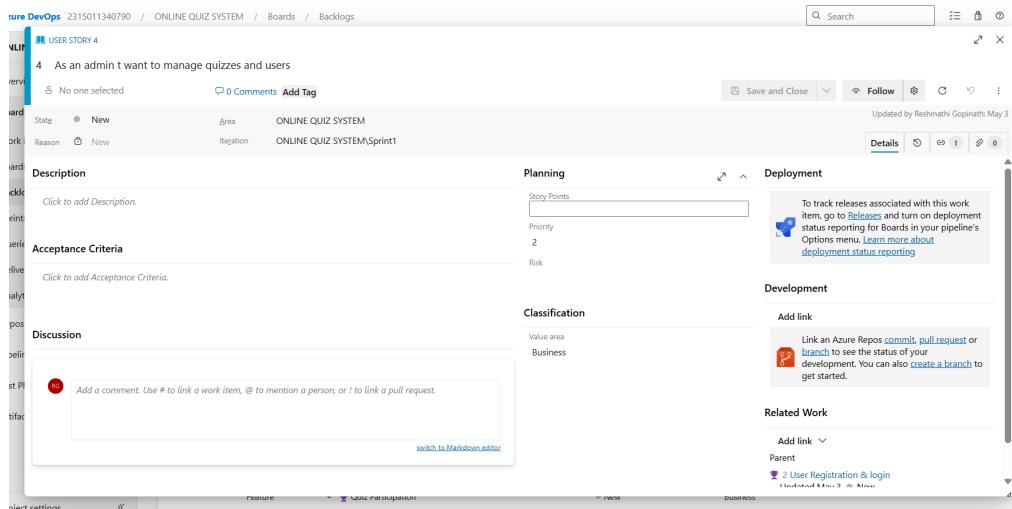
1.Fill in Epics

The screenshot shows the Azure DevOps epic creation dialog for the 'User Management' epic. The dialog includes fields for Description, Planning, Deployment, Development, and Related Work. The 'Description' field contains a placeholder: 'Click to add Description.' The 'Planning' section shows priority set to 2 and risk level as 'Risk'. The 'Deployment' section provides instructions on tracking releases. The 'Development' section includes a 'Add link' button and a note about committing code to Azure Repos. The 'Related Work' section allows linking to existing work items.

2.Fill in Features



3.Fill in User Story Details



RESULT

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

EXP NO: 4

SPRINT PLANNING

AIM

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

Sprint Planning

Sprint 1

The screenshot shows the Azure DevOps Boards - Sprints page for the 'ONLINE QUIZ SYSTEM Team'. The backlog contains the following user stories:

- 4 As an admin I want to manage quizzes and users
- 5 As a player I want to register and login so that I can access quizzes securely
- 6 As an admin I want to give users the right access so they can use the system properly
- 10 As an admin I want to create and configure quizzes with time and limits so I can control quiz flow

The user story '4' is currently selected and assigned to the 'New' column. The sprint duration is listed as 'May 3 - May 17 | 10 work days'.

Sprint 2

The screenshot shows the Azure DevOps Boards - Sprints page for the 'ONLINE QUIZ SYSTEM Team'. The backlog contains the following user stories:

- 11 As a player I want to see only my quizzes and progress so that it's easy to use
- 12 As a player I want to have the quiz introduction and duration before starting so I can prepare
- 13 As an admin I want to manage a question bank so I can reuse questions easily
- 14 As a player I want each question to load quickly

The user story '11' is currently selected and assigned to the 'New' column. The sprint duration is listed as 'May 3 - May 17 | 10 work days'.

Sprint 3

The screenshot shows the Azure DevOps Taskboard for the 'ONLINE QUIZ SYSTEM Team'. The board is set up for 'Sprint 3' and shows three work items:

- Work Item 19:** As a player I want to start and submit a quiz so that I can complete it and get my result.
 - Status: New
 - Assignee: Unassigned
- Work Item 20:** As an admin I want to view and download player scores so I can analyze their performance.
 - Status: New
 - Assignee: Unassigned
- Work Item 21:** As a player I want to see my score right after finishing the quiz so I know how I performed.
 - Status: New
 - Assignee: Unassigned

The Taskboard has columns for Active, Resolved, and Closed. The date range is May 3 - May 17, 10 work days.

RESULT

The Sprints have been created for Online Quiz System.

EXP NO: 5

POKER ESTIMATION

AIM

Create Poker Estimation for the user stories – Online Quiz System.

Poker Estimation

The screenshot shows a detailed view of a User Story card in Azure DevOps. The card is titled "USER STORY 4" and describes a user story: "As an admin I want to manage quizzes and users". The story is currently in the "New" state and is assigned to the "ONLINE QUIZ SYSTEM" area. It is part of the "ONLINE QUIZ SYSTEM\Sprint1" iteration. The card is organized into several sections: "Description", "Acceptance Criteria", "Discussion", "Planning", "Classification", "Deployment", "Development", and "Related Work". The "Planning" section contains fields for "Story Points" (set to 2), "Priority" (set to 2), and "Risk". The "Classification" section indicates the "Value area" is "Business". The "Deployment" section provides instructions on how to track releases associated with the work item. The "Development" section includes an "Add link" button and a note about linking to Azure Repos. The "Related Work" section lists a parent item and a link to "User Registration & login".

RESULT

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

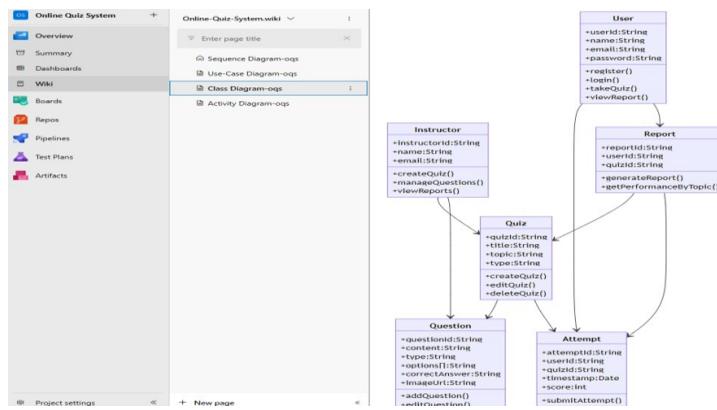
EXP NO: 6

DESIGNING CLASS AND SEQUENCE DIAGRAMS FOR PROJECT ARCHITECTURE

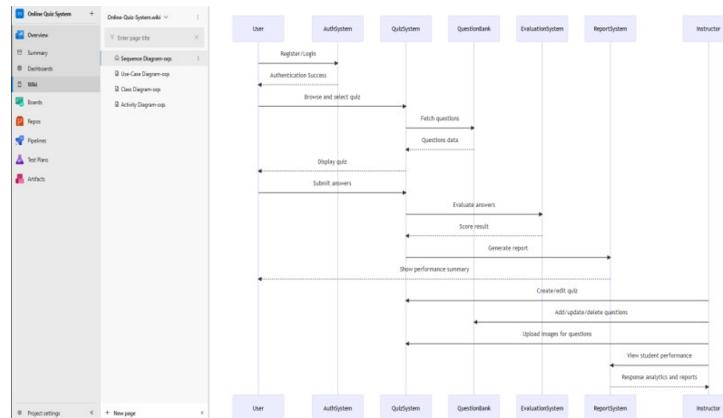
AIM

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

6A. Class Diagram



6B. Sequence Diagram



RESULT

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

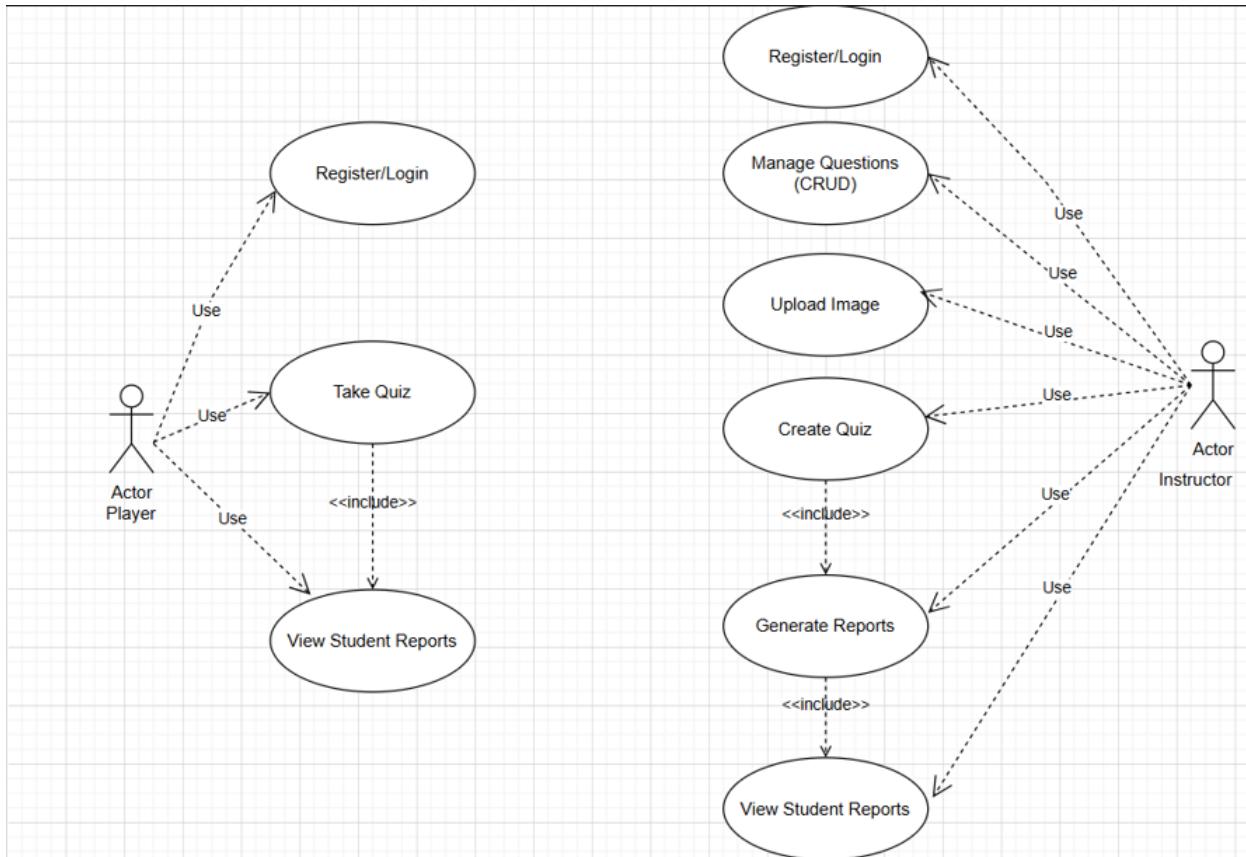
EXP NO: 7

DESIGNING USE-CASE AND ACTIVITY DIAGRAMS FOR PROJECT STRUCTURE

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.

TESTING – TEST PLANS AND TEST CASES

EXP NO: 8	
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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 identified (e.g., TC01 – Valid Login, TC03 – Invalid Password).
- Facilitates easy mapping to features and tracking in Azure DevOps.

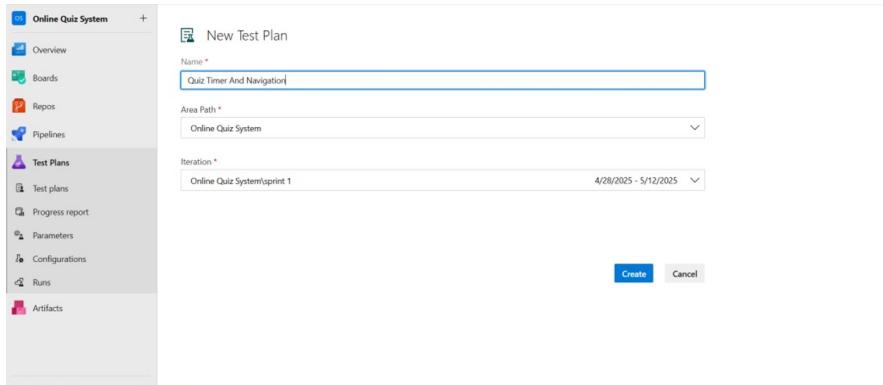
7. Separate Test

- Grouped by functionality such as:
 - Login and Registration
 - Quizzes Submission
 - Viewing Results
 - 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

The screenshot shows the 'Test Suites' page for the 'ONLINE QUIZ SYSTEM'. The sidebar on the left is identical to the previous screenshot. The main area shows a 'Test Suites' list with 'Login verification (3)' selected. To the right is a detailed view of the 'Login verification (ID: 23)' test case, showing a table of 'Test Cases (3 items)'. The table has columns for Title, Order, Test Case Id, Assigned To, and State. The data is as follows:

Title	Order	Test Case Id	Assigned To	State
valid Login	1	25	Reshmaithi Gopin...	Design
Invalid Username	2	26	Reshmaithi Gopin...	Design
Invalid Password	3	27	Reshmaithi Gopin...	Design

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 flow (ID: 10).

TEST SUITES

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

1. TC01 –Valid Login

○ **Action:**

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

○ **Expected Results:**

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

○ **Type:** Happy Path

2. TC02 – Invalid Username

○ **Action:**

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

○ **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.

○ **Type:** Negative Path

3. TC03 – Invalid Password

- **Action:**

- Go to the Login page.
 - Enter a valid username or email.
 - Enter an incorrect or invalid password.
 - Click on "Login" button.

- **Expected Results:**

- Login form is displayed.
 - System shows an error message like "Invalid username or password."
 - User is not logged in and stays on the login page.

- **Type:** Error Path

4. TC04 – Login with Wrong Password

- **Action:**

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

- **Expected Results:**

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

- **Type:** Error Path

Test Suite: TS02 – Quiz Creation (ID: 28)

1. TC05 – Valid Quiz Creation

- **Action:**

- Navigate to the "Create Quiz" page.
 - Enter valid quiz details.
 - Click the "Create" or "Submit" button.

- **Expected Results:**

- Quiz is successfully saved in the database.

- **Type:** Happy Path

2. TC06 – Missing Title

- **Action:**

- Navigate to "Create Quiz" page.
 - Leave the title field empty and fill in valid questions and options.
 - Click the "Create" or "Submit" button.

- **Expected Results:**
 - System displays a validation error message like "Title is required".
 - Quiz is not submitted or saved in the database.
- **Type:** Error Path

Test Suite: TS03 – Quiz Results (ID: 32)

1. TC07 –View Quiz Results As Player

- **Action:**
 - Log in as a player.
 - Navigate to "My Results" or "Quiz Results" section.
 - Select a completed quiz to view the results.
- **Expected Results:**
 - Player sees their score and correct/incorrect answers for the selected quiz.
- **Type:** Happy Path

2 . TC08 – View Quiz Results As Admin

- **Action:**
 - Log in as an admin.
 - Navigate to the "Quiz Results" or "All Results" section.
 - Select a quiz to view all participants results.
- **Expected Results:**
 - Admin sees a list of participants with their scores and answers.
- **Type:** Happy Path

Test Suite: TS04 – Quiz Attempt (ID: 36)

1. TC09 –Submit Quiz With All Questions Answered

- **Action:**
 - Login and start an available quiz.
 - Answer all questions.
 - Click the "Submit" button.
- **Expected Results:**
 - Answers are recorded and score is calculated correctly.
- **Type:** Happy Path

2. TC10 – Submit Quiz without Answering Any Question

- **Action:**
 - Login and start a quiz.
 - Leave all questions unanswered.
 - Click the "Submit" button.

- **Expected Results:**
 - System displays a warning or prompt (e.g., "You have unanswered questions").
- **Type:** Error Path

Test Suite: TS05 – Question Navigation (ID: 41)

1. TC11 – Navigate Between Questions During Quiz

- **Action:**
 - Start a quiz with multiple questions.
 - Click “Next” and “Previous” to move between questions.
 - Return to previously answered question to modify the answer.
- **Expected Results:**
 - User can freely navigate between questions during the quiz.
- **Type:** Happy Path

2. TC12 – Attempt to Skip Required question With Navigation

- **Action:**
 - Start a quiz with required questions.
 - Attempt to click “Next” without answering the current question.
 - Try submitting the quiz with unanswered required questions.
- **Expected Results:**
 - Quiz cannot be submitted until required questions are answered.
- **Type:** Error Path

Test Cases

The screenshot shows the Azure DevOps interface for the 'ONLINE QUIZ SYSTEM' project. The left sidebar has a 'Test Plans' section selected. The main area displays a table of 'Test Plans' with the following data:

Title	Test Plan ID	Status	Area Path	Iteration	Assigned To
Quiz Result	30	Active	ONLINE QUIZ SYSTEM	ONLINE QUIZ SYSTEM\Sprint1	Reshmathi Gopinath
Quiz Creation	28	Active	ONLINE QUIZ SYSTEM	ONLINE QUIZ SYSTEM\Sprint1	Reshmathi Gopinath
Login verification	22	Active	ONLINE QUIZ SYSTEM	ONLINE QUIZ SYSTEM\Sprint1	Reshmathi Gopinath

Azure DevOps Test Case 2315011340790 / ONLINE QUIZ SYSTEM / Test Plans / Login verification

TEST CASE 25
25 valid Login
Reshamathi Gopinath 0 Comments Add Tag

State: Design Area: ONLINE QUIZ SYSTEM Reason: New Iteration: ONLINE QUIZ SYSTEM\Sprint1

Save and Close Follow Associated Automation

Steps Summary Associated Automation

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

Steps Action Expected result Attachments

1. Navigate to the login page.
2. enter a valid username/email.
3. enter valid password.
4. Click the login button.
- 5.

User is redirected to the dashboard/homepage

Click or type here to add a step

Parameter values

This screenshot shows the detailed view of a test case named 'valid Login' under the 'Test Cases' section of the 'Login verification' test plan. It includes sections for steps, deployment, development, related work, and status. The steps section contains five numbered steps with expected results and attachments. The deployment and development sections provide links to track releases and development status. The related work and status sections allow for linking to other work items and monitoring progress.

Azure DevOps 2315011340790 / ONLINE QUIZ SYSTEM / Test Plans / Login verification

ONLINE QUIZ SYSTEM Overview Boards Repos Pipelines Test Plans Test plans Progress report Parameters Configurations Runs Artifacts Project settings

Login verification (3) Filter suites by name

Define Execute Chart

Test Points (3 items)

Title	Outcome	Order	Test Case Id	Configuration	Tester
valid Login	Active	1	25	Windows 10	Reshamathi Gopinath
Invalid Username	Active	2	26	Windows 10	Reshamathi Gopinath
Invalid Password	Active	3	27	Windows 10	Reshamathi Gopinath

This screenshot shows the 'Execute' tab of the 'Login verification' test plan. It displays a table of test points, each with a title, outcome, order, test case id, configuration, and tester assigned. The test points listed are 'valid Login', 'Invalid Username', and 'Invalid Password', all marked as active.

Azure DevOps 2315011340790 / ONLINE QUIZ SYSTEM / Test Plans / Quiz Creation

ONLINE QUIZ SYSTEM Overview Boards Repos Pipelines Test Plans Test plans Progress report Parameters Configurations Runs Artifacts Project settings

Quiz Creation (3) Filter suites by name

Define Execute Chart

Test Cases (3 items)

Title	Order	Test Case Id	Assigned To	State
Valid Quiz Creation	1	32	Reshamathi Gopinath	Design
Missing Title	2	33	Reshamathi Gopinath	Design
Invalid Time Range	3	34	Reshamathi Gopinath	Design

This screenshot shows the 'Execute' tab of the 'Quiz Creation' test plan. It displays a table of test cases, each with a title, order, test case id, assigned to, and state. The test cases listed are 'Valid Quiz Creation', 'Missing Title', and 'Invalid Time Range', all assigned to 'Reshamathi Gopinath' and in the 'Design' state.

Test Case 32

Valid Quiz Creation

Reeshnathi Gopinath

0 Comments Add Tag

State: Design Area: ONLINE QUIZ SYSTEM

Reason: New Iteration: ONLINE QUIZ SYSTEM\Sprint1

Steps

Step	Action	Expected result	Attachments
1.	Login as Admin/Instructor.		
2.	Go to "Create Quiz" page.		
3.	Add questions with correct answers.		
4.	Click "Create/Save"		
5.		Quiz is created and listed	

Click or type here to add a step

Parameter values

Save and Close Follow Updated by Reeshnathi Gopinath: 3m ago Steps Summary Associated Automation

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

Quiz Result (3)

May 3 - May 17

Test Suites

Filter suites by name

Quiz Result (3)

Quiz Result (ID: 31)

Define Execute Chart

New Test Case

Title	Order	Test Case Id	Assigned To	State
View Quiz Results As Player	1	35	Reeshnathi Gopinath	Design
View Quiz Results As Admin	2	36	Reeshnathi Gopinath	Design
Automatic Result Generation	3	37	Reeshnathi Gopinath	Design

Test Case 35

View Quiz Results As Player

Reeshnathi Gopinath

0 Comments Add Tag

State: Design Area: ONLINE QUIZ SYSTEM

Reason: New Iteration: ONLINE QUIZ SYSTEM\Sprint1

Steps

Step	Action	Expected result	Attachments
1.	Login as player.		
2.	Navigate to "My Results" or "Completed Quizzes"		
3.	Click on complete quiz.		
4.		Quiz result with score, correct/wrong answer is displayed	

Click or type here to add a step

Parameter values

Save and Close Follow Updated by Reeshnathi Gopinath: 2m ago Steps Summary Associated Automation

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

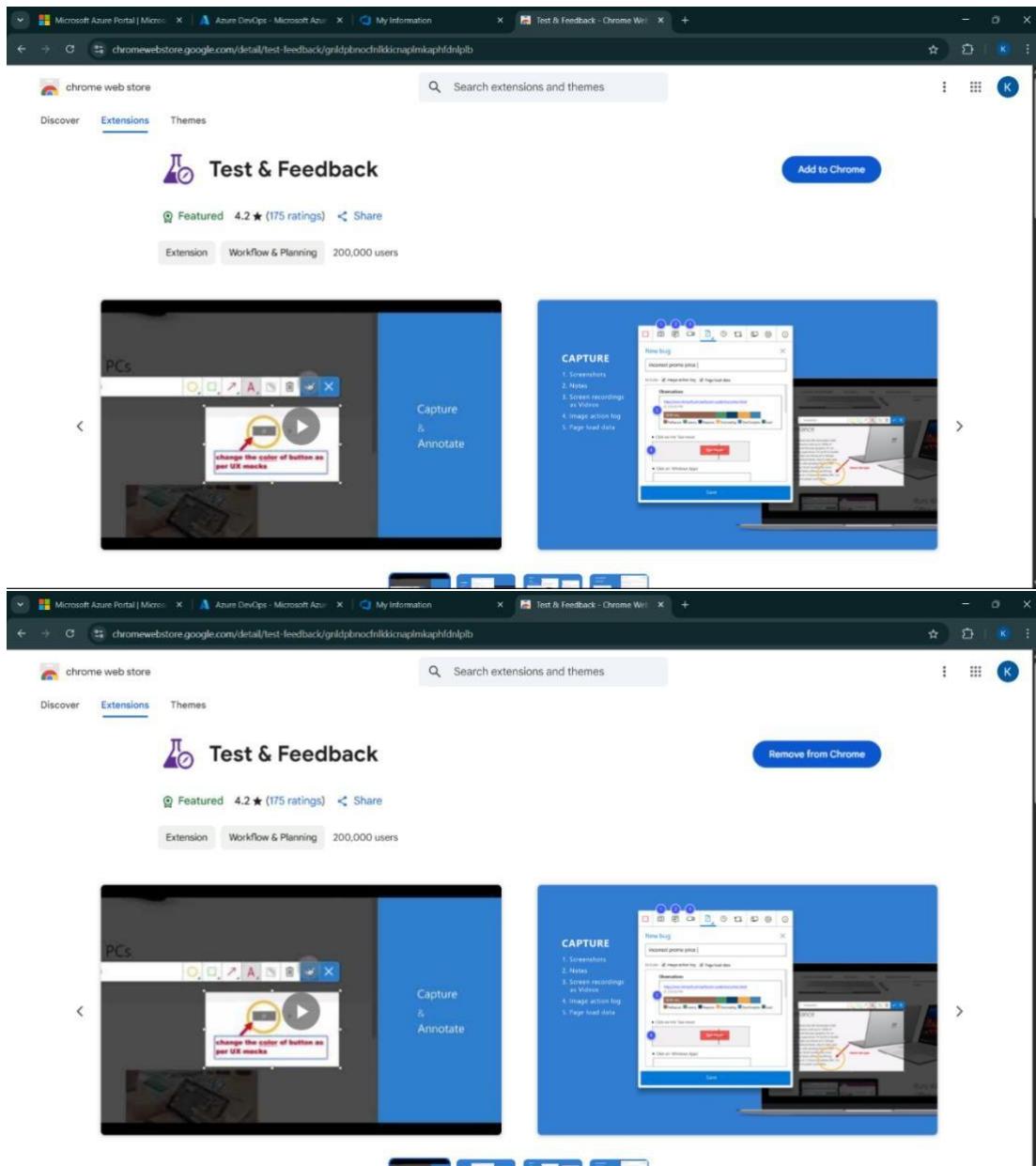
Link an Azure Repos commit, pull request or branch to see the status of your development. You can also [create a branch](#) to get started.

Related Work

Add link Add an existing work item as a parent

Status

4. Installation of test



5. Running the test cases

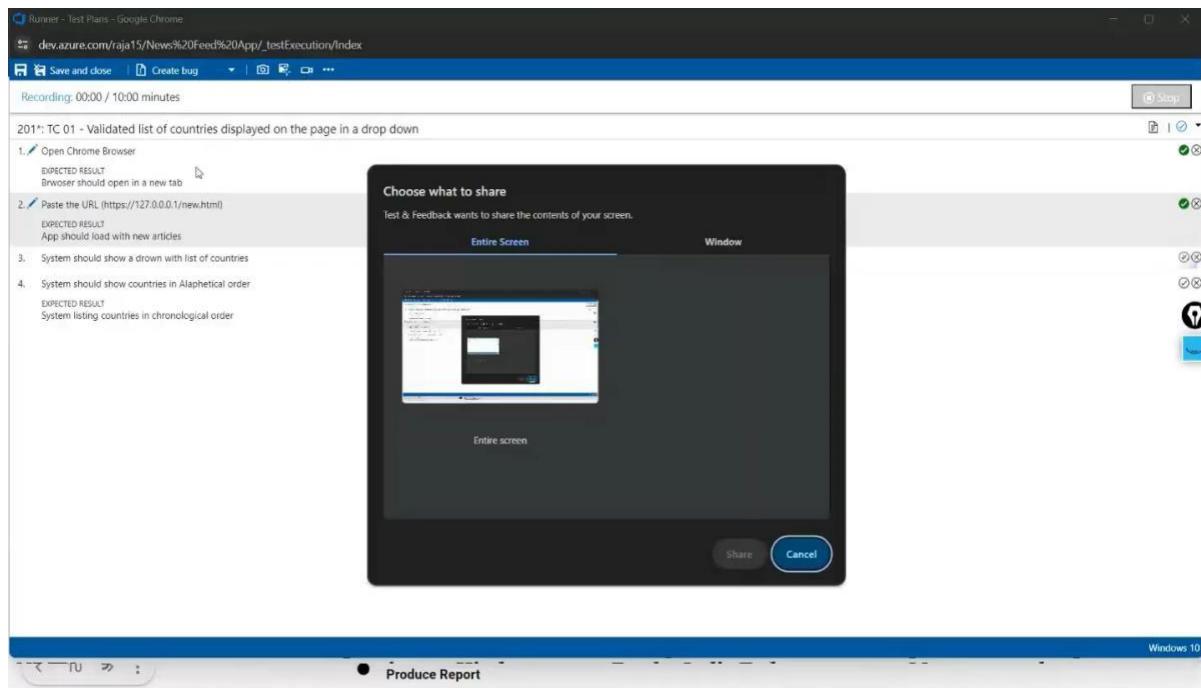
The screenshot shows the Azure DevOps Test Plans interface for the 'ONLINE QUIZ SYSTEM' project. The left sidebar is collapsed. The main area displays the 'Login verification' suite under the 'Test Suites' section. The suite contains three test points: 'valid Login', 'Invalid Username', and 'Invalid Password'. A context menu is open over the first test point, listing options like 'View execution history', 'Mark Outcome', 'Run', 'Reset test to active', 'Edit test case', and 'Assign tester'. The top right corner features a search bar and various navigation icons.

The screenshot shows a browser window titled 'Runner - Test Plans - Google Chrome' displaying the 'valid Login' test step. The steps are listed as follows:

- 1.✓ Navigate to the login page.
2. enter a valid username/email.
3. enter valid password.
4. Click the login button.

Below the steps, there is an 'EXPECTED RESULT' section stating: 'User is redirected to the dashboard/homepage'. To the right of the steps, there are three columns of status indicators (green, yellow, red) for each of the three test cases (25, 26, 27). The bottom right corner of the browser window shows 'Windows 10'.

6.Recording the test case



7.Creating the bug

The screenshot shows the 'New Bug' creation interface in Azure DevOps. The title bar says 'NEW BUG *'. The main form has the following details:

- Title:** user should not login with invalid details
- State:** New
- Area:** Online Quiz System
- Reason:** New
- Iteration:** Online Quiz System\Sprint 1

Repro Steps:

5/17/2025 11:00 AM Bug filed on "Valid Login"

Step no.	Result	Title
1.	None	Navigate to the login page.
2.	None	enter a valid username/email.
3.	None	enter valid password.
4.	None	Click the login button.
5.	None	

Planning:

- Resolved Reason:
- Story Points:

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.

Effort (Hours):

Original Estimate: Remaining:

Related Work:

+ Add link

Add an existing work item as a parent

The screenshot shows a 'NEW BUG' card in the Azure DevOps interface. The card has the following details:

- Title:** NEW BUG * user should not enter invalid details
- Status:** Unassigned (New)
- Area:** Online Quiz System
- Iteration:** Online Quiz System\Sprint 1
- Comments:** 0 comments
- Tags:** Add tag
- Buttons:** Save & Close, Refresh, More

System Info

Browser - Name	Google Chrome 136
Browser - Language	en-US
Browser - Height	816
Browser - Width	1536
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	12th Gen Intel(R) Core(TM) i5-12450H
Operating system - Number of processors	12
Memory - Available	6998618112
Memory - Capacity	16831893504
Display - Pixels per inch (X axis)	120
Display - Pixels per inch (Y axis)	120

Details: Found in Build, Integrated in Build

8. Test case results

The screenshot shows the 'Test Plans' section of the Azure DevOps interface. The 'Login verification' test plan is selected. The interface includes:

- Sidebar:** ONLINE QUIZ SYSTEM, Overview, Boards, Repos, Pipelines, Test Plans (selected), Test plans, Progress report, Parameters, Configurations, Runs, Artifacts.
- Header:** Azure DevOps 2315011340790 / ONLINE QUIZ SYSTEM / Test Plans / Login verification
- Search:** Search
- Test Plan Details:** Login verification (ID: 23), Define, Execute, Chart, Run for web application.
- Test Points:** Test Points (3 items)

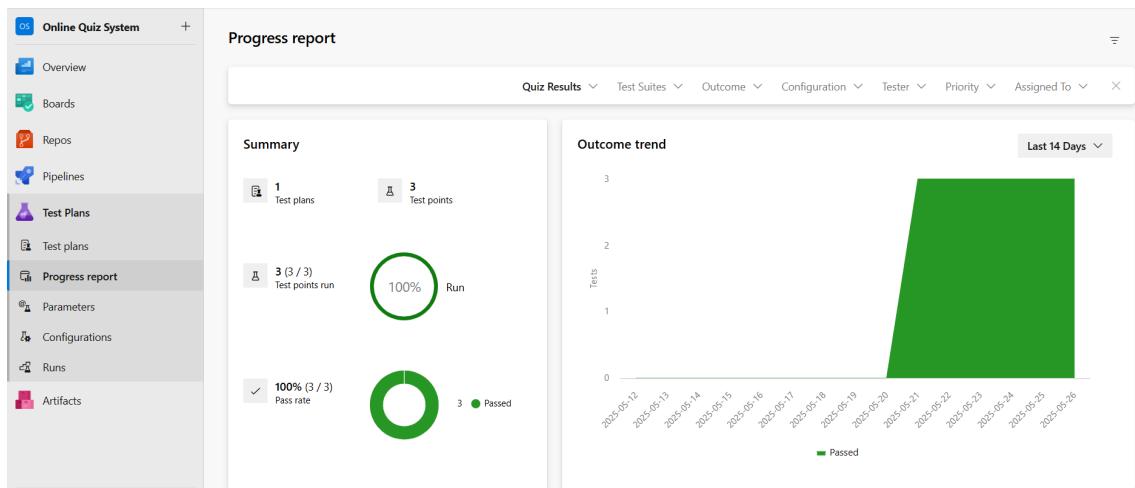
Title	Outcome	Order	Test Case Id
valid Login	Passed	1	25
Invalid Username	Blocked	2	26
Invalid Password	Passed	3	27

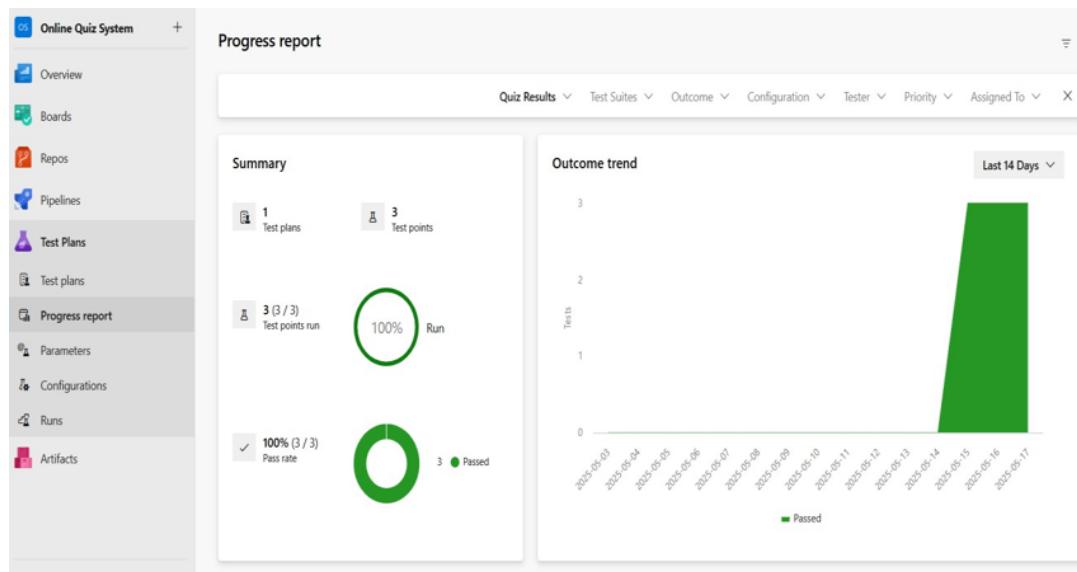
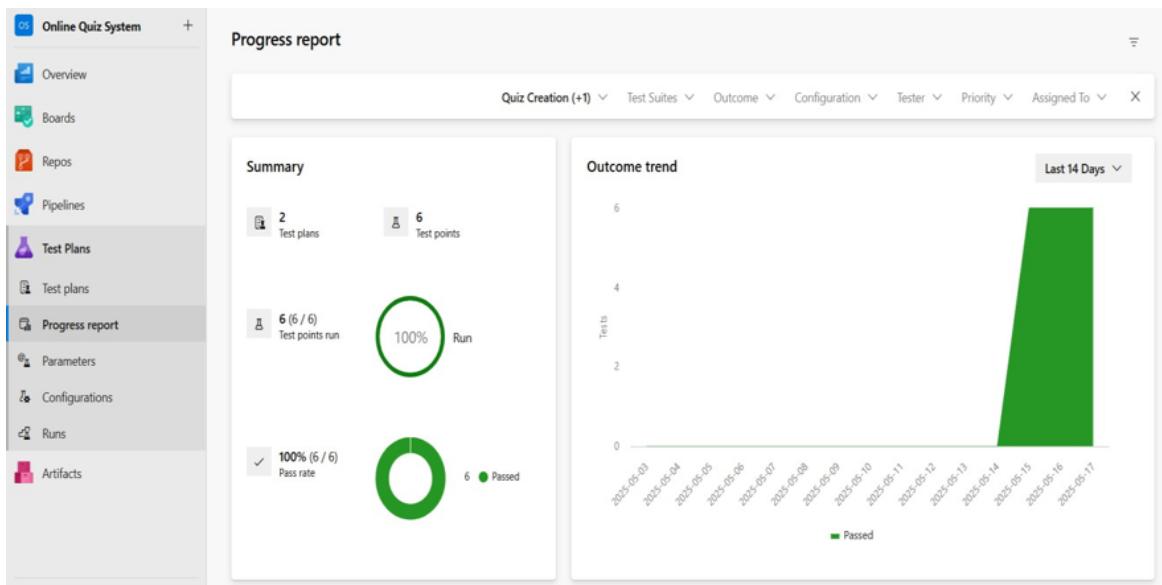
9. Test report summary

The screenshot shows a 'NEW BUG' card in the Azure DevOps interface. The card title is 'User should not enter invalid details'. The 'State' is set to 'New' and 'Reason' is also 'New'. There are 0 comments and an 'Add tag' button. The 'Area' is 'Online Quiz System' and the 'Iteration' is 'Online Quiz System\sprint 1'. The 'Save & Close' button is at the top right. The card is divided into sections: 'Repro Steps' (listing steps 1-5), 'Planning' (Resolved Reason, Story Points, Priority 2, Severity 3 - Medium, Activity), 'Deployment' (status reporting info), 'Development' (+ Add link, linking to Azure Repos), and 'Related Work' (+ Add link, add existing work item). A vertical scroll bar is visible on the right.

- Assigning bug to the developer and changing state

10. Progress report





11. Changing the test template

The screenshot shows the 'All processes' page in Azure DevOps. On the left, there's a sidebar with 'Organization Settings' and a 'Process' section selected. The main area lists four process templates: 'Basic (default)', 'Agile', 'Scrum', and 'CMMI'. Each template has a description and a 'Team projects' count.

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 pract...	2
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

The screenshot shows the 'Work item types' page under the 'All processes > Agile' section. The sidebar shows 'Process' is selected. The main area lists various work item types like Bug, Epic, Feature, Issue, Task, Test Case, Test Plan, Test Suite, and User Story, each with a brief description.

Name	Description
Bug	Describes a divergence between required and actual behavior, and tracks the work done to correct the defect and verify the correction.
Epic	Epics help teams effectively manage and groom their product backlog
Feature	Tracks a feature that will be released with the product
Issue	Tracks an obstacle to progress.
Task	Tracks work that needs to be done.
Test Case	Server-side data for a set of steps to be tested.
Test Plan	Tracks test activities for a specific milestone or release.
Test Suite	Tracks test activities for a specific feature, requirement, or user story.
User Story	Tracks an activity the user will be able to perform with the product

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 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.

The screenshot shows the Azure DevOps Pipelines interface for the 'Online Quiz System' project. The left sidebar is visible with 'Pipelines' selected. The main area displays a table of recently run pipelines:

Pipeline	Last run
#20250517.2 • Set up CI with Azure Pipelines Manually triggered for main	Just now 7s
#20250516.2 • Set up CI with Azure Pipelines Manually triggered for main	Yesterday 19s
#20250515.1 • Set up CI with Azure Pipelines Individual CI for main	Thursday <1s
#20250515.1 • Add files via upload Manually triggered for main	Thursday <1s

Azure DevOps Pipeline details:

- Pipeline Name:** #20250517.1 • Set up CI with Azure Pipelines
- Description:** Online Quiz System (4)
- Status:** Success
- Time started and elapsed:** Just now (9s)
- Related:** 0 work items, 0 artifacts
- Tests and coverage:** View 5 changes, Get started

Jobs:

Name	Status	Duration
Job	Success	2s

Azure DevOps Pipeline details:

- Pipeline Name:** #20250517.2 • Set up CI with Azure Pipelines
- Description:** Online Quiz System (4)
- Status:** Success
- Time started and elapsed:** Just now (7s)
- Related:** 0 work items, 0 artifacts
- Tests and coverage:** Get started

Jobs:

Name	Status	Duration
Job	Success	2s

RESULT

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

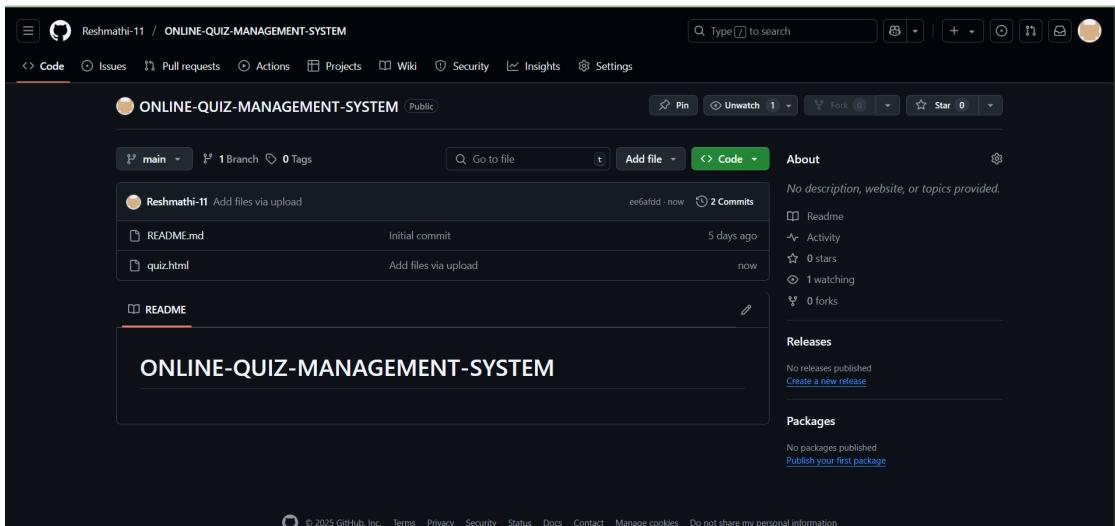
EXP NO: 10

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 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.