

INDEX

S.NO	DATE	TITLE
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9.	15/4/25	CI/CD Pipelines in Azure
10.	22/4/25	GitHub: Project Structure & Naming Convention

EXP NO: 1

AZURE DEVOPS ENVIRONMENT SETUP

AIM

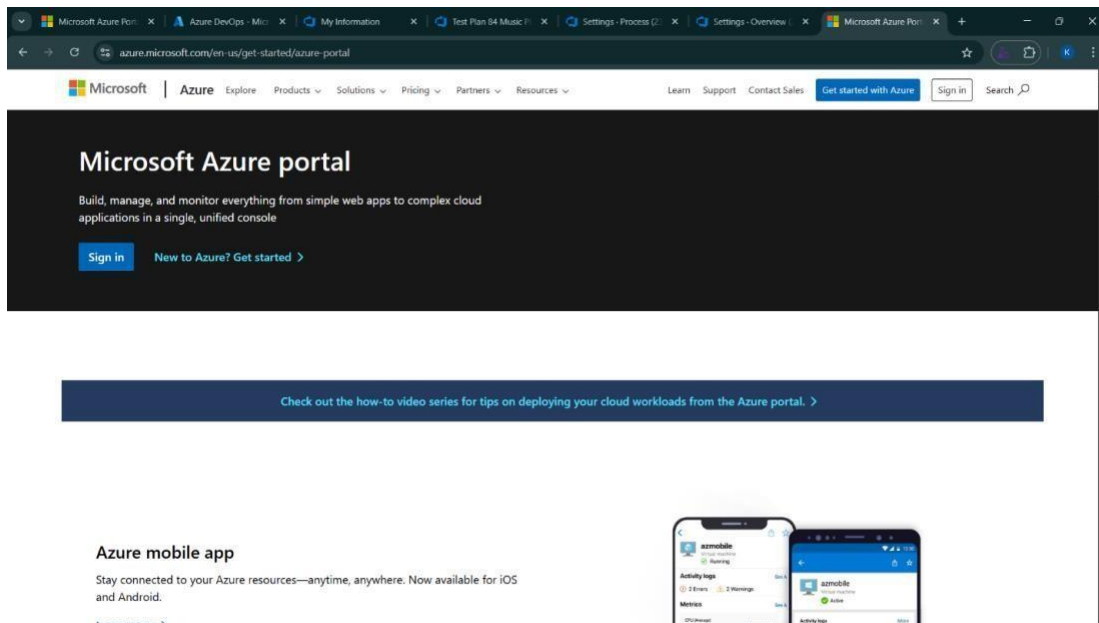
To set up and access the Azure DevOps environment by creating an organization through the Azure portal.

INSTALLATION

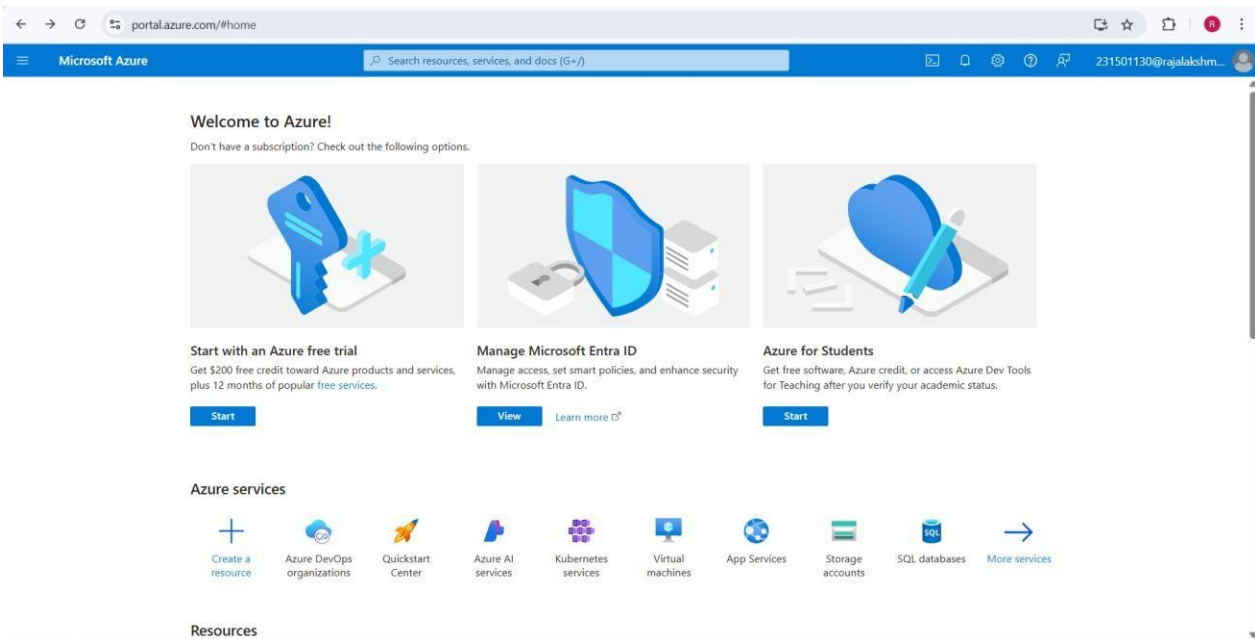
1. Open your web browser and go to the Azure website: <https://azure.microsoft.com/en-us/getstarted/azureportal>.

Sign in using your Microsoft account credentials.

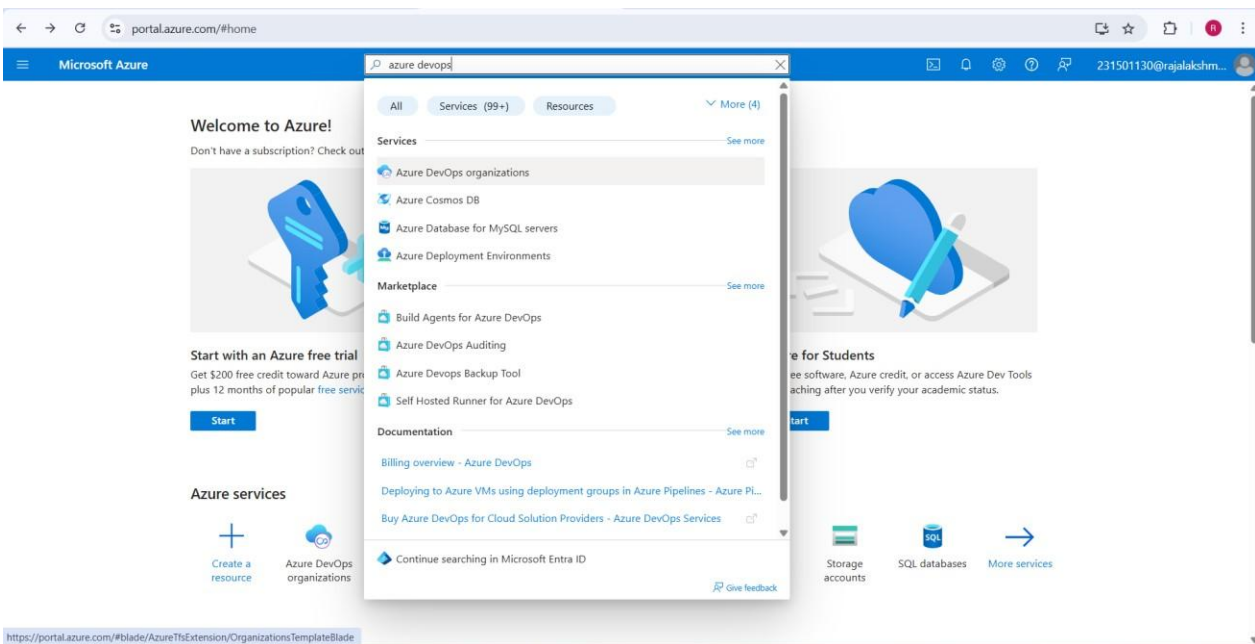
If you don't have a Microsoft account, you can create one here: <https://signup.live.com/?lic=1>



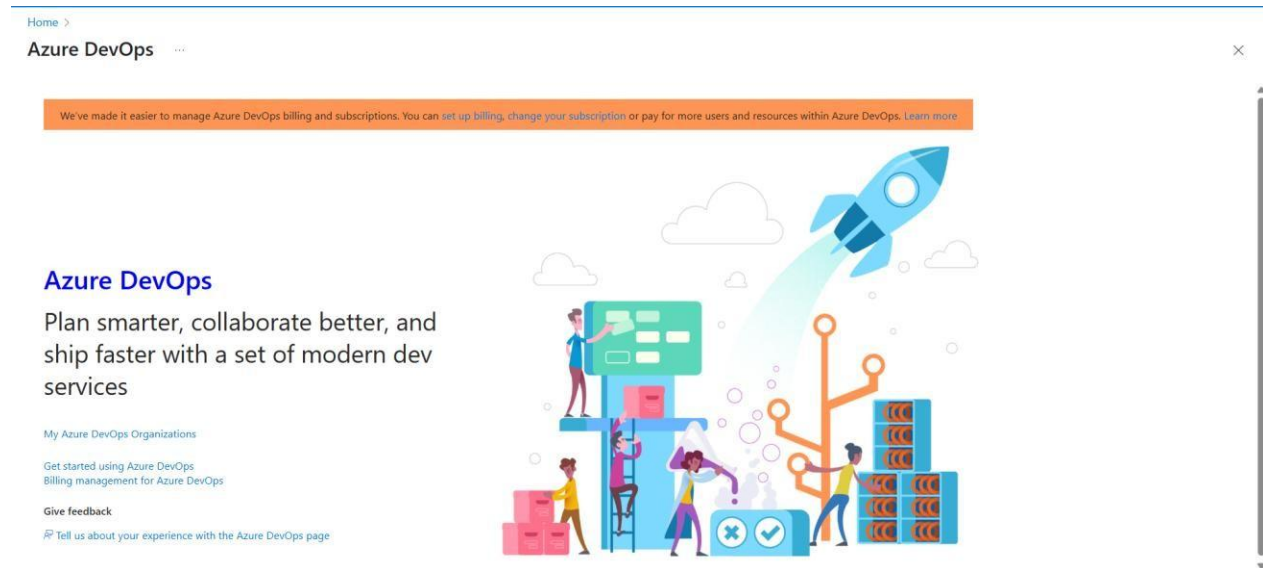
2. Azure home page



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



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



RESULT

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

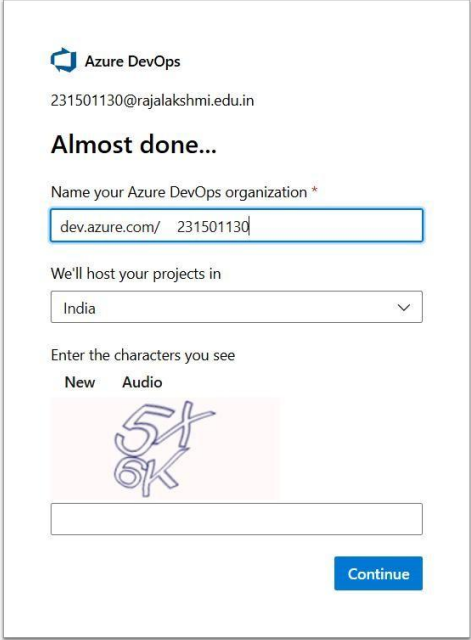
EXP NO: 2

AZURE DEVOPS PROJECT SETUP AND USER STORY MANAGEMENT

AIM

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

1.Create An Azure Account



2.Create the First Project in Your Organization

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

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

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

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

Create new project [Close]

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] [v]

Work item process [?] [Basic] [v]

[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.



Ranjani Sai
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[Edit profile](#)

India

231501130@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/231501130 (Owner)

> dev.azure.com/2315011300815 (Owner)

Projects

Online Quiz System

Atm

New project

Actions

[Open in Visual Studio](#)

> dev.azure.com/2315011300892 (Owner)

> dev.azure.com/23150113056 (Owner)

4. Project dashboard

Azure DevOps 2315011300815 / Online Quiz System / Overview / Summary

Search

Online Quiz System

Private [Invite](#)

About this project Like 0

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 7 days

Boards

16 Work items created

0 Work items completed

Repos

0 Pull requests opened

3 Commits by 1 authors

Pipelines

0% Builds succeeded

Members 1

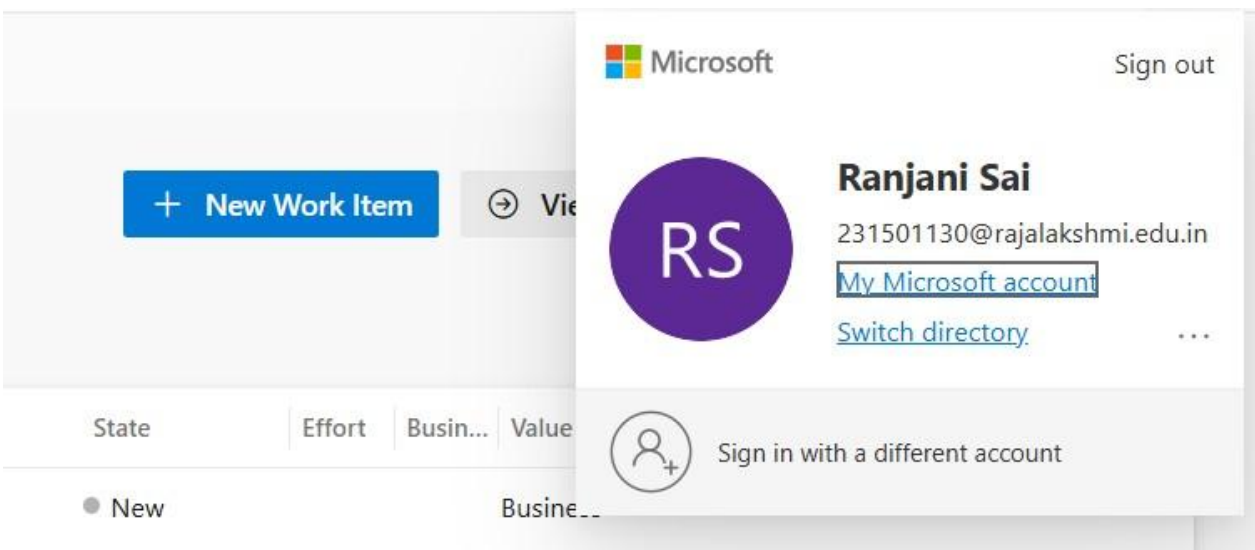
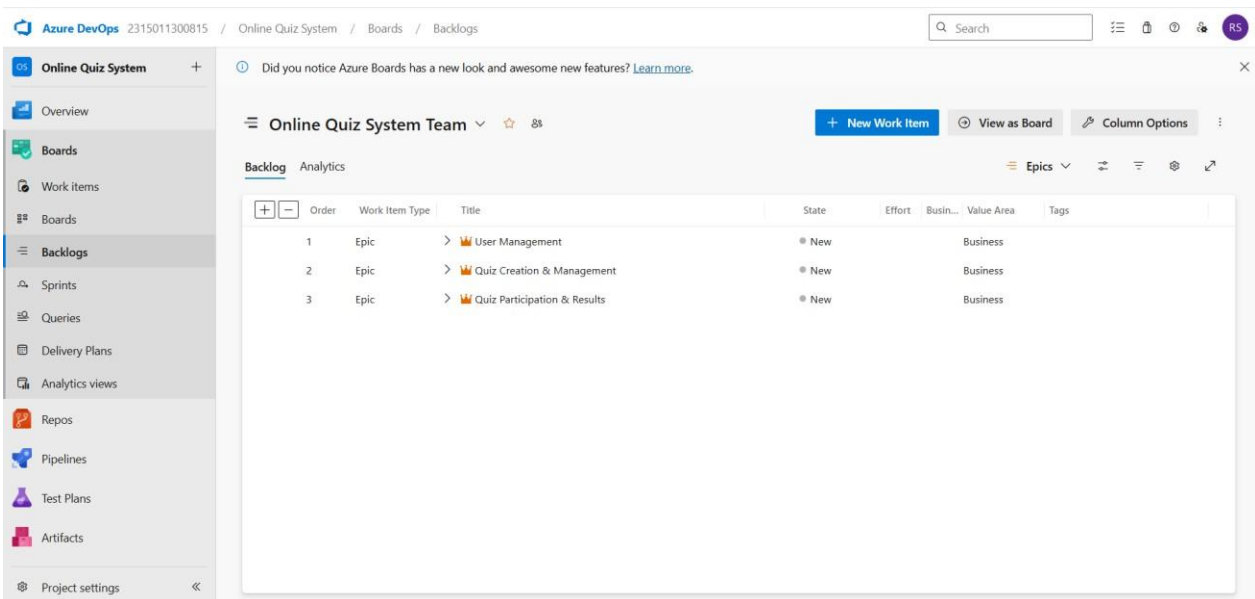
2116231501130

CS23432

5.To manage user stories:

a. From the **left-hand navigation menu**, click on **Boards**. This will take you to the main **Boards** page, where you can manage work items, backlogs, and sprints.

b. On the **work items** page, you'll see the option to **Add a work item** at the top. Alternatively, you can find a + button or **Add New Work Item** depending on the view you're in. From the **Add a work item** dropdown, select **User Story**. This will open a form to enter details for the new User Story.



RESULT

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

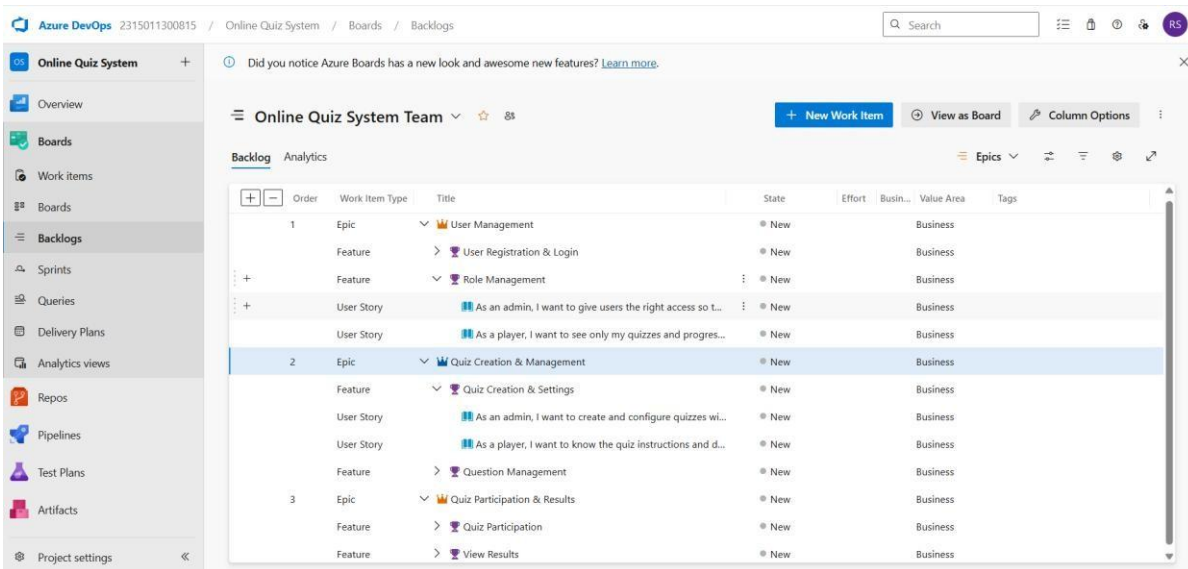
EXP NO:3

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

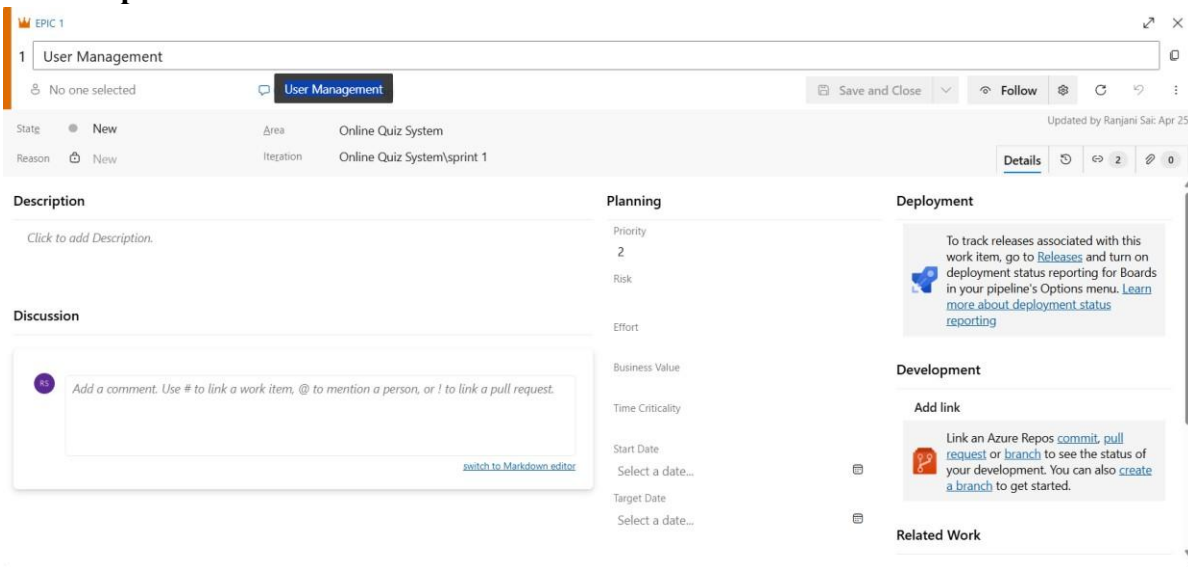
AIM

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

Create Epic, Features, User Stories, Task



1.Fill in Epics



2.Fill in Features

FEATURE 2

2 User Registration & Login

No one selected0 CommentsAdd Tag

Save and CloseFollow

Updated by Ranjani Sai: Apr 25

StateNewAreaOnline Quiz SystemReasonNewIterationOnline Quiz System\sprint 1

Details030

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

Priority2RiskEffortBusiness ValueTime CriticalityStart DateSelect a date...Target DateSelect 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 selected0 CommentsAdd Tag

Save and CloseFollow

Updated by Ranjani Sai: Apr 25

StateNewAreaOnline Quiz SystemReasonNewIterationOnline Quiz System\sprint 1

Details10

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 PointsPriority2Risk

Classification

Value areaBusiness

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: 4

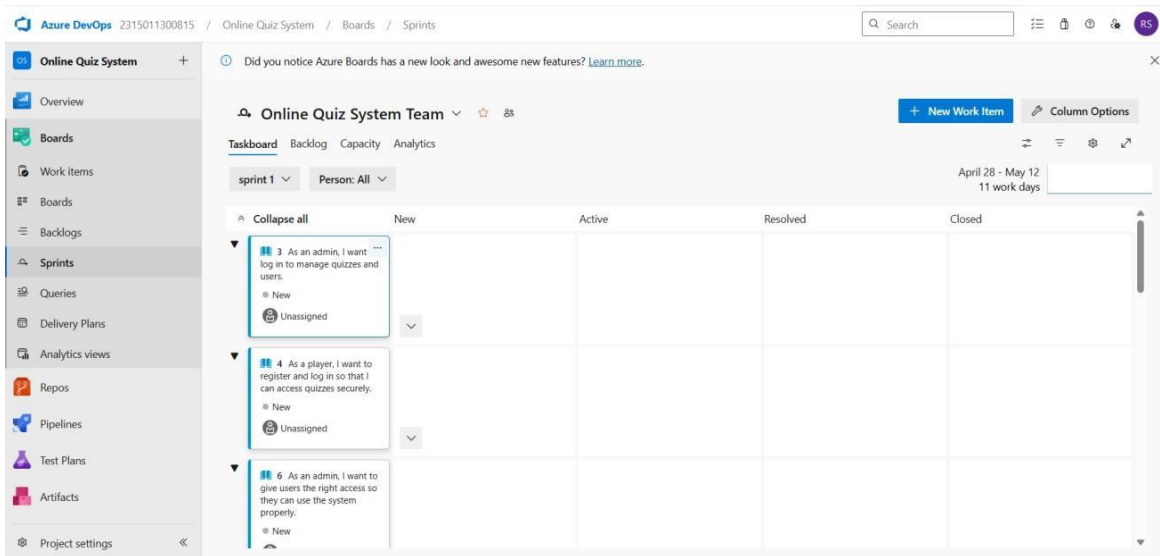
SPRINT PLANNING

AIM

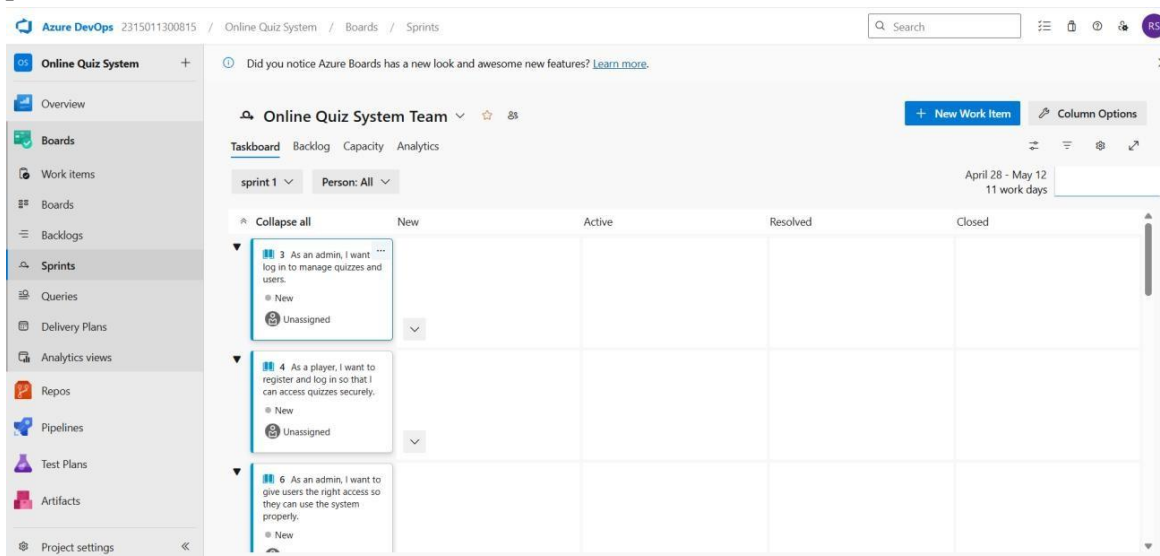
To assign user story to specific sprint for the Online Quiz System.

Sprint Planning

Sprint 1



Sprint 2



Sprint 3

The screenshot shows the Azure DevOps interface for the 'Online Quiz System' team. The left sidebar contains navigation links: Overview, Boards, Work items, Boards, Backlogs, Sprints (selected), Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, Artifacts, and Project settings. The main area displays the 'Sprints' board for the 'Online Quiz System Team'. At the top, there's a search bar and a notification about the new look. Below the team name, there are tabs for 'Taskboard', 'Backlog', 'Capacity', and 'Analytics'. The 'Taskboard' tab is active, showing a Kanban board for 'sprint 1' (April 28 - May 12, 11 work days). The board has columns for 'New', 'Active', 'Resolved', and 'Closed'. Three work items are visible in the 'New' column:

- Item 3: As an admin, I want log in to manage quizzes and users. (New, Unassigned)
- Item 4: As a player, I want to register and log in so that I can access quizzes securely. (New, Unassigned)
- Item 6: As an admin, I want to give users the right access so they can use the system properly. (New, Unassigned)

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

USER STORY 13

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

No one selected0 CommentsAdd Tag

Save and CloseFollow

Updated by Ranjani Sai: Apr 25

StateNewAreaOnline Quiz SystemReasonNewIterationOnline Quiz System\sprint 1Details10

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

2

Priority

2

Risk

Classification

Value area

Business

Deployment

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

Development

Add link

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

Related Work

RESULT

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

2116231501130

CS23432

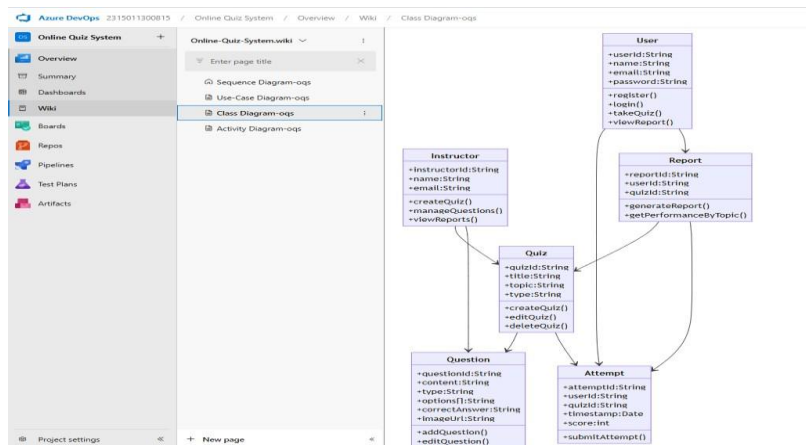
EXP NO: 6

DESIGNING CLASS AND SEQUENCE DIAGRAMS FOR PROJECT ARCHITECTURE

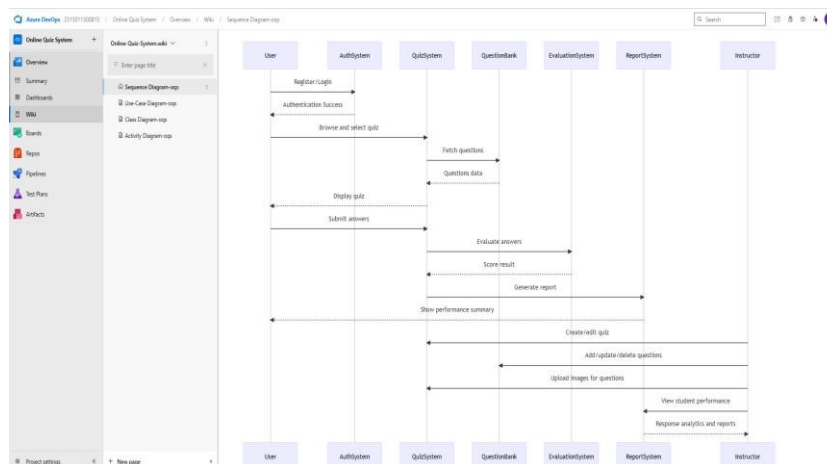
AIM

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.

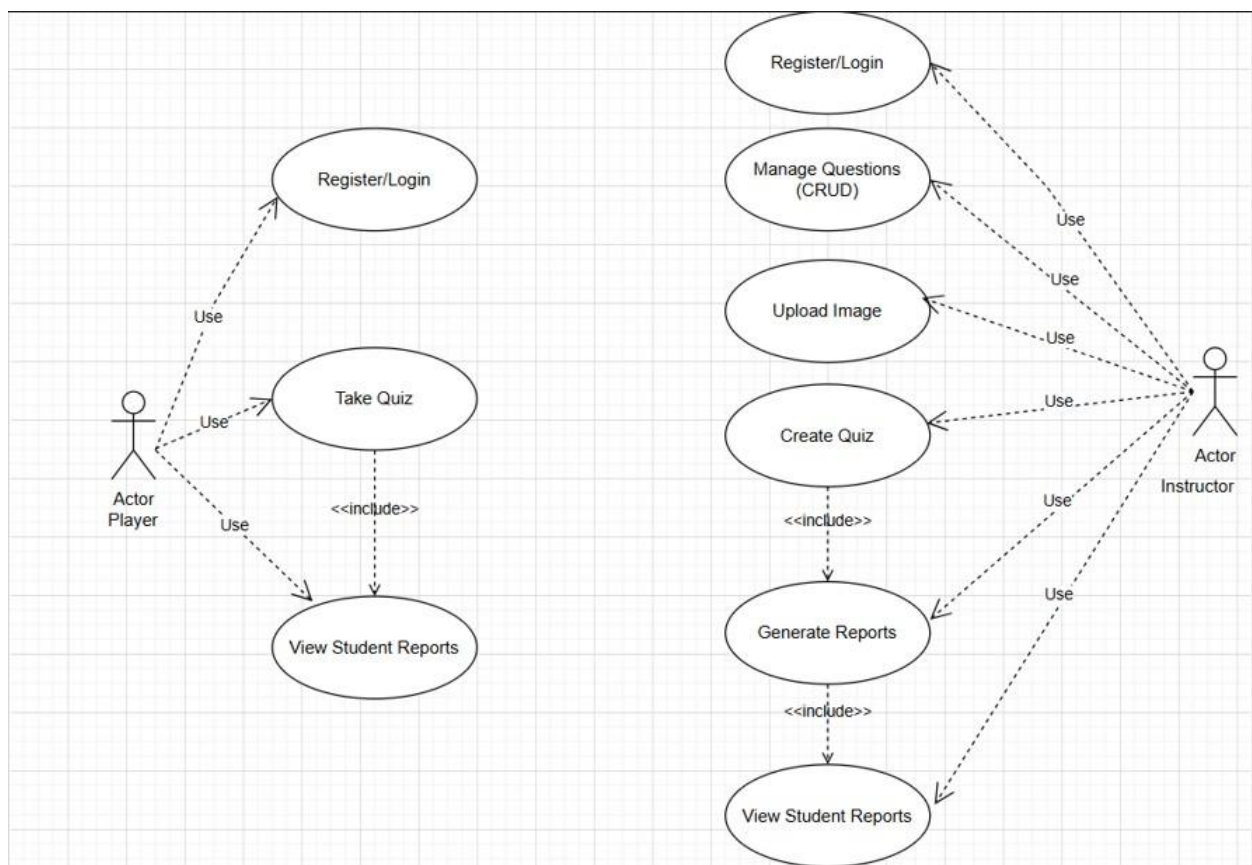
EXP NO: 7

DESIGNING USE-CASE AND ACTIVITY DIAGRAMS FOR PROJECT STRUCTURE

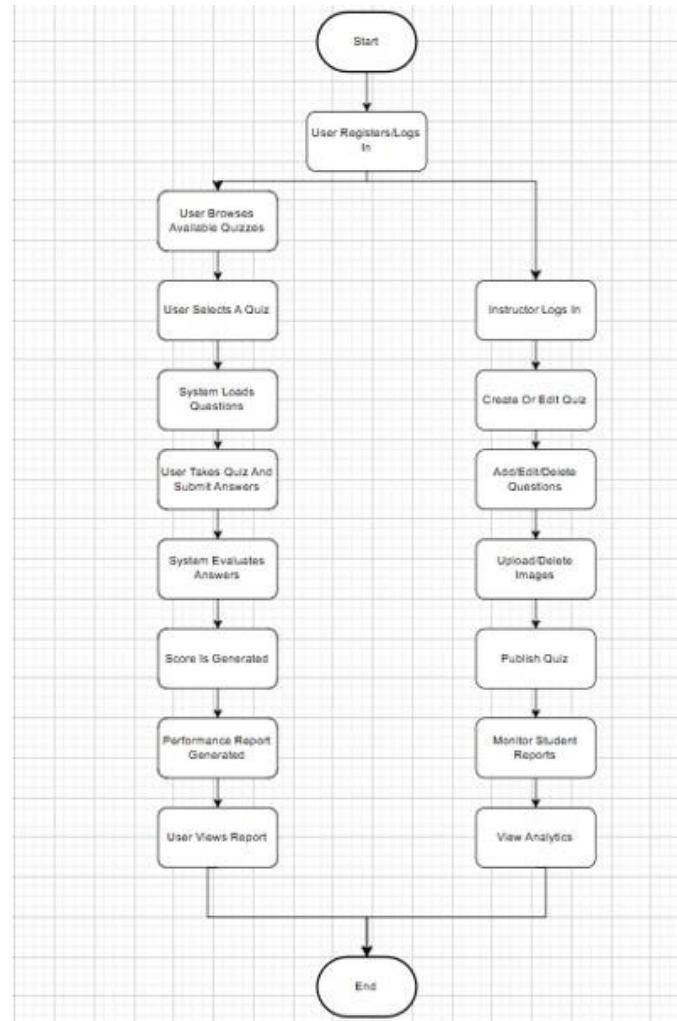
AIM

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.

EXP NO: 8

TESTING TEST PLANS AND TEST CASES

AIM

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

Test Planning and Test Case Test Case Design Procedure

1. Understand Core Features of the Application

- User 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.

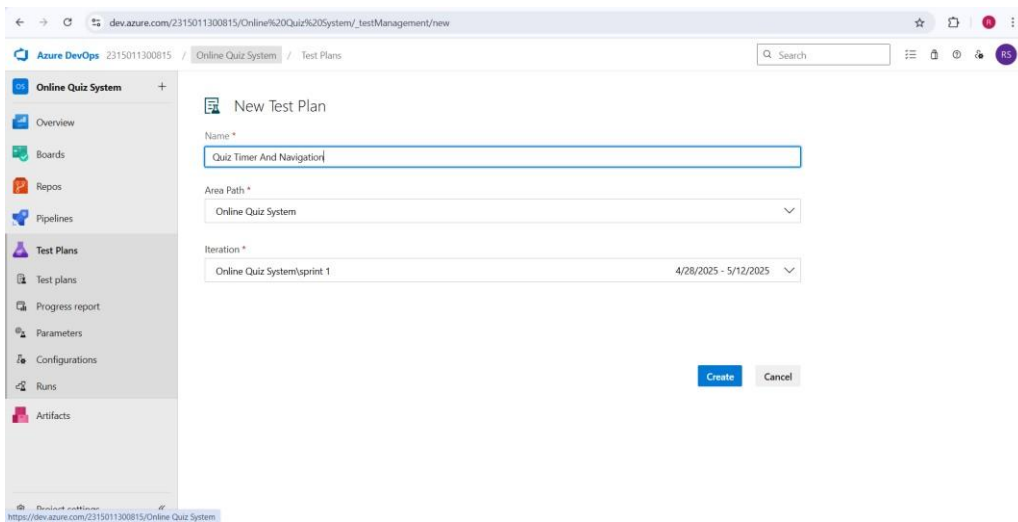
7. Separate Test

- Grouped by functionality such as:
 - Login and Registration
 - Quizzes Submission
 - Viewing Results
 - Admin Functions
- Improves organization and enables focused execution in Azure DevOps.

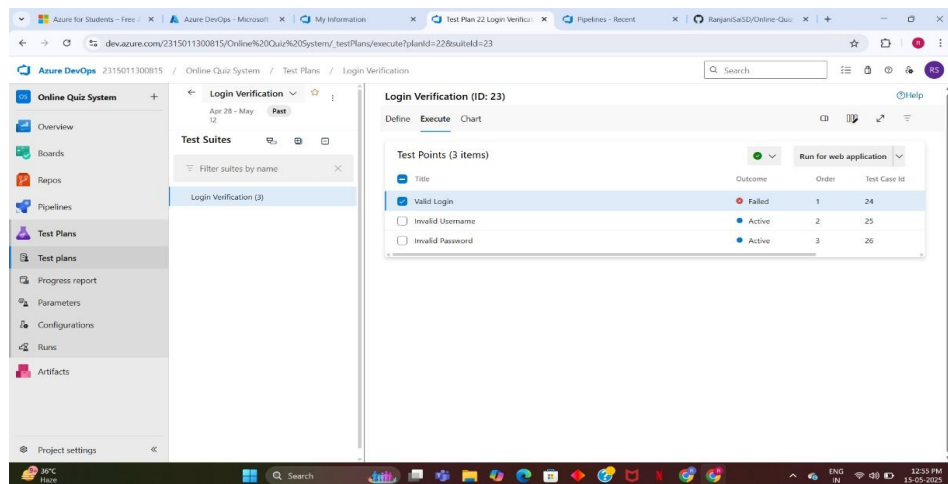
8. Prioritize and Review

- 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



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 image displays the Azure DevOps Test Plans interface. The top section shows a list of test plans for the 'Online Quiz System' project. The bottom section provides a detailed view of a specific test case, 'Valid Login'.

Test Plans List:

Title	Test Plan ID	State	Area Path	Iteration	Assigned To
Quiz Results	32	Active	Online Quiz System	Online Quiz System\sprint 1	Ranjani Sai
Quiz Creation	27	Active	Online Quiz System	Online Quiz System\sprint 1	Ranjani Sai
Login Verification	22	Active	Online Quiz System	Online Quiz System\sprint 1	Ranjani Sai

Test Case Details: 24 Valid Login

Steps:

- Navigate to the login page.
- enter a valid username/email.
- enter valid password.
- Click the login button.
- User is redirected to the dashboard/homepage.

Recent test results:

- Passed by Ranjani Sai with Windows 10, Completed 7:26 AM, 5/15/2025
- Failed by Ranjani Sai with Windows 10, Completed 7:25 AM, 5/15/2025

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](#)

Test Suites:

Test Suites (3 items)

Title	Outcome	Order	Test Case Id
Valid Login	Passed	1	24
Invalid Username	Active	2	25
Invalid Password	Active	3	26

Azure DevOps 2315011300815 / Online Quiz System / Test Plans / Quiz Creation

Search

Online Quiz System +

Overview

Boards

Repos

Pipelines

Test Plans

Test plans

Progress report

Parameters

Configurations

Runs

Artifacts

Project settings

Quiz Creation (ID: 28)

Define Execute Chart

Test Suites

Filter suites by name

Quiz Creation (3)

Test Cases (3 items)

Title	Order	Test Case Id	Assigned To	Status
Valid Quiz Creation	1	29	Ranjani Sai	De
Missing Title	2	30	Ranjani Sai	De
Invalid Time Range	3	31	Ranjani Sai	De

TEST CASE 29

29 Valid Quiz Creation

Ranjani Sai

0 Comments Add Tag

Save and Close Follow

Updated by Ranjani Sai: Thursday

Steps Summary Associated Automation

Steps

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

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

Azure DevOps 2315011300815 / Online Quiz System / Test Plans / Quiz Results

Search

Online Quiz System +

Overview

Boards

Repos

Pipelines

Test Plans

Test plans

Progress report

Parameters

Configurations

Runs

Artifacts

Project settings

Quiz Results (ID: 33)

Define Execute Chart

Test Suites

Filter suites by name

Quiz Results (3)

Test Cases (3 items)

Title	Order	Test Case Id	Assigned To	Status
View Quiz Results As Player	1	35	Ranjani Sai	De
View Quiz Results As Admin	2	36	Ranjani Sai	De
Automatic Result Generation	3	37	Ranjani Sai	De

TEST CASE 35

35 View Quiz Results As Player

Ranjani Sai 0 Comments Add Tag

Statz Design Area Online Quiz System
Reason New Iteration Online Quiz System/sprint 1

Updated by Ranjani Sai Thursday

Steps Summary Associated Automation

Steps

1. Login as player.

2. Navigate to m"My Results" or "Completed Quizzes".

3. Click on completed quiz.

4. Quiz result with score,correct/wrong answers is displayed.

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 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

4.Installation of test

chrome web store

Search extensions and themes

Discover Extensions Themes

Test & Feedback

Featured 4.2 ★ (175 ratings) Share

Extension Workflow & Planning 200,000 users

Capture & Annotate

1. Screenshots

2. Notes

3. Screen recordings on Video

4. Image action log

5. Page load data

Remove from Chrome

5. Running the test cases

Azure DevOps 2315011300815 / 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 (ID: 23)

Apr 28 - May 12
100% run, 100% passed. View report

Test Suites

Filter suites by name

Login Verification (3)

Define Execute Chart

Test Points (3 items)

Title	Outcome	Order	Test Case Id
<input checked="" type="checkbox"/> Valid Login	Passed	1	24
<input type="checkbox"/> Invalid Username	Passed	2	25
<input type="checkbox"/> Invalid Password	Passed	3	26

Run for web application

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

Runner - Test Plans - Google Chrome

dev.azure.com/2315011300815/Online%20Quiz%20System/_testExecution/index

Save and close | Create bug

24: Valid Login

- Navigate to the login page.
- enter a valid username/email.
- enter valid password.
- Click the login button.
- EXPECTED RESULT
User is redirected to the dashboard/homepage.

Windows 10

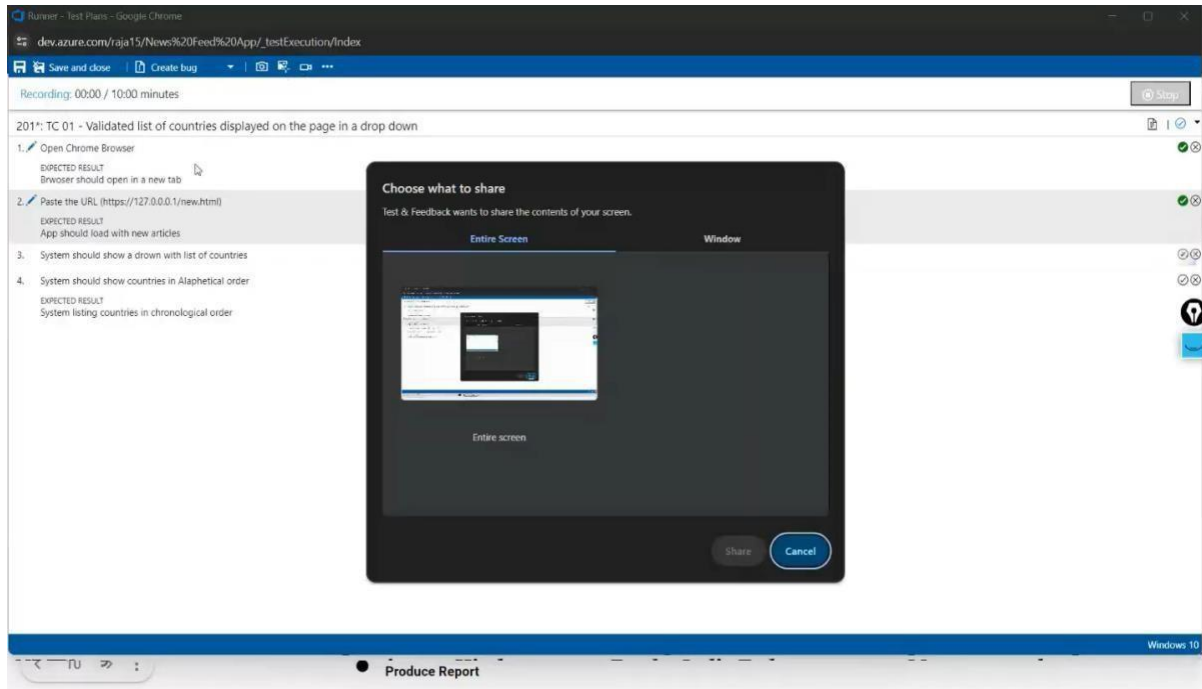
30°C Haze

Search

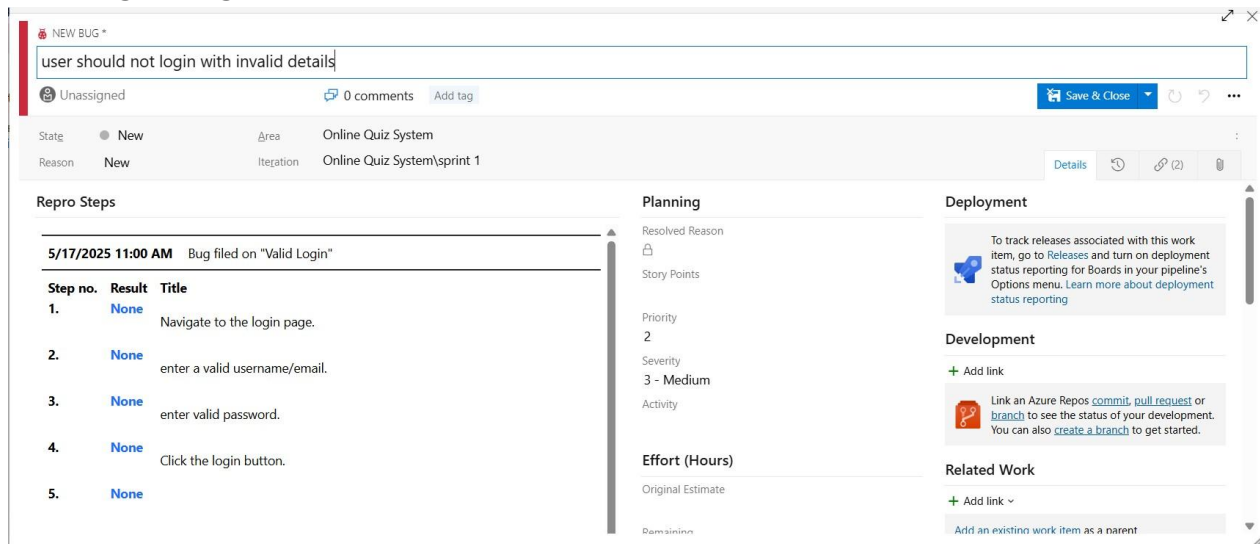
ENG IN

12:51 PM 15-05-2023

6. Recording the test case



7. Creating the bug



9. Test report summary

NEW BUG

User should not enter invalid details

Unassigned 0 comments Add tag

Save & Close

Stat: New Reason: New Area: Online Quiz System Iteration: Online Quiz System\sprint 1

Repro Steps

5/17/2025 11:09 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

Priority 2

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

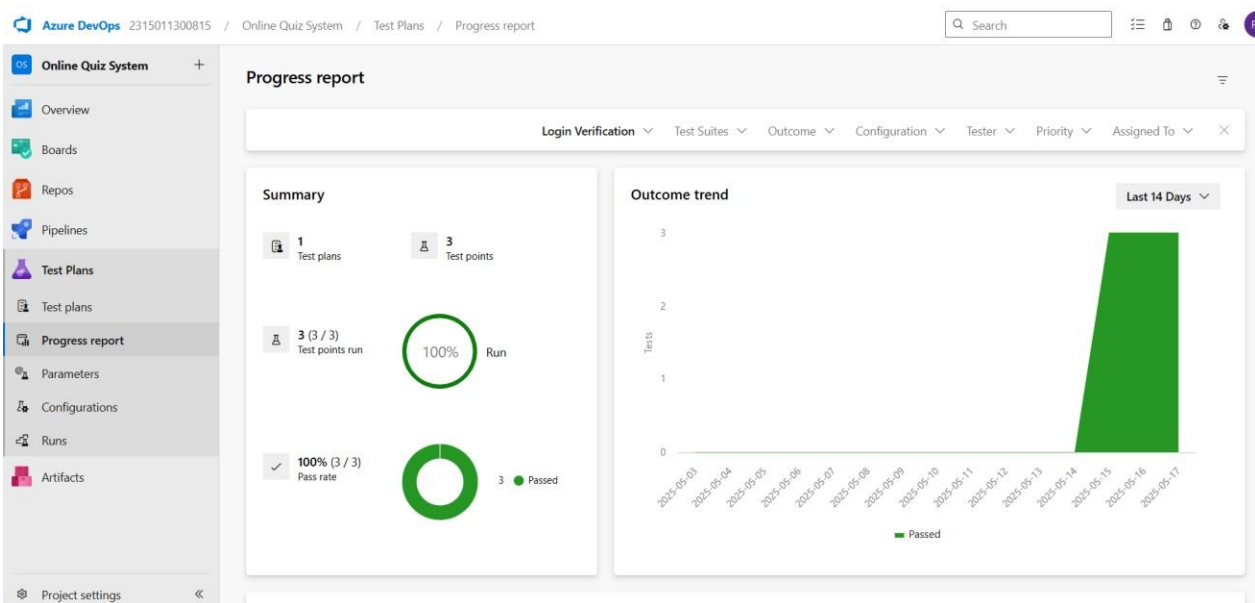
Related Work

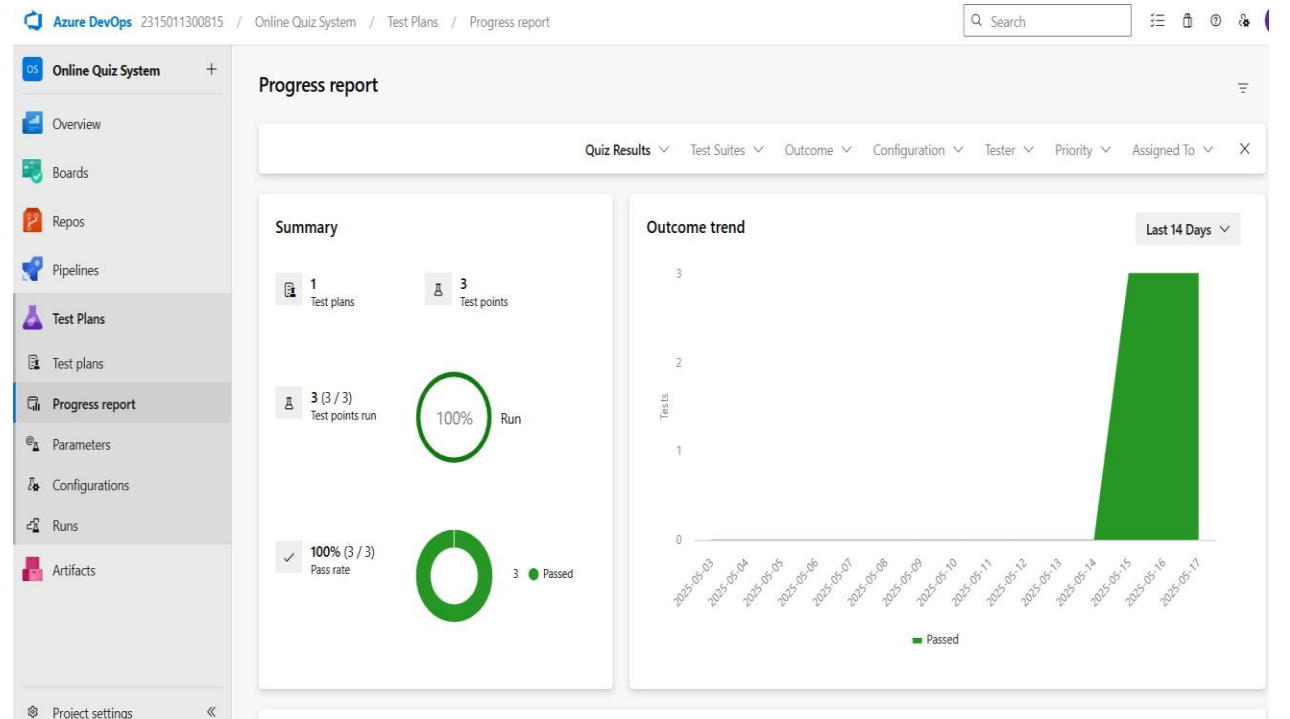
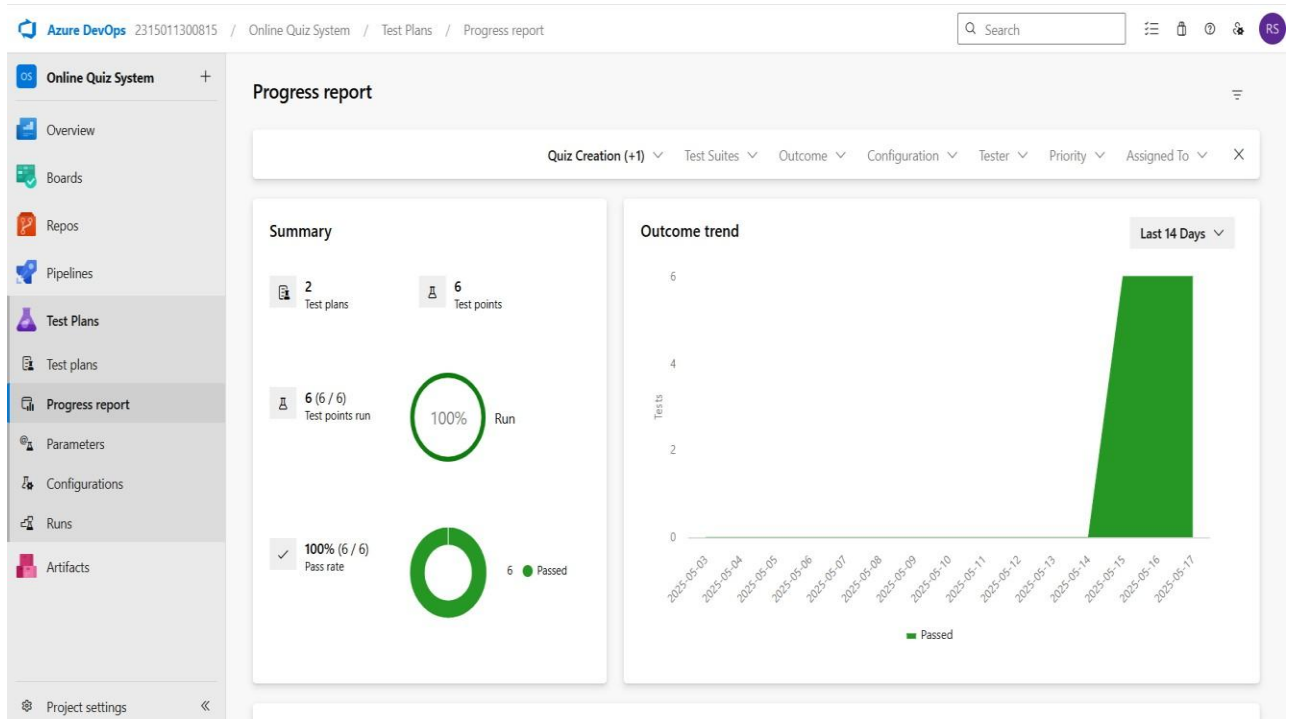
+ Add link

Add an existing work item as a parent

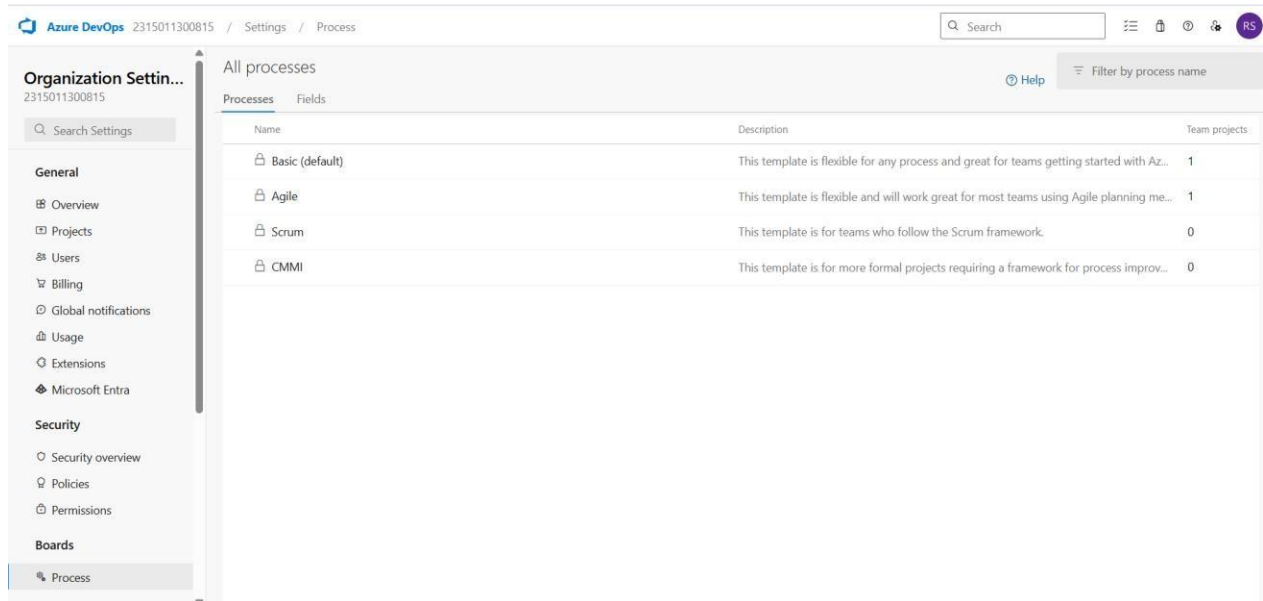
- Assigning bug to the developer and changing state

10. Progress report



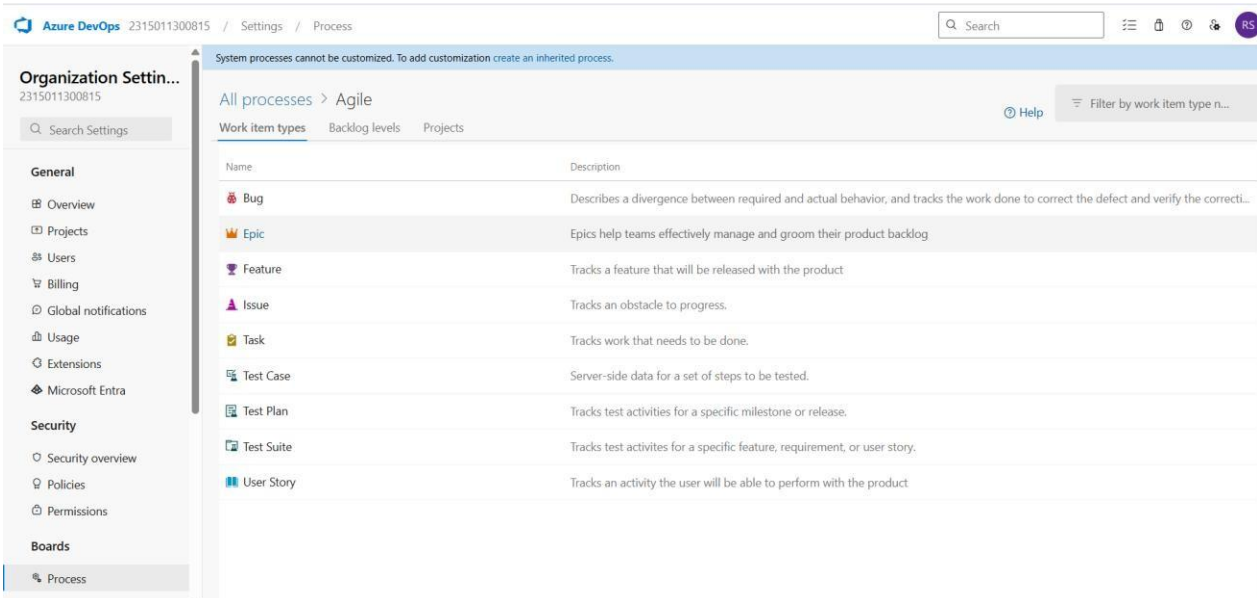


11.Changing the test template



The screenshot shows the 'All processes' page in Azure DevOps. The left sidebar contains the 'Organization Settings' menu with categories: General, Security, and Boards. The 'Process' option is selected under Boards. The main content area is titled 'All processes' and has a 'Filter by process name' dropdown. Below this is a table with columns: Name, Description, and Team projects.

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



The screenshot shows the 'All processes > Agile' page in Azure DevOps. The left sidebar is the same as the previous screenshot. The main content area has a blue banner stating: 'System processes cannot be customized. To add customization create an inherited process.' Below this is a tabbed interface with 'Work item types', 'Backlog levels', and 'Projects'. The 'Work item types' tab is active, showing a table with columns: Name and Description.

Name	Description
Bug	Describes a divergence between required and actual behavior, and tracks the work done to correct the defect and verify the correct...
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 is created in Azure DevOps with Happy Path and Error Path.

EXP NO: 9

CI/CD PIPELINES IN AZURE

AIM

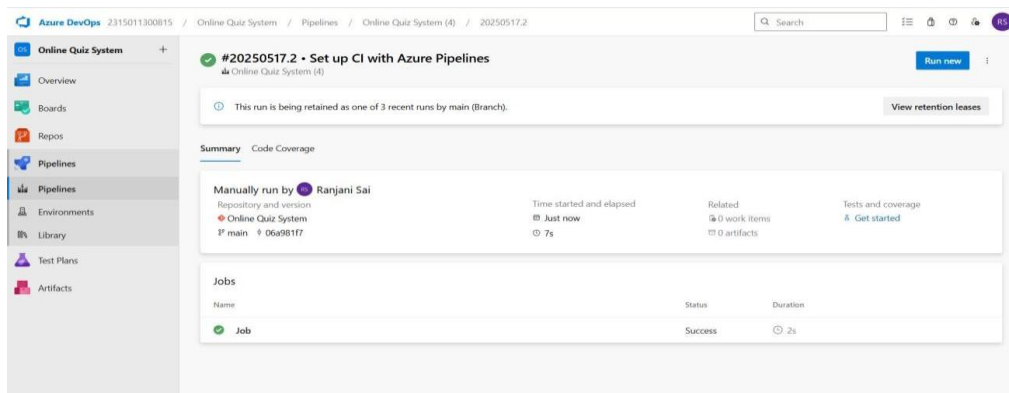
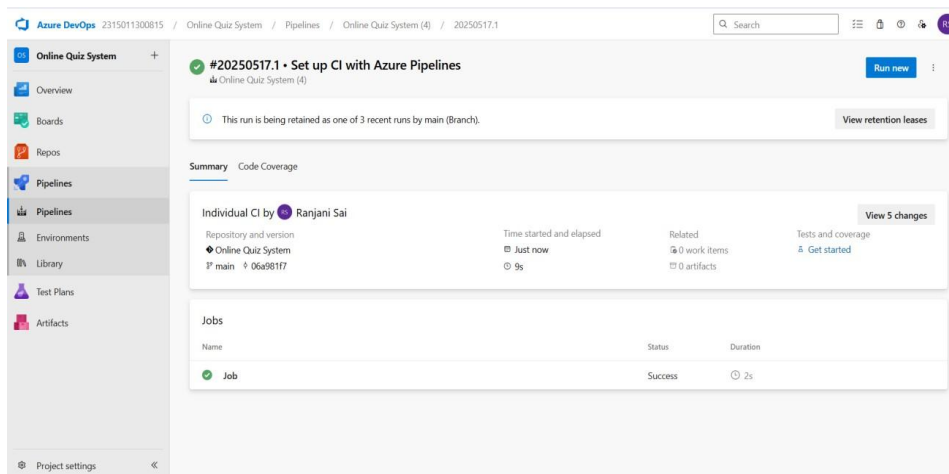
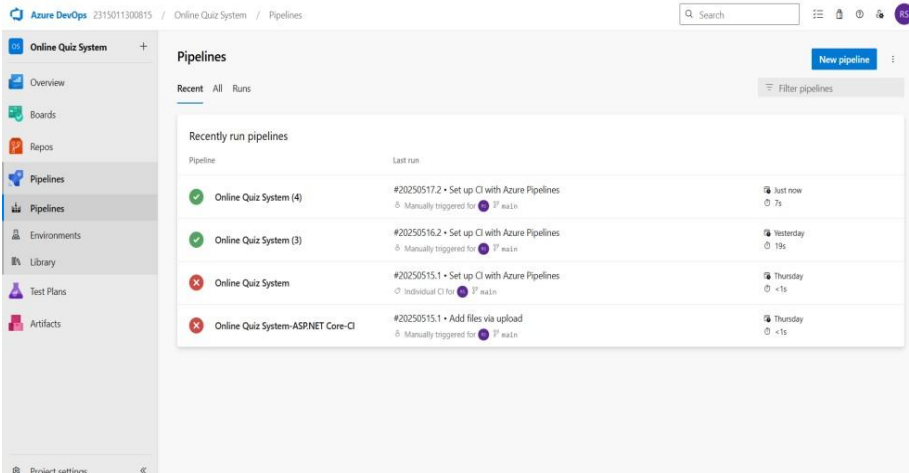
To implement a Continuous Integration and Continuous Deployment (CI/CD) pipeline in Azure DevOps for automating the build, testing, and deployment process of the Student Management System, ensuring faster delivery and improved software quality.

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.



RESULT

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

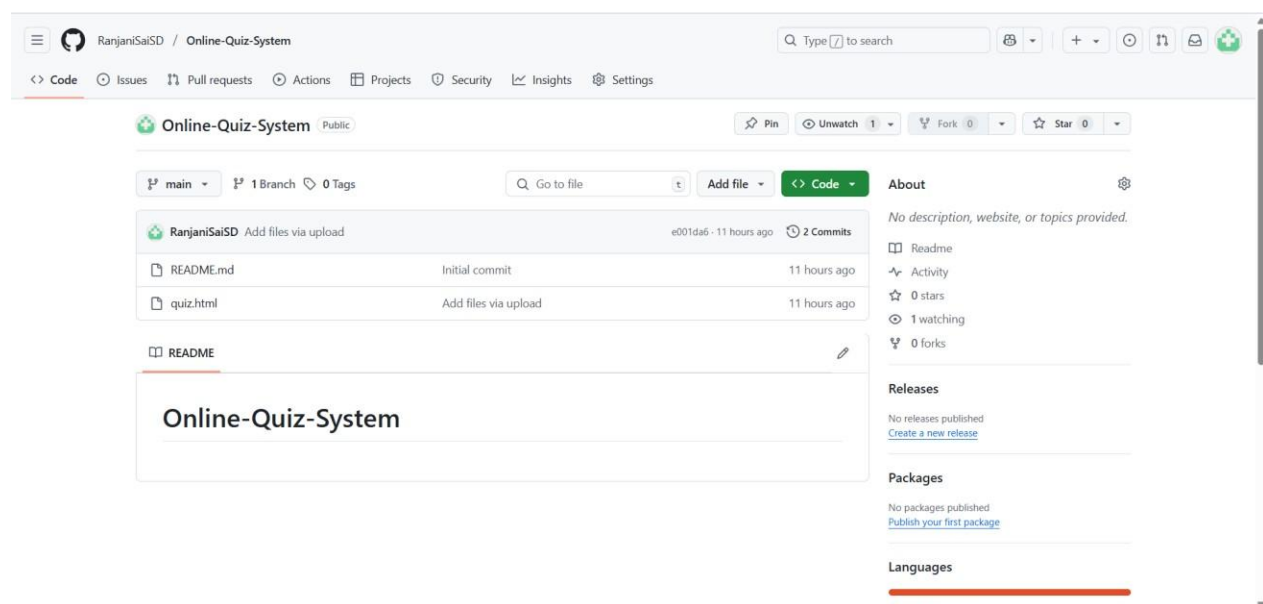
EXP NO: 10

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.