**AZURE DEVOPS TEST MANAGEMENT MODULE**

A test management tool is used by a Quality Analyst teams to organize, track and manage testing activities which includes test plans, test cases, test execution and reporting. It streamlines the testing process and improves the collaboration among team members.

They are various types of test management tools where testing is done by a quality analyst like,

1.Lamda test

* Supports real time testing for both mobile and desktop
* Allows users to run automated and manual tests on various browsers
* Captures bugs and issues directly during testing
* Geolocation tests with GPS and IP for location-based testing

2.Selenium

A popular open-source suite of tools which is used for web browser automation. The selenium consists of three components

Selenium IDE – A browser extension used to record and replay the interactions

Selenium WebDriver- Offers a robust and adaptable API designed for automating web browsers.

Selenium grid- Facilitates parallel execution of tests across multiple machines

3.Appium

Appium is an open-source UI auto machine testing framework designed to test native, hybrid, and web mobile apps for android, IOS and windows platform.

* Supports mobile app testing for both android and IOS devices
* Built in support for popular mobile gestures and interactions
* Seamlessly integrates with cloud-based testing platforms

4.Cypress

Cypress is one of the modern and popular test automation tools for front-end developers. It is considered a fast, reliable and simple to use software tool. Cypress is an open source.

* It operates directly within the browser
* Offers easy test scripting and result visualization with its user-friendly interface.

5.Cucumber

Cucumber is a popular testing tool which supports behavior driven development. BDD allows tests to be written in a language which can be understood even by non-technical users.

6.Expresso

Expresso developed by google is a leading android auto machine testing framework popularly known for its exceptional performance.

* Allows for effortless manipulation and assertion of UI elements.
* Offers support for unit testing and black box testing.

7.J unit

J unit is a robust software testing framework that streamlines efficient and reliable tests. J unit excels in testing the java application and enabling the development of automated tests.

* Provides annotations to identify the test methods.
* Allows grouping of testcases into test suites.

8.N unit

N unit stands out as a one of the most premium software testing frameworks for all .Net languages. N-unit engine serves as the foundational component for the test runner, ensuring streamless execution of tests across different environments and configurations.

**Microsoft Azure Devops Test Management Tool**

The Microsoft azure devops test management tool offers a fully integrated development and test capability for QA and development teams. It gives the Azile teams the chance to collaborate at one tool for different disciplines.

It is easy to use and a browser bases test management tool. It provides all the capabilities required for planned manual testing, user acceptance testing, exploratory testing and gathering feedback from stakeholders.

Azure Devops is a unified platform from Microsoft that combines a set of Developer services together. It can be used as *cloud* software as a service (Saas) offering on an on-premises server.

Different Azure devops services are:

1.Overview

2.Boards

3.Repositery

4.Pipelines

5.Test plans

6.Artifacts

In overview we have three sub parts:

1.Summary-Each project provides a summary or home page to share information and showcase the latest activity.

2.Dashboards -Dashboards can contain widgets that display various information about the work items, repos, commits, build, release pipeline and test plans. Dashboards can be associated with either a team or a project, and can be added, renamed, deleted and moved as needed.

3.Wiki-Azure devops offers ‘wiki’ for creating documentation at the project level. The Azure wiki at the backend is powered by the git repository and supports markdown for writing documents.

Azure wiki supports two types of wiki:

1.Project wiki

2.Publish Code as Wiki

**Azure Boards:**

Boards enable you to track your work with a set of Agile tools. Among other capabilities, they can help you track progress, bugs, and issues using a kanban board. They enhance collaboration and transparency within different teams, allowing for real-time updates and visibility into the status of different tasks and projects and have integrations available for slack and MS teams

Boards basically provide a visual representation of the work, making it easy to set up priorities and ensuring the team is focused on delivering value efficiently.

Boards integrate seamlessly with other Azure Devops tools, offering an end-to-end experience from tracking and planning until actual code deployment.

Various components of Boards are:

1.Work items

2.Boards

3.Backlogs

4.Sprints

5.Queires

6.Delivery Plans

**Azure Repos:**

Repos provides Git repositories to you to store, and version control your code. Azure Devops Repos offers advanced features such as branch policies, pull requests and comments on open pull requests to enhance collaboration between teams. This feature enforces more code reviews, build versions, and status checks, enabling teams to be more efficient without sacrificing development time.

Different fields of Repos are:

1.Files

2.Commits

3.Pushes

4.Branches

5.Tags

6.Pull requests

**Azure pipelines:**

Pipelines allow you to set up Continuous Integration and continuous delivery pipelines, enabling teams to automate the building, testing, and deployment of application. These pipelines are written in YALM, but you can also create them visually, allowing teams to choose the best approach for their workflows.

Azure DevOps pipelines ensure that code changes are automatically integrated and delivered to various environments, improving the speed and reliability of the software delivery process.

The various features of the pipelines are:

1. Pipelines
2. Environments
3. Releases
4. Library
5. Task groups
6. Deployment groups

**AZURE Test Plans:**

Test plans enable continuous testing and exploratory testing of your application to ensure quality through a suite of tools.

These comprehensive tools help teams plan, track, and manage their testing efforts to ensure the delivery of high-quality software.

Teams can create and manage test plans, author and run manual testcases, and track progress and results in real time. This is helpful in the software development lifecycle (SDLC), as test cases ensure code cannot be merged without passing all the checkboxes defined.

The various test plans fields are:

1.Test Plans-Manage, plan and track the testing efforts to ensure the delivery of high-quality software. Define the scope of testing.

2.Progress report- Tracks the status of test cases like passed, failed or blocked and rate of execution and progress.

3.Parameters-Parameters are used to pass dynamic values and to iterate the testcase multiple times.

4.Configurations-Configurations include various environments, browser, hardware.

5.Runs- Runs manual and automated testcases in various environments.

**Azure Artifacts:**

Artifacts is a package repository allowing teams to share packages such as Maven, npm, and NuGet and integrate these packages into their build pipelines.

By using Artifacts, teams can efficiently manage the dependencies used in their codebase and ensure that all team members and CI/CD pipelines have access to different environments and stages of development.