ASSIGNMENT – 1 (Azure Devops)
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Azure Devops is a set of cloud-based tools and services provided by Microsoft to support the complete software development lifecycle. It enables teams to plan, build, test and deliver applications efficiently using modern DevOps practices. Azure DevOps offers flexibility, scalability, and integration with a wide range of tools, making it suitable for agile as well as traditional development methodologies.
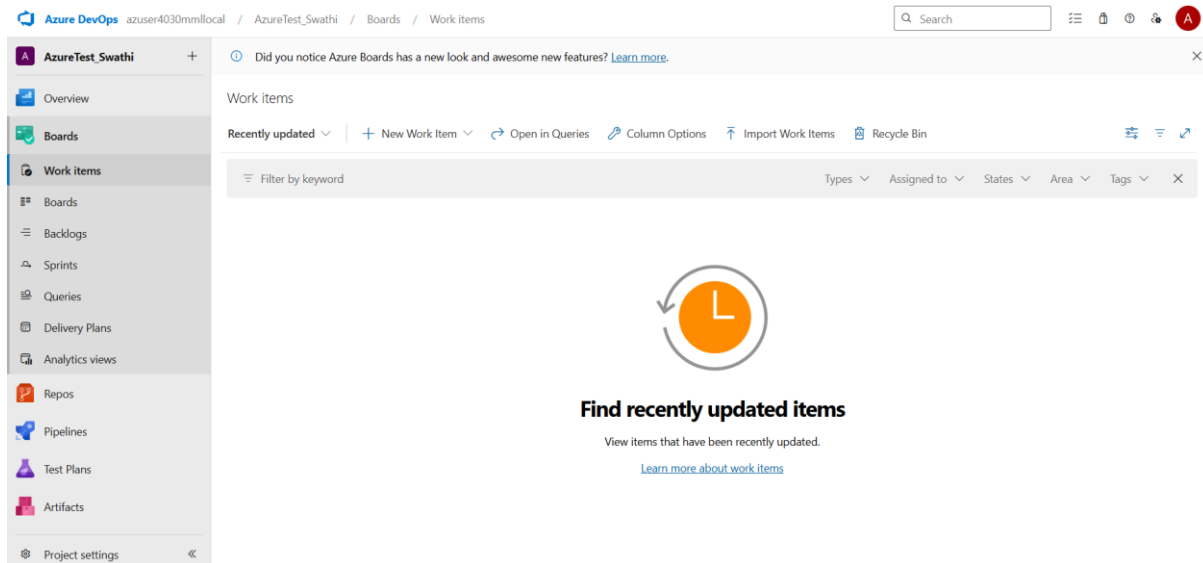
Azure DevOps provides five main services:

1. Azure Boards
2. Azure Pipelines
3. Azure Repos
4. Azure Test Plans
5. Azure Artifacts

Azure Boards:

Azure Boards is a tool for project management and work tracking.
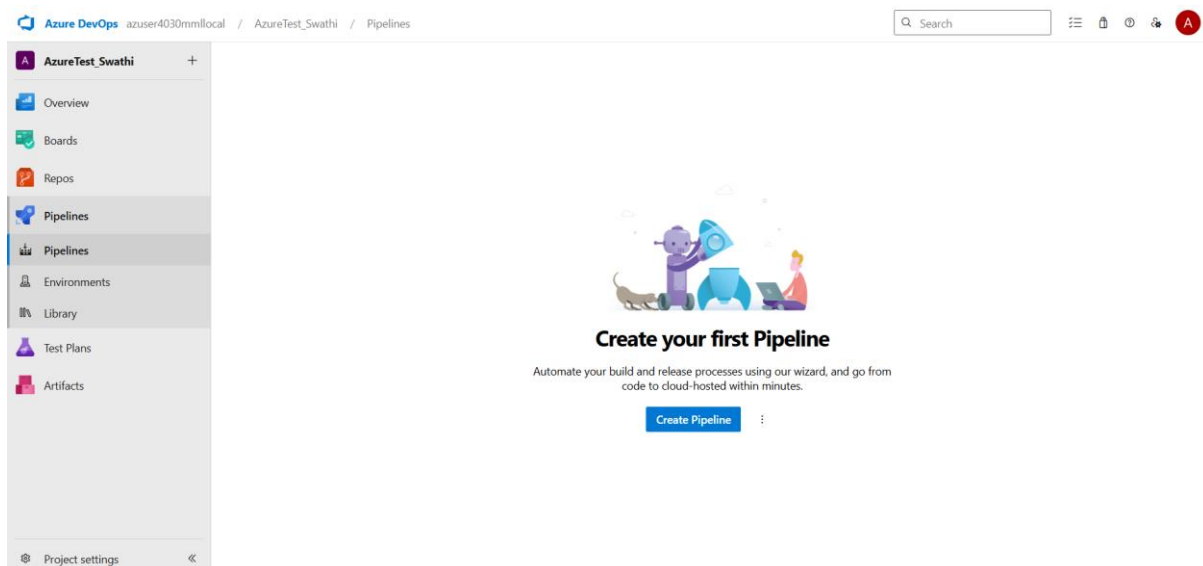
- Helps teams plan, track, and discuss work across the entire development cycle.
- Provides Kanban boards, backlogs, dashboards, and customizable reports.
- Supports Agile, Scrum, and CMMI methodologies.
- Features include:
    1. Work item tracking (user stories, tasks, bugs).
    2. Drag-and-drop boards for sprint planning.
    3. Built-in analytics to monitor progress.

Azure Pipelines

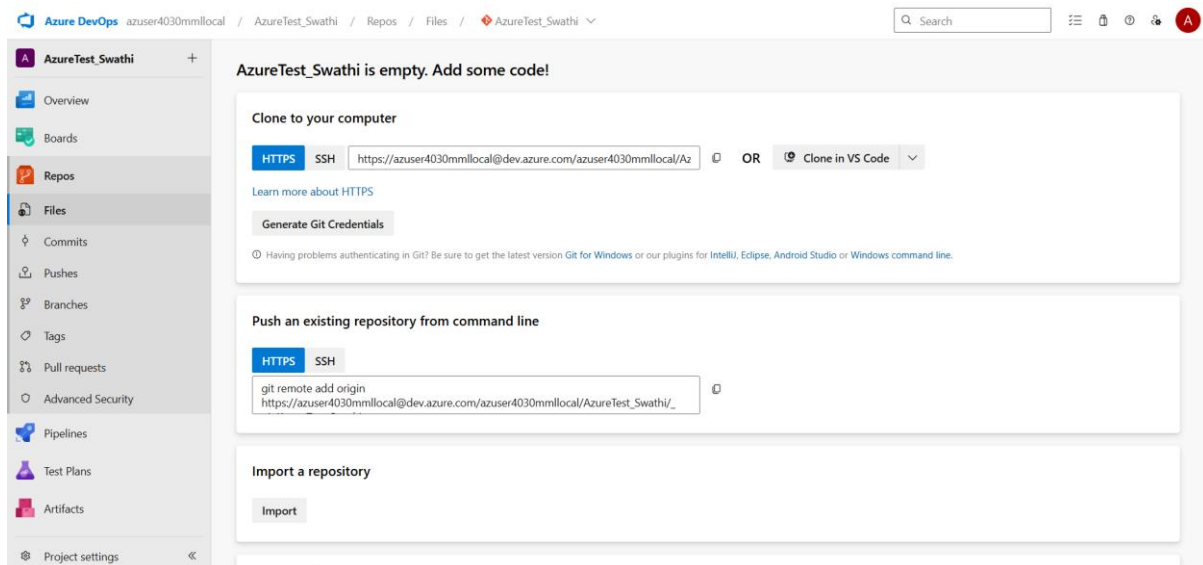Azure Pipelines is a CI/CD (Continuous Integration and Continuous Delivery) service.

- Automates the process of building, testing, and deploying applications.
- Supports multiple programming languages and platforms (Java, .NET, Python, Node.js, etc.).
- Can deploy to cloud environments (Azure, AWS, GCP) or on-premises servers.
- Integrates with GitHub, Bitbucket, and other repositories.
- Provides hosted agents to run pipelines without additional setup.

Azure Repos

Azure Repos provides version control for source code management.

- Offers both Git (distributed version control) and Team Foundation Version Control (TFVC, centralized).
- Features include:
    1. Branching and merging strategies.
    2. Pull requests and code reviews.
    3. Policies for maintaining code quality (approvals, build validation).
- Helps maintain collaboration among multiple developers working on the same project.
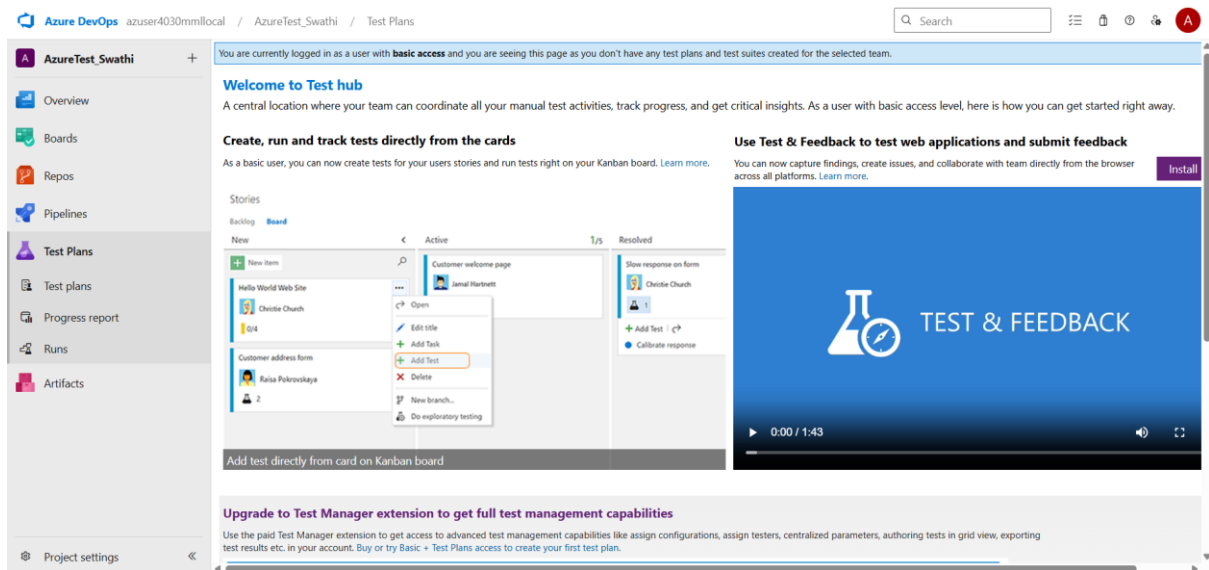

Azure Test Plans

Azure Test Plans is a testing and quality assurance tool.

- Supports manual testing, exploratory testing, and automated testing integration.
- Provides tools for test planning, tracking, and defect management.
- Integrates with Azure Boards and Azure Pipelines for end-to-end traceability.
- Features include:
    1. Test suites and test cases.
    2. Real-time reporting and analytics.

3. Browser-based test execution.

Azure Artifacts

Azure Artifacts is a package management solution.

- Allows teams to create, host, and share packages such as NuGet, npm, Maven, Python, and Universal Packages.
- Provides feed management with versioning and access control.
- Supports integration with CI/CD pipelines for automatic publishing and consumption of packages.
- Ensures secure and consistent package usage across different projects.