

Week 1 Project: Git-Integrated DevOps Onboarding

- **Title:** *DevOps Project Initialization with GitHub and Azure Repos*
- **Objective:** Familiarize learners with setting up an Azure DevOps project and integrating it with external Git repositories.
- **Description:**
Set up an Azure DevOps project, connect it with a GitHub/Bitbucket repository, enforce branching policies, and practice Git flow (feature branches, PRs, merges). Emphasizes version control hygiene and team collaboration standards.

Week 2 Project: CI Pipeline for Node.js App

- **Title:** *CI/CD Pipeline Development with YAML for a Node.js Web App*
- **Objective:** Create a Continuous Integration pipeline using Azure Pipelines (YAML) to automate code build and testing.
- **Description:**
Use a sample Node.js application. Set up a pipeline that installs dependencies, runs unit tests, and publishes build artifacts. Leverage pipeline variables, templates, and secure parameter management using variable groups.

Week 3 Project: Full Deployment with Monitoring

- **Title:** *Application Deployment with Azure Web App and Observability*
- **Objective:** Automate deployment to Azure Web App and configure observability using Application Insights.
- **Description:**
Extend the CI pipeline into a CD pipeline that deploys the build to Azure Web App. Set up staging and production slots, enable slot swapping, and monitor the app using Application Insights and Log Analytics. Configure alert rules for performance and availability.

Week 4 Project: Azure Integration with DevOps Pipelines

- **Title:** *End-to-End Integration with Azure Storage, Compute & Networking*
- **Objective:** Implement advanced Azure service integrations into a DevOps pipeline.
- **Description:**
Use Azure Blob Storage for artifact management and connect your WebApp to a VNet for enhanced security. Implement auto-scaling rules, access policies, and experiment with App Gateway or Front Door setup for basic traffic management and security.

Week 5 Capstone Project: Full-Stack CI/CD DevOps Lifecycle

- **Title:** *Full-Stack CI/CD Pipeline with GitHub, Azure WebApp, Function App & Monitoring*
- **Objective:** Apply all learned concepts in a comprehensive real-world scenario.
- **Description:**
Deploy a containerized full-stack application using GitHub Actions and Azure Pipelines. Integrate Function Apps (e.g., for background tasks), store files in Blob Storage, automate deployments, monitor health using Application Insights, and ensure alerts are in place. Use environment-based release strategy (dev → staging → production).