# **4 – Advanced Testing Practices using AWS DevOps Tools**

### Module 1: Overview of Testing

     • Identify the benefits of a testing strategy in your development

     • Describe the different stages of testing using the testing pyramid

     • Use test coverage to design an effective testing plan

     • Recognize the benefits of automating testing in your development lifecycle

### Module 2: DevOps Review

     • Identify DevOps practices that provide faster application revisions

     • Apply knowledge of AWS tools, such as AWS CodeCommit, AWS CodeDeploy, AWS CodeBuild, and AWS CodePipeline, to build and automate your CI/CD pipeline

     • Use AWS serverless options and third-party tools at each stage of your CI/CD pipeline

### Module 3: Continuous Integration

     • Establish code standards as a requirement into your development practice

     • Implement various testing methods in the CI stage

     • Apply the benefits of unit testing and static code analysis

     • Apply Test Drive Development (TDD) and Behavior Driven Development (BDD) to create an effective test strategy

     • Use Amazon CodeGuru to review and improve the quality of your code

     • Demonstration: Static Code Analysis

     • Demonstration: Perform Pull Request

### Module 4: Continuous Delivery

     • Apply testing methods in the continuous delivery stage as needed

     • Recognize the benefits of functional, regression, and performance testing

     • Implement testing methods using third-party tools or serverless options

     • Perform synthetic testing to ensure continuity of a service

     • Automate security testing to implement security audit rules

     • Demonstration: Synthetic Testing

### Module 5: Continuous Deployment

     • Apply testing methods in the continuous deployment stage as needed

     • Use health checks as a strategy to avoid deployment failures

     • Perform approval trigger tests to automate continuous deployment

     • Use AWS Lambda to automate approvals

     • Apply deployment options available with AWS CodeDeploy

     • Implement deployment types, including segmented and canary deployments

     • Control pipeline flow by disabling and re-enabling transitions between stages

     • Demonstration: Amazon CloudWatch Synthetics

     • Demonstration: Stopping a Deployment

### Module 6: Course Summary

     • Recall and identify various resources from course topics

     • (Optional) Create a sandbox environment using sample code in your own AWS account to test your knowledge