# AWS CodeBuild

# Introduction

- AWS CodeBuild is a fully managed continuous integration service that compiles source code, runs tests, and produces software packages that are ready to deploy.
- With CodeBuild, you don’t need to provision, manage, and scale your own build servers. CodeBuild scales continuously and processes multiple builds concurrently, so your builds are not left waiting in a queue.
- You can get started quickly by using prepackaged build environments, or you can create custom build environments that use your own build tools.
- With CodeBuild, you are charged by the minute for the compute resources you use.

# AWS CodeBuild - Features

- **Build and test your code:** AWS CodeBuild builds your code and stores the artifacts into an Amazon S3 bucket, or you can use a build command to upload them to an artifact repository.
- **Monitoring:** You can use the AWS CodeBuild Console, AWS CLI, SDKs, and APIs, or Amazon CloudWatch to view detailed information about your builds. AWS CodeBuild shows you information such as the build's start time, end time, status and commit ID.
- **Receive Notifications:** You can create notifications for events impacting your build projects. Notifications will come in the form of Amazon SNS notifications.

# AWS CodeBuild - Features

- **Security and permissions:** Your build artifacts are encrypted with customer-specific keys that are managed by the AWS Key Management Service (KMS) and AWS Identity and Access Management(IAM)
- **Specify build commands:** The build specification is a YAML file that lets you choose the commands to run at each phase of the build and other settings. You can define the specific commands that you want AWS CodeBuild to perform, such as installing build tool packages, running unit tests, and packaging your code.

# AWS CodeBuild - Specify build commands

```yaml
version: 0.2

phases:
  install:
    runtime-versions:
      java: corretto11
  pre_build:
    commands:
      - echo Nothing to do in the pre_build phase...
  build:
    commands:
      - echo Build started on `date`
      - mvn install
  post_build:
    commands:
      - echo Build completed on `date`
artifacts:
  files:
    - target/messageUtil-1.0.jar
```

buildspec.yaml

# AWS CodeBuild - Source Integrations

- AWS CodeCommit
- GitHub
- GitHub Enterprise
- Bitbucket
- Amazon S3.
- You can also connect CodeBuild and your source repository with AWS CodePipeline, which automatically initiates a build every time you commit a change.

# AWS CodeBuild - Customize build environments

- You can bring your own build environments to use with AWS CodeBuild, such as for the Microsoft .NET Framework.
- You can package the runtime and tools for your build into a Docker image and upload it to a public Docker Hub repository or Amazon EC2 Container Registry (Amazon ECR).
- When you create a new build project, you can specify the location of your Docker image, and CodeBuild will pull the image and use it as the build project configuration.

https://docs.aws.amazon.com/codebuild/latest/userguide/build-env-ref-available.html

# AWS CodeBuild - Logging

- AWS CodeBuild is integrated with AWS CloudTrail, a service that provides a record of actions taken by a user, role, or an AWS service in CodeBuild.
- CloudTrail captures all API calls for CodeBuild as events, including calls from the CodeBuild console and from code calls to the CodeBuild APIs.
- You can use Amazon CloudWatch to watch your builds, report when something is wrong, and take automatic actions when appropriate.
- You can monitor your builds at two levels:
    - Project level: These metrics are for all builds in the specified project only.
    - AWS account level: These metrics are for all builds in one account.

# AWS CodeBuild - Build artifacts to S3

- In AWS CodeBuild, the output artifacts are stored in an Amazon S3 bucket.
- If you chose Insert build commands in Environment, then for Output files, enter the locations of the files from the build that you want to put into the output bucket.
- If you have more than one location, use a comma to separate each location

# AWS CodeBuild - Pricing

- AWS CodeBuild uses simple pay-as-you-go pricing.
- There are no upfront costs or minimum fees.
- You pay only for the resources you use. You are charged for compute resources based on the duration it takes for your build to execute.
- The per-minute rate depends on the selected compute type.