ASSIGNMENT - 1

DEVOPS (IS7I04)

Submitted by

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1.What is CI/CD

The acronym CI/CD has a few different meanings. The "CI" in CI/CD always refers to continuous integration, which is an automation process for developers. Successful CI means new code changes to an app are regularly built, tested, and merged to a shared repository. It's a solution to the problem of having too many branches of an app in development at once that might conflict with each other.

The "CD" in CI/CD refers to continuous delivery and/or continuous deployment, which are related concepts that sometimes get used interchangeably. Both are about automating further stages of the pipeline, but they're sometimes used separately to illustrate just how much automation is happening.

Continuous delivery usually means a developer's changes to an application are automatically bug tested and uploaded to a repository (like GitHub or a container registry), where they can then be deployed to a live production environment by the operations team. It's an answer to the problem of poor visibility and communication between dev and business teams. To that end, the purpose of continuous delivery is to ensure that it takes minimal effort to deploy new code .

Continuous deployment (the other possible "CD") can refer to automatically releasing a developer's changes from the repository to production, where it is usable by customers. It addresses the problem of overloading operations teams with manual processes that slow down app delivery. It builds on the benefits of continuous delivery by automating the next stage in the pipeline.

2.What are feature flags and how it is used

Feature flags are a software development concept that allow you to enable or disable a feature without modifying the source code or requiring a redeploy. They are also commonly referred to as feature toggles, release toggles or feature flippers. Feature flags determine at runtime which portions of code are executed. This allows new features to be deployed without making them visible to users or, even more importantly, you can make them visible to only a specific subset of users.

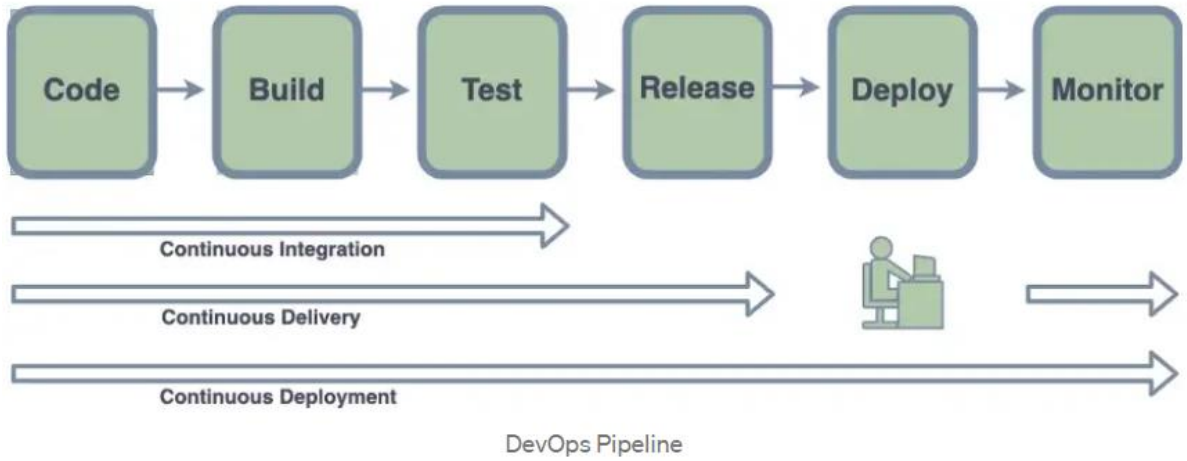
At the most basic level, they take the form of simple conditionals that determine the code path that will be executed.

Feature flags can be used to isolate new changes while known, stable code remains in place. This helps developers avoid long-running feature branches by committing frequently to the main branch of a repository behind the feature toggle.

3.Explain CI/CD pipeline with block diagram

A pipeline is a process that drives software development through a path of building, testing, and deploying code, also known as CI/CD. By automating the process, the objective is to minimize human error and maintain a consistent process for how software is released. Tools that are included in the pipeline could include compiling code, unit tests, code analysis, security, and binaries creation. For containerized environments, this pipeline would also include packaging the code into a container image to be deployed across a hybrid cloud.

CI/CD is the backbone of a DevOps methodology, bringing developers and IT operations teams together to deploy software. As custom applications become key to how companies differentiate, the rate at which code can be released has become a competitive differentiator.



DevOps Pipeline