## DevOps Assignment

## What is CI/CD?

CI/CD, which stands for [continuous integration (CI)](https://www.ibm.com/cloud/learn/continuous-integration) and [continuous delivery (CD)](https://www.ibm.com/cloud/learn/continuous-delivery), creates a faster and more precise way of combining the work of different people into one cohesive product. In application development and operations ([DevOps](https://www.ibm.com/cloud/learn/devops-a-complete-guide)), CI/CD streamlines application coding, testing and deployment by giving teams a single repository for storing work and automation tools to consistently combine and test the code to ensure it works.

## What is the CI/CD pipeline?

The continuous integration/continuous delivery (CI/CD) pipeline is an agile DevOps workflow focused on a frequent and reliable software delivery process. The methodology is iterative, rather than linear, which allows DevOps teams to write code, integrate it, run tests, deliver releases and deploy changes to the software collaboratively and in real-time.

A key characteristic of the CI/CD pipeline is the use of automation to ensure code quality. As the software changes progress through the pipeline, test automation is used to identify dependencies and other issues earlier, push code changes to different environments and deliver applications to production environments. Here, the automation’s job is to perform quality control, assessing everything from performance to API usage and security. This ensures the changes made by all team members are integrated comprehensively and perform as intended.

The ability to automate various phases of the CI/CD pipeline helps development teams improve quality, work faster and improve other DevOps metrics.

**What are Feature Flags?**

Feature flags also allow you to decouple code deployments from feature releases. You can make code changes in production while hiding those changes from users. These abilities are a key facilitator of DevOps. They allow DevOps teams to deploy to production faster, knowing that, in the off-chance the newly developed feature doesn’t work as expected, they can just switch it off, reducing its impact to effectively zero. In other words: feature flags are a safety net that enables faster code deployments.

Feature flags (also commonly known as feature toggles) is a software engineering technique that turns select functionality on and off during runtime, without deploying new code. This enables teams to make changes without pushing additional code and allows for more controlled experimentation over the lifecycle of features. Because of this, feature flags enable many novel workflows that are incredibly useful to an [agile management](https://www.atlassian.com/agile/project-management) style and CI/CD environments.