

# CI/CD

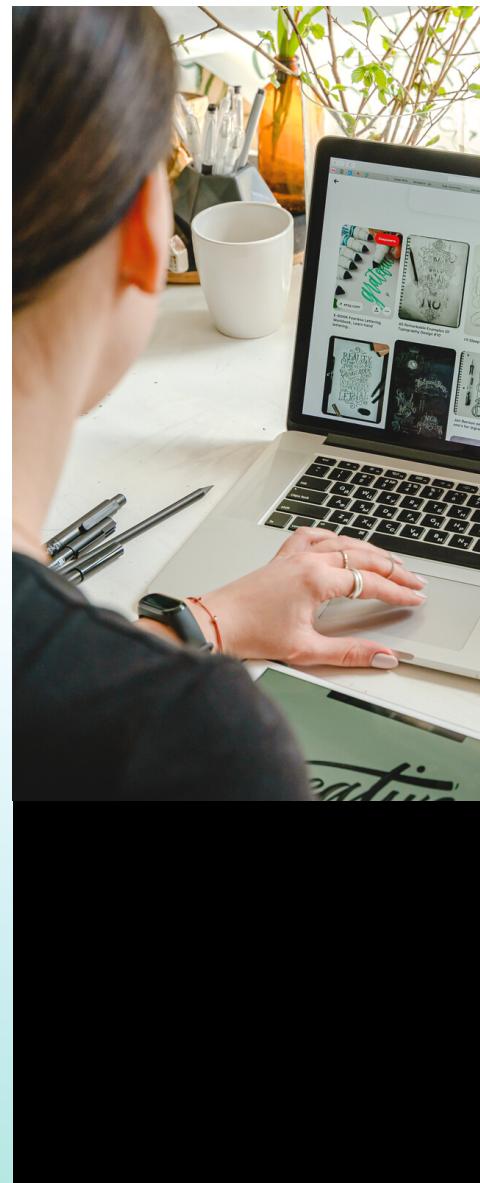
# Udacity



# What is CI/CD

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Continuous Integration is a coding philosophy and set of practices that drive development teams to frequently implement small code changes and check them in to a version control repository. Most modern applications require developing code using a variety of platforms and tools, so teams need a consistent mechanism to integrate and validate changes. Continuous integration establishes an automated way to build, package, and test their applications. Having a consistent integration process encourages developers to commit code changes more frequently, which leads to better collaboration and code quality.



# Benefits of CI/CD

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## REDUCE RISK

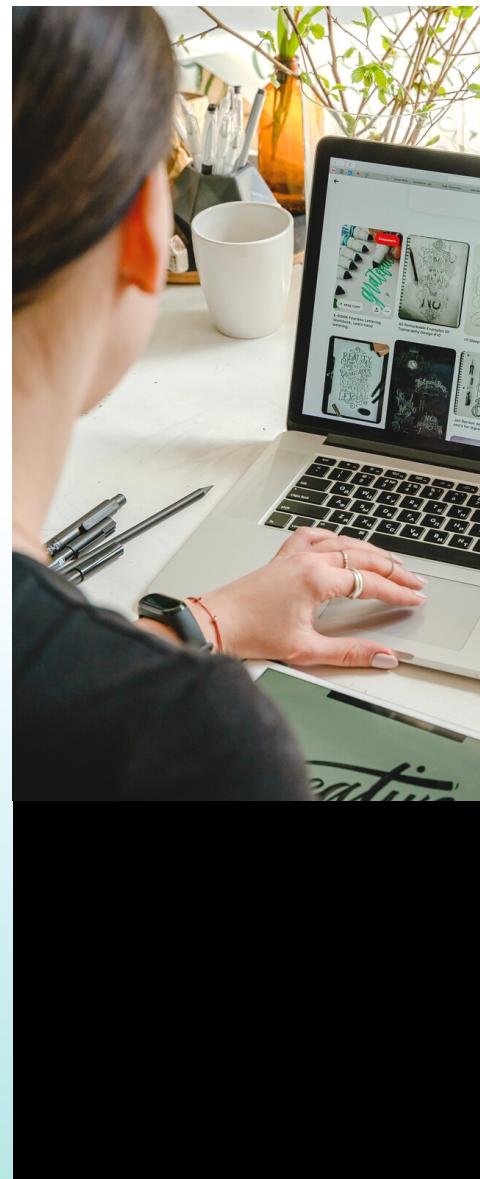
With a CI/CD pipeline, you can test and deploy code more frequently, giving testers the ability to detect issues as soon as they occur and to fix them immediately. You are essentially mitigating risks in real time.

## DELIVER FASTER

Organizations are moving toward releasing features multiple times a day. This is not an easy task; only a handful of companies like Netflix, Amazon, and Facebook have been able to achieve this goal. But, with a seamless CI/CD pipeline, multiple daily releases can be made a reality.

## EXPEND LESS MANUAL EFFORT

To align with the shift-left paradigm, we need automation right from the start. This is also a vital component of having a successful CI/CD implementation. Once you build features and check in code, tests should be automatically triggered to make sure that the new code does not break existing features and that the new features are working correctly.



# Benefit of CI/CD

## GENERATE EXTENSIVE LOGS

Observability is one of the biggest aspects of DevOps and CI/CD integration. If something is wrong, you need to understand why. You need a mechanism to study the system in production over time and identify key performance metrics. Observability is a technical solution that helps in this effort.

One key aspect of observability is logging information. Logs are a rich source of information to understand what is happening beneath the UI and study application behavior.

## MAKE EASIER ROLLBACKS

One of the biggest advantages of a CI/CD pipeline is you can roll back changes quickly. If any new code changes break the production application, you can immediately return the application to its previous state. Usually, the last successful build gets immediately deployed to prevent production outages.

The world is moving toward rapid release cycles, and CI/CD pipelines have accelerated the release rate. With careful planning and implementation, such a pipeline can help you find defects faster, implement fixes immediately, and increase overall customer satisfaction.

