



CI/CD: **FUNDAMENTALS AND BENEFITS**



UDACITY

OVERVIEW

01

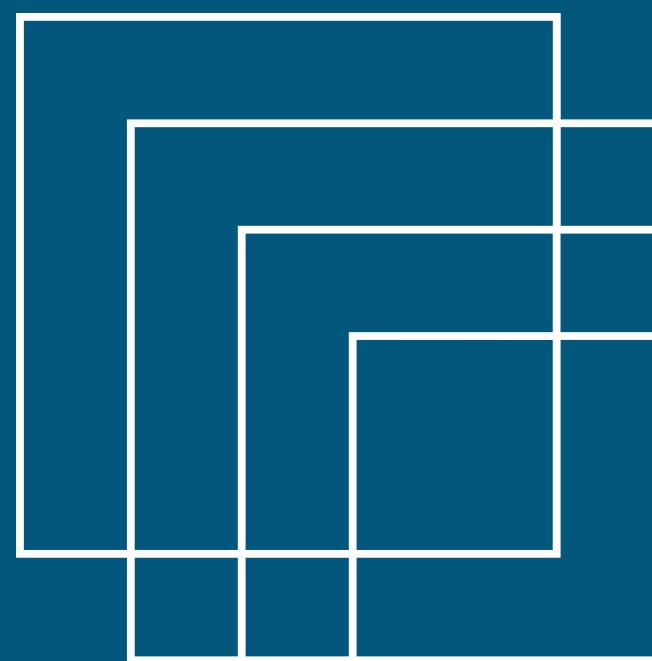
WHAT IS CI/CD?

02

BENEFITS FROM CI/CD

03

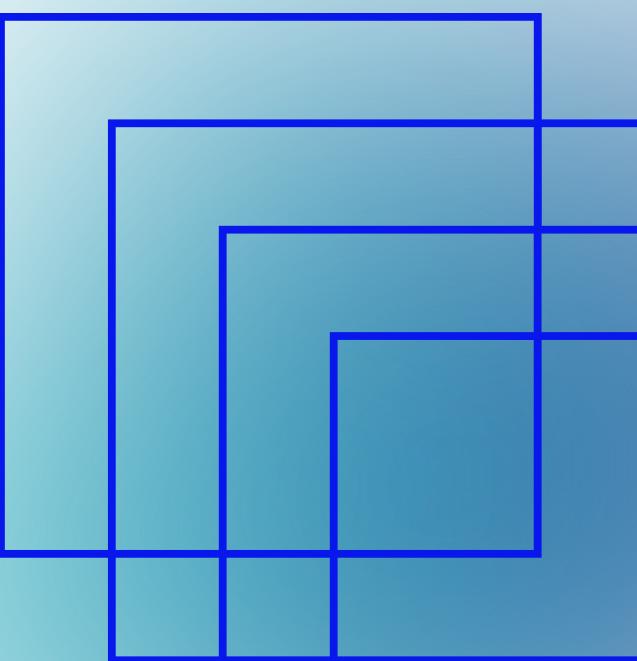
COST EFFECTIVENESS



WHAT IS CI/CD?



- Continuous Integration (CI) is the process of merging developer branches into the main branch several times each day. It focuses on test automation with the goal of producing a high-quality, deployable artifact.
- Continuous Delivery guarantees that software changes are delivered to clients in a timely, automated, and on-demand manner.
- Continuous Deployment provides frequent and automated deployments without the need for human interaction. It comprises phases such as infrastructure setup, smoke testing, production deployments, and automated rollbacks.



BENEFITS FROM CI/CI



UDACITY

- **Faster and more frequent releases:**

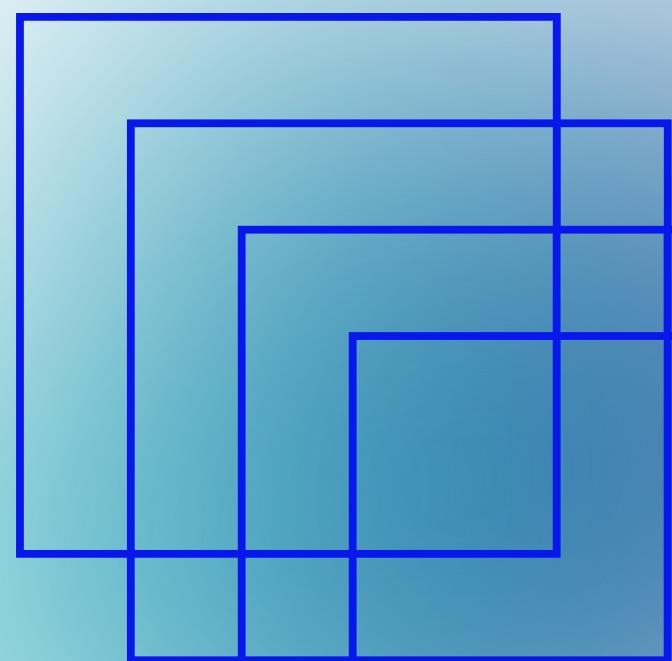
- > Automates the software development lifecycle, allowing for faster and more frequent releases and the timely delivery of new features, bug fixes, and upgrades to users.

- **Early Bug Detection**

- > Bugs and integration issues are identified early on with CI, minimizing the likelihood of costly solutions in later phases of development.

- **Improved Code Quality**

- > Coding changes are held to predetermined quality standards thanks to the automation of tests in continuous integration (CI). A more solid and trustworthy codebase results from this.



BENEFITS FROM CI/CI



UDACITY

- **Easier Collaboration**

--> As developers often integrate their work, CI fosters stronger developer communication and promotes a more efficient team workflow.

- **Reduced Integration Hassles**

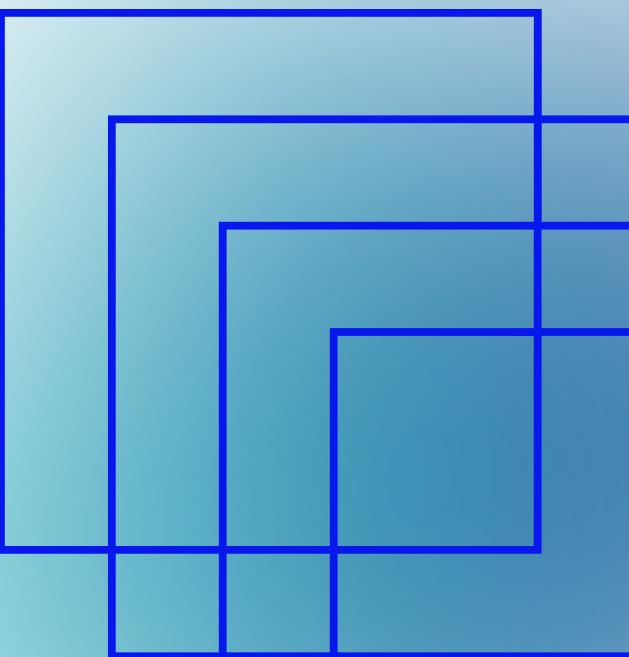
--> The complications that occur when many developers work on distinct aspects are reduced by frequent integration.

- **Faster Feedback**

--> Developers may quickly get feedback on their code modifications thanks to CI. Frequent integration of modifications enables early detection and resolution of any problems or conflicts.

- **Increased Confidence**

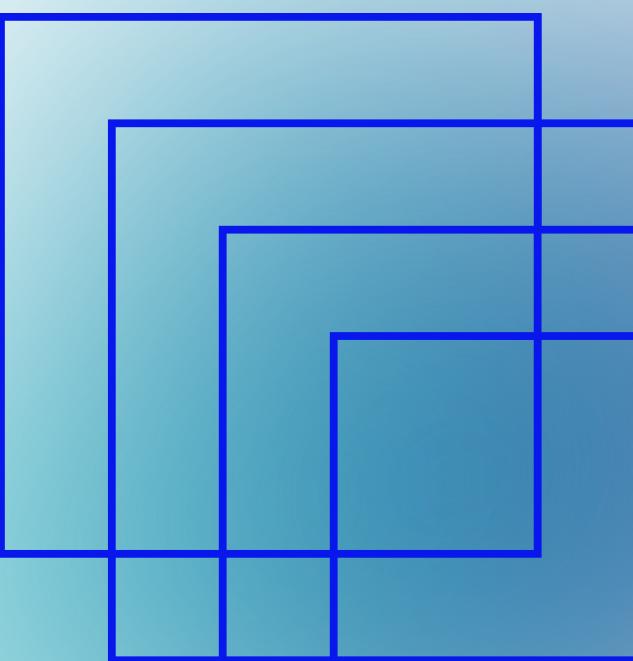
--> By guaranteeing that the codebase is continually verified and prepared for deployment, continuous integration helps to increase trust in the development process.



COST EFFECTIVENESS



- **Businesses may safeguard their earnings by doing the following:**
 1. Quicker delivery of high-quality releases.
 2. Lowering the possibility of defects that negatively affect sales.
 3. Providing consistent and dependable services.
 4. Utilizing continuous monitoring and recovery methods to quickly address problems or breakdowns.



COST EFFECTIVENESS



- **Reduce costs by:**
 1. Reduce the possibility that defects or mistakes may sneak through the gaps and create difficulties later on.
 2. Eliminating a large portion of the costs associated with creating and testing code updates
 3. Teams spend less time testing and fixing bugs. It means that businesses spend less money on tasks
 4. CI/CD also makes it easier to bring high-quality items to market more quickly. It means that businesses will enjoy a rise in earnings. Customers stay longer and are more likely to promote your items to others in their network.

