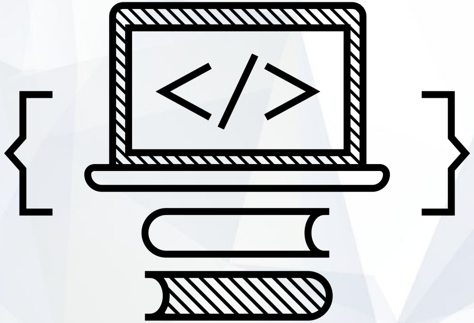


CI/CD

Java Accelerator 7

Lesson 6.2

WELCOME

Learning Outcomes

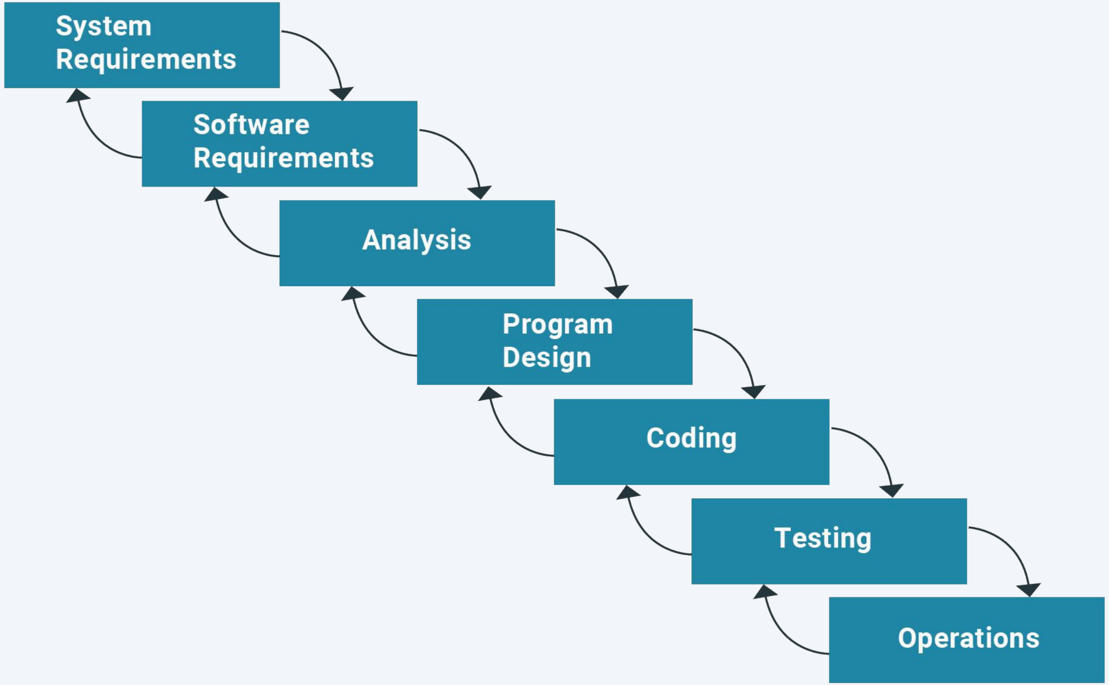
By the end of this lesson, you will be able to:

- Explain the purpose of continuous integration (CI).
- Explain the purpose of continuous deployment (CD).
- Explain the difference between CI and CD.
- Implement CI/CD using CircleCI.

CI/CD

Waterfall Development

Waterfall development refers to the traditional process of creating an application by producing each part in a linear sequence, similar to an assembly line.



But this traditional process was far from perfect—as applications became more complex, problems started to arise.

Waterfall Development

For example, as the codebase increased:

01

Application build times increased.

02

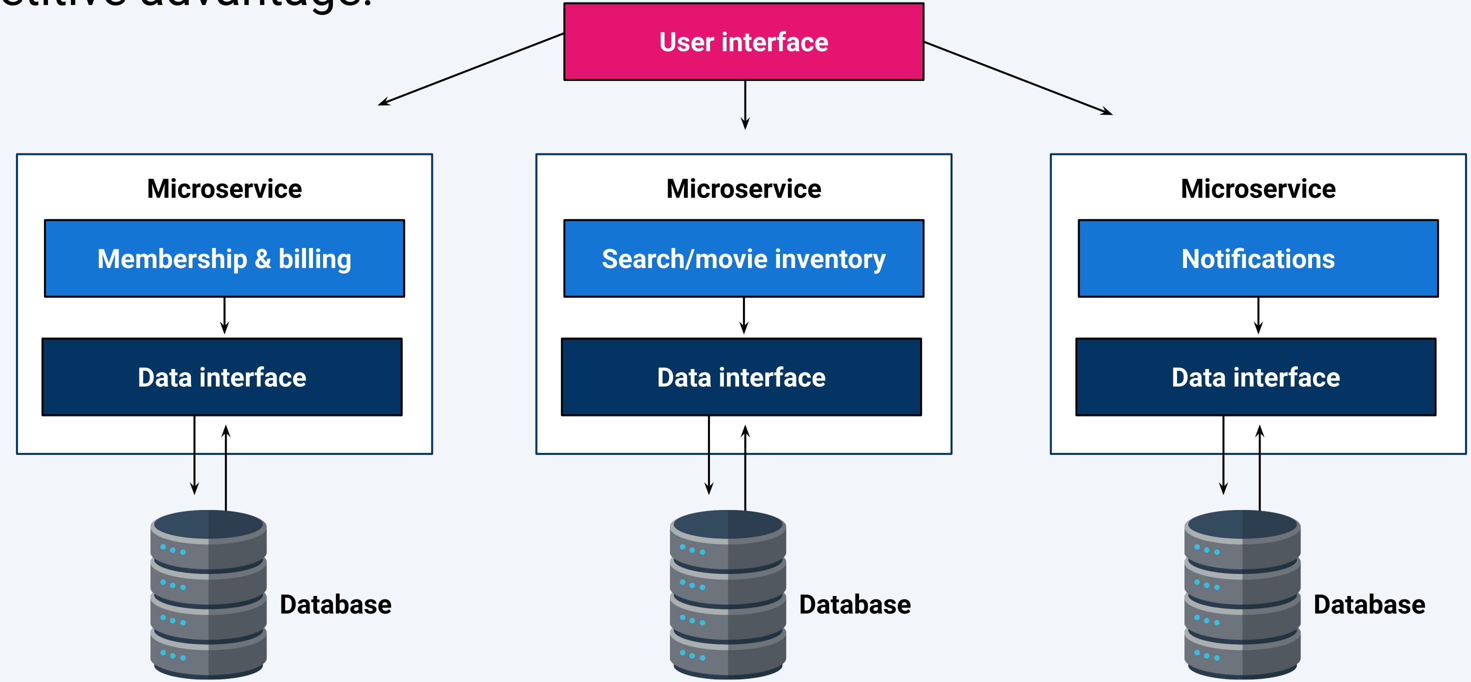
Errors during the build process then became productivity bottlenecks.

03

As efficiency slowly eroded and productivity diminished, teams started to search for ways to fix this growing problem.

Waterfall Development

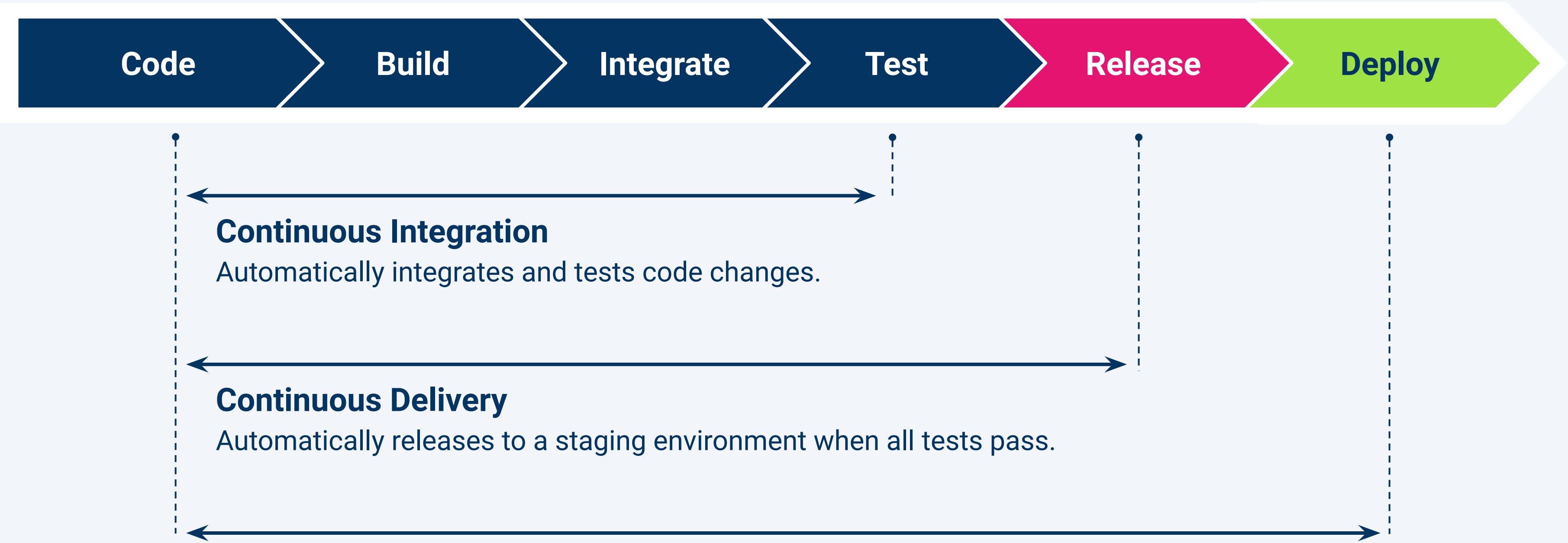
Although a microservices architecture initially increases the development time, the code maintenance and deployment benefits over the long term offer a competitive advantage.



CI/CD Pipeline

Various processes, including CI/CD, have been designed and implemented to improve the deployment process. The aim is to improve the speed to market, making features or improvements more readily available to customers.

CI/CD Pipeline



Code → Build → Integrate → Test → Release → Deploy

Continuous Integration

Automatically integrates and tests code changes.

Continuous Delivery

Automatically releases to a staging environment when all tests pass.

Continuous Deployment

Automatically releases to the production environment if all tests pass.

Continuous Integration (CI)

Continuous integration (CI) is the practice of automating the integration of code changes from multiple contributors into a central repository.

In the central repository, the code is automatically built & tested.

CI ensures high quality and functionality of the code.

Continuous Delivery (CD)

Continuous delivery (CD) extends continuous integration.

CD automatically deploys all built and tested code to a staging environment.

In the staging environment, final QA and manual testing occurs before code is released to production.

Continuous Deployment (CD)

- **Continuous deployment (CD)** extends continuous integration.
- Automates the release of code changes to production.

Time to <code>