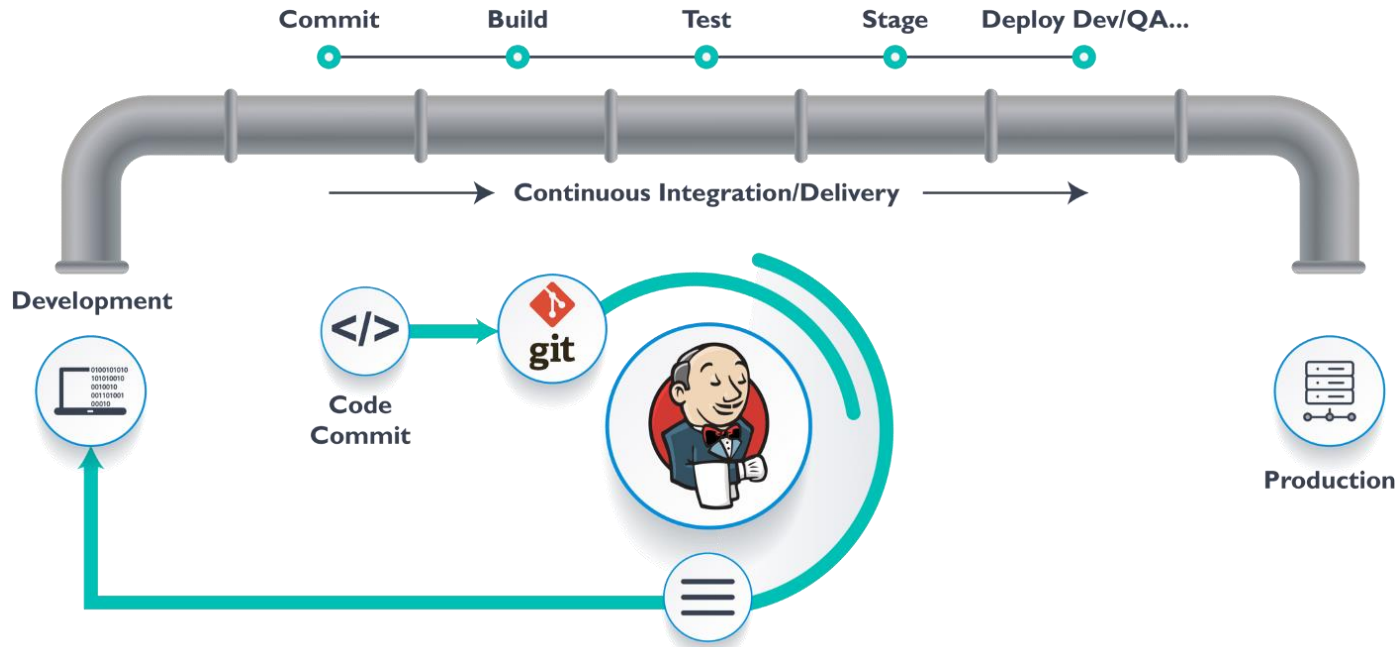


# Md. Rasel

CI/CD and Jenkins

# CI -CD?



## What is continuous integration (CI)?

Continuous integration is the practice of integrating all your code changes into the main branch of a shared source code repository early and often, automatically testing each change when you commit or merge them, and automatically kicking off a build. With continuous integration, errors and security issues can be identified and fixed more easily, and much earlier in the software development lifecycle.

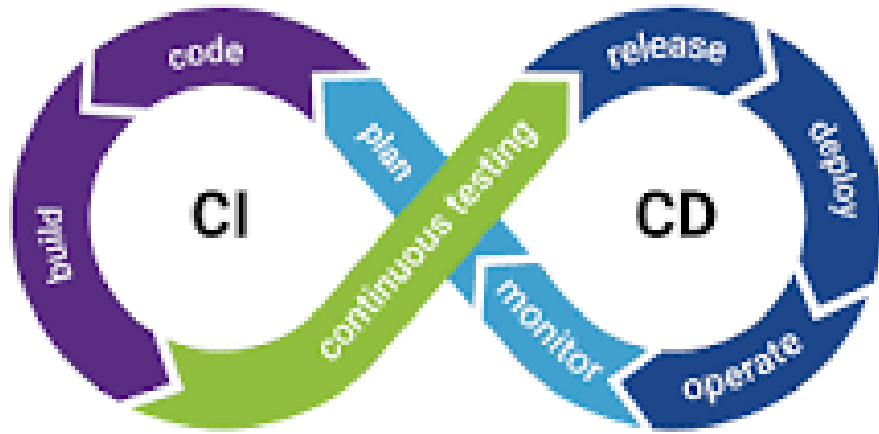
## Continuous Deployment (CD)

*Continuous Deployments is the process of deploying your ready shippable code to production, this can be totally automated or manually approved then pushed to production. The code is ensured to work exactly the same as the previous steps in staging/testing environments.*

## What is continuous delivery (CD)?

Continuous delivery is a software development practice that works in conjunction with continuous integration to automate the infrastructure provisioning and application release process.

# Why CI/CD is Important?



- **Speed** up deployment and ability to deploy often, fix bugs and add new features
- **Automation** with no manual mistakes, once a commit is made, fully automated through the pipeline
- **Working software** by automating test and deployment process to reduce errors
- **Reduce Costs** as you don't have to spend time debugging problems, rolling back releases or manually interacting with the deployment process
- **Consistency** of deployment across environments, always the same no matter where it is deployed
- **Minimal downtime** by utilizing various deployment methods such as blue/green, canary and linear deployments

# Popular CI/CD Tools



GitLab



**Jenkins**



**argo**

# Let's Know Jenkins



Jenkins is an open source continuous integration/continuous delivery and deployment (CI/CD) automation software DevOps tool written in the Java programming language. It is used to implement CI/CD workflows, called pipelines.

Pipelines automate testing and reporting on isolated changes in a larger code base in real time and facilitates the integration of disparate branches of the code into a main branch. They also rapidly detect defects in a code base, build the software, automate testing of their builds, prepare the code base for deployment (delivery), and ultimately deploy code to containers and virtual machines, as well as bare metal and cloud servers. There are several commercial versions of Jenkins. This definition only describes the upstream open source project.

## **Features of Jenkins**

Jenkins has some features that really sell it as a CI/CD tool. These are some of them:

### **Plugins**

The availability of thousands of plugins allows for a large degree of customizability. The developers have the opportunity to integrate these plugins with development and testing tools, and tailor the architecture to serve a lot of possibilities.

### **Easy to Set Up**

Jenkins has executable packages that are quick to install on Windows, Mac and Unix operating systems. It's just a self-contained Java program that you can set up in ten minutes.

### **Supports Most Environments**

Jenkins supports most environments, including cloud-based architecture. This makes it handy as teams begin to use different environments. It also supports all major cloud platforms, including Amazon, Azure, Google, and IBM Cloud.

### **Open-source**

Jenkins is open-source and free to use. It has an enthusiastic developer community that frequently holds in-person and online meetings.

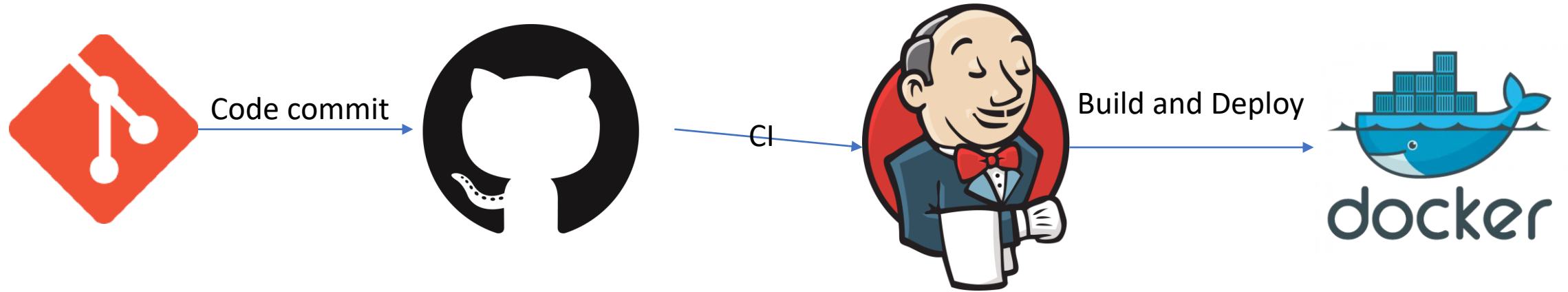
### **Easy Distribution**

It's easy to distribute Jenkins across work machines, which makes building, testing, and deployment faster.

### **Security**

Jenkins offers security tools to help organizations keep their data and systems safe, right out-of-the-box. This includes features like role-based access control, session management, and encryption. Additionally, Jenkins integrates with several security-related plugins to further enhance its security capabilities.

# Our Project



# Jenkins Hands on

Given On a Separate Text File



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