Vaibhav Wowlikar
2201124 - T23
TE - AI&DS.

THADOMAL SHAHANI TSEC ENGINEERING COLLEGE

Experiment 1.

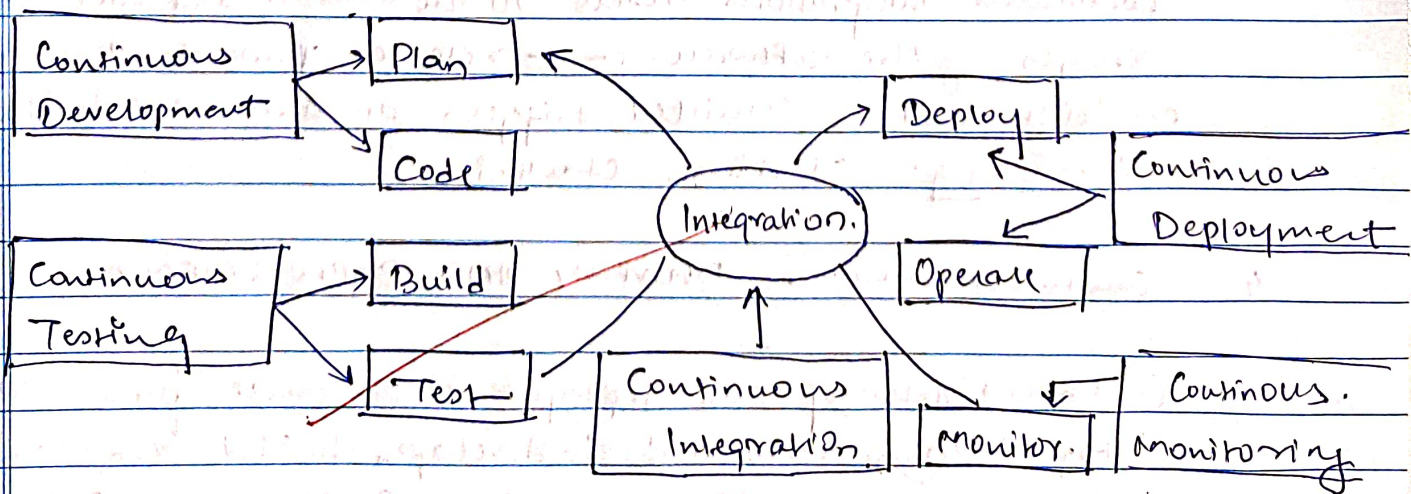
AIM : To understand DevOps : Principles, practices, and DevOps Engineer Role and Responsibility.

⇒ **What is DevOps ?**

- DevOps is a collaborative approach where teams work together to build and deliver secure software efficiently. It combines software development (dev) and operations (ops) to decide how to accelerate delivery through automations, collaborations, fast feedback and iterative improvement. DevOps is based on Agile Methodology and Lean Methodology ensuring efficiency, collaboration and better software quality.

⇒ **Core Principles :**

1. Develop and test in productive-like environments.
2. Deploy builds frequently.
3. Continously validate operational quality.



THADOMAL SHAHANI
TSEC
ENGINEERING COLLEGE

⟹ DevOps Pratices.

1. CONTINUOUS DEVELOPMENT:

This is the phase that involves planning and coding, versioning and managing build of the software application's functionality.
Eg: Git, Github, maven, etc.

2 CONTINUOUS TESTING:

Continuous testing is, executing automated tests continuously and repeatedly against the code base and the various deployment environments. It is a software testing methodology which focuses on achieving continuous quality & improvement.
Eg: Bamboo, appium.

3 CONTINUOUS INTEGRATION:

Continuous integrations refers to the build and unit testing stages of the software ~~creat~~ releases process. Every revision that is commited triggers an automated build and test. Eg: Jenkins, circleci.

4 ~~Cont~~ CONTINUOUS DELIVERY AND DEPLOYEMENT

Continuous delivery and deployment originate from continuous integration, a method to develop, build and test new code rapidly with automation so that only code that is

known to be good becomes part of the software product

5 INFRASTRUCTURE MANAGEMENT :

Without automation building & maintaining large scale modern IT systems can be a resource - intensive undertaking and can lead to increased risk due to manual error configuration and resource management.

6 CONFIGURATION MANAGEMENT.

Infrastructure as code is the process of describing all software runtime environment and networking settings and parameters in simple textual formats that can be stored in your version control system (VCS) and versioned on request.

7 MICROSERVICE ARCHITECTURE :

Dockers is a tool designed to make it easier to create, deploy and run applications by using containers. Container allows a developer to package up an application with all the part it needs. The developer is rest assured that the application will run on any other Linux machine regardless of any customised setting that machine might have.

8 CLOUD BASED DEVOPS.

Devops automation is becoming cloud centric. Most public and private cloud computing providers support.

Eg: AWS, amazon lambda, google cloud, Azure etc.

THADOMAL SHAHANI
TSEC
ENGINEERING COLLEGE

⇒ DEVOPS ENGINEER ROLES :

Technical Responsibilities.

1. Implement development, testing & automation tools.
2. Set up infrastructure and tools.
3. Code review and responsibilities
4. Bug fixing and troubleshooting.
5. Build and maintain CI/CD pipeline.
6. Security implementation and monitoring.

Management Responsibilities.

1. Understand customer requirements and APIs.
2. Plan and team structure and activities.
3. Manage stakeholders.
4. Monitor Customer Experience
5. Provide periodic progress reports.
6. Mentor team members.
7. Define Development and operational processes.

MKale