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THADOMAL SHAHANI TSEC ENGINEERING COLLEGE

SEPM

~~Assignment - 2~~ Experiment - 1

AIM To understand DevOps: Principle, pratices and Devops Engineer Roles and responsibilities

① What is Devops?

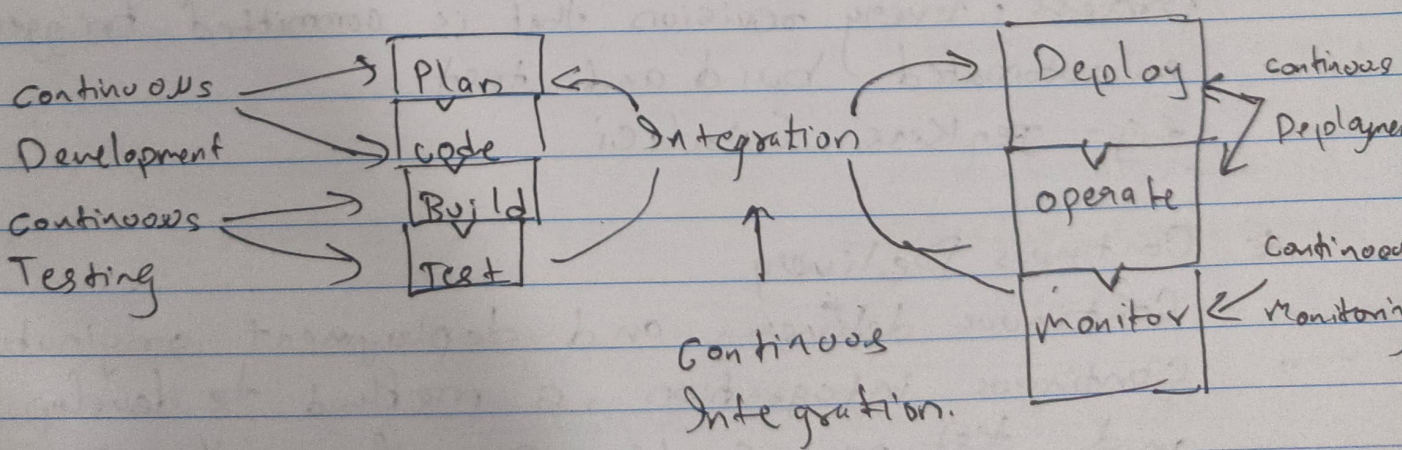
⇒ Devops is the Combination of cultural philosophies practices and tools that increases an organization's ability to deliver applications and services at high velocity.

Evolving and improving products at a faster pace than organizations using traditional software development and infrastructure management processes.

This speed enables organizations to better save their customers and compete more effectively in the market

core principles
- Develop and test in production-like environments
- Deploy builds frequently.
- Continously validate operational quality.

② DevOps Practices.



* Continuous Development -
This is the phase that involves planning and coding versioning and managing builds of the software application's functionality.
eg - Git, Github, maven etc

* Continuous Testing -
~~This is the phase that involves planning and coding ve~~
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, Jira, appium

* Continuous Integration
Continuous integration refers to the build and unit testing stages of the software release process. Every revision that is committed triggers an automated build and test.
eg - Jenkins, CircleCi

* Continuous Delivery
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 a software product

* Continuous Deployment
Continuous Deployment is a software deployment strategy that automatically releases code changes to users. It's a part of the continuous integration and continuous delivery (CI/CD) process.

* Infrastructure Management
without automation, building and 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 is an automated method for maintaining computer systems and software in a known, consistent state.

* Configuration Management
Infrastructure as Code is the practise of describing all software runtime environment and networking setting and parameters in simple textual format that can be stored in your Version Control System (VCS) and versioned on request. These text files are called manifests and are used by DevOps tools to automatically provision and configure build servers, testing, staging and production environments.

* Microservice Architecture
Docker is a tool designed to make it easier to create, deploy and run applications by using Containers. Containers allow a developer to package

up an application with all of the parts it needs, such as libraries and other dependencies and deploy it as one package. By doing so thanks to the container, the developer can rest assured that the application will run on any other linux machines regardless of any customized setting that machines might have that could differ from the machine used for writing and testing the code.

* Cloud based Devops

Devops automation is becoming cloud centric. Most public and private cloud computing providers support Devops systematically on their platform including continous integration and Continous development tools.

Devops Engineer Role

A Devops engineer manages a company's IT infrastructure, bridging development and operations. Key responsibilities include.

Technical Responsibilities.

- implement development, testing and automation tools
- setup infrastructure and tools
- code review and validation.

Management Responsibilities.

- understand Customer requirement and KPIs
- Plan team structure and activities
- Coordinate team communication.