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SEPM ~~Assignment~~
Experiment 1

Aim :- To understand Devops Principle, Practices and Role Responsibilities

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 accelerate delivery through automation, collaboration, fast feedback, and iterative improvement.
Built on Agile methodology, Devops creates a culture of accountability, collaboration and shared responsibility for business outcomes.

Core Principles :

- Develop and test in production-like environments.
- Deploy build frequently
- continuously validate operational quality.

Key Practices :-

Continuous Development : This is the phase that involve planning and coding, versioning and managing builds of the software applications functionality

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 and improvement

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

Continuous delivery vs continuous deployment :-
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.

Infrastructure Management :-
Without automation building and maintaining large-scale modern IT systems can be resource-intensive undertaking and can lead to increased risk due to manual error. Configuration and resource management is an automated method for maintaining computer system and software in a known, consistent state

Microservice Architecture :-

Developer 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 machine regardless of any customized settings that machine 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 systemically on their platform, including continuous integration and continuous development tools.

DevOps Engineer Role:

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

Technical Responsibilities:

- Implement development, testing and automation tools
- Set up infrastructure and tools
- Code review and validation
- Bug fixing and troubleshooting
- Build and maintain CI/CD pipeline
- Security implementation and monitoring.

Management Responsibilities:

- understand customer requirement and KPI
- Plan team structure and activities
- Manage stakeholders
- Define development and operational process
- coordinate team communication
- Monitor customer experience
- Provide periodic progress report
- Mentor team members.