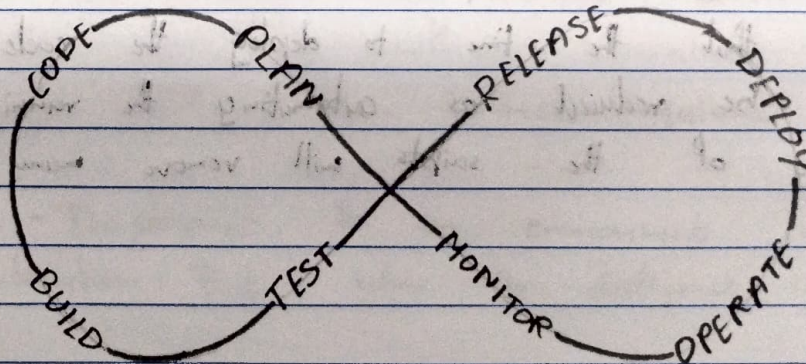## Experiment 1

AIM : To understand devops, principles, practices and devops roles and responsibilities.

Theory :

Definition :

- DevOps is the combination of two words, one is development and other is operations. It is a culture to promote the development & operations process collectively.

- DevOps helps to increase organisation speed to deliver applications and services. It also allows organisations to serve their customers better & complete more strongly in the market.

- DevOps can also be defined as an sequence of development and IT operations with better communication and collaboration.

- DevOps has become one of the most valuable business disciplines for enterprises or organisations. With the help of DevOps, quality and speed of the app's delivery has improved to a great extent.

Architecture :

1. Build — Without DevOps, the cost of the consumption of the resources was evaluated based on the pre-defined individual usage with fixed hardware allocation. And with DevOps, the usage of cloud, sharing of resources comes into the picture, and the build is dependent upon the user's need, which is a mechanism to control the usage of resources or capacity.

2. Code — Many good practices such as Git enables the code to be used, which ensures writing the code for businesses, helps to track changes, getting notified about the reason behind the difference in the actual and expected output, and if necessary reverting to the original code developed. The code can be appropriately arranged if files, folders, etc. and they can be reused.

3. Test — The app^h will be ready for prod^n after testing. In the case of manual testing, it consumes more time in testing and moving the code to the output. The testing can be automated, which decreases the time for testing so that the time to deploy the code to prod^n can be reduced as automating the running of the running of the scripts will remove many manual steps.

4. Plan - DevOps use agile methodology to plan the development. With the opn^s and dev teams in sync, it helps in organising the work to plan accordingly to increase productivity.

5. Monitor - Continuous monitoring is used to identify any risk of failure. Also, it helps in tracking the system accurately so that the health of the appⁿ can be checked. The monitoring becomes more comfortable with services where the log data may get monitored through many 3rd party tools such as Splunk.

6. Deploy - Many systems can support the scheduler for automated deployment. The cloud mgmt platform enables users to capture accurate insights and view the optimization scenario, analytics on trends by the deployment of dashboards.

7. Operate - Devobs changes the traditional approach of developing and testing separately. The teams operate in a collaborative way where both the teams actively participate throughout the service lifecycle. The opⁿ team interacts with developers, and they come up with a monitoring plan which serves the IT and business requirement.

8. Release - Deployment to an environment can be done by automation. But when the deployment is made to

the prodⁿ env, it is done by manual triggering. Many processes involved in release management. commonly used to do the deployment in the prodⁿ env. manually to lessen the impact on the customers.

Principles:
- Collaboration
- Data based decision making.
- Customer-centric decision making
- Constant improvement
- Responsibility throughout the lifecycle
- Automation.
- Failure as a learning opportunity.

Advantages:
- Devops is an excellent approach for quick development and deployment of appⁿ.
- It responds faster to the market changes to improve business growth
- Devops escalate business profit by decreasing software delivery time and transportation cost.
- DevOps clears the description process, which gives clarity on product development and delivery.
- It improves customer experience & satisfaction.
- DevOps simplifies collabⁿ & places all tools in the cloud for customers to access.
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Disadvantages

- Devops professionals or experts developers are less available.
- Developing with devops is expensive.
- Adopting new devops tech into the industries is hard to manage in a short time.
- Lack of devops knowledge can be a problem in the continuous integration of automation projects.

Conclusion : Hence we have known what devops is and its advantages & disadvantages.