

Assignment - 2

- Q1 → Why is DevOps a major requirement in Today's Scenario?
- Q2 → Explain all the DevOps tools in Details?

Ans → DevOps is a major requirement because :-

- (i) DevOps describe a culture and set of processes that bring development and operation team together to complete s/w development.
- (ii) With combined development and operation team, application are ready for use much more quickly.
- (iii) DevOps reduced deployment failures, Rollbacks and Time to Recover. Since ~~shorter~~ shorter development cycles with DevOps promote more frequent code releases. This in turn makes it easier to spot code defects.
- (iv) Improved communication and collaboration. Operations doesn't need to wait for different team to troubleshoot and fix a problem.
- (v) Increasing Efficiency helps to speed the development process and make it less prone to error. There are ways to automate DevOps tasks. This more software engineers can focus on completing tasks that can't be automated.

Ans 2 DevOps tools are as follows:-

1) Version Control tools

(i) GitHub ~~Git~~ → Github is a Git repository hosting service, but it adds many of its own features. While git is a command line tool, Github provides a web-based graphical interface. It also provides access control and several collaboration features, such as wikis and basic task management & tool for every project. It helps in CI/CD.

(ii) BitBucket → It helps in code management and platform for hosting code. It goes beyond code management. Team can plan projects, collaborate on code, test and deploy from a single platform. Some features are:-

- Tighter Jira and Trello Integration
- Integration CI/CD to build, test and deploy
- Pull request and approve code review more efficiently
- Keep your code secured in the cloud with IP whitelisting and 2-step verification.

(iii) Docker → Docker is the light-weight tool that aims to simplify and accelerate various workflow in your SDLC with an integrated approach. A docker container image is a standalone executable package that includes everything you need to run an application. Some features:-

- Standardized packaging format for diverse application.
- Container runtime that runs on various linux and windows server OSs.
- Developer uses Docker for build test and collaborate.
- Docker Hub to Package, execute and Manage distributed application with Docker app

(iv) Kubernetes - Kubernetes is an open source DevOps tool used to automate deployment and management of containerized application & perhaps one of the most popular container orchestration tech, features that differentiate it from other DevOps tech include:-

- Make changes to your application or its configuration and monitoring application health simultaneously - Automated rollouts & rollbacks
- It offers own IP address and a single DNS name for a set of pods - service discovery and load balancing
- ~~Automatic~~ Automatically mount the storage system of your choice
- Self healing capability

(v) Jenkins - It is written in java, Jenkins is an open-source platform for continuous integration and continuous delivery that is used to automate your end-to-end release management life cycle. Features are:-

- Used as a simple CI server or turned into the CD hub for any project.
- Easily set up and configured via its web interface, which includes on-the-fly error-checks and build-in help.
- Easily distributed work across multiple machines, helping drive build test and deployments across multiple platforms.

(vi)

Selenium - It is primarily used to automate web application for testing purposes but can also be used to automate other web-based admin tasks. Three components:

- Selenium WebDriver allows you to create robust, browser-based regression automation suites and test and help in scaling and distribution script across many environments.
- Selenium IDE is a Chrome and Firefox add-on that helps in simple record-and-playback of interaction with the browser.

(vii)

Chef :- Chef is an open-source DevOps tool for automation and configuration management built by Erlang and Ruby.

features:-

- "cookbook" which facilitates infrastructure coding in language specific to domain.

- Easily integrated with cloud platform like Amazon AWS, MS Azure, GCP etc
- Configuration as code