

Department of Information Technology, FAMTRatnagiri

ASSIGNMENT-I

BE(IT), Sem-VIII(CBCGS)

Sub.- DevOps Lab ITL803

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	Module Level		LO
1) What is Jenkins? How does the Jenkins helps for faster Software development?	M1	U	LO1
2) List the DevOps open source tools along with their benefits.	M2	U	LO2
3) What is the Docker technology and what are its benefits?	M3	U	LO4

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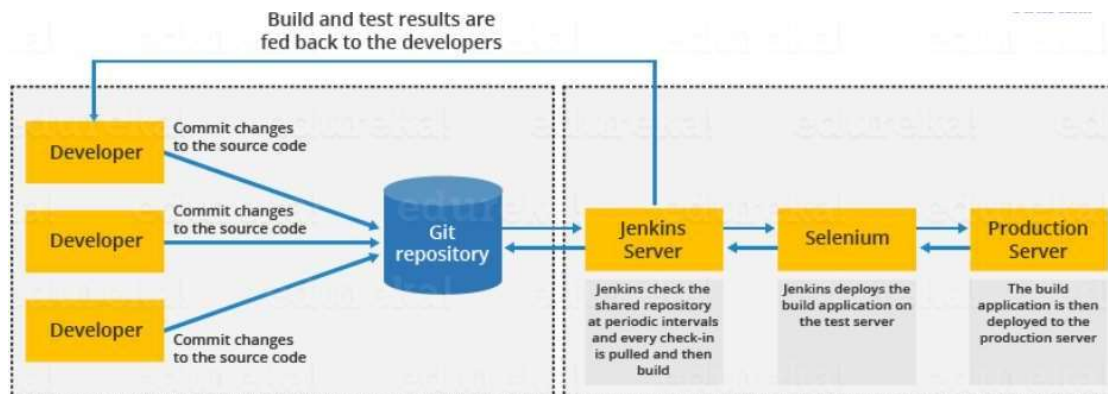
ANSWERS

1) What is Jenkins? How does the Jenkins help for faster Software development?

Ans:

Jenkins is an open source automation tool written in Java with plugins built for Continuous Integration purpose. Jenkins is used to build and test your software projects continuously making it easier for developers to integrate changes to the project, and making it easier for users to obtain a fresh build. It also allows you to continuously deliver your software by integrating with a large number of testing and deployment technologies.

□ Jenkins is the most mature CI tool available so let us see how Continuous Integration with Jenkins as follows:



□ **The above diagram is depicting the following functions:**

- First, a developer commits the code to the source code repository. Meanwhile, the Jenkins server checks the repository at regular intervals for changes.
- Soon after a commit occurs, the Jenkins server detects the changes that have occurred in the source code repository. Jenkins will pull those changes and will start preparing a new build.
- If the build fails, then the concerned team will be notified.
- If built is successful, then Jenkins deploys the built in the test server.
- After testing, Jenkins generates a feedback and then notifies the developers about the build and test results.
- It will continue to check the source code repository for changes made in the source code and the whole process keeps on repeating.

2) List the DevOps open source tools along with their benefits.

Ans:

□ **List of DevOps Tools as follows:**

- GitHub
- Jenkins
- Docker
- Zoom
- Maven
- Selenium
- AWS

• **GitHub**

GitHub is a code hosting platform designed for version control and collaboration. It offers all of the distributed version control and source code management (SCM) functionality of Git in addition to its features. It offers access control and collaboration features like bug tracking, feature creation & Request, task management, etc. for the project.

• **Jenkins**

Jenkins is one of the most popular open-source DevOps tools to support continuous integration and delivery through DevOps. It allows continuous integration and continuous delivery of projects, regardless of the platform users are working on with the help of various build and deployment pipelines. Jenkins can be integrated with several testing and deployment tools.

• **Docker**

Docker is a tool to create, deploy, and run applications by using containers. This container allows the developer to package an application with all of the components and sub-components it needs, such as libraries and other dependencies, and ship it all out in the form of a single package. This work on the concept of the ship and run anywhere.

• **Zoom**

Zoom is a web conferencing and instant screen sharing platform. You can get your team to join through audio or video.

Doesn't matter how big is your team, Zoom is capable of up to 1000 recipients into an online meeting.

- **Maven**

Maven is a build automation tool majorly used for java projects. It contains an XML file that describes the software project being built, its dependencies on other external components and modules, the build sequence, directories, and other required plug-ins.

- **Selenium**

Selenium is the most popular and open source testing tool. It supports test automation across various browsers and operating machines. It can easily be integrated with test management tools like ALM, JIRA and also with other DevOps tools like Jenkins, Teamcity, Bamboo, etc.

- **AWS**

AWS is a web hosting platform created by Amazon that offers flexible, reliable, scalable, easy-to-use, scalable and cost-effective solutions. using this cloud platform we don't need to worry about setting up IT infrastructure which usually takes a reasonable amount of time in setting up.

3) **What is the Docker technology and what are its benefits?**

Ans:

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 machine regardless of any customized settings that machine might have that could differ from the machine used for writing and testing the code. A **Docker container** is an open source software development platform.

☐ **Benefits of Docker:**

1. Docker enables more efficient use of system resources

Instances of containerized apps use far less memory than virtual machines, they start up and stop more quickly, and they can be packed far more densely on their host hardware. All of this amounts to less spending on IT.

2. Docker enables faster software delivery cycles

Enterprise software must respond quickly to changing conditions. That means both easy scaling to meet demand and easy updating to add new features as the business requires.

3. Docker enables application portability

Where you run an enterprise, application matters—behind the firewall, for the sake of keeping things close by and secure; or out in a public cloud, for easy public access and high elasticity of resources.

4. Docker shines for microservices architecture

Lightweight, portable, and self-contained, Docker containers make it easier to build software along forward-thinking lines, so that you're not trying to solve tomorrow's problems with yesterday's development methods.