St. Francis Institute of Technology, Mumbai-400 103

**Department Of Information Technology**

A.Y. 2021-2022

Class: BE-ITA/B, Semester: VIII

Subject: **DevOps Lab**

**Experiment – 3: To implement continuous integration with Jenkins**

1. **Aim:** To implement continuous integration with Jenkins
2. **Objectives:** Aim of this experiment is that, the students will be able

* To Integrate and deploy tools like Jenkins and Maven, which is used to build

applications in DevOps environment

1. **Outcomes:** After study of this experiment, the students will be able

* To understand the importance of Jenkins to Build and deploy Software

Applications on server environment.

* Learn about Jenkins (With Architecture)
* To have introduction to Maven / Gradle / Ant

1. **Prerequisite:** Knowledge of software engineering concept of integration
2. **Requirements:** Jenkins,JDK, python, ANT,Personal Computer, Windows operating system, browser, Internet Connection, Microsoft Word.
3. **Pre-Experiment Exercise:**

**Brief Theory:** Refer shared material

1. **Laboratory Exercise**
   * + 1. **Procedure:**

**a. Answer the following:**

* Explain continuous integration

Continuous integration is a DevOps software development practice where developers regularly merge their code changes into a central repository, after which automated builds and tests are run.

* Why Jenkins is popular? Mention advantages.

Jenkins is one of the essential CI/CD tools for DevOps professionals. It is one of the most trusted and well-known open-source tools. Jenkins is used for building and testing software projects continuously which makes it easy for developers to integrate changes in a project.

Advantages of Jenkins include:

1. It is an open-source tool with great community support.
2. It is easy to install.
3. It has 1000+ plugins to ease your work. If a plugin does not exist, you can code it and share it with the community.
4. It is free of cost.
5. It is built with Java and hence, it is portable to all the major platforms.

**b**. **Execute following (Refer the shared material) and attach screenshots:**

* Build jobs in Jenkins

1. **Post-Experiments Exercise**
2. **Extended Theory:**

Nil

1. **Questions:**

* How is continuous integration achieved using Jenkins?
* Have you created a build job in Jenkins? Explain how to do it.
* What are the types of jobs or projects in Jenkins?

1. **Conclusion:**

* Write what was performed in the experiment.
* Write the significance of the topic studied in the experiment.

1. **References:**

<https://jenkins.io/doc/>

<https://www.cloudbees.com/jenkins/what-is-jenkins>

<https://vmokshagroup.com/blog/what-is-jenkins/>

[https://www.infoworld.com/article/3239666/what-is-jenkins-the-ci-server-explained.html](https://www.infoworld.com/article/3239666/what-is-jenkins-the-ci-server-explained.html )

<https://hackr.io/blog/jenkins-interview-questions>

<https://www.edureka.co/blog/interview-questions/jenkins-interview-questions/>

## Screenshots

### Setting up Python

Graphical user interface, text, application, email

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### Implicit Python Project

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A screenshot of a computer

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Graphical user interface, text, application

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### Explicit Python Project

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### Maven Freestyle Project

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### Ant Freestyle Project

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Graphical user interface, text, application

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## Post Lab Exercise: -



