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Continuous Integration with Jenkins Certification Training

Course Curriculum : Your 10 module Learning Plan

https://www.edureka.co/jenkins

About Edureka

Edureka is a leading e-learning platform providing live instructor-led interactive online training. We cater to professionals and students across the globe in categories like Big Data & Hadoop, Business Analytics, NoSQL Databases, Java & Mobile Technologies, System Engineering, Project Management and Programming. We have an easy and affordable learning solution that is accessible to millions of learners. With our students spread across countries like the US, India, UK, Canada, Singapore, Australia, Middle East, Brazil and many others, we have built a community of over 1 million learners across the globe.

About Course

Become an expert in Jenkins by mastering Build Pipeline, Reporting, Email & Build plugins, Secure Jenkins, Tomcat 7 and other related concepts

Curriculum

Continuous Integration

Learning Objective: In this module, you will learn about what is Continuous Integration(CI), why CI, Best practices in CI and tools for continuous integration.

Topics:

- Introduction to continuous integration
- Advantages of Continuous integration
- Implementation of continuous integration
- From Hudson to Jenkins
- Introduction to Jenkins

Getting Started with Jenkins

Learning Objective: In this module, you will learn about Jenkins, setting up Jenkins environment on your local setup, terminologies used in Jenkins and creating Jenkins job.

Topics:

- Install Jenkins on a local machine
- Starting Up with Jenkins
- Jenkins Architecture and terms of Jenkins
- Overview of Jenkins UI
- Creating a Jenkins Job
- Configuring a Jenkins job

Hands-On:

- Installing the Jenkins setup, create a simple Jenkins job, delete, fail, disable the job

Plugins and its uses

Learning Objective: In this module, we will learn about various plugins available in Jenkins and their usage. Then we will learn to configure Jenkins to work with other tools, working with maven builds and polling for source code changes

Topics:

- Introduction to Plugins
- Adding Plugins to Jenkins
- Commonly used plugins (Git Plugin, Parameter Plugin, HTML Publisher, Copy Artifact and Extended choice parameters)
- Configuring Jenkins to work with java, Git and Maven
- Creating a Jenkins Build and Jenkins workspace
- Configure Jenkins to check for source code changes periodically.
- Working with Maven Build Jobs

Hands-On:

- Adding the plugins to the Jenkins job, creating a Jenkins job to check for source code changes, creating maven build jobs

Setting Up Your Build Jobs and Security

Learning Objective: In this module, we will learn to learn to Build Jobs, add the advanced features to Jobs and Security.

Topics:

- Creating a Freestyle Build Job
- Introduction to Build Triggers and to Build Steps

- Pre-and Post-Build Actions: Adding properties and properties files
- Running Your New Build Job
- Parametrized Builds
- Distributed builds
- Setting Email notification
- Enabling Security in Jenkins
- Different Levels of Authentication
- Types of Access and Administration of the Access

Hands-On:

- Creating Freestyle jobs, demo on security and authorization in Jenkins, sending email notifications, running the Jenkins job

Implementing Automated Testing

Learning Objective: In this module, you will learn to setup Jenkins to Implement Automated Testing and publish reports.

Topics:

- Introduction
- Automating Your Unit and Integration Tests
- Configuring Test Reports in Jenkins
- Displaying Test Results
- Ignoring Tests
- Automated Acceptance Test with JUnit
- Automated Performance Test with JMeter

Hands-On:

- Unit and integration testing, ignoring the tests, display test results

Metrics to Improve Quality

Learning Objective: In this module, we shall learn to check for the code coverage and usage of PMD and FindBugs Jenkins plugin and also Jenkins support with other build systems.

Topics:

- Looking for foul Code through Code Coverage
- Activating and usage of PMD Jenkins plugin
- Activating and usage of Findbugs Jenkins plugin
- Verifying HTML Validity
- Reporting with JavaNCSS
- Jenkins with Gradle script build system
- Jenkins with shell script build system

Hands-On:

- Jenkins plugin for analyzing the bugs, reporting using Jenkins, Jenkins with a different build system

Distributed Jenkins Configuration

Learning Objective: In this module, we shall learn to create a distributed Jenkins system to handle concurrent build triggers, we will learn to set up master and slave configuration in Jenkins.

Topics:

- Introduction to Distributed Jenkins Build
- Configuring Master Jenkins node
- Configuring the Jenkins slave
- Managing nodes and distributing jobs over nodes
- Binding Jobs on the master and slave setup

- Labelling the nodes to run a specific job

Hands-On:

- Configuring slave node in your Jenkins, adding labels to nodes, managing the nodes

Maintain and Use Jenkins

Learning Objective: In this module, we shall learn the Best Practices in Jenkins culture. You will also learn the Do's and Don'ts in Jenkins setup

Topics:

- How to maintain Jenkins
- Do's and Don'ts of Jenkins
- Backup of Jenkins and Migrating Jenkins from one server to another.

Hands-On:

- Backup of Jenkins

Performing Automated Deployment and Continuous Delivery

Learning Objective: In this module, we shall learn to deploy an application to a web server using Tomcat and understanding pipeline and parallel builds.

Topics:

- Deployment Overview
- Implementing Automated and Continuous Deployment
- Deploying an application to an application server
- Install and configure tomcat.
- Deployment of Simple Java web application using Tomcat.

- Jenkins Build Pipeline
- Parallel Jenkins build
- Achieve generated Artifacts
- Jenkins integrations (GitHub, slack, Custom API)
- Scaling Jenkins

Hands-On:

- Continuous deployment using Jenkins, parallel and pipeline builds, Jenkins integrations

Jenkins Pipeline

Learning Objective: In this module, we shall learn to implement a project's entire build/test/deploy pipeline in a jenkinsFile and create a fully automated Jenkins pipeline

Topics:

- Overview of Pipeline as code
- Overview of Pipeline Plugin
- Automated Jenkins Pipeline

Hands-On:

- Jenkins pipeline

Project

What are the system requirements for this course?

The system requirements include Windows / Mac / Linux PC, minimum 4GB RAM, 20 GB HDD Storage and processor, i3 or above.

How will I execute the Practicals?

Detailed installation guides for installing the software are present in the LMS. The software can be downloaded from any of the below websites, where learners only need to create a login id.

- https://jenkins-ci.org/
- https://www.jfrog.com/artifactory-os/
- https://tomcat.apache.org/download-70.cgi