

**DevOps Foundations for JavaScript with Git, Jenkins, and NPM**

**Course Number:** JEN-112WA
**Duration:** 3 days

**Overview**

This DevOps Foundations for JavaScript with Git, Jenkins, and NPM training course teaches attendees DevOps fundamentals and how to continuously build and deploy a React application using NPM, Git, and Jenkins, as well as how to implement continuous code quality.

**Prerequisites**

No prior experience is necessary; however, basic JavaScript knowledge is beneficial.

**Materials**

All DevOps training students receive comprehensive courseware.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computer for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will be fine.

**Objectives**

* Implement version control using Git
* Branch, merge, and work with Remotes
* Work with GitFlow workflow
* Explore NPM
* Create a React Application with NPM
* Create a Jenkins Job
* Create a Pipeline

**Outline**

* DevOps Fundamentals
	+ Why DevOps
	+ What is DevOps?
	+ Collaborative, Matrixed, and Cross-Functional Teams
	+ Key Components of Successful DevOps Teams
	+ DevOps-ification
	+ DevOps Vocabulary
	+ DevOps Goals
	+ Not DevOps - Crush Buzzwords
	+ Driving Business Outcomes with DevOps
	+ Technology-Enabled Business
	+ DevOps Key Enabler for Digital Transformation
	+ Core Values and Mission
	+ Communication
	+ Collaboration
	+ Value Stream Mapping
	+ Behavioral Patterns for Success
	+ DevOps Org Structures
	+ DevOps Team - Separate
	+ DevOps Merged Organization
	+ DevOps Overlapped Organization
	+ Organizational Structure Leadership
	+ What Does Continuous Delivery Mean?
	+ Deployment Pipelines
	+ Your Organization is Doing CD if …
	+ Pipelining for CD
	+ Continuous Integration
	+ CI Pipeline
	+ CD & CI Methodologies
	+ Key Tool Categories for CI/CD
* Introduction to Git
	+ What is Git
	+ Git's Design Goals
	+ Branching and Merging
	+ Centralized Version Control
	+ Distributed Version Control
	+ Git Basics
	+ Getting Git
	+ Git on the Server
	+ Git Repository Managers
	+ Git on Somebody Else's Server
* Basic Git Operations
	+ Using Git
	+ Definitions
	+ Commit
	+ How to Think About Commits
	+ Viewing History
	+ Configuring Git
	+ Configuration Scope
	+ User Identification
	+ GPG Signing
	+ Gnu Privacy Guard
	+ GPG Basics
	+ GPG and Git
	+ .gitignore
	+ Other Useful Configurations
	+ Git Attributes
	+ Where Gitattributes are Set
	+ How Gitattributes are Set
	+ Git Hooks
	+ commit-msg Hook with Jira Key
* Branching, Merging, and Remotes
	+ Branching
	+ Branches in Git
	+ Merge
	+ Fast Forward Merge
	+ --no-ff
	+ More Than One Repository
	+ Working with Remotes
	+ Fetch and Pull
	+ Push
	+ Pull Requests
	+ Tagging a Commit
	+ Lightweight Tags
	+ Annotated Tags
	+ Sharing Tags
	+ Checking Out a Tag
* Introduction to Git Flow
	+ Why Use an SCM Workflow?
	+ What is Git Flow
	+ The Main Branch
	+ Benefits
	+ How does Git Flow work?
	+ Git Flow Extension
	+ Initializing Git Flow
	+ Features
	+ Release
	+ Hotfixes
	+ Git Flow and Continuous Integration
	+ Git Flow – Pros and Cons
	+ Git Flow – When it Works Best?
	+ Git Flow – When it Doesn’t Work?
	+ Git Flow Alternatives
	+ Trunk-based Development – When it Works?
	+ Trunk-based Development – When it Doesn’t Work?
	+ GitHub Flow – Pros and Cons
	+ GitLab Flow – Environment Branches
	+ GitLab Flow – Release Branches
* Continuous Code Quality
	+ Continuous Code Quality
	+ What is SonarQube
	+ SonarQube - Benefits
	+ SonarQube (Multilingual)
	+ Seven Axes of Quality
	+ Potential Bugs
	+ Tests
	+ Comments and Duplication
	+ Architecture and Design
	+ Complexity
	+ SonarQube Installation
	+ SonarQube Components
	+ Code Quality
	+ Common Weakness Enumeration (CWE)
	+ CWE List Item Example
	+ OWASP Top Ten
	+ SANS 25
	+ SANS 25
	+ SonarQube Quality Profiles
	+ SonarQube Quality Gates
	+ Portfolios
	+ SonarLint
* Introduction to Continuous Integration, Continuous Delivery, and Jenkins-CI
	+ Foundation of Agile AppDev
	+ XP Flow
	+ Extreme Programming
	+ Agile Development
	+ What is Continuous Integration
	+ Typical Setup for Continuous Integration
	+ Setup Notes for Continuous Integration
	+ CI with Artifact Management
	+ What is Continuous Delivery?
	+ Why Continuous Delivery?
	+ DevOps and Continuous Delivery
	+ Continuous Delivery Challenges
	+ Continuous Delivery vs. Continuous Deployment
	+ Jenkins Continuous Integration
	+ Jenkins Features
	+ Running Jenkins
* Getting Started With Node Package Manager (NPM)
	+ Node Package Manager (NPM)
	+ History
	+ Node.js
	+ The NPM Registry
	+ Registry UI
	+ Module Page
	+ Readme
	+ Dependencies (upstream)
	+ Dependencies (downstream)
	+ Versions
	+ Other Information
	+ Installing NPM
	+ NVM for Linux/MacOS
	+ NVM for Windows
	+ The NPM Command Line Interface (CLI)
	+ Packages and Modules
	+ package.json
	+ NPM init
	+ package.json
	+ Dependencies
	+ Installing Dependencies
	+ Installing Dependencies
	+ Installing Dependencies from package.json
	+ Versioning
	+ NPX
* NPM and REACT
	+ React
	+ NPM and React
	+ Create a Simple React App
	+ Install create-react-app
	+ Possible Installation Issues
	+ Examine the Directory
	+ Create the app
	+ Examine Created Application
	+ Details
	+ Examine package.json
	+ Install
	+ Build
	+ Build Artifacts
	+ Running the Application
	+ Tests
* Installing and Running Jenkins
	+ Downloading and Installing Jenkins
	+ Running Jenkins as a Stand-Alone Application
	+ Running Jenkins on an Application Server
	+ The Jenkins Home Folder
	+ Installing Jenkins as a Windows Service
	+ Initial Configuration
	+ Configuration Wizard
	+ Configuring Tools
	+ Logging in Jenkins
	+ Custom Log Recorders
* Job Types in Jenkins
	+ Introduction
	+ Different types of Jenkins Items
	+ Configuring Source Code Management (SCM)
	+ Working with Subversion
	+ Working with Git
	+ Storing Credentials
	+ Service Accounts
	+ Build Triggers
	+ Schedule Build Jobs
	+ Polling the SCM
	+ Polling vs. Triggers
	+ Maven Build Steps
* Jenkins Plugins
	+ SCM
	+ Build and Test
	+ Analyzers
	+ Jenkins for Teams
	+ Installing Jenkins Plugins
* Securing Jenkins
	+ Jenkins Security
	+ Authentication
	+ Authorization
	+ Confidentiality
	+ Activating Security
	+ Configure Authentication
	+ Using Jenkins's Internal User Database
	+ Creating Users
	+ Authorization
	+ Matrix-Based Security
	+ Note – Create the Administrative User
	+ Project-based Matrix Authorization
	+ Project-Based Authentication
	+ Role-Based Access Control
* Distributed Builds with Jenkins
	+ Distributed Builds - Overview
	+ Distributed Builds
	+ Agent Machines
	+ Configure Jenkins Master
	+ Configure Projects
* Continuous Delivery and the Jenkins Pipeline
	+ Continuous Delivery
	+ DevOps and Continuous Delivery
	+ Continuous Delivery Challenges
	+ Continuous Delivery with Jenkins
	+ The Pipeline Plugin
	+ Defining a Pipeline
	+ A Pipeline Example
	+ Parallel Execution
	+ Creating a Pipeline
	+ Invoking the Pipeline
	+ Interacting with the Pipeline
	+ Pipeline vs. Traditional Jobs
* Best Practices for Jenkins
	+ Secure Jenkins
	+ Users
	+ Backups
	+ Reproducible Builds
	+ Testing and Reports
	+ Large Systems
	+ Distributed Jenkins
* Conclusion