

INFOSOFT IT SOLUTIONS

Training | Projects | Placements

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Build Automation and Release Management

Introduction to Build Automation and Release Management

- Overview of Build Automation: Importance, benefits, and evolution
- Introduction to Release Management: Goals, challenges, and importance in software development lifecycle
- CI/CD Pipeline: Understanding the continuous integration and continuous deployment (CI/CD) process

Version Control Systems (VCS)

- Overview of Version Control Systems: Git, SVN, Mercurial
- Branching Strategies: GitFlow, Feature Branching, Trunk-based development
- Integration with Build Automation: Setting up version control hooks and triggers

Build Tools and Systems

- Introduction to Build Tools: Maven, Gradle, Ant, MSBuild
- Configuring Build Scripts: Understanding build.gradle, pom.xml, build.xml
- Building Artifact: Compilation, packaging, and artifact management

Continuous Integration (CI) Basics

- CI Principles: Automating builds, running tests, and maintaining a stable codebase
- Setting up CI Servers: Jenkins, TeamCity, Travis CI, CircleCI
- Configuring CI Pipelines: Defining stages, jobs, and triggers

Advanced CI/CD Concepts

- Automated Testing: Unit tests, integration tests, and automated acceptance tests
- Code Quality Analysis: Static code analysis, code coverage, and linting
- Artifact Versioning and Tagging: Managing artifact versions and releases

Release Management Process

- Release Planning: Scheduling releases, managing dependencies
- Change Management: Handling change requests, approvals, and rollback procedures
- Environment Management: Managing multiple environments (dev, test, prod)

Deployment Strategies

- Deployment Automation: Scripting deployments with Ansible, Chef, Puppet
- Blue-Green Deployment: Strategy and implementation
- Canary Releases: Testing releases with a subset of users

Monitoring and Feedback Loops

- Monitoring Continuous Deployment: Metrics, logs, and monitoring tools (Prometheus, ELK stack)
- Feedback Mechanisms: User feedback, error tracking, and bug reporting
- Continuous Improvement: Analyzing metrics for process optimization

Security and Compliance in Release Management

- Security Best Practices: Secure code scanning, vulnerability assessments
- Compliance Requirements: GDPR, HIPAA, and other regulatory standards
- Implementing Security Measures in CI/CD Pipelines

Build Automation and Release Management Tools Integration

- Integration with DevOps Tools: Docker, Kubernetes, Terraform
- Cloud Integration: AWS CodePipeline, Azure DevOps, Google Cloud Build
- Integrating Third-Party Services: Slack notifications, JIRA issue tracking

Case Studies and Real-world Scenarios

- Industry Use Cases: Case studies from tech companies and startups
- Challenges and Solutions: Lessons learned from successful and failed deployments
- Hands-on Exercises: Simulating real-world build and release scenarios

Build Automation and Release Management Best Practices

- Best Practices for Build Automation: Optimizing build times, reducing dependencies
- Best Practices for Release Management: Planning releases, managing risks
- Continuous Learning and Improvement: Staying updated with industry trends

Build Automation and Release Management Certification Preparation

- Overview of Certification Tracks (if applicable)
- Certification Exam Tips and Resources
- Career Development in Build Automation and Release Management