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Course : Agile software tools and practices.

# Assignment

**Title:** What Is DevOps? Give Top 8 Best Practices for Implementing DevOps. Give the list DevOps tools as per lifecycle.

**Aim :** What Is DevOps? Give Top 8 Best Practices for Implementing DevOps. Give the list DevOps tools as per lifecycle.

# Theory :

**What is DevOps:**

DevOps is a software development approach that emphasizes collaboration, communication, and automation between development and operations teams to deliver high-quality software products and services faster and more efficiently. DevOps practices involve the integration of development, testing, deployment, and operations processes to enable continuous delivery and feedback.

# Here are the top 8 best practices for implementing DevOps:

1. Continuous Integration (CI): This practice involves building and testing code changes frequently and continuously, ensuring that code is integrated into a shared repository.
2. Continuous Delivery (CD): This practice involves automating the release of software changes into production, ensuring that code is always in a deployable state.
3. Infrastructure as Code (IaC): This practice involves using code to automate the provisioning and management of infrastructure, making it more reliable, scalable, and repeatable.
4. Monitoring and Logging: This practice involves collecting and analyzing data from production environments, allowing teams to identify and resolve issues quickly and proactively.
5. Automated Testing: This practice involves using automated testing tools to ensure that software changes are thoroughly tested and validated before being released into production.
6. Collaboration and Communication: This practice involves fostering a culture of collaboration and communication between development, testing, and operations teams, ensuring that everyone is aligned and working towards common goals.
7. Agile and Lean Principles: This practice involves adopting agile and lean principles, such as iterative development, continuous improvement, and waste reduction, to optimize the software development lifecycle.
8. Security and Compliance: This practice involves incorporating security and compliance requirements into the DevOps process, ensuring that software products and services are secure and compliant with regulatory standards.

# Here is a list of DevOps tools as per lifecycle:

1. Plan: JIRA, Trello, Asana, GitLab
2. Develop: GitHub, GitLab, Bitbucket, Jenkins
3. Test: Selenium, JUnit, SoapUI, TestNG
4. Build: Jenkins, Travis CI, CircleCI, Bamboo
5. Deploy: Ansible, Puppet, Chef, Docker
6. Operate: Nagios, Prometheus, ELK stack, Splunk
7. Monitor: New Relic, AppDynamics, Datadog, Grafana
8. Collaborate: Slack, Microsoft Teams, HipChat, Mattermost