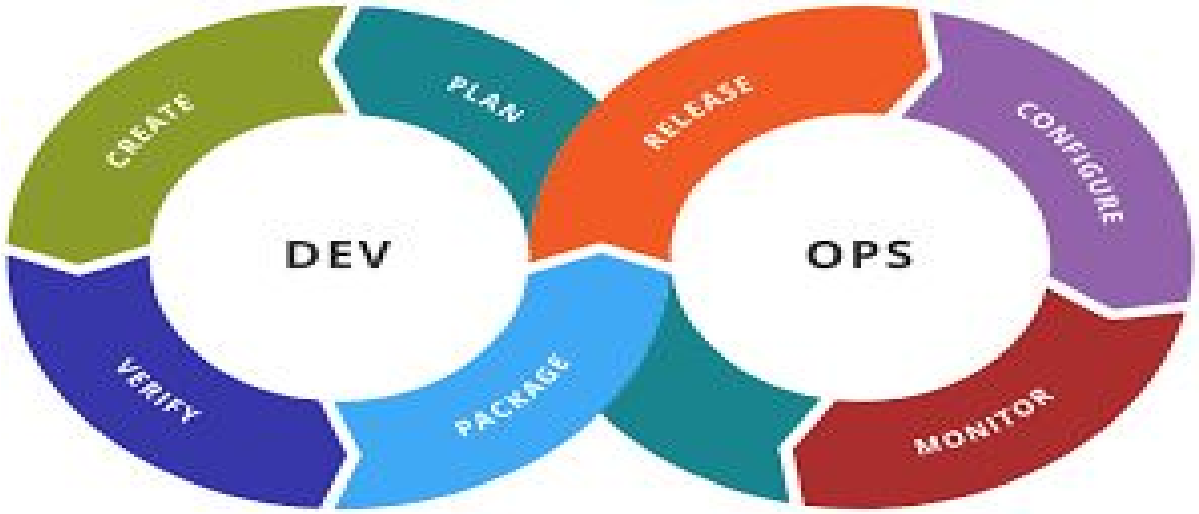
1)What is Devops and Diagram of Devops (Infinity)?
Ans : DevOps is a culture which promotes collaboration between Development and Operations Team to deploy code to production faster in an automated & repeatable way. The word DevOps is a combination of two words development and operations.DevOps helps to increase an organization's speed to deliver applications and services. It allows organizations to serve their customers better and compete more strongly in the market.In simple words, DevOps can be defined as an alignment of development and IT operations with better communication and collaboration.



2)What is CI and CD in Devops?
Ans : Continuous integration (CI) and continuous delivery (CD) embody a culture, set of operating principles, and collection of practices that enable application development teams to deliver code changes more frequently and reliably. The implementation is also known as the CI/CD pipeline.
Continuous Integration (CI) aims at integrating the work products of individual developers into a central repository early and frequently. When done several times a day, CI ensures early detection of integration bugs. This, in turn, results in better collaboration between teams, and eventually a better-quality product.
Continuous Delivery (CD) aims to automate the software delivery process to enable easy and assured deployments into production —at any time. By using an automatic or manual trigger, CD ensures the frequent release of bug-free software into the production environment and hence into the hands of the customers.

1) What is DVCS (Distributed Version Control System) and Advantages of it ?
Ans : A distributed version control system (DVCS) is a type of version control where the complete codebase including its full version history is mirrored on every developer's computer. It's abbreviated DVCS.Changes to files are tracked between computers. For example, my workstation and yours. In the beginning, this required specific coordination strategies to maintain consistency in projects, so all the developers could keep track of what was happening to files at any given time

Advantages : 1)Allows users to work productively when not connected to a network.

2)Common operations (such as commits, viewing history, and reverting changes) are faster for DVCS, because there is no need to communicate with a central server.With DVCS, communication is only necessary when sharing changes among other peers.

2)Allows private work, so users can use their changes even for early drafts they do not want to publish.

3)Working copies effectively function as remote backups, which avoids relying on one physical machine as a single point of failure.

4)Allows various development models to be used, such as using development branches or a Commander/Lieutenant model.

5)Permits centralized control of the "release version" of the project.

6)On FOSS software projects it is much easier to create a project fork from a project that is stalled because of leadership conflicts or design disagreements.

2) Difference Between Git and Git hub?

Ans : 1)Git is a distributed version control tool that can manage a development project's source code history, while GitHub is a cloud based platform built around the Git tool.

2)Git is a tool a developer installs locally on their computer, while GitHub is an online service that stores code pushed to it from computers running the Git tool.

3)The key difference between Git and GitHub is that Git is an open-source tool developers install locally to manage source code, while GitHub is an online service to which developers who use Git can connect and upload or download resources.

3)Explain some basic command:

1]git init : The git init command is used to create a new blank repository. It is used to make an existing project as a Git project

2]git status : The git status command is used to display the state of the repository and staging area. It allows us to see the tracked, untracked files and changes.

3]git clone : The git clone is a command-line utility which is used to make a local copy of a remote repository. It accesses the repository through a remote URL

4]git commit : It is used to record the changes in the repository. It is the next command after the git add. A commit command is used to fetch updates from the staging area to the repository.

5]git push origin master : The term push origin master is used to push the changes to the remote repository.

6]git config : The git config command is a convenience function that is used to set Git configuration values on a global or local project level.

4)Difference between fork, branch and clone in GIT ?

Ans : A clone is a copy of all the code on the master branch.
It is an exact replica of the code on github.

A branch is a slightly changed or modified section of code that meets different objectives.Branches are not copies of each other but have same origin

Forks are local instantiations that let you make changes to someone else's codebase.

1)What is Docker? Why do we need docker in Devops?

Ans : Docker is a tool designed to make it easier to create, deploy, and run applications by using containers. Containers allow a developer to package up an application with all of the parts it needs, such as libraries and other dependencies, and ship it all out as one package. By doing so, thanks to the container, the developer can rest assured that the application will run on any other Linux machine regardless of any customized settings that machine might have that could differ from the machine used for writing and testing the code.Docker solves the problem majorly of running the code developed by developer on his machine to another machine on which the operation team is working.

2)What is the major difference between Docker and VM?

Ans : 1)Virtual machines have their guest operating system above the host operating system, which makes virtual machines heavy. On the other hand, Docker containers share the host operating system, and that is why they are lightweight.

2)The virtual machine does not share operating systems, and there is strong isolation in the host kernel. Hence, they are more secure as compared to Containers.

3)Docker containers are easily portable because they do not have separate operating systems.

4)Lightweight architecture of docker its less resource-intensive feature makes it a better choice than a virtual machine.

3)What is the Difference between docker container and docker images?

Ans : A Docker image is an immutable (unchangeable) file that contains the source code, libraries, dependencies, tools, and other files needed for an application to run.

A Docker container is a virtualized run-time environment where users can isolate applications from the underlying system. These containers are compact, portable units in which you can start up an application quickly and easily.

4)What is Docker Swarm? Explain its features?

Ans : Docker swarm is a container orchestration tool, meaning that it allows the user to manage multiple containers deployed across multiple host machines.

Advantages :

1)Leverage the Power of Containers

2)Docker Swarm Helps Guarantee High Service Availability

3)Automated Load-Balancing

1)What is Jenkins and explain the process of Jenkins?

Ans : Jenkins is an open source Continuous Integration server capable of orchestrating a chain of actions that help to achieve the Continuous Integration process (and not only) in an automated fashion.

Possible steps executed by Jenkins are for example:

1)perform a software build using a build system like Apache Maven or Gradle

2)execute a shell script

3)archive a build result

4)run software tests

2)How do you install Jenkins and prerequisite for the same?

Ans : Prerequisite : Since Jenkins runs on Java, you need either the latest version of Java Development Kit (JDK) or Java Runtime Environment (JRE).

1)wget -q -O - https://pkg.jenkins.io/debian/jenkins.io.key | sudo apt-key add -

2)sudo sh -c 'echo deb https://pkg.jenkins.io/debian-stable binary/ > /etc/apt/sources.list.d/jenkins.list'

3)sudo apt-get update

4)sudo apt-get install jenkins

3)Explain the term Agents, post section and Jenkins File?

Ans : Agent : The agent section specifies where the entire Pipeline, or a specific stage, will execute in the Jenkins environment depending on where the agent section is placed

Post :The post section defines one or more additional steps that are run upon the completion of a Pipeline's or stage's run (depending on the location of the post section within the Pipeline)

Jenkins File : The definition of a Jenkins Pipeline is written into a text file (called a Jenkinsfile) which in turn can be committed to a project's source control repository.

4)What are backup plugins and why is it used?

Ans :The backup plugin BackWPup can be used to save your complete installation including /wp-content/ and push them to an external Backup Service, like Dropbox, S3, FTP and many more.. With a single backup . zip file you are able to easily restore an installation.

5)Difference between continuous delivery and continuous deployment?

Ans : Continuous Delivery is a software development practice where you build software in such a way that the software can be released to the production at any time.

Continuous deployment means that every change that you make, goes through the pipeline, and if it passes all the tests, it automatically gets deployed into production.

1)What is SonarQube? Why is it used in Devops?

Ans : Sonar is a web based code quality analysis tool for Maven based Java projects. It covers a wide area of code quality check points which include: Architecture & Design, Complexity, Duplications, Coding Rules, Potential Bugs, Unit Test .SonarQube provides the capability to not only show health of an application but also to highlight issues newly introduced. With a Quality Gate in place, you can fix the leak and therefore improve code quality systematically.

2)At which port SonarQube server is accessible by default?

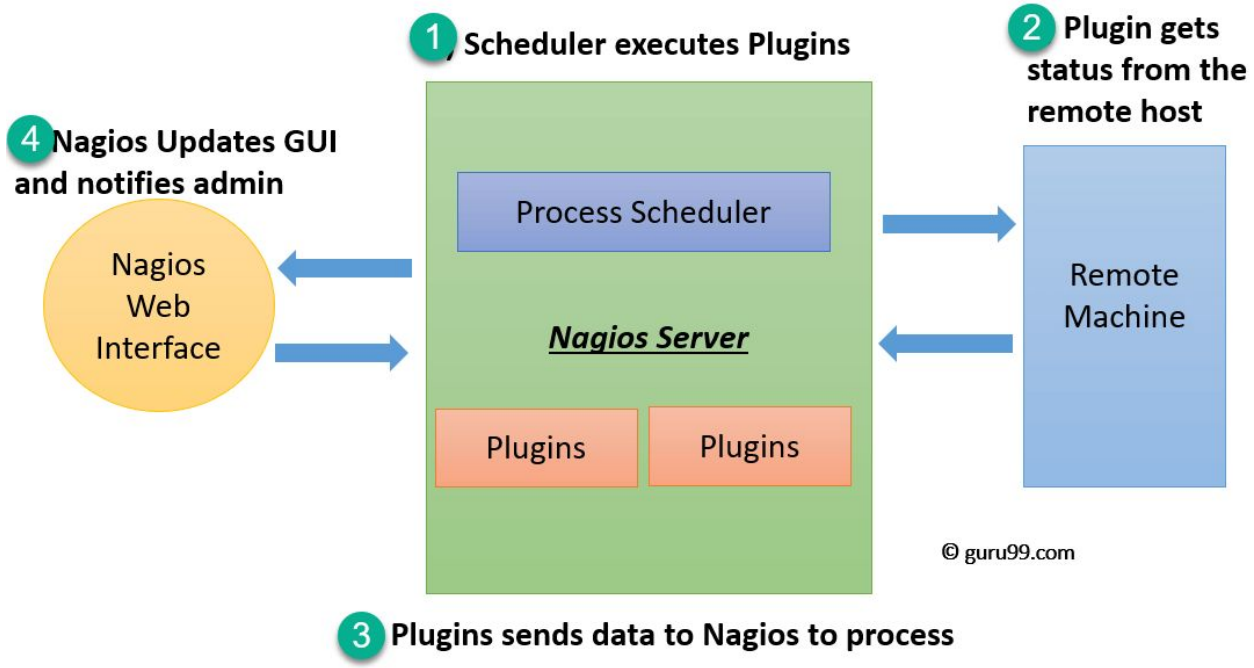
Ans : 9000

3)In which language sonar Qube is written?

Ans : Java

1)Architecture of Nagios and What is NRPE (Nagios Remote plugin executor)

Ans :



The NRPE addon is designed to allow you to execute Nagios plugins on remote Linux/Unix machines. The main reason for doing this is to allow Nagios to monitor “local” resources (like CPU load, memory usage, etc.) on remote machines.

2)Why do we need continuous monitoring in Devops?

Ans : Continuous Monitoring Tools resolve any system errors (low memory, unreachable server etc.) before they have any negative impact on your business productivity. It detects any network or server problemsIt determines the root cause of any issuesIt maintains the security and availability of the serviceIt monitors and troubleshoot server performance issues

1)What is Kubernetes? Explain its features and architecture with its component?

Ans : Kubernetes is a container management system developed in the Google platform. It helps you to manage a containerized application in various types of Physical, virtual, and cloud environments.

1)Automated Scheduling

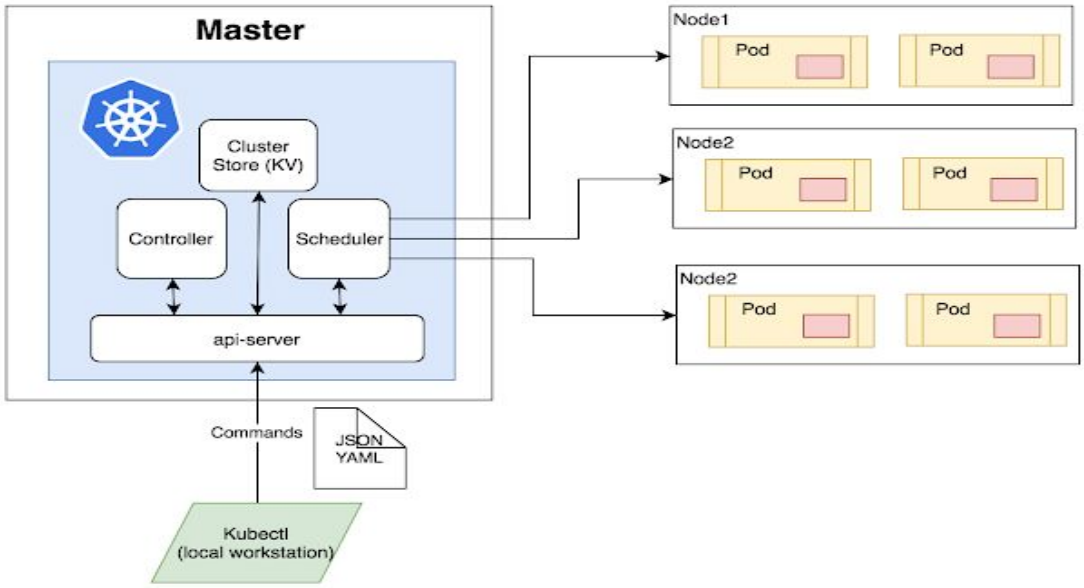
2)Self-Healing Capabilities

3)Automated rollouts & rollback

4)Horizontal Scaling & Load Balancing

5)Offers environment consistency for development, testing, and production

6)Infrastructure is loosely coupled to each component can act as a separate unit



2)What do you mean by container orchestration and why do we need it?

Ans : Container orchestration is all about managing the lifecycles of containers, especially in large, dynamic environments. Software teams use container orchestration to control and automate many tasks: Provisioning and deployment of containers. Redundancy and availability of containers.

3)What are the different types of services used by Kubernetes?

Ans : ClusterIP – This helps in restricting the service within the cluster. It exposes the service within the defined Kubernetes cluster.

NodePort – It will expose the service on a static port on the deployed node. A ClusterIP service, to which NodePort service will route, is automatically created. The service can be accessed from outside the cluster using the NodeIP:nodePort.

Load Balancer – It uses cloud providers' load balancer. NodePort and ClusterIP services are created automatically to which the external load balancer will route.

4)Difference between Docker Swarm and Kubernetes?

Ans : An application can be deployed in Kubernetes utilizing a combination of services (or microservices), deployments, and pods.The applications can be deployed as micro-services or services in a swarm cluster in Docker Swarm.

The networking model is a flat network, allowing all pods to interact with one another.The Node joining a swarm cluster generates an overlay network for services that span every host in the docker swarm and a host-only docker bridge network for containers.