Course - 3

Devops Fundamentals

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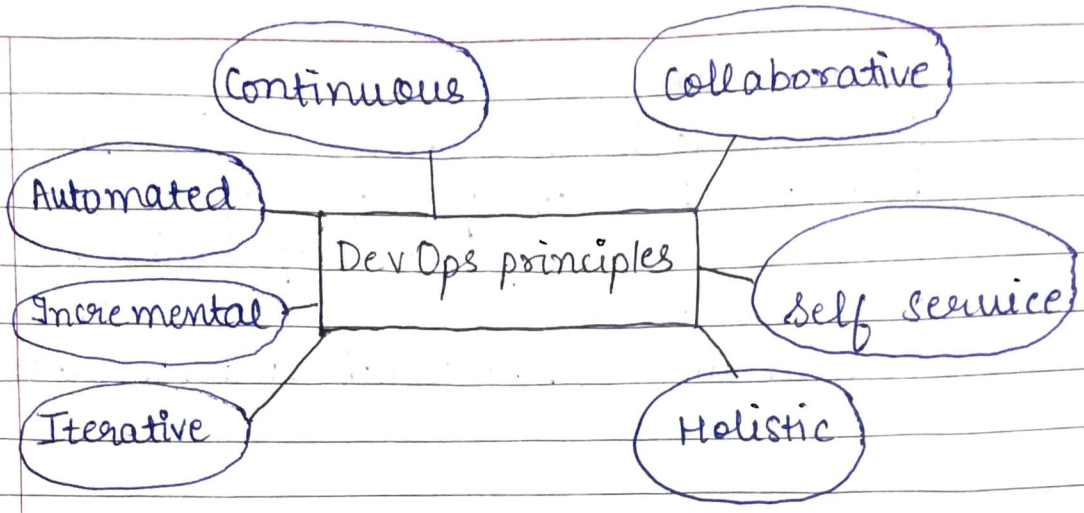
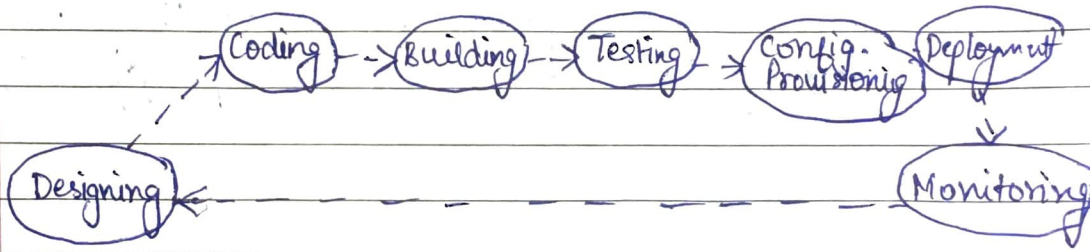


1. Incremental

Divide the tasks into subtasks such that the tasks are small enough that are feasible. Add these subtasks to and solve them.

2. Iterative



3. Automated

Devops and automation are sometimes used as synonym
Many tools are required for automation.

4. Continuous

Once processes are automated, make the processes as continuous. It includes:

- Continuous integration
- Continuous Delivery
- Continuous Deployment.

5. Collaborative

It is about breaking the traditional silos between the developer and operation team. Instead of developer and operation team working differently, both the team should work in a collaborative manner.

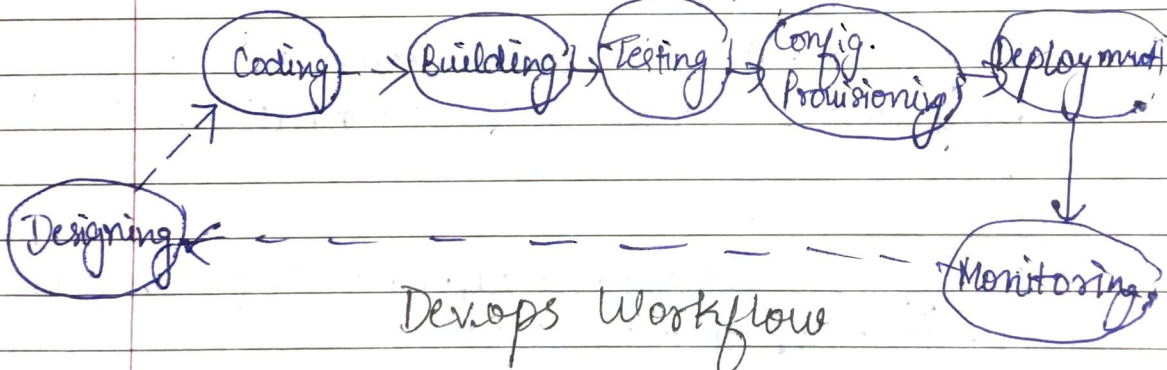
6. Self Service

The idea behind self service is that the team member should not be dependent on each other. This brings more autonomy inspires innovation.

7. Holistic

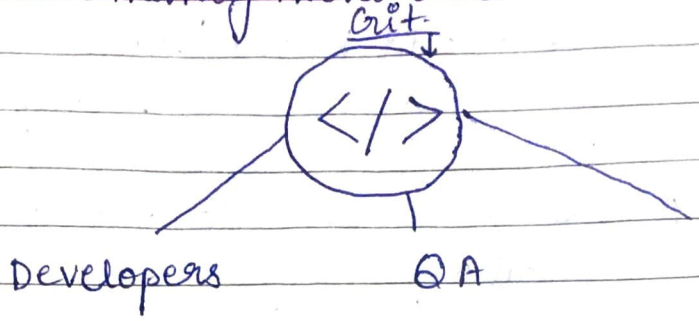
Breaking down traditional silos, opens up the mindset of people, so that they can look up issue in a broader perspective.

Devops Pipeline



Introduction to Git

Source Code management tool.



A version control system must be
- robust
- stable
- easy to use

Version control system

↓

Tracks

- Who did changes in code?
- When the changes were made?
- What changes were made?
- which modules are affected?

Revert or Recover

Various services such as
- Github
- Gitlab
- AWS Code Commit
- Atlassian Bitbucket

} Uses Git as Backend.

We can install Git on a linux machine by writing command

"yum install git"

and after installation we can check the version by using command "git --version"

git init - Initalize the git local repository

git add . - Add all the files in the directory to the local git repository

git commit -m "write any comment"
Adds & commit the file added to the local repository.

git remote add origin 'url'
connects your local repository with global repository.

git push origin master
Pushes the code to ~~local~~ remote repository
Initally it will ask username & password of github account

git log Gives logs of commits made in terms of comment

git show 'commit id' A commit id is a unique value for a commit
Shows the details of the commit

git log -1 Shows the log of last commit

git log --pretty = short
Gives the short description of git log

git log --pretty = oneline
Gives log in one line.

git log --decorate --oneline --graph
--decorate useful when multiple branches

git status shows status of git repository along with any untracked file that exist in staging area.

git branch shows all the branch in your git repository

git branch 'branchname' create a new branch

git checkout 'branchname' switch to the 'branchname'

If you try to push a new file to 'branch name' then it may show an error as git don't know on which branch to push

git push --set --upstream origin 'branchname'

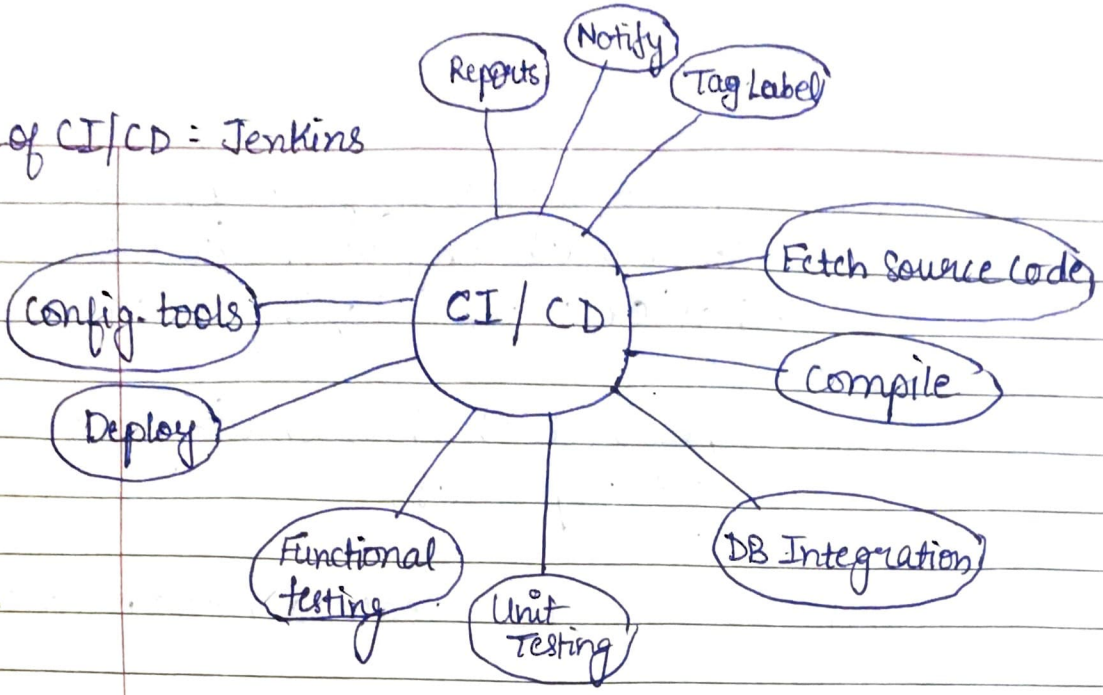
Merging of branches

git diff master ... 'branchname'
It shows the difference in files between master branch and 'branchname'

If you are on master branch
then git merge ~~devbranch~~ branchname

After merging two branches, if you write git branch then you will still see other branch
If you want to delete the branch
git -d 'branchname'

Ex of CI/CD : Jenkins



Jenkin Features - Open Source
Easy to Use
Extensibility
Instant Reports
Distributed build
Email Notification
Customizability.

Coding - Git
Building - Maven
Testing - JUnit
Configuration Provisioning - CHEF
Deployment - Docker.

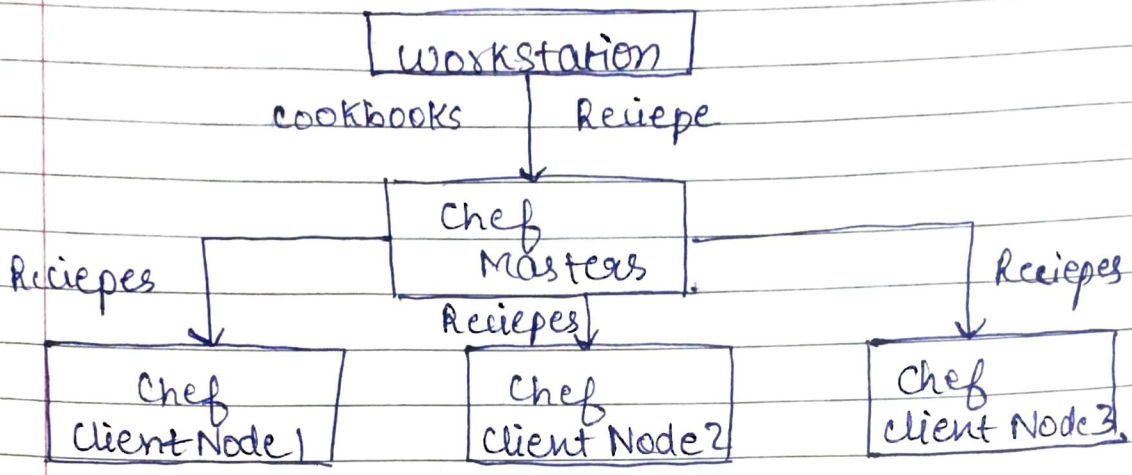
CHEF - It is an ~~Information~~ Infrastructure Automation and configuration tool.

CHEF works on Ruby Programming → Recipe - n

Cookbook

Repository / App

Chef works on master slave configuration



Intro to Containers

Containers can be called as very light virtual machines

Containers have resources ~~that~~ that are more portable
more scalable
easily replacable

If explained through an analogy, a virtual machine is like a house, while a container is like an apartment.

Features of container
- Scalability
- Isolation
- Accurate testing
- Replicable environment
- Resource optimization
- Performance
- High Availability