Introduction to DevOps and tools

Dev + opeatinal team

What is Devops?

- Devops is not a new tool/Technology in the market.
- It is a new culture or process to develop,release and maintain software products/projects/applications with high quality in very faster way.
- We can achieve this in devops by using several automation tools.

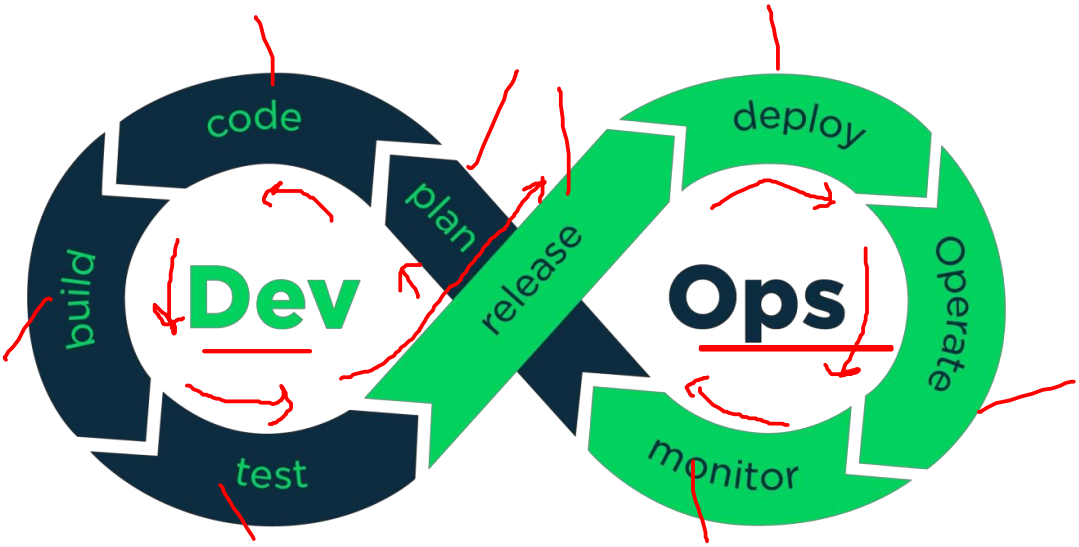
For anperations Group or Administrators Group.

Again this classification can be divided into small sets of groups.

1) Development Group:
The people who are involving planning, coding, build, Testing
are considered as Development Group.

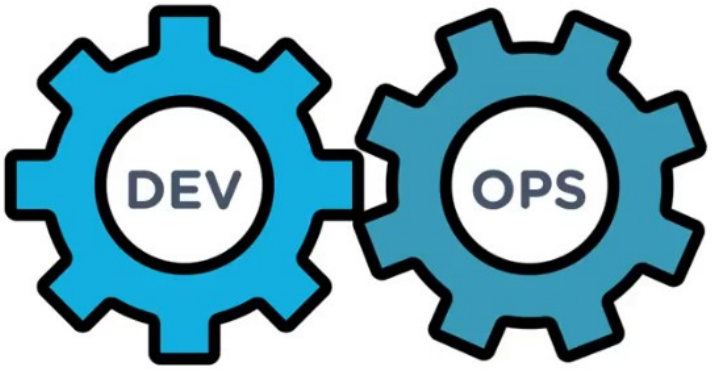
2) Operations Group:
The people who are involving Release, Deploy, Operate, Monitor
are considered as Operations Group.
Eg. Release Engineers, Configuration Engineer, System Admin

Devops is combination of development and operations.
The main objective of devops is to implement collaboration between development and operations teams.



Agenda : introduction to DevoOps and tools

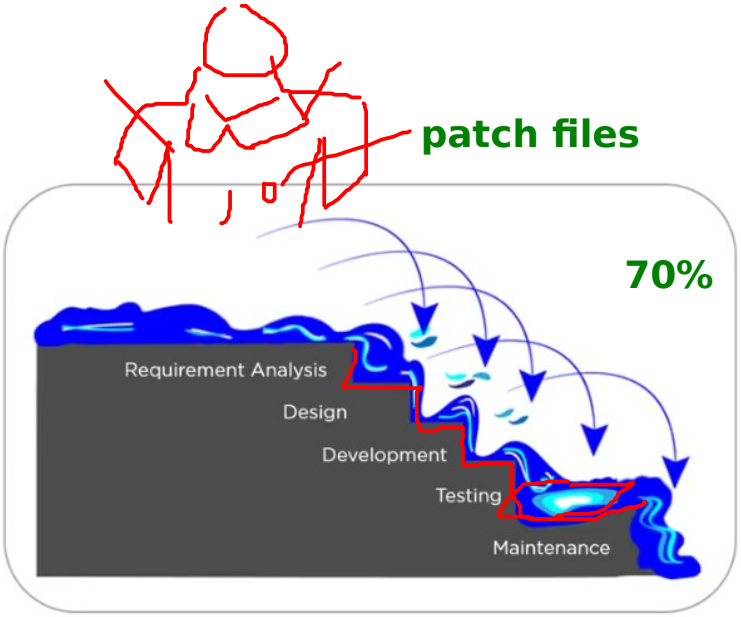
- Waterfall Model
- Agile Model
- What is DevOps?
- DevOps Phases
- DevOps Tools
- DevOps Advantages



Waterfall model

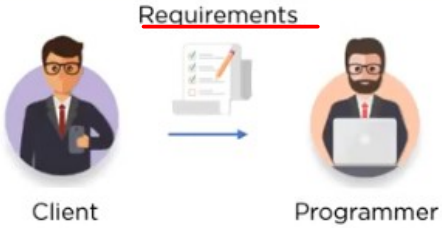
Waterfall model is a traditional approach of software development

In waterfall model, development happens in a step by step manner



Water fall model flow

Requirment Analysis phase



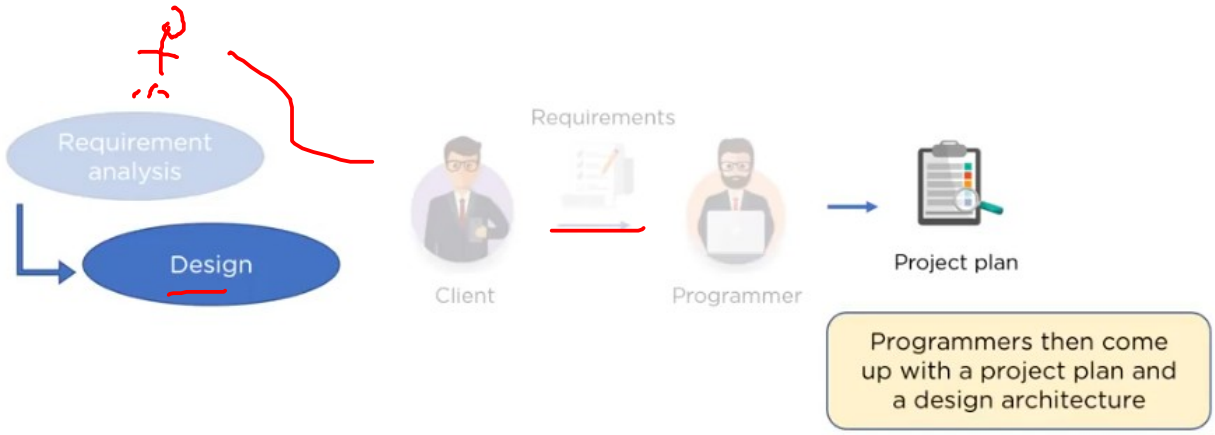
Business A

domain exp

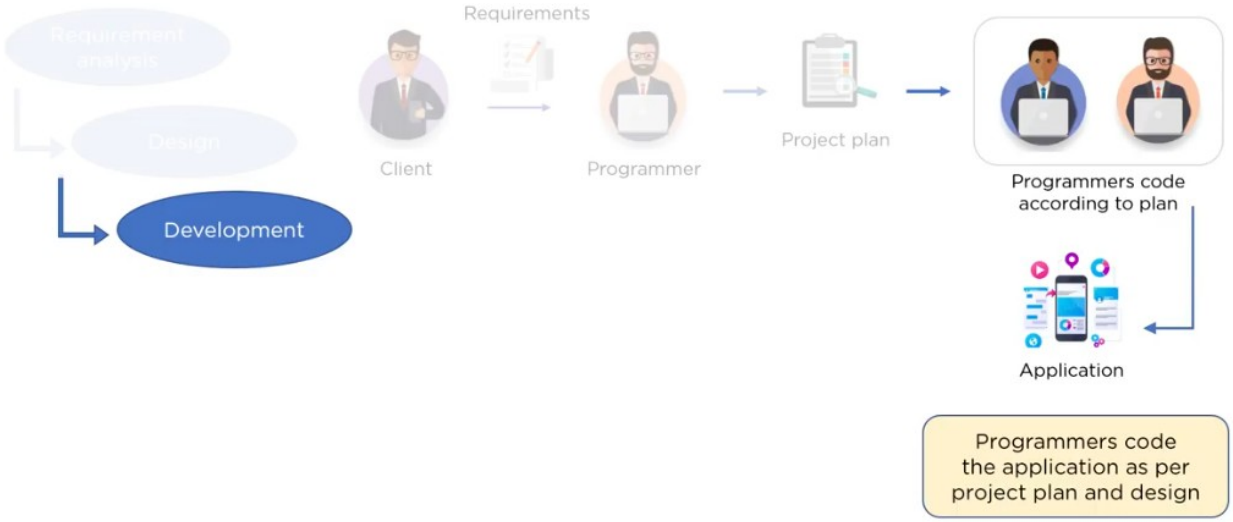
80%+20%

Programmers accept the client requirements and analyze it

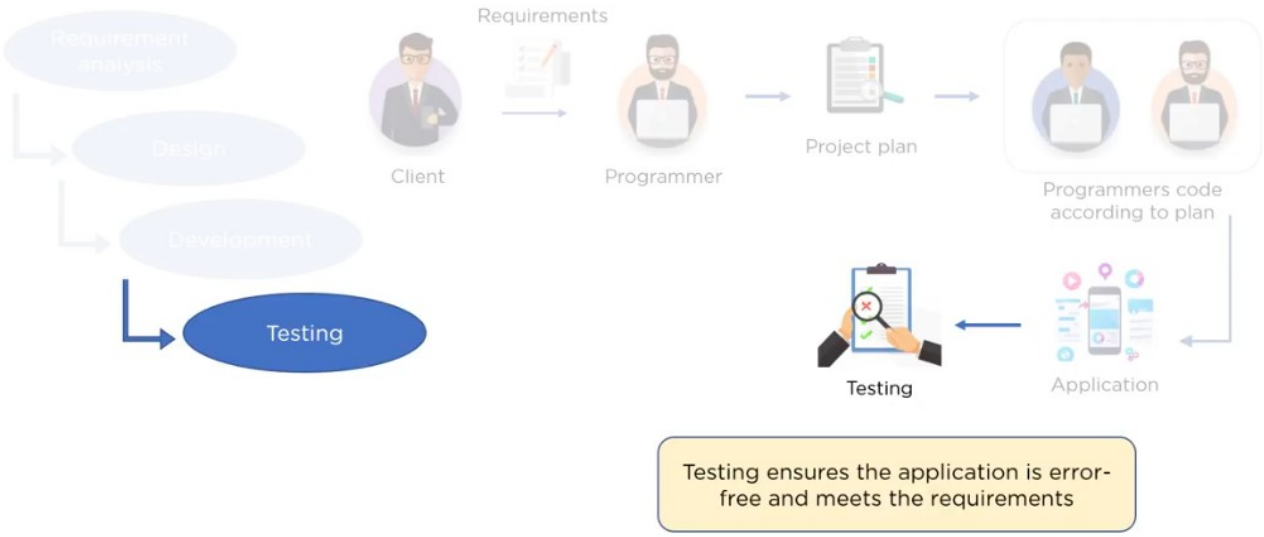
Design phase



Development phase

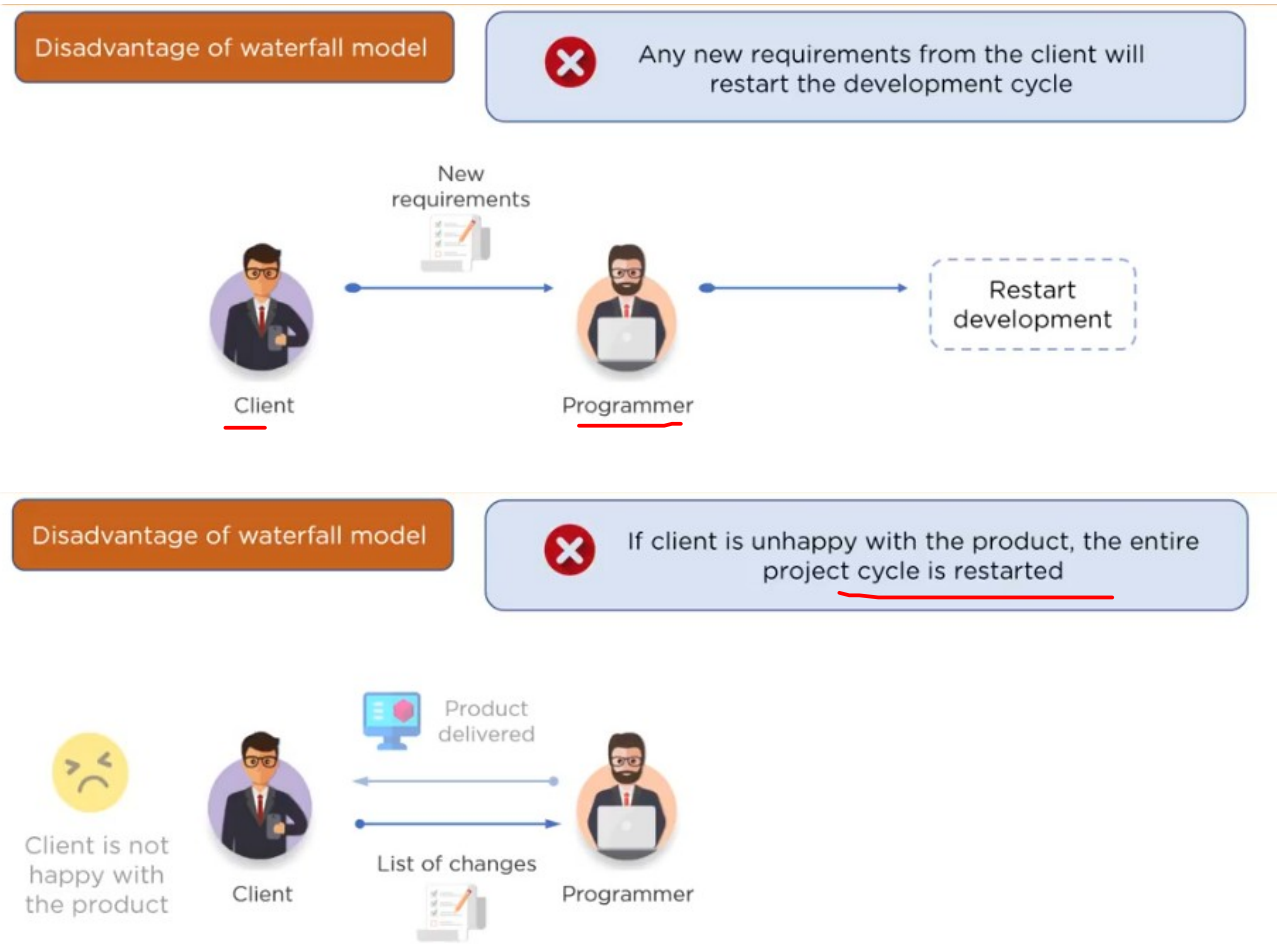


Testing phase



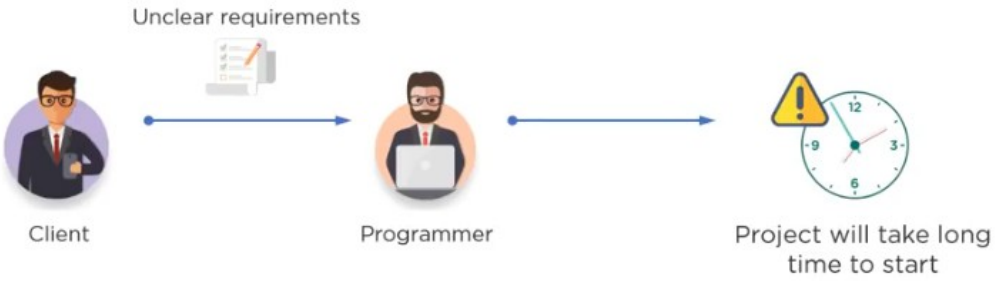
Maintenance phase

Disadvantage of waterfall model



Disadvantage of waterfall model

Until the requirements are not clear, the project cannot start and is eventually delayed



Using waterfall model, companies soon came to realize

Client requirements cannot be understood at once

It is very expensive to make changes during the end of the project

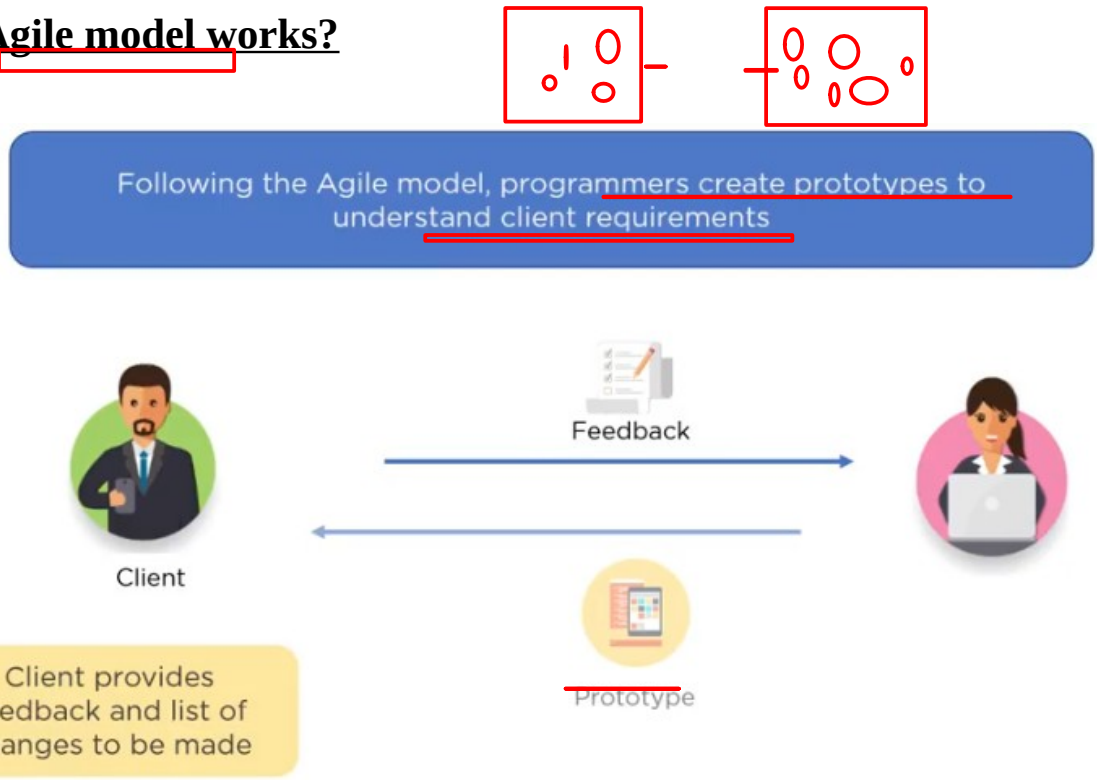
Software must be delivered faster and with less resources

Agile model

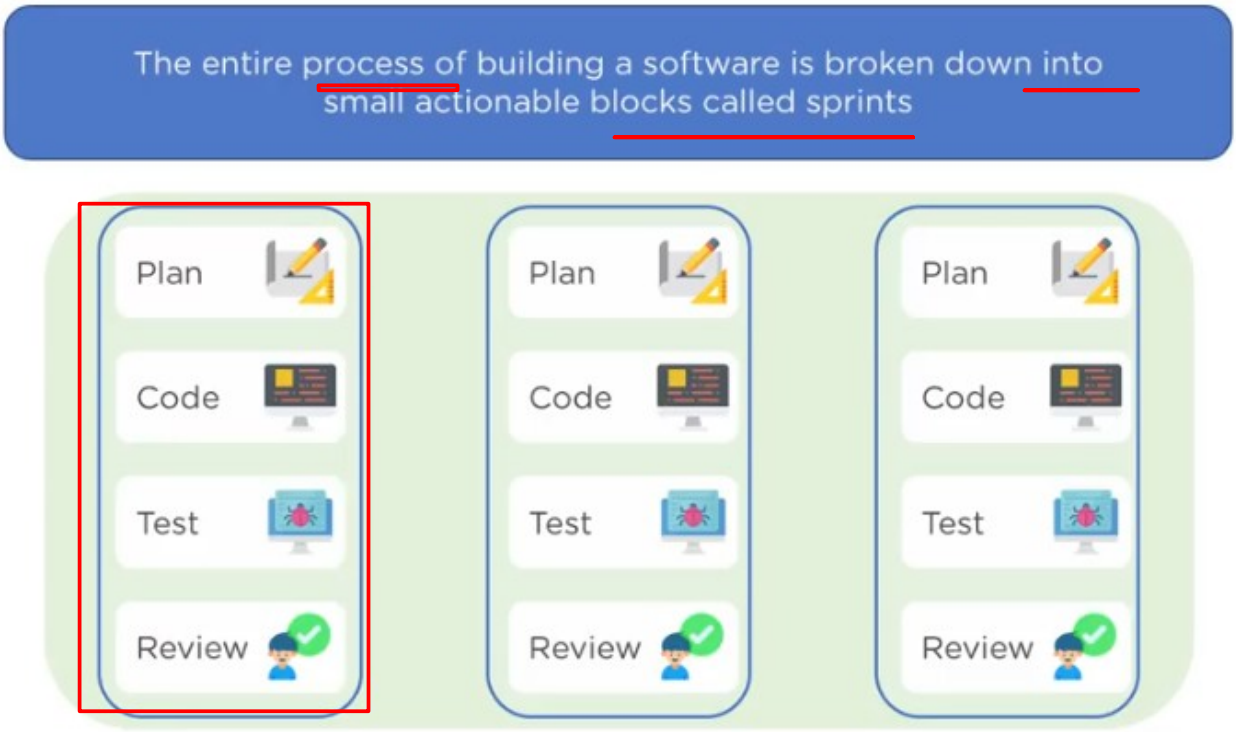
Following the Agile model, programmers create prototypes to understand client requirements

Client sends his requirements to the programmer

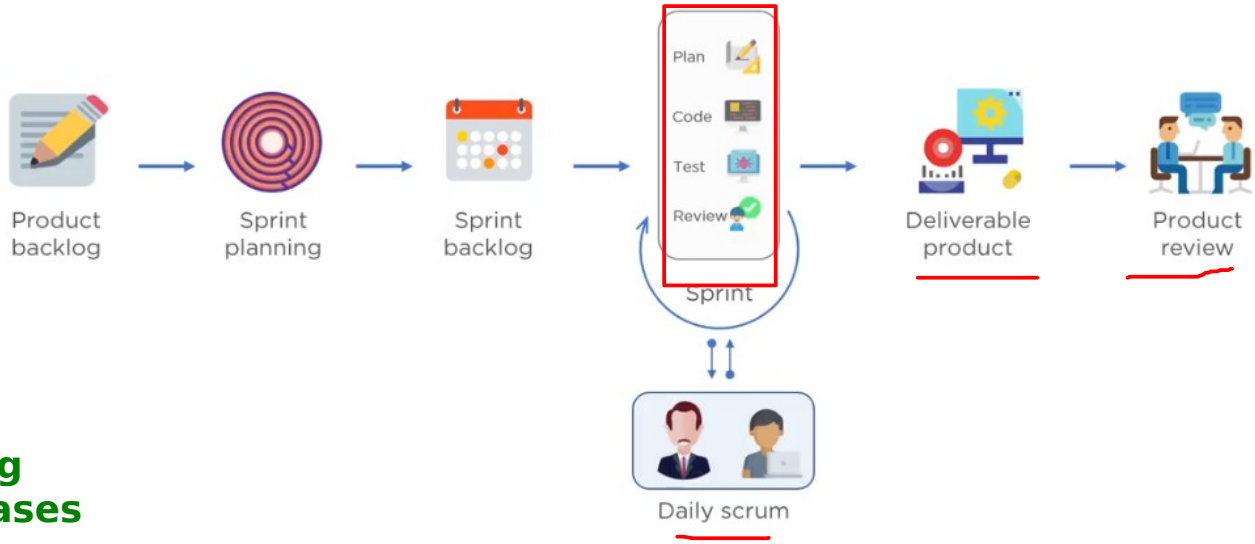
How Agile model works?



Agile Spring



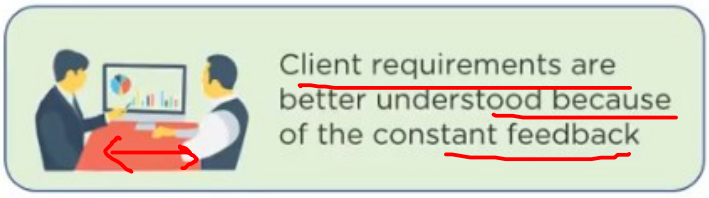
Workflow agile model

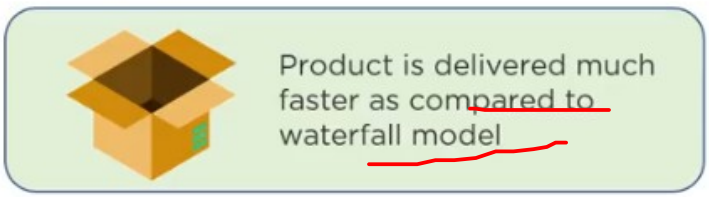


peding
use cases

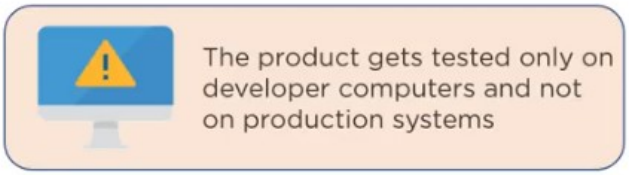
Agile Advantages

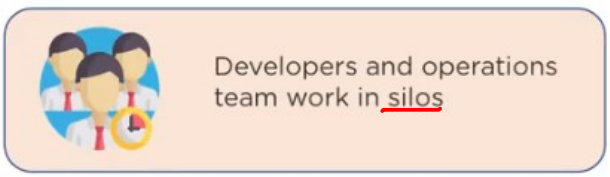
Agile



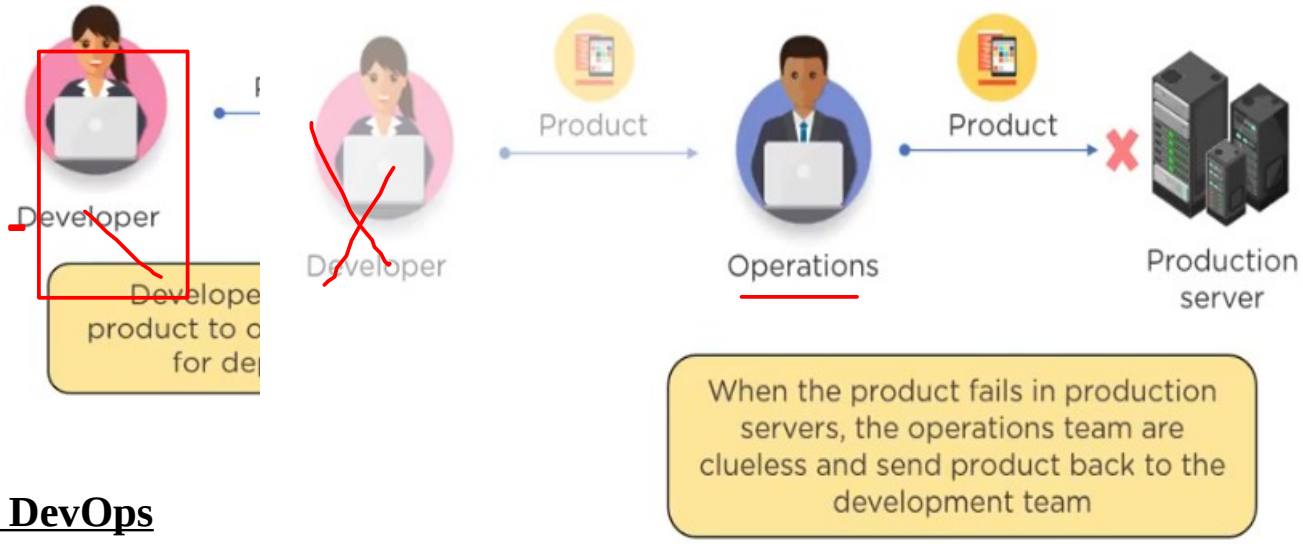


disadvantage

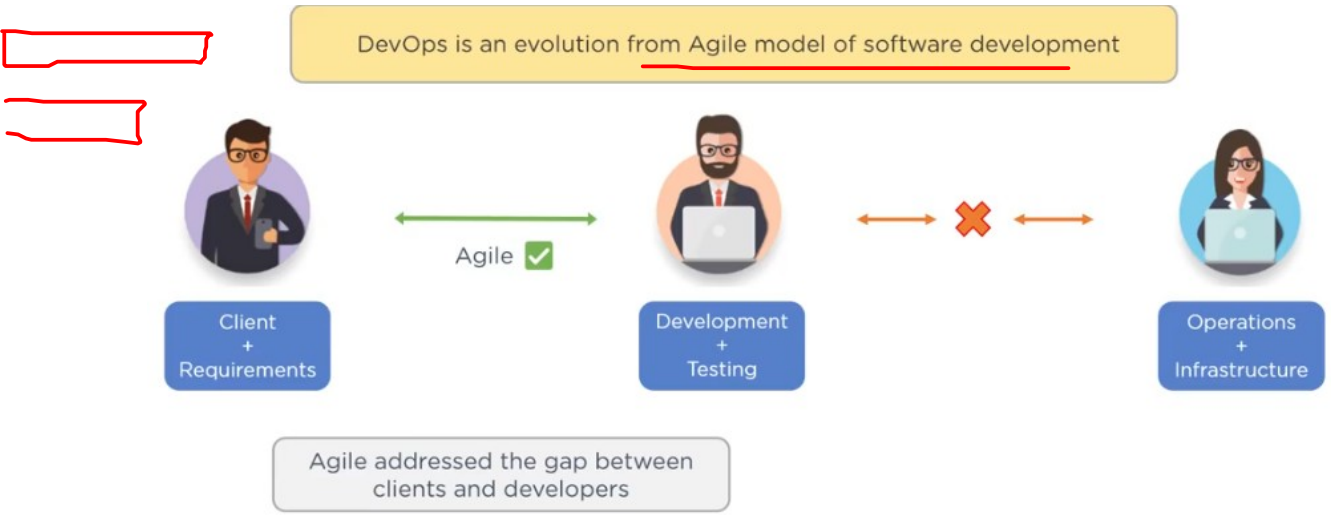




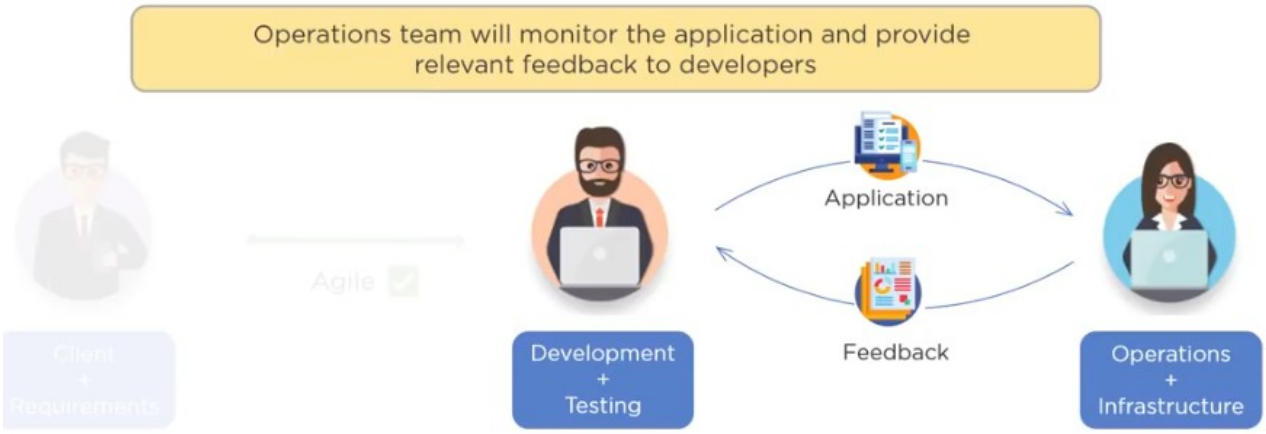
Agile model : problem



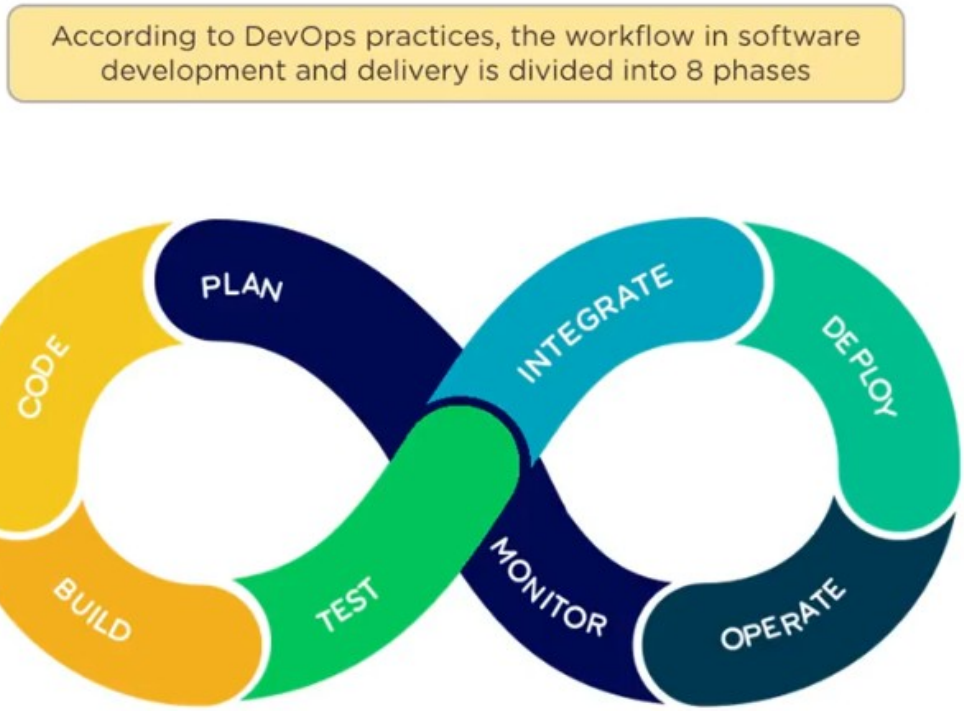
Why DevOps



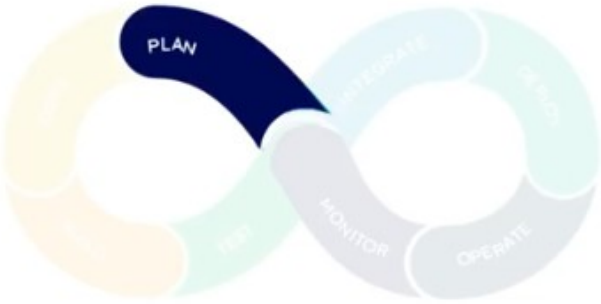
Why DevOps: DevOps address gap between dev and operational teams

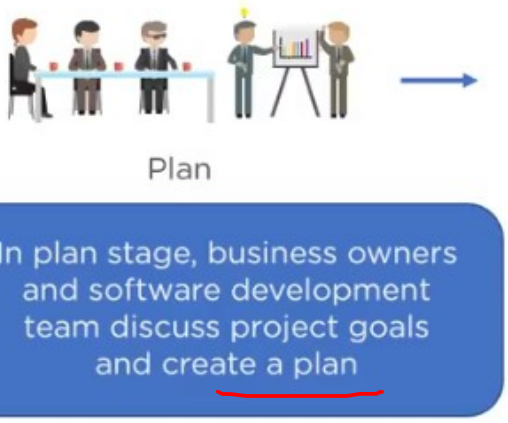


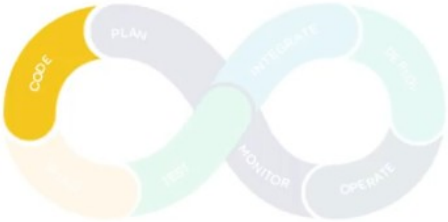
DevOps Phases

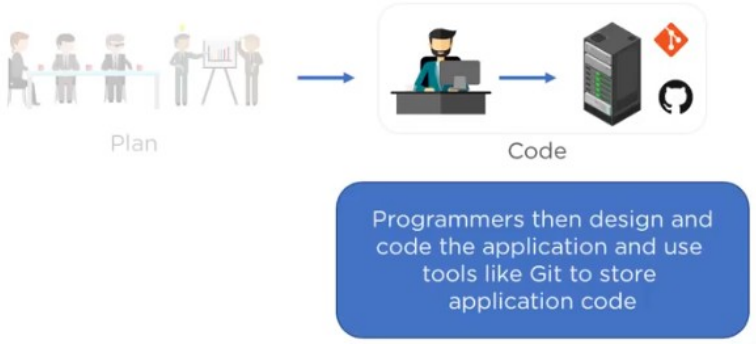


Planning

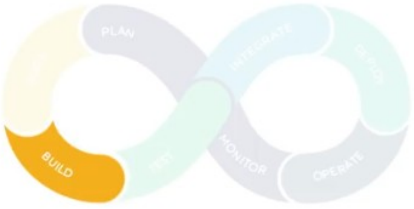


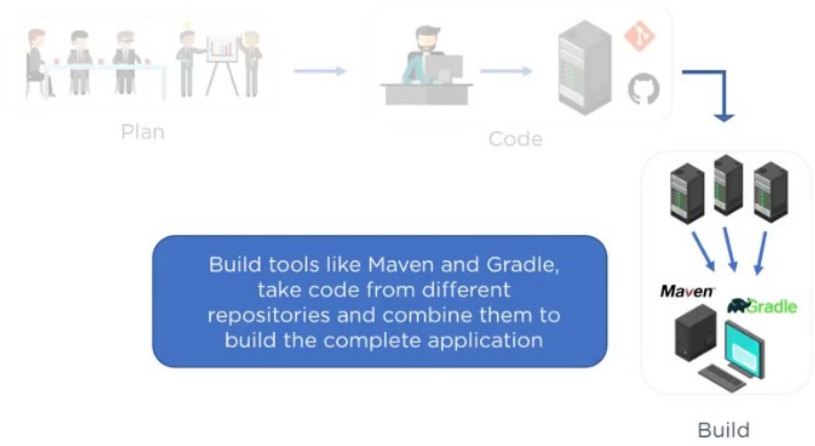




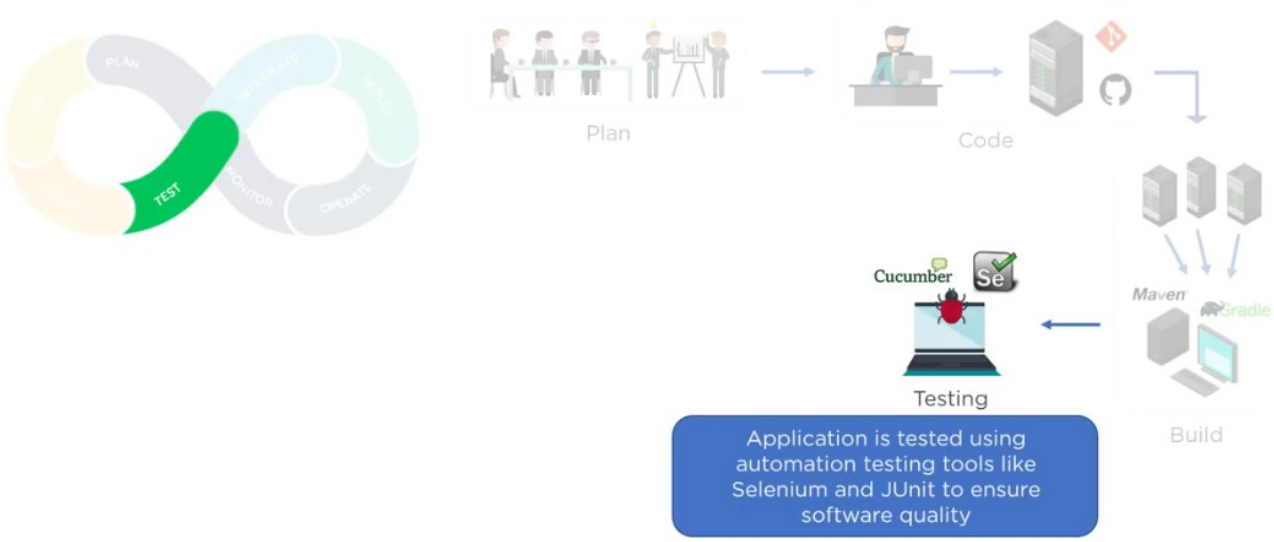


CodingBuild phase



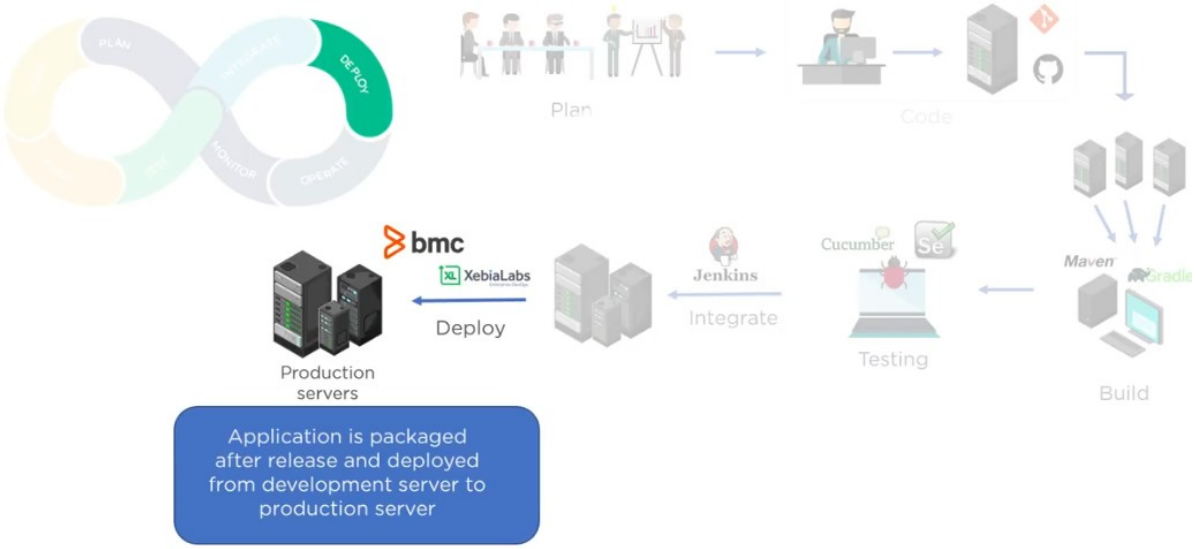


Testing Phase

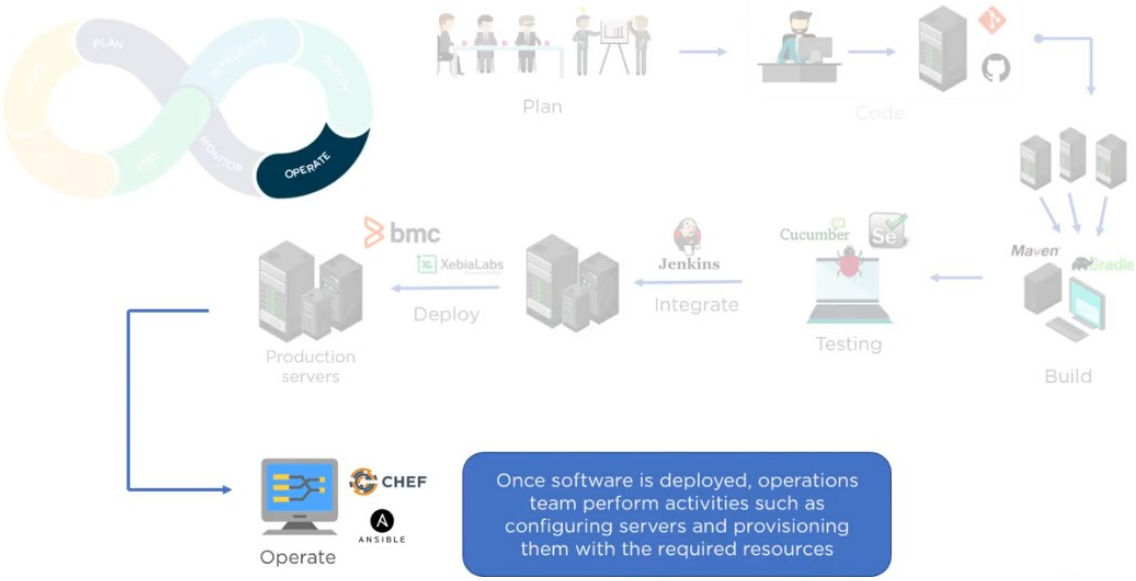


Integrate Phase

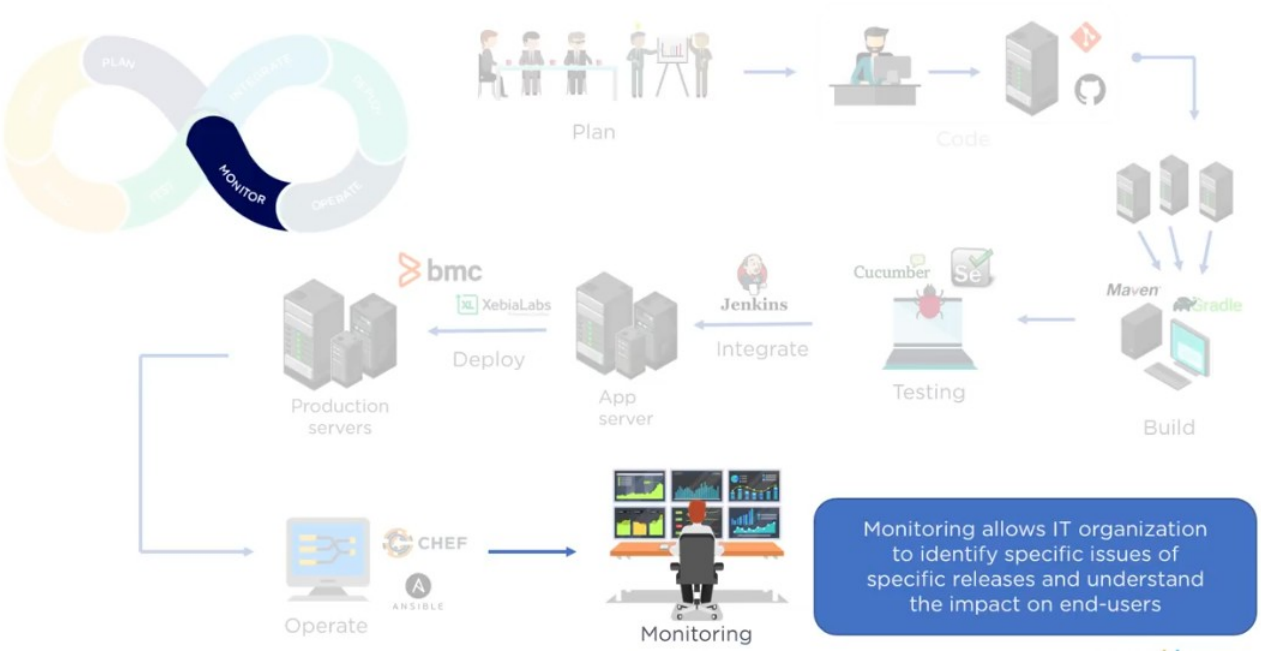
Deploy Phase



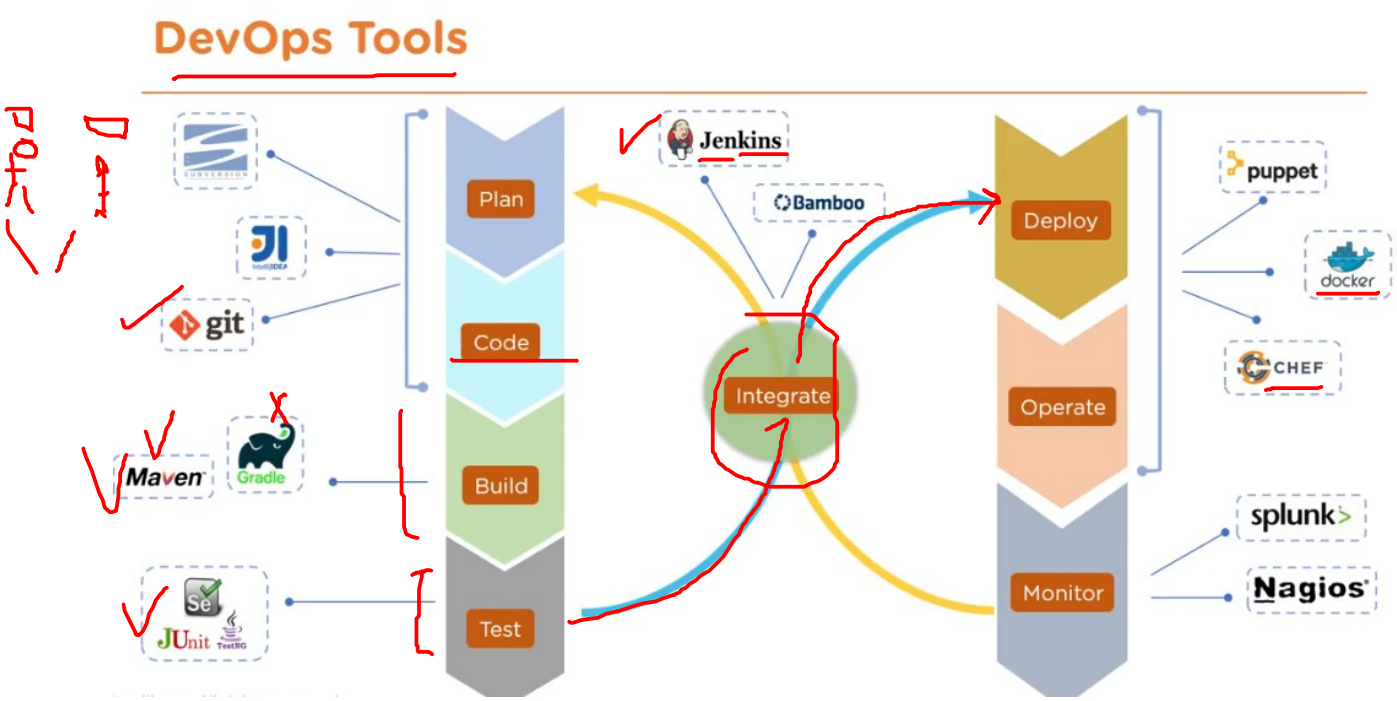
Operation Phase



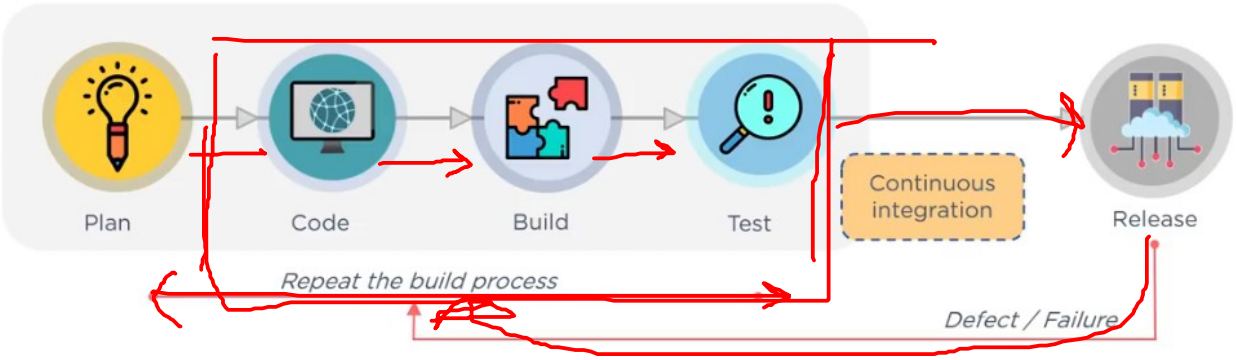
Monitoring Phase



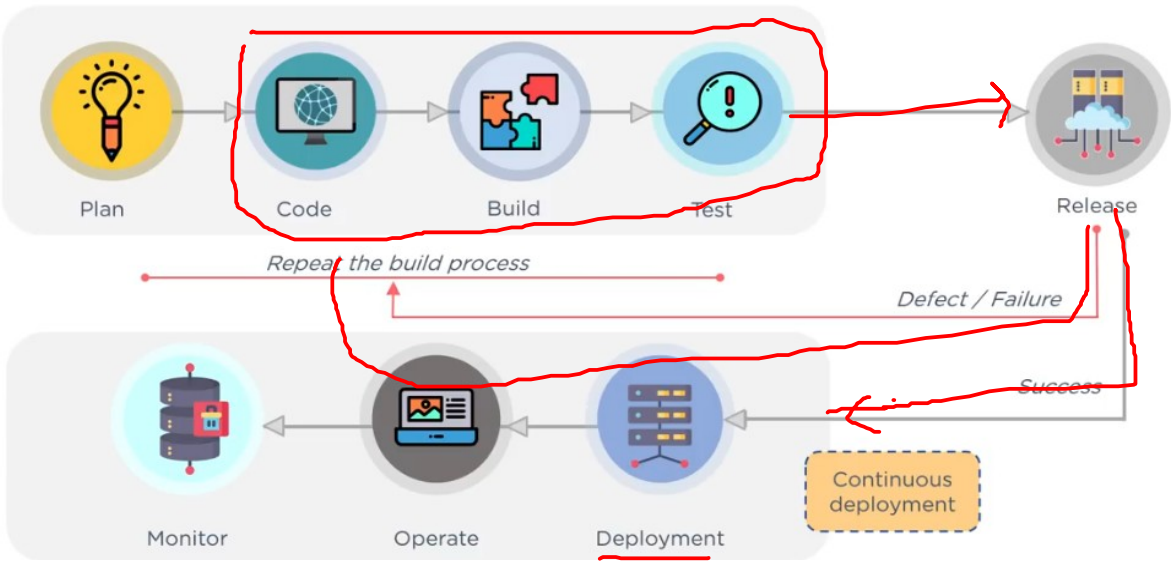
DevOps Tools



Continous Integration



Continous Deployment



DevOps advantages

Time taken to create and deliver software is reduced

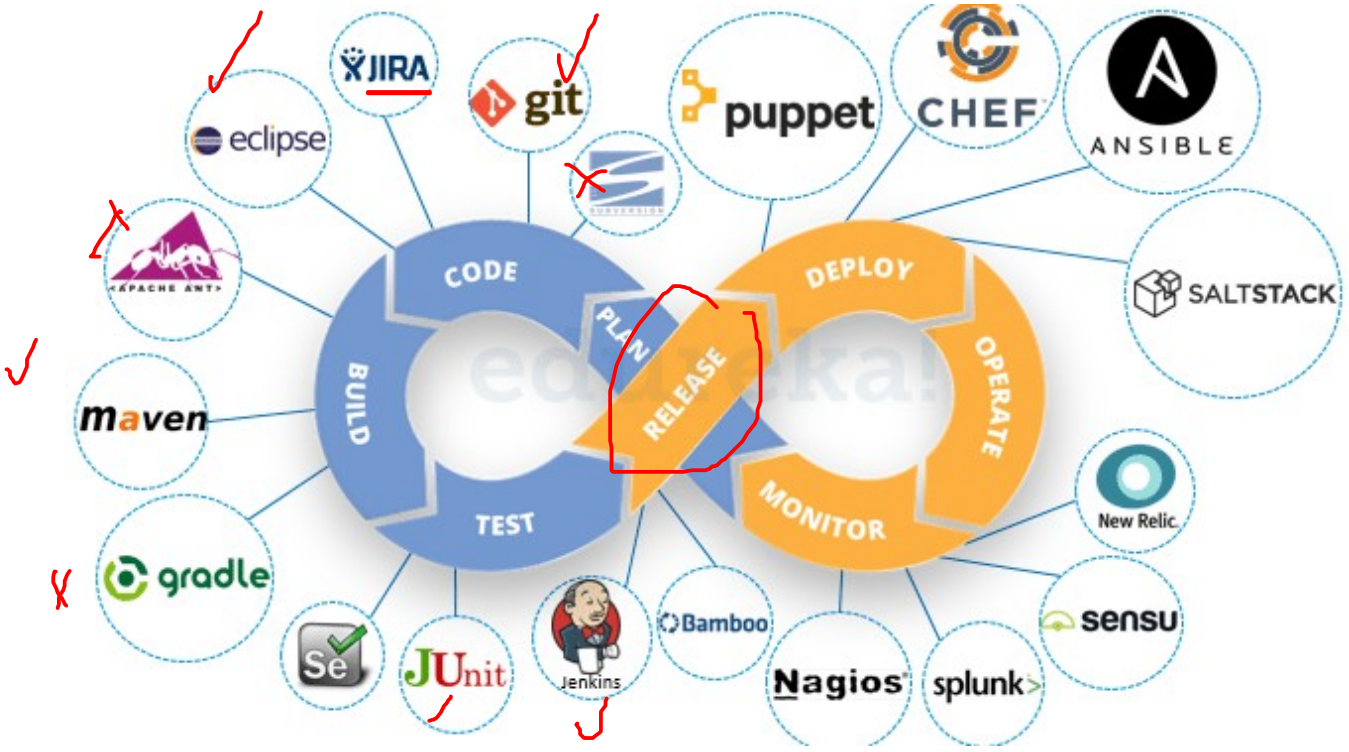
Complexity of maintaining an application is reduced

Improved collaboration between developers and operations team

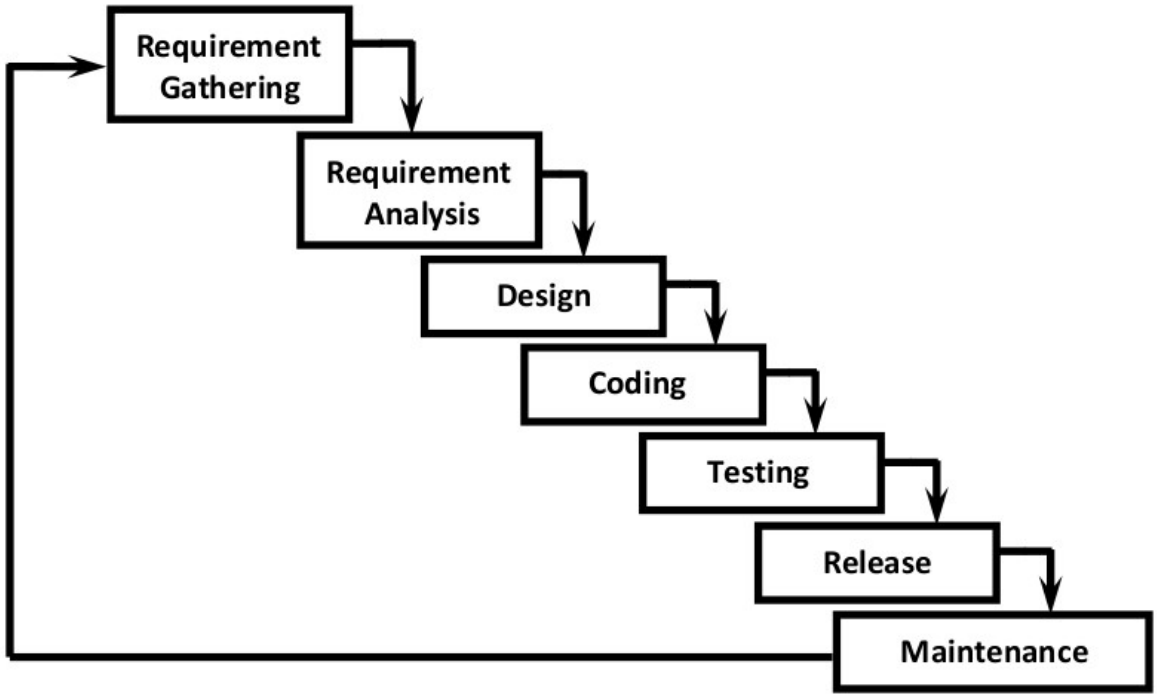
Continuous integration and delivery ensure faster time to market

Essential Tools:

1. git
2. maven
3. junit, mokito, logging log4j
4. jenkins
5. docker



Water Fall Model



Advantages:
1) Simple and easy to implement
2) no ambiguity.
3) All phases will be executed one by one which gives high visibility to the project managers and clients about the progress of the project.
4) Best suitable if the requirements are fixed.
5) Best suitable for small projects.

Disadvantages:
1) It is very rigid model b'z it won't accept requirement changes in the middle.

2) Client satisfaction is very low because most of the times client will add new requirements in the middle,which won't be supported.

3) Total project development time is more because testing should be done after complementing development only.

4) The cost of bug fixing is very high because we cannot identify bugs in the early stages of life cycle.

5) Not suitable if the requirements keep on changing.

6) Not suitable for large projects.

Agile Model:
This is the most frequently used model for software development.

Agile Model is divided into several sub models

1. **Rational Unify Process (RUP)**
2. **Adaptive Software Development (ASD)**
3. **Feature Driven Development (FDD)**
4. **Crystal Clear**
5. **Dynamic Software Development Method (DSDM)**
6. **Extream Programming (XP)**
7. **Scrum**
   etc

Among all these models Scrum model is the most popular and frequently used model. Scrum is derived from Rugby Game.

- **It is light weight process.**
- **It is an iterative /incremental model and it accepts changes very easily.**
- **It is people based model but not plan based model.**
- **Team Collaboration and Continuous feedback are strengths of this model.**

Devops vs Agile Models:

Devops and Agile, both are not same.
Similarities:
1) Both are software development methodologies. Agile is there in the market for the last 20 years, but devops is recent methodology.

2) Both models concentrating on rapid development of software project.

Differences:
1) The differences between these models will starts after development of the project.

Agile methodology always talks about software development,testing and deployment. Once deployment completed agile methodology has no role.

Top Important points about DevOps:

But Devops model will continue after deployment also and it is also responsible for operations and monitoring.

2) In Agile Model, separate people are responsible for developing, testing, and deploying the software. But, in DevOps, the DevOps engineer is responsible for everything; development to operations, and operations to development.

3) Agile model won't force us to use automation tools.
But devops model is completely based on automation.

4) Agile model always giving highest priority for speed, where as Devops giving proirity for both speed and automation.

5) In Agile, client is responsible to give the feedback for the sprint. But in Devops, immediate feedback is available from the monitoring tools