1. Describe the Software Development Life Cycle identifying where DevOps fits in
2. What are the DevOps best practices
3. What is the difference between a DevOps Engineer and an SRE Engineer

1. Describe the Software Development Life Cycle identifying where DevOps fits in

Software Development Life Cycle are steps followed in order to bring a product idea into life or to create software applications. These steps include:

- **Planning**: This is where stakeholders, business team, product managers, project managers, technical leads and everybody sits together and plan on what needs to be built. In simple terms, the scope of the application and the milestones by which the software should be ready.
- **Analysis:** This is where business analyst on the project will analyze on the requirements that is expected out of the software in detail
- **Design:** This is where the architects and technical team gets involved. They participate in deciding the architecture of the solution.
- **Implementation**: In this step, the developers start building the software.
- **Testing**: Testing the software gets through a testing team cycle where they start finding defects or bugs which gets assigned back to the development team for fixes.
- **Acceptance:** Once a good quality software is ready, the software is presented to the stakeholders for their approval and if they are happy with it, the software gets deployed for being used by the end user.
- **Maintenance**: This is where the deployment team and the operations team make sure that the software is running without bugs and always up and running in the environment.

DevOps fits in, in the software development life cycle after the **Acceptance stage**. Once a product has been approved, DevOps Engineers will ensure that the product is built, tested and deployed faster and more efficiently into the environment using a CI/CD automation tool and after these, monitors the product's performance using a monitoring tool like Prometheus and Grafana.

2. What are the DevOps best practices

- **Continuous Integration:** This is the process of compiling the entire codebase each time a member of the software development team checks the code into a shared code repository. It is the process of automatically testing bugs, making sure that you're able to improve the software quality and reduce the time to validate or release a software update.
- **Continuous Delivery:** This is an extension of continuous integration which primarily helps to get the features that the developers are developing out to the end users as soon as possible.

- **Implement Automated Testing:** Automation allows you to run more tests and test more frequently. This encourages early bug fixes and improves overall product quality. DevOps can fix problems and avoid issues as they arise during the development process through automated testing of code.
- **Microservices:** These are a critical component of devops because it means that you can build a single application that has a set of small services and each service is its own world and they can communicate with each other through a queuing system or some other interface that allows a microservice architecture.
- **Infrastructure As Code:** This allows you to do continuous delivery and to develop automated and repeatable ways of orchestrating the infrastructure which allows you to have the speed and delivery that comes with devops.
- **Monitoring and Logging:** This allows you to look at the metrics and logs of an application to see how the cpu, memory or disk io load is doing.

3. What is the difference between a DevOps Engineer and an SRE Engineer

S/N	DevOps	SRE
1	DevOps is a collaboration between development and operations teams to deliver software faster and more efficiently.	Site Reliability Engineering (SRE) on the other hand, uses software engineering to automate IT operations tasks such as production system management, change management and incident response that would normally be performed by system administrators. These tasks include
2	DevOps Engineers are primarily concerned about mindset and collaboration	SRE Engineers are very technical. They concern themselves with the set of practices, metrics that we should follow and apply.
3	The focus of Devops Engineers is product development and delivery	The focus of SRE Engineers are about system availability and reliability.

4	DevOps Engineers care about delivery applications, that is, product development and delivery.	SRE Engineers cares about production basically. They want to know whether production is running and running well.