Dev-ops and Its tools

**Devops**: Devops is a set of practices that help with speeding up workflow and shorten systems development cycle as it combines between the software(Dev) and the hardware(ops) teams to ensure a continuous and fast delivery, Devops consists of 8 essential phases.  
  
1-**Planning:** It is a phase where the everything from the data needed to how the application or system will be built is determined.

2-**Design:** In this phase the system’s features, architecture are designed to speed up the other phases.

3- **Coding:** This is where the real work begins as the developers start coding and work in “Divide and conquer method” where Developers team start with coding the independent chunks of codes in parallel then they start coding the dependent chunks of codes to accelerate the time taken to code the whole system in addition, Developers test each chunk of code as they finish it.  
  
4-**Integration:** After coding phase is finished, developers start linking and integrating chunks of code with one another which forms the desired application or system.

5-**Testing:** The system or the app is tested to see if it has any errors or that there is any features that are not working after integrating the whole system together.

6- **Deploy:** This is considered as the beta version or the demo of the system or the app that was built.

7-**Release:** The app/system is released to the public or is put to work.

8-**Monitor:** After being released the app is monitored to check if any errors or bugs occur so that they can be fixed as soon as possible.

**Dev-ops require many tools to work smoothly and ensure the work is done properly and in a smooth way some examples are:**1-**Gradle:** One of the essential tools for Devops as it supports many languages and is supported by many IDEs. Gradle is a popular build tool which uses incremental builds that saves a lot of time which is due to incrementality but also due to daemon and Gradle’s build cache.

2-**Git:** One of the most popular Devops tools that are widely used across the software industry. Git is a Source Code Management Tool which allows you to keep track with your projects , restore older versions and many more useful features. To integrate Git within your Devops environment you need to host repositories where your team members can push their work. GitHub is one of the most popular websites for hosting repositories for projects and is widely used around the world.

3-**Jenkins:** Jenkins is the go-to DevOps automation tool for many software development teams. It’s an open source CI/CD server that allows you to automate the different stages of your delivery pipeline. The main reason for Jenkins’ popularity is its huge plugin ecosystem. Currently, it offers more than 1,000 plugins, so it integrates with almost all DevOps tools, from Docker to Puppet.

With Jenkins, you can set up and customize your CI/CD pipeline according to your own needs.

4-**Docker:** Docker is an essential tool for Devops as It can help you to build applications based on containers as it helps store dependencies and libraries needed to run the application on any operating system