Devops Assignment no. 2

① Why is DevOps a major requirement in today's scenario?

→ In a nutshell the DevOps model allows companies to create viable application and programmes within a much shorter time frame, thus accelerating the speed of innovation.

It is a major requirement because its a software development and operational approach that enables faster development of new products & easy maintenance of existing deployments.

Some important benefits of devops as a major requirement:-

* faster solution.
* Increased efficiency
* Improved customer experience.
* faster ROI
* Improved performance.
* Continuous improvements
* Reduce failures & Roll back.

→ Greater stability of IT Software applications.

as it brings various departments such as IT, product Engineering, Cybersecurity, Operations & more & unite them in common objectives of achieving business targets.

⇒ In this approach the software is seen as a tool. to implore organizational efficiency and security by automating manual key processes.

2) Explain all DevOps tools in details;

→ Since no single tool work across all areas of development & delivery. The need is to first understand the process and accordingly map the tool to be successfully establish devops culture in organization

i) Jenkins:- An Excellent devops automation tool being adopted by increased number an open source CI/CD server that helps in automating the different stages of delivery pipeline.

* Allows us to set up and customise CD pipeline as per individual needs.
* Runs on Linux, windows & Mac OS.
* Jenkins allows you to update & deploy new code with greater speed.

2). Git:

widely used across software industries, Git is an distributed SCM (Source code management DevOps tool; it allows you to easily track the progress of your development work, where you can save different versions of source code and return to previous one as when required.

* A free & open source tool that supports most of the version control features of check-in, merging, labels, commit, branches etc.

* Requires a hosted repository such as github or

bitbucket that offers unlimited private repositories
* Easy to learn & maintain with separate branches of source-code that can be merged through git.

3) Nagios: One of the most popular free & open-source DevOps monitoring tool, Nagios allows you to monitor your infrastructure real time so that identifying security threats, detection of outages & errors become easier.
* facilities two methods of server monitoring.
→ agent based or agentless.
* Allows for monitoring of windows, UNIX, LINUX & web apps as well.
* free open source with various addons available.
different version of Nagios are,
1) Nagios core → command line tool.
2) Nagios XI → web based GUI.
3) log server → searches log data with automatic alerts.
4) Nagios fusion → for simultaneous multiple network monitoring

4) Docker:-
it is one of the widely used development tool of DevOps & is known to provide platform independent. Integrated container security & agile operations for cloud-native & legacy applications.

* Easily automate app deployment & make distributed development easy.
* Docker container support virtual machine environments & are platform independent.

* Build-in support for docker available for both Google Cloud & AWS.

5) Kubernetes: ideal for large teams, this Devops tool is built on what docker started in the field of containerization it is a powerful tool that can group containers by logical categorization.
* It can be deployed to multiple compute through automated distribution.
* Kubernetes is the first + container Orchestration tool.
* Extremely useful in the streamlining complex projects across large teams.

6) Ansible: it is primarily a design management and organization Devops tool. it is written in simple programming language. YAML it makes easier for DevOps teams to scale the process of automation & speed up productivity.
* based on master slave Architecture.
* it is an ideal DevOps tool to manage complex deployment & speed up the process of development.

7) Chef: This DevOps tool is mainly used for checking the configurations & it is helpful automating the infrastructure.
* Assist in standarizing and enforcing the configurations continuously.
* Chef automates the whole process and make sure that the systems are correctly configured.
* Chef helps you ensure that the configuration policies remains completely flexible, auditable & testable

8) Puppet:- it is an open source configuration management tool that is used for deploying, configuring & managing servers.

- offers master - slave architecture.
- Puppets work smoothly for hybrid infra. & application.
- Compatible with -linux, windows & UNIX os.

9) Splunk: it is designed to make machine data usable, as well as accessible to everyone by delivering operational intelligence to DevOps teams.
It is an Excellent choice of tool that make companies more secure productive & competitive.

- Splunk delivers a more central & collective view of IT services.
- Easily detects patterns, highlights anomalies and areas of impact.

10) Gradle: an Extremely Versatile DevOps tool, Gradle allows you to write your code in various language including C++, Java, python. among others.
it is supported by various IDE's such as net beans Eclipse & IntelliJ IDEA.

- The core model of gradle is based on tasks. actions, inputs & outputs
- The incremental builds of Gradle allow you to save a substancial amount of compile time.