1. **What is Grafana**

*Grafana is an open source tool for performing data analytics, retrieving metrics that make sense of large amounts of data, and monitoring our apps using nice configurable dashboards.*

*Grafana connects with every possible data source, commonly referred to as databases such as Graphite, Prometheus, Influx DB, ElasticSearch, MySQL, PostgreSQL etc.*

*The tool helps us study, analyse & monitor data over a period of time, technically called time series analytics.*

*It helps us track the user behaviour, application behaviour, frequency of errors popping up in production or a pre-prod environment, type of errors popping up & the contextual scenarios by providing relative data.*

*A big upside of the project is it can be deployed on-prem by organizations which do not want their data to be streamed over to a vendor cloud for security & other reasons.*

**1. Explain Prometheus in Kubernetes?**

**Prometheus** is an open-source toolkit that is used for **metric based monitoring** and **alerting** the application. It provides a data model and a query language and can provide details and actions of metrics. The Prometheus operator provides easy monitoring for **deployments** and **k8s services**, besides **Alertmanager** and **Grafana**.

**2. Describe the following Prometheus components:**

* **Prometheus server**
* **Push Gateway**
* **Alert Manager**
* Prometheus server is responsible for scraping and storing of the data
* Push gateway is used for short-lived jobs
* Alert manager is responsible for alerts.

**3. Explain Continuous Monitoring.**

As the application is developed and deployed, we do need to monitor its performance. Monitoring is also very important as it might help to uncover the defects which might not have been detected earlier.

Continuous Monitoring Tools resolve any system errors (low memory, unreachable server, etc.) before they have any negative impact on your business productivity.

Important reasons to use a monitoring tool are:

* It detects any network or server problems
* It determines the root cause of any issues
* It maintains the security and availability of the service
* It monitors and troubleshoots server performance issues
* It allows us to plan for infrastructure upgrades before outdated systems cause failures
* It can respond to issues at the first sign of a problem
* It can be used to automatically fix problems when they are detected
* It ensures IT infrastructure outages have a minimal effect on your organization’s bottom line
* It can monitor your entire infrastructure and business processes