**Assignment 1**

1. What is Microservices?

Microservices are a method of developing software applications which are made up of independently deployable, modular services. Each microservice runs a unique process and communicates through a well-defined, lightweight mechanism, such as a container, to serve a business goal.

1. What are the challenges with monolithic oriented architecture?

(i) Application is too large and complex to fully understand and made changes fast and correctly.

(ii)Monolithic applications can also be difficult to scale when different modules have conflicting resource requirements.

(iii)Monolithic applications has a barrier to adopting new technologies. Since changes in frameworks or languages will affect an entire application it is extremely expensive in both time and cost.

(iv)You must redeploy the entire application on each update.

(v)Another challenge with monolithic applications is reliability. Bug in any module (e.g. memory leak) can potentially bring down the entire process. Moreover, since all instances of the application are identical, that bug will impact the availability of the entire application.

1. Any three Advantages and Disadvantages of Microservices.

**Advantages:-**

* Microservices are self-contained, independent deployment module.
* The cost of scaling is comparatively less than the monolithic architecture.
* Microservices are independently manageable services. It can enable more and more services as the need arises. It minimizes the impact on existing service.
* Less dependency and easy to test.
* Dynamic scaling.
* Faster release cycle.

**Disadvantages:-**

* Microservices has all the associated complexities of the distributed system.
* There is a higher chance of failure during communication between different services.
* Difficult to manage a large number of services.
* The developer needs to solve the problem, such as network latency and load balancing.
* Complex testing over a distributed environment.