**Microservices Assignment-1**

( Submission date: 4th FEB 2021 )

**1). What is microservices?**

A microservice is a small, loosely coupled distributed service. With the help of microservices we can brake one large application into small components. Each microservices focuses on single concept. All microservices are communicate with each other.

**2) Challenges with monolithic oriented architecture.**

* **Scaling**

scalability is the ability of a system/program to scale. Scalable system means its capability to handle an increase/decrease load.

In today’s era, we all know that businesses are growing rapidly. With this rapid growth of business, there is an ever-increasing need to accommodate an increasing client base. Scaling is one of the biggest challenges that any business faces while trying to cater for an increased user base.

* **Deployment challenges**

If any changes happen in application than in monolithic architecture, we need to deploy whole application again. This process is time consuming. It will also take weeks. Every time we need to repeat this process while any changes occur.

* **Modularity**

In respect to our monolithic application, where we may have an Order module, a change in the module Orders affects the module Stock and so on. It is the absence of modularity that has resulted in such a condition.

This also means that we can't reuse the functionality of a module within another module. The code is not decomposed into structured pieces, which could be reused to save time and effort. There is no segregation within the code modules, and hence, no common code is available.

* **Monolithic architecture is very hard to maintain because all the modules are dependent on each other.**
* **In monolithic architecture we cannot implement new innovation because for that we need to change everything.**
* **In any application is built on monolithic architecture than if more requests are come form user than it might take more response time.**

**3) Any three advantage and disadvantage of microservices.**

**Advantages:**

* If there is any update/change in one microservice than we need to redeploy only that microservice again.
* Each microservices uses different technology based on their requirements.
* If any one microservice goes down then it will not affect other services and whole system remain as it before except that microservice.
* If any microservice is used by large group of customers than we need to scale that microservice. Hence, microservices are support horizontal scaling.

**Disadvantages:**

* Complexity increases with increase in number of microservices.
* For microservices skilled developer are required to work with microservices which can identify microservices and manage inter-communication.
* Less secure than monolithic application because of inter-connected network.
* Independent deployment of microservices is complicated.