**Assignment 1**

A group of a maximum of 4 students will be created and do they will be doing the following as a part of lab and assignment

1. Create a Microservices based application with at least 3 microservices. Each service should be maintained as a separate code repository so that

it can be developed, deployed, and tested independently.

2. Use a suitable database and database related pattern for these services

3. Use a suitable approach for the communication between these services (avoid high coupling between these services)

Exploring lab tools

4. Deploy all services on a single docker container

5. Deploy each service on separate docker containers

6. Run a minikube cluster on your local machine and explore various options in this. Try deployment of your application on this.

7. Create a Kubernetes cluster on the cloud and deploy your application on this cluster. Analyze your cluster on the Kubernetes dashboard (**optional**)

8. Explore scaling, recovery, security, and CI/CD in Kubernetes (**optional**)

Submission details:

a) Submit elaborate documentation with group details, contribution by each group member, brief application description, the architecture of

your application, steps, and screenshot for each of the above-mentioned tasks. Also, provide a link to the GitHub repositories in the document.

b) Create the first demo video to explain your microservices, the database, and communication between the services (for points 1,2, and 3)

c) Create a second demo video to show various deployment options (for points 4 and 5)

d) Create the third video to show a demo about the minikube task and the Kubernetes cluster on the cloud (for points 6,7, and 8)

**All of this has to be submitted in a single zip file with the file name as <Group member Bits IDS>\_<application name>. Each member of the team has to upload the document**

**In case, you copy your assignment from the internet or other people in the other groups then no marks will be awarded**