RollNo:_____

4CS505ME25: Cloud Native Applications and DevOps

Practical Index

Sr No.	Title of experiment	Date	Marks (as per rubrics)					Total Marks	Sign
			02	02	02	02	02	10	
1.	Learn Git related commands about how to create project and manage it on Git environment locally as well as on Github/Gitlab.								
2.	Develop two RESTful microservices using Spring Boot (Java) and Node.js (JavaScript).								
3.	Containerize Microservices using Docker.								
4.	Automate Microservice Deployment using GitHub Actions.								
5.	Implement API Gateway using Kong or NGINX to route the traffic in microservie								
6.	Use Terraform or AWS CloudFormation to provision infrastructure resources on a cloud platform. Create scripts that automate the setup of cloud resources, such as virtual machines, databases, and networks.								
7.	Set up monitoring tools like Prometheus and Grafana to monitor the performance and health of a deployed application. Incorporate logging solutions like ELK (Elasticsearch, Logstash, Kibana) to collect and analyze logs.								
8.	Implement and Deploy Microservices on Kubernetes using Minikube.								
9.	Implement DevSecOps Pipeline with GitHub Actions and Security Scanning Tools								
10.	Implement data models and database connections for microservice.								

Lab Faculty Signature and Name

Criteria	Satisfactory (0.5 mark)	Adequate (1 mark)	Proficient (1.5 mark)	Outstanding (2 mark)
Lab participation (02 mark)	Student arrive late in the lab and rarely participate in lab proceedings. No attempt/desire to learn.	The student has a tendency to arrive late and unprepared. Such unpunctuality or unpreparedness makes it impossible to fully participate.	The student arrives on time to the lab, but may be unprepared and hence could not participate to the full extent.	The student arrives on time with complete preparation and participates in lab proceedings with full enthusiasm. Even eager to explain concepts to fellow batch mates and ready to assist them.
Definition of objectives and scope (02 mark)	The student is unaware of the practical objectives and concepts	The student has a difficulty in understanding/explaining key concepts of the practical	The student has a basic knowledge of content but may lack understanding of some of the concepts.	The student demonstrates an accurate understanding of the objectives and concepts.
Proper use of procedures (02 mark)	Unable to follow the instructions and performs the experiment.	Follows a limited set of instructions and performs the experiment half-heartedly.	Performs the experiment in a proper manner, however occasionally not following the procedures.	Follows all the instructions given by the instructor and performs the experiment in a perfect manner. Also, influence/emphasise others to follow the procedures.
Result analysis and discussion/ Timely Completion of the work (02 mark)	Calculations/ Graphs/Quizzes are not complete and not submitted within the given deadline.	Calculations/Graphs/Quizzes are partially complete in a very random/ haphazard or disorganised manner. Work is inaccurate and has a number of errors.	Calculations/Graph s/Quizzes are complete.However, student could do the work more neatly by incorporating all the required information.	Calculations/Graphs/Quizzes are complete and neat. They include all the required details like titles, sketches, units etc. Errors, if any are minimal
Question - Answer/ Presentation (02 mark)	Unable to answer the questions. Poor language and communication with a number of mistakes.	Answers to the questions are basic and superficial suggesting that concepts are not fully grasped. Language and communication is not clear and fluent, suggesting scope for improvement	Questions are answered fairly well barring a few questions. The language is good. Communication is clear.	All the questions are answered completely and correctly. Language is error-free. Communication is clear and fluent. No grammatical mistakes.