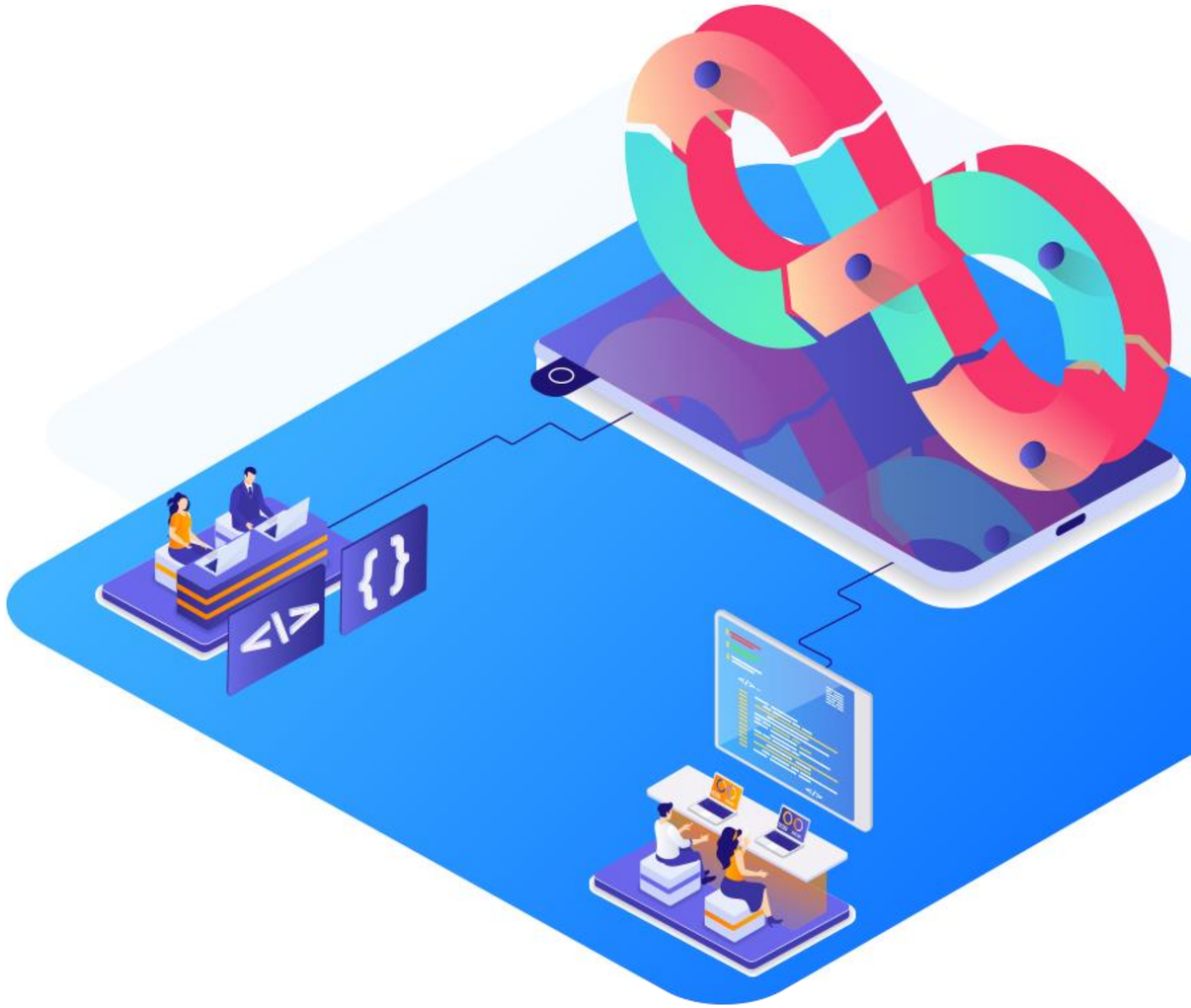
Containerization with Docker



Course-End Project

Swarm Microservice Deployment

Objective

To deploy a scalable, multi-service voting application on a manager node, ensuring efficient orchestration, fault tolerance, and seamless monitoring through Docker visualizer

Problem Statement and Motivation

Real-time scenario:

John, a DevOps engineer, is tasked with deploying a voting application through multiple microservices. By creating a Docker compose file and deploying it on a manager node in a distributed system, they ensure that each service is efficiently orchestrated and fault-tolerant.

To monitor the deployment, John integrates Docker visualizer as a microservice, providing real-time insights. This setup simplifies the deployment process, enhances scalability, and ensures the application runs smoothly in a production environment.

Industry Relevance

The following tools used in this project serve specific purposes within the industry:

1. **Docker swarm**: The stack is deployed using Docker swarm, a container orchestration tool that allows you to manage a cluster of Docker nodes and deploy services across them.

2. **Docker microservices**: These are small and independent services that run in separate containers, each handling a specific function within an application. This architecture allows for modular development, scalability, and easier maintenance.

3. **Swarm cluster**: It is a group of Docker nodes working together as a single system to deploy and manage services. It provides built-in orchestration, ensuring high availability, scalability, and efficient load balancing across containers.

4. **Docker compose**: It is used to define and manage multi-container Docker applications. It specifies the services, networks, and volumes required for the application.

Tasks

The following tasks outline the process of deploying swarm microservice:

1. Set up the network and storage infrastructure
2. Define and configure microservices
3. Deploy microservices across Docker swarm

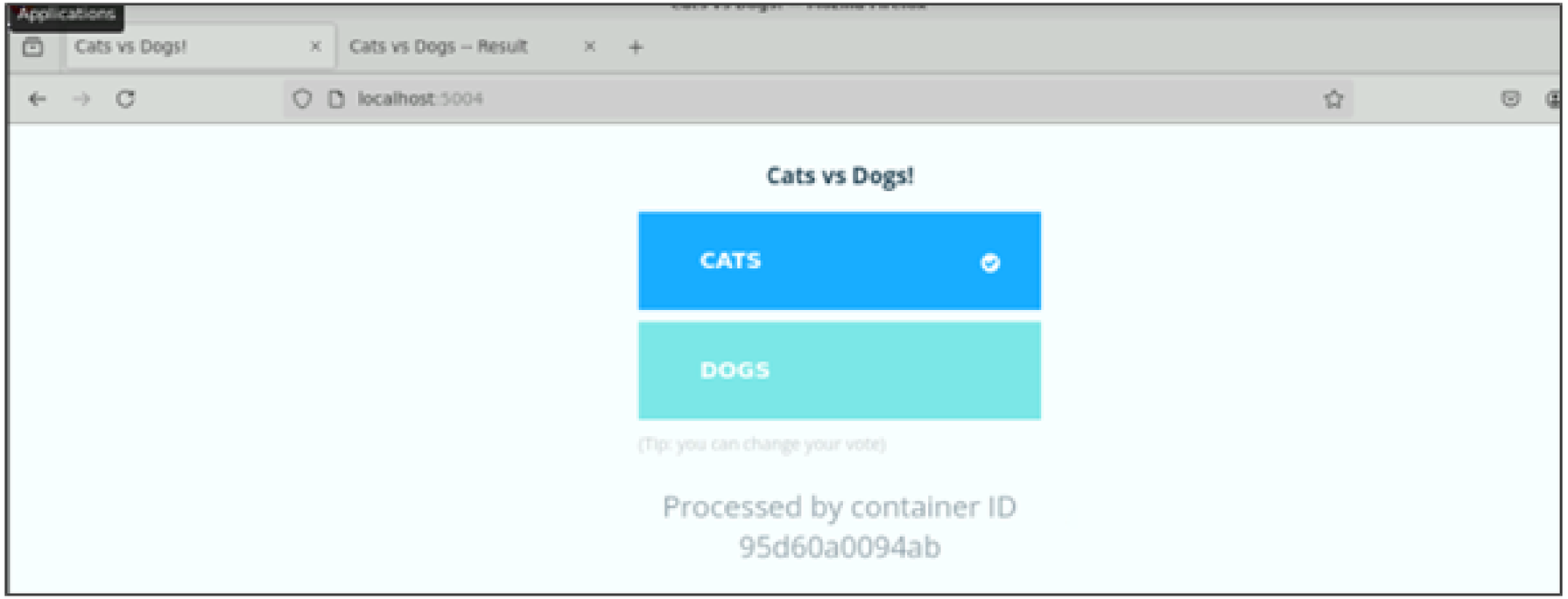
Project References

- **Task 1:** Lesson 03 and Lesson 04
- **Task 2:** Lesson 07
- **Task 3:** Lesson 08

COURSE-END PROJECT

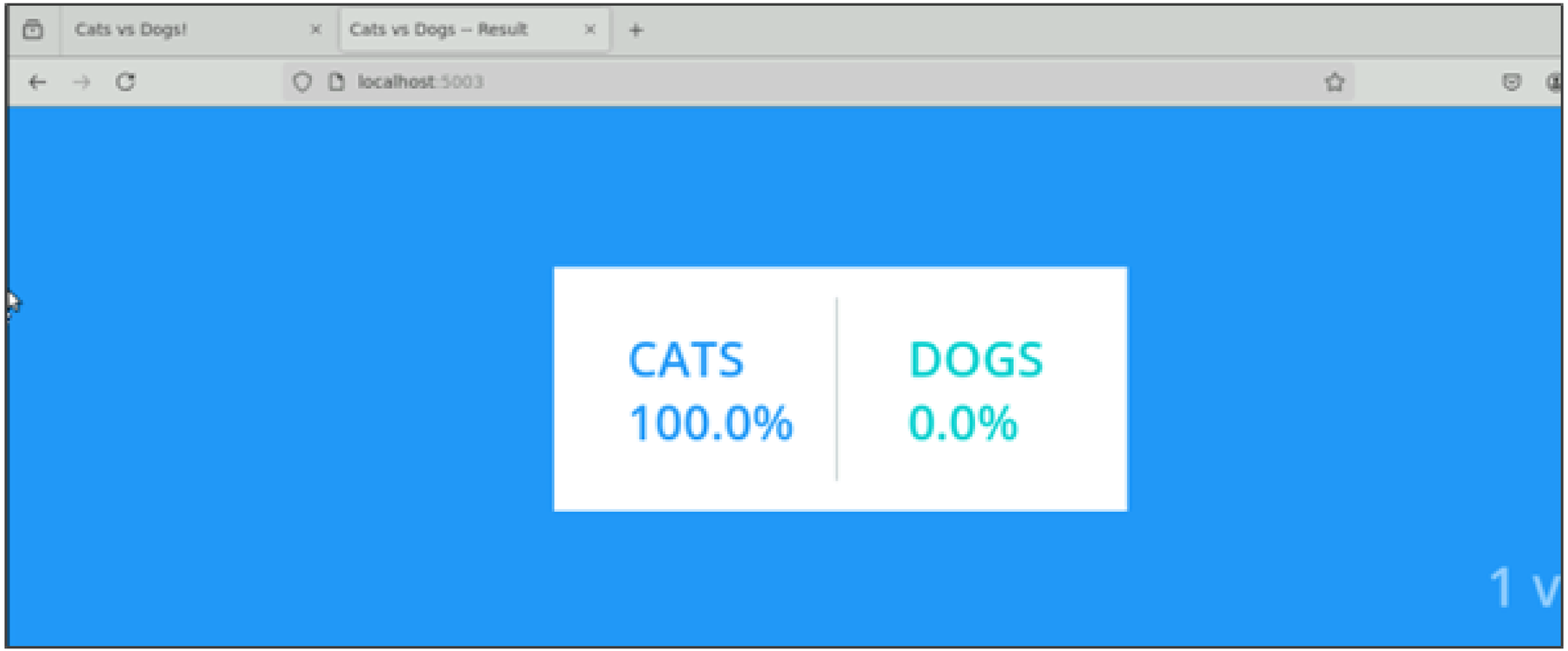
Output Screenshots

Voting page



Output Screenshots

Result page



Thank you