Experiment No. 10

Aim: To study and implement container orchestration using Kubernetes

Objective: To understand container orchestration using Kubernetes.

Theory:

Container orchestration automates the deployment, management, scaling, and networking of containers. Container orchestration can be used in any environment where you use containers. It can help you to deploy the same application across different environments without needing to redesign it. And microservices in containers make it easier to orchestrate services, including storage, networking, and security. container orchestration to automate and manage tasks such as:

- Provisioning and deployment
- Configuration and scheduling
- Resource allocation
- Container availability
- Scaling or removing containers based on balancing workloads across your infrastructure
- Load balancing and traffic routing
- Monitoring container health
- Configuring applications based on the container in which they will run
- Keeping interactions between containers secure

Kubernetes is an open-source container management (orchestration) tool. Its container management responsibilities include container deployment, scaling & descaling of containers & container load balancing.

Features of Kubernetes

- Automatic Bin packing
- Service Discovery and Load Balancing
- Storage Orchestration
- Self-Healing
- Secrete and configuration management.
- Batch execution
- Horizontal Scaling
- Automatic Rollbacks and Rollouts