Docker

1. Docker Essentials

- **Introduction to Containers**
    - What are containers?
    - Benefits of using containers
    - Overview of Docker as a containerization platform

- **Installing Docker**
    - Docker installation on various platforms (Linux, Windows, Mac)
    - Basic Docker commands

- **Working with Containers**
    - Creating, running, and managing containers
    - Docker images vs. containers
    - Using Docker Hub and other registries

- **Docker Networking**
    - Understanding Docker networking basics
    - Networking modes and configurations

2. Docker Intermediate

- **Docker Images**
    - Building and managing Docker images
    - Dockerfile basics
    - Best practices for creating Docker images

- **Docker Volumes and Persistent Storage**
    - Managing data in Docker containers
    - Working with Docker volumes and bind mounts

- **Docker Compose**
    - Introduction to Docker Compose
    - Defining multi-container applications
    - Managing services with Docker Compose

- **Docker Networking and Security**
    - Advanced Docker networking concepts
    - Security best practices for Docker containers

3. Docker Advanced

- **Docker Swarm**
  - Introduction to Docker Swarm for orchestration
  - Creating and managing a Docker Swarm cluster
  - Scaling applications with Docker Swarm

- **Advanced Docker Compose**
  - Multi-environment configurations
  - Integrating Docker Compose with CI/CD pipelines

- **Docker and Kubernetes**
  - Overview of Kubernetes
  - Running Docker containers on Kubernetes
  - Comparing Docker Swarm and Kubernetes

- **CI/CD with Docker**
  - Integrating Docker with CI/CD tools (Jenkins, GitLab CI, etc.)
  - Automating Docker image builds and deployments

- **Monitoring and Logging**
  - Monitoring Docker containers (using tools like Prometheus, Grafana)
  - Managing logs in Docker containers

4. Docker Certification Preparation

- **Docker Certified Associate (DCA) Exam**
  - Overview of the DCA certification
  - Exam objectives and topics
  - Sample exam questions and preparation tips

- **Real-World Scenarios**
  - Case studies and practical scenarios
  - Troubleshooting common Docker issues