Day 1

1. Why Docker? Why Now?
2. Setup Docker for Your OS
3. Creating and Using Containers
    3.1. Check Our Docker Install and Config
    3.2. Starting a Nginx Web Server
    3.3. What Happens When We Run a Container
    3.4. Container VS. VM: It's Just a Process
    3.5. Assignment: Manage Multiple Containers
    3.6. Getting a Shell Inside Containers
4. Container Images, Where To Find Them and How To Build Them
    4.1. What's In an Image (and What Isn't)
    4.2. The Mighty Hub: Using Docker Hub Registry Images
    4.3. Images and Their Layers: Discover the Image Cache
    4.4. Image Tagging and Pushing to Docker Hub
    4.5. Building Images: The Dockerfile Basics
    4.6. Building Images: Running Docker Builds
    4.7. Building Images: Extending Official Images
5. Container Lifetime & Persistent Data
    5.1. Persistent Data: Data Volumes
    5.2. Persistent Data: Bind Mounting

Day 2

6. Kubernetes Introduction
7. Kubernetes Architecture
8. First Contact with Kubectl
    8.1. Kubectl Describe
    8.2. Exploring Resource Types
    8.3. Kubectl Get
    8.4. Kubectl Namespace Basics
9. Your First Deployment with Kubectl
    9.1. Kubectl Logs
    9.2. Deleting Pods and Watching The Effects
10. Sample Microservice App
    10.1. Quick Compose
    10.2. Kubernetes Image Registries
11. Walking Through App Deployments
    11.1. Creating
    11.2. Exposing
    11.3. Scaling Deployments
    11.4. Httping Testing
    11.5. Deploying a Distributed App
12. All About Kubernetes YAML
    12.1. YAML Creation Basics
    12.2. YAML From Scratch on Kubernetes
    12.3. YAML Tips and Validation
13. What is Replica-set?
14. What is Deployment?

Day 3

15. Service in K8S
    - 15.1. Nodeport
    - 15.2. ClusterIP
    - 15.3. LoadBalancer
    - 15.4. External
16. Rolling Updates and Failure Recovery
    - 16.1. Rolling Update Basics
    - 16.2. Rolling Update Walkthroughs
    - 16.3. Failed Update Details
    - 16.4. Recovering From Failed Updates
17. Volumes
    - 17.1. PV
    - 17.2. PVC
    - 17.3. Volume Mounting
18. Configmap and Secrets in K8S
    - 18.1. What is configmap?
    - 18.2. What is secret?
    - 18.3. How to create secret?
    - 18.4. How to connect to Azure Keyvault?
19. Deploy a sample Todo Web Application
    - 19.1. Create Volume
    - 19.2. Create Secret
    - 19.3. Deploy MySQL Pod
    - 19.4. Deploy Web App
20. Horizontal scaling of POD using Replicaset

21. Ingress

- 21.1. What is ingress?
- 21.2. Why we need it?
- 21.3. Nginx Ingress controller
- 21.4. Configure Ingress controller

Day 4

22. Overview
    - 22.1. What is Azure Databricks?
    - 22.2. Apache Spark-based analytics platform
    - 22.3. Apache Spark in Azure Databricks
    - 22.4. Fully managed Apache Spark clusters in the cloud
    - 22.5. Databricks Runtime
23. Quickstart: Run a Spark job on Azure Databricks using the Azure portal
    - 23.1. Create an Azure Databricks workspace
    - 23.2. Create a Spark cluster in Databricks
    - 23.3. Run a Spark f job
24. Introduction to Databricks and Apache Spark
    - 24.1. Introduction to databricks
    - 24.2. Write your first Apache Spark Code
    - 24.3. Apache Spark Architecture: How Apache Spark runs on a cluster
25. Introduction to Azure Data Lake
26. Create Azure Datalake
27. Mount Azure Datalake with Azure Databricks
28. The DataFrame API: Basics
    - 28.1. Create a DataFrame from a CSV file
    - 28.2. Configure options to read a CSV file
    - 28.3. How to select columns from a DataFrame
    - 28.4. How to reference columns of a DataFrame
    - 28.5. Understand the DataFrame Schema
    - 28.6. Specify a DataFrame Schema using a DDL-formatted string
    - 28.7. Spark Architecture: The Organization of a DataFrame
29. The DataFrame API: Transforming Data
    - 29.1. Adding columns to a DataFrame

Day 5

30. Azure Databricks concepts
    - 30.1. Workspace
    - 30.2. Interface
    - 30.3. Data management
    - 30.4. Computation management
    - 30.5. Authentication and authorization
31. Databricks notebooks
    - 31.1. Create/update/delete the notebook
    - 31.2. Export and import notebook
32. Integrate Github with Databricks
33. Spark Jobs
    - 34. View jobs
    - 35. Create a job
    - 36. View job details
    - 37. Run a job
    - 38. Schedule a job
    - 39. Run a job immediately
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    - 41. View job run details
42. Building ML model in Databricks
    - 42.1. Data preprocessing
    - 42.2. Building the ML model
43. Deploying ML model using Databricks to Azure ML
    - 43.1. Register and manage the model
    - 43.2. Load versions of the registered model using the API
    - 43.3. Predict using the model
    - 43.4. Create a new model version

44. Cost management in Data bricks while running Pipelines and ML models

    44.1. Azure Databricks Resources and Cost Structure

    44.2. Azure Databricks overall costs

    44.3. Azure Databricks Granular Cost Breakdown

    44.4. Managing costs through cluster policies

    44.5. Datalake costs