

Duration: 40+ Hours
Type: Online Training
Server Access: On Demand

SAP Cloud Platform Development Professional Cloud Foundry CAPM on Business Application Studio

Understanding Cloud Platform - Models of Cloud Service

Server Access will be provided on demand to students.

- ☐ Free Demo Classes.
- ☐ Real Time Experienced Trainers.
- ☐ Affordable online Classes
- ☐ Complete Hands-on Real Time Training.
- ☐ Planning scenarios are covered (no online trainer will cover it)

Pre-requisites: -

There are no such pre-requisites for this course: -

- Basic programming knowledge
- Basic knowledge of Java and Node JS
- Basic Understanding of SAP.

Key Highlights of Course: -

- First, we will gain a basic understanding of Cloud offering, what is PaaS, what is Cloud Foundry (SAP® and Pivotal) and why
 - Then we will understand how Cloud Foundry(CF) functions
 - We will understand from architectural overview aspect Cloud Apps working in Cloud Foundry
 - We will understand the Cx and Implement CI(Continuous Integration) to give us a strong foundation of Maven, Maven builds and DevOps
 - After that, we work with Spring Boot Framework and Create Simple Apps
- <https://www.anubhavtrainings.com/scp-cloud-platform-training>
Say no to trainer who only teach copy-paste of code



- We increase the complexity with the PostgreSQL database, then Elephant Database in Cloud and then HDI Container in SAP® Cloud Foundry. Our Focus here is to work with custom Side-by-Side Application Development
- Once we become comfortable with Spring Boot then we see how in Micro service scenario our App fits, we create NodeJS App, Spring Boot App and Approuter in Single Micro service Based app and Deploy to SAP® Cloud Foundry(SCF)
- Next step will be to secure our App With XSUAA Service in SCF
- Till now we have learned the Micro service Apps development, now the time is to learn new CAPM(Cloud Application Programming Model) way of working with Apps Development
- Next we will learn the concept of Docker and create containers and work with it, we will also see how to deploy Docker containers in SAP® Cloud Foundry With CAPM App
- Security and Monitoring of our cloud App we cover in between the App development phase and the remaining important parts we will cover at the end

Course Content:

UNIT-1: Cloud Platform - SAP® Cloud Foundry, Neo and Pivotal Cloud Foundry - Basic and Background Theory

- Understanding Cloud Platform - Introduction to SAP® Cloud Platform Professional Development

UNIT-1.1: Cloud Platform - SAP® Cloud Foundry, Neo and Pivotal Cloud Foundry - Basic and Background Theory

- Understanding Cloud Platform - Why SAP® Cloud Platform is used?
- Understanding Cloud Platform - Models of Cloud Service
- Understanding Cloud Platform - What is Cloud Foundry?
- Understanding Cloud Platform - Why Cloud Foundry is used?
- Understanding Cloud Platform - Brief History of Cloud Foundry
- Understanding Cloud Platform - Internal Architecture of Cloud Foundry
- Understanding Cloud Platform - Use case of Development With Cloud Foundry

UNIT-1.2: Cloud Platform - SAP® Cloud Foundry, Neo and Pivotal Cloud Foundry -Hands-on

- Hands-on With Cloud Foundry - Installing CF CLI from Scratch
- Hands-on With Cloud Foundry - Login into CF in PCF and SCF
- Hands-on With Cloud Foundry - CF Space, BuildPack, App Deletion and manifest.yml File
- Hands-on With Cloud Foundry - manifest.yml changes, Deploying App in PCF and Testing
- Hands-on With Cloud Foundry - Deploying App to SCF, Testing and Scaling Horizontally and Vertically the App in PCF and SCF

UNIT- 2: SAP® Cloud Platform Architecture, Neo CLI, Cloud App Inner Working and Cloud Platform User Account Structure

- Introduction to the Section

UNIT- 2.1: Cloud Platform - SAP® Cloud Foundry, Neo, What is Side-by-Side Extension App and Example – Theory

- Why the Need for Cloud Foundry - Story of Side-by-Side extension App
- Differentiation Between Cloud Foundry and Neo Application in SAP Cloud Platform

UNIT- 2.2: Working With Neo CLI and Login to SCP Neo Using CLI - Hands-on

- Hands-on Step - Working With Neo CLI
- Hands-on - Downloading and Extracting Neo Java SDK for CLI Operation in GCP Ubuntu Machine
- Hands-on - Using Neo CLI to know Supported Runtime in Neo and Seeing Available Commands with Neo

UNIT-2.3: Understanding App Development and Working Architecture inside SAP® Cloud Foundry(SCF)

- Overall Architecture - SAP Cloud Platform, On-Premise Connectivity and S/4 HANA Cloud
- Overall Architecture - Identity Provider Server(IDP) and Where the Side-by-Side Extension App Fits
- Overall Architecture - Where is IDP Server, Side-by-Side Extension App and In-App Extensions are Present
- Overall Architecture - Service Marketplace, VCAP Env. Variable and Service Binding
- Overall Architecture - Understanding Inner Working of a Side-by-Side Extension Application in Cloud Foundry

UNIT- 2.4: Understanding App SAP® Cloud Foundry and Pivotal Cloud Foundry Account Structures - Org, Space, Service etc

- SAP® Cloud Platform and Pivotal, User Account Point of View - Global Account, Subaccount, Org and Space
- SAP® Cloud Platform and Pivotal - Global Account, Subaccount, Org and Space Usage
- Hands-on - Creating Global account, Subaccount, adding Cloud Foundry in Subaccount, Org Unit and Features inside Subaccount
- Hands-on - Creating New Space inside Subaccount, Quota Plan, adding Entitlements and Features inside Space
- What Will be Covered in Next Week - Development Env. Setup, CI/CD(Cx), Spring Boot App, Maven, Jenkins and CI Automation

UNIT- 3: Setup of Development Environment with Eclipse for Side-by-Side Extension Apps, Understanding Pom.xml File, Maven, CI/CD(Cx) and Setup Jenkins to Automate CI pipelines With SCF

- Handbook - Development Env Setup and CI Automation Using Jenkins
- What is Continuous Integration(CI), Continuous Delivery(CD) and Continuous Deployment(CD)
- Hands-on - What we are going to do in this Section

UNIT-3.1: Setup of Development Environment with Eclipse for Side-by-Side Extension Apps, Understanding Pom.xml File, Maven, Creation of War File and Pushing to SCF - Hands-on

- Hands-on - Download Eclipse Oxygen and Getting Familiarity with Eclipse UI
- Hands-on - Adding Spring Tools, Project Creation With Maven and Understanding pom.xml
- Hands-on - Understanding pom.xml and Getting Dependencies from Maven Repository
- Hands-on - Adding Dependencies in pom.xml, Checking new Jar Files in eclipse and Using Spring Starter Project
- Hands-on - Creating a Simple Get Request Handler for Hello World Spring Web App
- Hands-on - Download Maven, Setting Class-Path of Maven and Using Maven Building Project War File
- Hands-on - Pushing War File of SAP® Cloud Foundry and Adding the Code to GitHub

UNIT- 3.2: Working With Jenkins (CI Server), Adding Maven and Git Plugins for Jenkins, Building Project with Jenkins Job - Hands-on

- Hands-on - What we are going to cover, Jenkins Installation and Installing openjdk-8-jre-headless for Jenkins
- Hands-on - Opening port 8080 in CI Server in GCP and Login into Jenkins
- Hands-on - Working With Jenkins, Adding GitHub and Maven Plugin to Jenkins and Installing Maven in CI Server for Path
- Hands-on - Set System Maven Classpath and Using System Installed Maven in Jenkins
- Hands-on - New Maven Project, Pulling Code from GitHub and Building With Maven - Part 1
- Hands-on - New Maven Project, Pulling Code from GitHub and Building With Maven - Part 2

UNIT- 3.3: Creating Automation with Jenkins Job with Git Polling, Maven Build and Cloud Foundry Deployment

- Hands-on - Pulling Code from Github with Polling, Building the Project in Maven and Deploying to CF Automation
- Hands-on - Testing the Setup and Reviewing the Steps Again

UNIT- 4: Learning Java Spring for Side-by-Side Extension App With PostgreSQL DB (CRUDQ Using JPA), Elephant DB in Cloud Foundry(Pivotal) and HANA HDI Container in SCP

- What we are Going to cover in this Section and how Levels/Stages are Structured
- Code and Resources

UNIT- 4.1: Using Java Spring Boot for Creating REST Based Application, Understanding Spring Boot App Structure and Concepts

- Level 1 - What we are going to Cover in this Level/Stage
- Level 1 - Creating the Spring Boot Project and Student Class
- Level 1 - Adding Constructor, Properties and Functions in Student Class
- Level 1 - Adding REST Handlers Inside the Class for GET, GET With Variable and JSON Output
- Level 1 - Understanding the Anomaly in Current Model and Adding POST REST Handler
- Level 1 - Returning Data Based on Passed POST Body Data
- Level 1 - Returning Object in POST Instead of String and Identifying out Anomaly
- Level 1 - Fixing Anomaly, Separating the Class and Controller and Testing the API Endpoints

UNIT- 4.2: Understanding Spring Boot Basic Annotations, Dependency Injection, Beans and Lifecycle

- Level 2 - Understanding the Need for Spring Boot and Steps We are Going to Cover
- Level 2 - Creating a Plain Simple Java Project with Student Class and Learning Drawbacks in Big Implementation
- Level 2 - Understanding Next Steps for Creating Bean Using Bean Factory and Application Context
- Level 2 - Adding External Jars for Beans, Creating XML File With Beans and Creating Beans With Bean Factory Method
- Level 2 - Understanding the Advantage of Using Beans and Second Way of Invoking Beans With Application Context
- Level 2 - Understanding Dependency Injection With @Autowire and Using @Component
- Level 2 - Understanding Dependency Injection in Details With Student Example in Theory
- Level 2 - Performing the Hands-on for Dependency Injection Example of Student Usecase

UNIT- 4.3: Creating Spring Boot CRUDQ App With JPA With on premise (or in IaaS) PostgreSQL Database

- Level 3A - What we are Going to Perform in this Level and Understanding Overall Architecture
- Level 3A - Developer Guide Steps, Creating our Window Machine and Firewall Setting
- Level 3A - Setting up PostgreSQL database in GCP(or Local/on premise System)
- Level 3A - Starting pg4Admin and Connecting it with Our Database
- Level 3A - Creating Spring Boot App, Adding pom.xml dependency, Adding @Entity and @Column(DDL definition in Application Layer)
- Level 3A - Making StudentRepo Interface Extending JpaRepository(/CrudRepository)
- Level 3A - Autowiring StudentRepo in Controller and Implementing a Simple Get Entity Set

- Level 3A - Adding Spring DataSource Driver and Database Connectivity Setting and Fixing Common Issue(s)
- Level 3A - Running Spring Boot Application With PostgreSQL Database and Testing the Simple Get Entity Set
- Level 3A - Implementing Get Entity With Student ID Passed in URL
- Level 3A - Implementing Adding New Record, Updating Record and Deleting Record in Controller
- Level 3A - Testing POST, Update and Delete Operation and Understanding Generated Values in Column
- Level 3A - Implementing Custom Fuzzy Search Functionality Using SQL Query
- Level 3A - Debugging Error in Custom Fuzzy Search, Fixing Typos in Code and Difference Between ddl-auto Create & Update

UNIT- 4.4: Using Elephant DB (PostgreSQL DB) in Cloud Foundry (Pivotal) as a Service in our JPA Application

- Level 3A - Starting Elephant SQL(PostgreSQL DB) in Cloud Foundry(Pivotal) and Adding In Pg4Admin
- Level 3A - Inserting Records in Cloud Foundry Using SQL
- Level 3A - Testing Locally the CRUDQ Features from Local Computer With Cloud Foundry PostgreSQL DB
- Level 3A - Building War File With Eclipse(Using Maven) and Creating Manifest.yml to Deploy In Cloud
- Level 3A - Deploying App to Cloud Foundry and Performing Manual Testing

UNIT- 4.5: What is SAP® HDI Container and how the development will change while working with SAP® HDI Container - Theory

- Level 3B - Understanding What is HDI(HANA® Deployment Infrastructure) and HDI Container
- Level 3B - HDI and HANA® DB in SAP® Cloud Foundry, What we are Going to Use and Why

UNIT- 4.6: Creating HDI Container in SAP® Cloud Foundry Trial Account, Using Full Stack Web IDE to Create Table and Add Data - Hands-on

- Level 3B - Starting HDI Container Service in SAP® Cloud Platform(SCP) Service Market Place
- Level 3B - Seeing VCAP_SERVICES Variables by Binding HDI Service to a Cloud App and Adding HDI Container to Cloud Web IDE as Data Source
- Level 3B - Creating Student Table in HDI Container and Adding Sample Data using Simple SQL Commands
- Level 3B - Grant SQL Commands to our HDI users and what we are going to do in the Hands-on

UNIT- 4.7: Building Spring Boot App for using HDI Container as Database without JPA and Using Classic Method

- Level 3B - Creating New Spring Boot Project, Understanding What We are Going to Do and Creating Student Operation Class
- Level 3B - Getting SQL Connection Using Hardcoded Connection Setting from VCAP_SERVICES Variables
- Level 3B - Implementing Give All Students Records Functionality and Creating Student Entity Class
- Level 3B - Implementing Rest Controller to Give All Students Records and Adding JDBC and Cloud Foundry POM dependencies
- Level 3B - Adding @PostConstruct and @PreDestroy Annotations, Creating manifest.yml and Starting the Project Build using Maven
- Level 3B - Fixing Failing Build - Adding JDBC Driver Manually, Using New Service Key Details for Connection and Using Try & Catch in Connection
- Level 3B - Adding War File Path in Manifest.yml and Deploying the App to SAP® Cloud Foundry(SCF)
- Level 3B - Successfully Deploying App, Testing Get All Student Call, Adding Primary Key to Student Table and Inserting New Data
- Level 3B - Implementing Get Student Record With Key and Deploying Code Again to SCF to Update existing App
- Level 3B - Testing the Get Single Student Record With Student Id, Revisiting the Stepswe performed and Next Steps

UNIT- 4.8: Using VCAP_SERVICES From Environment Variable and Using it in Our Cloud Application

- Level 3B - Understanding VCAP_SERVICES Environment Variables Structure
- Level 3B - Navigating VCAP_SERVICES Environment Variables and Extracting Values of URL, User and Password
- Level 3B - Pushing new Code to SAP® Cloud Foundry and Testing the Working

UNIT- 4.9: Microservice App with Java, NodeJS and Approuter(NodeJS) Utilizing XSUAA Service For Authorization in SAP® Cloud Foundry

- Detailed Introduction of What we Will Cover in this Section
- Developer Steps Guide
- Development Code
- Understanding the Overview of Authentication and Authorization Mechanism With XSUAA in Micro service App in SAP® Cloud Foundry
- Adding Authentication and Authorization With help of XSUAA Service in SAP® Cloud Foundry - Technical Overview of Use case
- XSUAA Integration Library for Java Spring Boot, Adding Project to Eclipse and Adding POM Dependency for the Integration Lib
- Creating XSUAA Service Using xs-security.json with roles(/scope) and role template
- Overview of JWT(or any other) Token Process, Creating Role Collection From SCF Cockpit and Adding Role Collection to Our User

- Adding JWT Code to Override Configure Function and Understanding its Functionality
- Adding Converter Function for JWT Token With XSUAA Service Configuration
- Create manifest.yml with routes, XSUAA Service Binding and Pushing the App to SCF
- Generating Security Token Manually With XSUAA and Using Security Token Calling API Endpoint in Postman
- Creating Approuter to Automate Token Passing Process and Define App Routes in xs-app.json for Spring Boot App
- Adding Approuter in Manifest.yml and Defining Destination as per the Routes in Approuter
- Deploying Application in SAP® Cloud Foundry and Testing API Endpoint Using Approutes
- Overview of what we have covered so far and Next NodeJS App Creation Steps
- Starting the Next Level With NodeJS App Creation from Previous Code Repo and Deploying Once Again Java & Approuter Code to CF
- Creating NodeJS App With npm init, Add Express Module in NodeJS and Understanding Basic Pattern of NodeJS & ExpressJS
- Understanding NodeJS and ExpressJS Basic - Implementing API Endpoint With Hardcoded Data
- Understanding NodeJS and ExpressJS Basic - Using Find Function to Filter Array Data in JS and Use of Ternary Operator
- Using Node-HDB, Building NodeJS Code for Connecting to Database(HDI/HANA) and Getting Env. Variables of App Binding
- Getting Env. Variables With @sap/xsenv in NodeJS App and using it to Connecting to Database(HDI/HANA)
- Debugging App, Fixing Common Issue of Port, Start Script, Finding Table Error and Deploying App Again
- Manual Testing of App's API End Point and Changing Variable Type in NodeJS code to const
- Using Passport and @sap/xssec Module with JWT Token Strategy and Adding to App Instance
- Creating function for checking Scope and Then Allowing Respective Operation
- Debugging NodeJS App, Adding Missing Security Token Code, Deploying and Testing API End Point
- Making UI5 App inside NodeJS Project, Creating App, List, Page in UI5 and Getting Data in JSON Model from API Endpoints
- Fixing Small Error, Deploying Final Code, Testing the UI5 App and Summary of the Section

UNIT- 5.1: New Cloud Application Programming Model (CAPM) Level 1 - Basic End-to-End CAPM from Scratch to Cloud

- Introduction to SAP® Cloud Application Programming Model(CAPM)
- Developer Lab β
- Final Code
- CAPM Level 1 : UI5CN Uptorial/Lab, Following Installation of CAPM NPM Repo and Installing @sap/cds-dk globally for CDS Command
- CAPM Level 1 : Creating Hello World NodeJS Service with CAPM, Implementing the JS Part of Service
- CAPM Level 1 : Implementing the CDS part of the Code, VS-Code CDS Plugin and Passing Data Value in Function Request
- CAPM Level 1 : Adding DB(Sqlite3 for local testing), Creating Schema and Adding Sample Data in CSV Format to Project

- CAPM Level 1 : Creating Service to Access Data we Created, Running Our Application and Changing CSV Data filename for Linkage
- CAPM Level 1 : Seeing Data in Fiori® Preview and Adding UI Annotation for Displaying Data
- CAPM Level 1 : Moving UI Code into app Folder, Creating Folder Structure of app and Files
- CAPM Level 1 : Moving UI Annotation in fiori-service.cds Files inside webapp, linking fiori-service.cds file with index.cds
- CAPM Level 1 : Changing Values of manifest.json File With Current Service, Datasource, EntitySet and Running the App Locally
- CAPM Level 1 : Start the Deployment of CAPM App to SCF - Overview of Steps
- CAPM Level 1 : Understanding how to use CDS deploy with SQLite DB, reading .db file in VS Code and using .db storage to run App
- CAPM Level 1 : Creating HDI Trial Container from CLI and Building the Project DB artifacts
- CAPM Level 1 : Building the DB Artifacts for HANA DB and Checking Generated Files
- CAPM Level 1 : Creating YML file for deploying the Generated DB Build Files and CAPM App
- CAPM Level 1 : Different Between mta.yml/yaml vs Manifest.yml/yaml, reviewing package.json for Generated DB setting and HDB Installation
- CAPM Level 1 : Deployment of DB artifacts and App, seeing another way to create and deploy DB artifact with 'cds deploy --to hana' and Summary

UNIT- 5.2: New Cloud Application Programming Model(CAPM) Level 2 - NodeJS CRUDQ Service in CAPM, Async Functions and Debugging

- Introduction to Section : CDS CRUDQ Service, CDS QL Transaction, CDS Service Extension and
- CAPM Debugging
- Download final Code of CAPM Level 2
- CAPM Level 2 : Starting from the last Level, installing dependencies and what we are going to cover next
- CAPM Level 2 : Installing Sqlite, understanding Arrow Functions, how to use Arrow Functions and benefits
- CAPM Level 2 : Continue understanding Arrow Functions, how and why, getting cds Module and student Entity inside service for Custom Query
- CAPM Level 2 - Debug CAPM Code in VS Code and seeing runtime variables in Debug session
- CAPM Level 2 - How to treat Async functions with Async and Await functionality and Comparing with JS Promises
- CAPM Level 2 - Using Where in Select Statement, passing Filters/Query in URL and Debug the API request - Part 1
- CAPM Level 2 - Using Where in Select Statement, passing Filters/Query in URL and Debug the API request - Part 2
- CAPM Level 2 - Adding functionalities in Select example Limit, using the filter function in Select Query and Debugging Code
- CAPM Level 2 - Investigating limitation of return data and returning data when User pass Query in URL
- CAPM Level 2 - Cleaning Select Code, Seeing Limitation of Changing Structure of the return data and Limitation in After event

- CAPM Level 2 - Implementing Basic Update Functionality in Code With POST Request
- CAPM Level 2 - Return value of Promise in Resolve, for Multiple Record Update and Structure of Return Data
- CAPM Level 2 - Structure of Return Data, handling of error and Running Multiple Query inside Transaction
- CAPM Level 2 - Fixing the Error, changing code to handle multiple resolves and understanding of Rollback when an error is returned
- CAPM Level 2 - Implementing Insert Student record with our service
- CAPM Level 2 - Implementing Delete Student record with our service and Summary of CRUDQ in CAPM
- CAPM Level 2 - Changing Path to access Service URL, Extending Service and Adding new Properties
- CAPM Level 2 - Modularize Extension changes to new CDS Service and JS implementation and Before Event of Service
- CAPM Level 2 - Implementing Simple Before event, testing the Service and summary of the section

UNIT- 5.3: New Cloud Application Programming Model (CAPM) Level 3 - CDS Data Modeling, UI With Annotation and UI5 Routes and Navigation with Annotation Using CAPM

- Introduction to CAPM Level 3 - CDS Data Modeling, UI With Annotation and UI5 Routes and Navigation with Annotation Using CAPM
- Download Level 3 CAPM Code
- CAPM Level 3 - CDS Data Modeling, Creating Entity Structure for our LMS Project and Association for 1:N Relation in Entity Creation
- CAPM Level 3 - CDS Data Modeling, Understanding Association of 1:N Relation and Adding more properties to Entities
- CAPM Level 3 - Adding Sample Data to our Project based on Entity Structure
- CAPM Level 3 - Adding Sample Data to our Project based on Entity Structure and Exposing Data as Read-only Service
- CAPM Level 3 - Fixing error while Deploying Sample Data to SQLite, adding Association Data in Content.csv and Enrollments.csv
- CAPM Level 3 - Manually Testing Services and Navigation of Services
- CAPM Level 3 - Starting With Building UI5 Frontend App With CAPM Services, Annotations and Navigation Routes
- CAPM Level 3 - Adding Navigation from Student List to Student Detail Page
- CAPM Level 3 - Adding UI Annotations to Present Student Details as Facets
- CAPM Level 3 - Fixing Error for Getting Student Info and Adding Navigation to Enrollment Details
- CAPM Level 3 - Adding Enrollment Details in Second Level of Navigation
- CAPM Level 3 - Understanding Issue of the Third Level of Navigation for Course Data and Adding Route to Fix the Issue
- CAPM Level 3 - Understanding No Data Issue and using Auto Expand to Capture Data of Course Navigation in Enrollment Details Page
- CAPM Level 3 - Summary of this Section and demo of how Auto Expand makes Navigation(s) Optional

UNIT- 5.4: New Cloud Application Programming (CAPM) Level 4 - UI Annotations, Custom QL, Test Script and More

- Introduction to SAP® CAPM, CDS Modeling, UI Annotations, Custom QL, Jest Test week
- Download Level 4 CAPM Code
- CAPM Level 4 - What we will cover in this section, oData Draft Enablement and Draft Table
- CAPM Level 4 - Deleting Record and Creating Record With oData Draft Enablement Feature - Part 1
- CAPM Level 4 - Deleting Record and Creating Record With oData Draft Enablement Feature - Part 2
- CAPM Level 4 - Enrolling Student from Student Details Page, Composition vs Association and Select vs Projection
- CAPM Level 4 - Adding UI Annotations to Add Search Help Capabilities to Enrollment Selection Option
- CAPM Level 4 - Adding UI Annotations to Show Course Name with Course ID together
- CAPM Level 4 - Understanding what we will cover, Title to Entities, Log Entry of Changes with Custom Service Event and Jest Test cases
- CAPM Level 4 - Adding Titles to Entities, Seeing Batch Calls from Console, where and which Service Event we are going to use
- CAPM Level 4 - When PATCH and CANCEL are called for GetEnrollment and before, on and after of Update in Getstudent
- CAPM Level 4 - Using after for custom SQL code to add Log Entry, using async insert and facing Database Lock Error
- CAPM Level 4 - Solving the error by using Transaction and Seeing Log Table Data getting Updated
- CAPM Level 4 - Getting Started With Jest for writing Test Cases for CAPM Services, Model and Data result checking_1
- CAPM Level 4 - Understanding describe, it, expect, writing a basic test to check database connectivity in memory
- CAPM Level 4 - Checking if Service is defined and accessible, Select, Update and Insert statements testing
- CAPM Level 4 - Checking if Entities Navigation With URL is working With help of Express and Supertest Module of NodeJS

UNIT- 6.1: Docker - Containers and DevOps

- Getting Started With Docker Hands-on Notes
- Basic of Docker - Why Container, Hypervisor vs Container
- Basic of Docker - How Container and Container Engine Internally Functions in OS
- Basic of Docker - Example of Dev-Ops User-case While Working With Container

UNIT- 6.2: Docker Hands-on - Commands to Work With Docker Engine and Containers

- Hands-on - Creating a new VM instance of Ubuntu and using root to avoid sudo
- Hands-on - Installing Docker Engine, Getting familiar with Docker Hub and Images
- Hands-on - Pulling Images from Docker Hub, Tag in Image, list and -a flag
- Hands-on - Running a container, -it, -p, -d flags to Run and Check Status
- Hands-on - Container in memory and use of -rm flag to remove when stopped

- Hands-on - Using ID in Run, Remove Container from Memory and Pulling Container
- Hands-on - Inspect Command, Logs Command to see Details Status and App inside
- Hands-on - Going inside a Running Container with Exec and Installing VSCode
- Hands-on - Using Code-server(Browser-Based VSCode) to Creating NodeJS Project
- Hands-on - Creating a Dockerfile to Create Docker Image from our NodeJS App
- Hands-on - Running our NodeJS App inside Container and Fixing Dependency Issue
- Hands-on - Docker Command to Delete Multiple Containers or Images Together

UNIT- 6.3: Advanced Docker Hands-on - Connecting Containers, Docker Compose and Docker Hub

- Advanced Hands-on - What we are going to cover next
- Advanced Hands-on - Running a Mongo DB Container
- Advanced Hands-on - Writing NodeJS Code to Connect to Mongo DB and Mongoose
- Advanced Hands-on - Create a Docker-compose.yml for Making MongoDB and NodeJS
- Advanced Hands-on - Creating a Docker Container Using CAPM Based NodeJS Project
- Advanced Hands-on - Using Docker Hub to Push and Pull Docker Images
- Advanced Hands-on - Deploying Local Docker Container to SAP® Cloud Foundry

