



Duration: 30+ Hours
Type: Online Training
Server Access: On Demand

XS Advance Programming Model with Node.js and HDI in In-memory DB

Gain Knowledge on New DB Platform Design and Architecture

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 understanding of Database technology, especially relational database and SQL.
- Basic Understanding of any ERP Business process would be an added advantage.
- Pre-requisites Materials provided along with course.

Overview: -

The course is suitable for

- Application Developers
- DB administrators
- Existing HANA Consultants
- Absolute Fresher who would like to learn Native Development

Course Content:

Unit 1: Introduction to SAP HANA and Architecture (2 Hours)

- Introduction to SAP HANA
- Row v/s Column Store
- What is In-memory Computing engine
- Strategy to adopt HANA DB as primary of side-car scenario
- HANA System Architecture - XSA Server and HDB with HDI
- Concept of Microservice based development

Unit 2: HANA Server access and Tools (2 Hours)

- Create your HANA Service with Data Lake in SAP Cloud Platform - Cloud Foundry
- How to obtain HANA Server access for Hands-on Exercises
- Understanding Default HANA users like SYSTEM and XSA_ADMIN
- HANA System Cockpit
- HANA DB Cockpit
- Understand HANA XSA Cockpit and XSA_ADMIN
- Developer User On-boarding using admin user
- Understanding WebIDE development tool for SAP HANA

Unit 3: Introduction to JS and Node JS (3 Hours)

- Complementary JS sessions to understand Client Side JS
- Understanding JSON from scratch
- Introduction to Node JS
- Setup your dev. tools to practice Node JS and install
- Initialize Node JS application using npm init
- NPM package manager
- Understand core modules like fs, express
- Create your own server with API using Node JS
- Understand package.json file and dependencies

Unit 4: End to end Database module development

4.1 - DB Module with possibility to add classic objects (2 Hours)

- HANA Schema Concept revealed and XSA HDI
- Understand the concept of technical user and schema owner
- Understand the HDI Container Concept
- Create your first DB module in WebIDE and understand the project.yml file
- Add hdbtable to understand old way of XSC table creation
- Understand the DB explorer
- Create .hdbview and concept of STRUCTURED PRIVILEGE
- Create .hdbrole with structured privilege
- Understand the defaults concept for adding default_access_role
- New Database Explorer to check HDI and classic schemas

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Say no to trainer who only teach copy-paste of code



4.2 Working with git Repository (1 Hour)

Understand what is GitHub

Create your account

Store your project with github with commit, push, pull concepts

4.3 DB Module creation with New CDS Concept (3 Hours)

Create Tables, Types, Entities, and Views using HANA CDS Concept

Understand reusable data types concept

Upload data into the DB table in HDI with .hdbtabledata

Create roles to allow cross container access

Migration of DB table to new CDS way and benefits

Introduction to EPM Data Model

Build Another db module with modularized content

*7 Types, 2 Structure Types, 6 Master Tables, 2 Transaction Tables

Upload data to EPM model tables in the Context

Test the EPM content

Guidelines for Migration of HDBTABLE to HDBCDS

HANA CDS views - Concept of views with Association, Expression, and Functions

4.4 Cross Container Access (1 Hour)

Upload demo schema sflight to HDI for practice

Create a new user and Role to allow access to SFLIGHT

Create a user provided service, check service in service cockpit

Create Synonym to access the schema in HDI

Perform .hdbgrants to technical user of HDI

Add HDI container of same project as dependency in mta.yml

.hdbgrants for HDI secondary module (consume user module)

CDS views with HANA CDS Concepts

Understand the association with CDS views in HANA

4.5 DB Content Calculation Views (3 Hours)

Introduction to Information models and basics

Why Calculation Views

Difference between CDS views and Calculation Views

The Attribute, Analytic and Scripted views are deprecated in XSA

Create Dimension Type of Calculation views

Create Cube type of calculation views

Understanding Currency conversion with Currency Tables

Migration steps of XSC views to XSA

Understand the new features of XSA Calculation View

Dependency analysis, Debugging, Performance Analysis

4.6 Complete SQL Script Training (5 Hours)

Introduction to SQL Script language
Types of SQL Script - declarative v/s imperative

Introduction to data types and containers - Anonymous, Procedures, and UDF
Implicit and Explicit tables
Working with parameters and procedures
UDF - user defined function deep dive
Table operations and Window Functions in SQL Script
Integration of Table UDF as scripted calculation views
SQL Script libraries (Custom and Standard)
Example of Standard SQL Script (SYS) libraries
Debugging and Performance Tuning of SQL Script logic

Unit 5. Application Programming Layer - NodeJS, XSJS and XSOData with XSA

Introduction to XS JS with Standard Module (os), Simple Service with Query
Get User details and Session parameters
Calling procedure using XSJS
Code Import to learn basics of JS with XSJS
Using SQLCC and External HTTPS Connection to load Data from Client
Creating V2 based OData Services - XSODATA - BP and PO with Assoc.
Create View on Synonym and expose as odata
Create XSJS Service with hooks for validation using insert
OAuth Token fetch from XSUAA

Unit 6. Web Module and Security XSUAA (1 Hour)

Understand App Router, XSUAA and OAuth Token Concepts
Create a new Web module
Understand the security orchestration JWT Token and OAuth
Understand Cloud Foundry Security component XSUAA
Create xs-security.json and xs-uaa service
Sequence of calls between component/resource and App router
Change Route to see security
Adapt manifest.yml to add security xs-uaa service
Define Routes to allow access via App route for xsjs and xsodata

Unit 7. Introduction to CAPM (1 Hour)

Create First CAPM project
Advantage of CDS in Capm - Services V4, DB Agnostic, Annotations
Move existing development to CAPM based project
Understanding the change to new object
Namespace producing the object in CAPM

Unit 8. Node JS Development (2 Hours)

- Running the built-in Node JS file
- Integrate our own node js Server.js file
- Adding Node modularization using router
- Introduction to @sap node libraries hdbext, xsenv
- Understanding node js security passport module
- Create first express application
- Add sap and non-sap dependencies to package.json
- Configure di-repository service to lookup node modules
- Add Node routes for simple get response

Unit 9. Consume HANA using Node JS (4 Hours)

- Node.js- HANA Connectivity - 4 different approaches
- Node JS OOPS concept with class
- Callback and promisify concept
- Using latest await syntax
- Node.js- Async and Promises
- Calling Node.js- Stored Procedures and preparing response

Unit 10. Use node.js features (4 Hours)

- Using full express with security
- Explore JWT token and Process parameters
- XSA Application Level Security with Individual modules
- XSA Application Level Security with App Router
- Node.js_ Text Bundles for internationalization
- Node.js_ Open Source Modules - build excel and zip files
- Node.js OData V4 Exit Handlers

Unit 11. Introduction to SAP UI5

- Basics of JS and SAP UI5
- Development Tools
- Project structure
- Create Simple XML View
- Integrate XSJS call with UI5 using AJAX Call
- Binding Concept

Unit 12. Advance SAP UI5 and Consumption

- Consume OData Service V2 in UI5
- Create Component and Manifest to plug OData
- Server side Model
- Entity Binding with Controls
- Consume EXCEL Node using UI5
- Consume OData V4 Model

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Unit 13. Build and Deployment

- Understanding the build process
- Build MTA Archieve
- Deploy to On-premise
- Deploy to SAP CP Cloud Fondary
- Manage Container for Dev System

Also you get

- Server access support and Guidance
- Get Full Access to Anubhav Learning Series
- Source Code, Material, PPT, PDF
- End to End project access
- Access to our Corporate Git repository for XSA Code
- Guidance on Certification
- Support for Doubts, QnA*