Basic ABAP Programming

Course Description

This course introduces participants to the fundamentals of ABAP (Advanced Business Application Programming), SAP's proprietary programming language for developing applications within the SAP environment. Participants will gain hands-on experience in creating and managing ABAP programs, working with data objects, and interacting with databases. The course covers basic to intermediate concepts, equipping learners with the skills needed to develop robust applications and perform essential programming tasks in ABAP.

Audience Profile

This course is ideal for:

- SAP Developers new to ABAP programming.

- Technical Consultants working within the SAP ecosystem.

- IT professionals looking to transition into SAP development roles.

- SAP system administrators with a focus on backend customization.

Prerequisites

Participants should have:

- Basic knowledge of programming concepts.

- Familiarity with SAP system architecture and navigation.

- Understanding of databases and SQL.

Course Objectives

Upon completion of this course, participants will be able to:

- Create an ABAP Cloud project and work with development objects.

- Understand the basic structure and logistics of ABAP software.

- Develop simple ABAP programs and implement control structures.

- Work with data objects, internal tables, and apply debugging techniques.

- Define local classes, instantiate them, and utilize encapsulation.

- Read data from the database using ABAP SQL and CDS views.

- Work with structured and complex data objects.

- Implement database updates using business objects.

- Develop OData services using the ABAP RESTful Application Programming Model.

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Module 1: Getting Started

- Preparing the Development Environment
- Taking a First Look at ABAP
- Understanding Software Structure and Logistics
- Developing Your First ABAP Program

Labs:

- Create an ABAP Cloud project
- Work with a development object
- Create an ABAP package
- Create a 'Hello World' application

Module 2: Applying Basic Techniques and Concepts

- Understanding the Basics of ABAP
- Working With Basic Data Objects and Data Types
- Processing Data
- Using Control Structures in ABAP
- Working with Simple Internal Tables
- Debugging an ABAP Program

Labs:

- Describe the evolution of ABAP
- Describe the basics of ABAP syntax
- Declare data objects
- Assign values
- Perform arithmetic calculations
- Apply string processing
- Implement conditional branching
- Handle Exceptions
- Implement Iterations
- Define simple internal tables

- Process data using simple internal tables

- Enter debugging mode

- Control the execution of code

- Analyze the content of data objects

Module 3: Working with Local Classes

- Defining a Local Class

- Creating Instances of a Class

- Defining and Calling Methods

- Using Encapsulation to Ensure Consistency

Labs:

- Define a local class inside a global class

- Create Instances of an ABAP Class

- Define and call methods

- Explain encapsulation

- Define and use constructors

Module 4: Reading Data from the Database

- Investigating a Table Definition

- Implementing Basic SELECT Statements

- Working with CDS Views

Labs:

- Investigate a table definition

- Describe basic features of ABAP SQL

- Read single values from the database

- Analyze a CDS view definition

- Read data using a CDS view

Module 5: Working with Structured Data Objects

- Declaring a Structured Data Object

- Working with Structured Data Objects

Labs:

- Declare a structured data object

- Work with structured data objects

- Use structured data objects in ABAP SQL

Module 6: Working with Complex Internal Tables

- Declaring a Complex Internal Table

- Working with Complex Internal Tables

Labs:

- Declare a complex internal table

- Fill complex internal tables with data

- Access the content of complex internal tables

- Use complex internal tables in ABAP SQL

Module 7: Implementing Database Updates Using Business Objects

- Analyzing a Business Object

- Using the Entity Manipulation Language (EML)

Labs:

- Analyze a business object

- Implement an EML statement

Module 8: Describing the ABAP RESTful Application Programming Model

- Introducing the Programming Model

- Exploring the Architecture

- Adding ABAP Logic

- Improving the User Experience

Labs:

- Describe the process to develop an OData Service with the ABAP RESTful application programming model

- Create a database table

- Generate the development objects for an OData UI service

- Implement the behavior of a Business Object

- Arrange fields in the app

- Provide input help