S4D400

Basic ABAP Programming

COURSE OUTLINE

Course Version: 24
Course Duration:

SAP Copyrights, Trademarks and Disclaimers

© 2025 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. Please see https://www.sap.com/corporate/en/legal/copyright.html for additional trademark information and notices.

Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors.

National product specifications may vary.

These materials may have been machine translated and may contain grammatical errors or inaccuracies.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP SE or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP SE or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

In particular, SAP SE or its affiliated companies have no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation, and SAP SE's or its affiliated companies' strategy and possible future developments, products, and/or platform directions and functionality are all subject to change and may be changed by SAP SE or its affiliated companies at any time for any reason without notice. The information in this document is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.

Typographic Conventions

American English is the standard used in this handbook.

The following typographic conventions are also used.

This information is displayed in the instructor's presentation	
Demonstration	
Procedure	
Warning or Caution	
Hint	
Related or Additional Information	
Facilitated Discussion	
User interface control	*Example text*
Window title	*Example text*

© Copyright. All rights reserved.

Contents

vii	Course Overview	
1	**Unit 1:**	**Getting Started**
1		Lesson: Preparing the Development Environment
1		Lesson: Taking a First Look at ABAP
1		Lesson: Understanding Software Structure and Logistics
1		Lesson: Developing Your First ABAP Application
3	**Unit 2:**	**Applying Basic Techniques and Concepts**
3		Lesson: Understanding the Basics of ABAP
3		Lesson: Working With Basic Data Objects and Data Types
3		Lesson: Processing Data
3		Lesson: Using Control Structures in ABAP
3		Lesson: Working with Simple Internal Tables
4		Lesson: Debugging an ABAP Program
5	**Unit 3:**	**Working with Local Classes**
5		Lesson: Defining a Local Class
5		Lesson: Creating Instances of a Class
5		Lesson: Defining and Calling Methods
5		Lesson: Using Encapsulation to Ensure Consistency
7	**Unit 4:**	**Reading Data from the Database**
7		Lesson: Investigating a Table Definition
7		Lesson: Implementing Basic SELECT Statements
7		Lesson: Working with CDS View
9	**Unit 5:**	**Working with Structured Data Objects**
9		Lesson: Declaring a Structured Data Object
9		Lesson: Working with Structured Data Objects
11	**Unit 6:**	**Working with Complex Internal Tables**
11		Lesson: Declaring a Complex Internal Table
11		Lesson: Working with Complex Internal Tables
13	**Unit 7:**	**Implementing Database Updates Using Business Objects**
13		Lesson: Analyzing a Business Object
13		Lesson: Using the Entity Manipulation Language

© Copyright. All rights reserved.

15	Unit 8:	Describing the ABAP RESTful Application Programming Model
15		Lesson: Introducing the Programming Model
15		Lesson: Exploring the Architecture
15		Lesson: Adding ABAP logic
15		Lesson: Improving the User Experience

© Copyright. All rights reserved.

Course Overview

TARGET AUDIENCE

This course is intended for the following audiences:

- Development Consultant
- Developer

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 1 Getting Started

Lesson 1: Preparing the Development Environment

Lesson Objectives

After completing this lesson, you will be able to:

- Create an ABAP Cloud project

Lesson 2: Taking a First Look at ABAP

Lesson Objectives

After completing this lesson, you will be able to:

- Work with a development object

Lesson 3: Understanding Software Structure and Logistics

Lesson Objectives

After completing this lesson, you will be able to:

- Create an ABAP package

Lesson 4: Developing Your First ABAP Application

Lesson Objectives

After completing this lesson, you will be able to:

- Create a 'Hello World' application

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 2 Applying Basic Techniques and Concepts

Lesson 1: Understanding the Basics of ABAP

Lesson Objectives

After completing this lesson, you will be able to:

- Describe the evolution of ABAP
- Describe the basics of ABAP syntax

Lesson 2: Working With Basic Data Objects and Data Types

Lesson Objectives

After completing this lesson, you will be able to:

- Declare data objects
- Assign values

Lesson 3: Processing Data

Lesson Objectives

After completing this lesson, you will be able to:

- Perform arithmetic calculations
- Apply string processing

Lesson 4: Using Control Structures in ABAP

Lesson Objectives

After completing this lesson, you will be able to:

- Implement conditional branching
- Handle Exceptions
- Implement Iterations

Lesson 5: Working with Simple Internal Tables

Lesson Objectives

© Copyright. All rights reserved.

After completing this lesson, you will be able to:

- Define simple internal tables
- Process data using simple internal tables

Lesson 6: Debugging an ABAP Program

Lesson Objectives

After completing this lesson, you will be able to:

- Enter debugging mode
- Control the execution of code
- Analyze the content of data objects

© Copyright. All rights reserved.

UNIT 3 Working with Local Classes

Lesson 1: Defining a Local Class

Lesson Objectives
After completing this lesson, you will be able to:

- Define a local class inside a global class

Lesson 2: Creating Instances of a Class

Lesson Objectives
After completing this lesson, you will be able to:

- Create Instances of an ABAP Class

Lesson 3: Defining and Calling Methods

Lesson Objectives
After completing this lesson, you will be able to:

- Define and call methods

Lesson 4: Using Encapsulation to Ensure Consistency

Lesson Objectives
After completing this lesson, you will be able to:

- Explain encapsulation
- Define and use constructors

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 4 Reading Data from the Database

Lesson 1: Investigating a Table Definition

Lesson Objectives

After completing this lesson, you will be able to:

- Investigate a table definition

Lesson 2: Implementing Basic SELECT Statements

Lesson Objectives

After completing this lesson, you will be able to:

- Describe basic features of ABAP SQL
- Read single values from the database

Lesson 3: Working with CDS View

Lesson Objectives

After completing this lesson, you will be able to:

- Analyze a CDS view definition
- Read data using a CDS view

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 5 Working with Structured Data Objects

Lesson 1: Declaring a Structured Data Object

Lesson Objectives

After completing this lesson, you will be able to:

- Declare a structured data object

Lesson 2: Working with Structured Data Objects

Lesson Objectives

After completing this lesson, you will be able to:

- Work with structured data objects
- Use structured data objects in ABAP SQL

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 6 Working with Complex Internal Tables

Lesson 1: Declaring a Complex Internal Table

Lesson Objectives

After completing this lesson, you will be able to:

- Declare a complex internal table

Lesson 2: Working with Complex Internal Tables

Lesson Objectives

After completing this lesson, you will be able to:

- Fill complex internal tables with data
- Access the content of complex internal tables
- Use complex internal tables in ABAP SQL

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 7 Implementing Database Updates Using Business Objects

Lesson 1: Analyzing a Business Object

Lesson Objectives

After completing this lesson, you will be able to:

- Analyze a business object

Lesson 2: Using the Entity Manipulation Language

Lesson Objectives

After completing this lesson, you will be able to:

- Implement an EML statement

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 8 Describing the ABAP RESTful Application Programming Model

Lesson 1: Introducing the Programming Model

Lesson Objectives

After completing this lesson, you will be able to:

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

Lesson 2: Exploring the Architecture

Lesson Objectives

After completing this lesson, you will be able to:

- Create a database table
- Generate the development objects for an OData UI service

Lesson 3: Adding ABAP logic

Lesson Objectives

After completing this lesson, you will be able to:

- Implement the behavior of a Business Object

Lesson 4: Improving the User Experience

Lesson Objectives

After completing this lesson, you will be able to:

- Arrange fields in the app
- Provide input help

© Copyright. All rights reserved.

S4D401

Intermediate ABAP Programming

COURSE OUTLINE

Course Version: 24
Course Duration:

SAP Copyrights, Trademarks and Disclaimers

© 2024 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. Please see https://www.sap.com/corporate/en/legal/copyright.html for additional trademark information and notices.

Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors.

National product specifications may vary.

These materials may have been machine translated and may contain grammatical errors or inaccuracies.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP SE or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP SE or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

In particular, SAP SE or its affiliated companies have no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation, and SAP SE's or its affiliated companies' strategy and possible future developments, products, and/or platform directions and functionality are all subject to change and may be changed by SAP SE or its affiliated companies at any time for any reason without notice. The information in this document is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.

Typographic Conventions

American English is the standard used in this handbook.

The following typographic conventions are also used.

This information is displayed in the instructor's presentation	
Demonstration	
Procedure	
Warning or Caution	
Hint	
Related or Additional Information	
Facilitated Discussion	
User interface control	*Example text*
Window title	*Example text*

© Copyright. All rights reserved.

Contents

vii	Course Overview	
1	Unit 1:	Analyzing and Testing Code
1		Lesson: Improving Code Quality using ABAP Test Cockpit
1		Lesson: Implementing Code Tests with ABAP Unit
1		Lesson: Measuring Runtime Consumption with ABAP Profiling
1		Lesson: Analyzing Database Access with SQL Trace
3	Unit 2:	Using Data Types and Type Conversions Correctly
3		Lesson: Classifying Technical Data Types in ABAP
3		Lesson: Avoiding the Pitfalls of Type Conversions
3		Lesson: Calculating with Dates, Times, and Timestamps
5	Unit 3:	Processing Character Fields
5		Lesson: Using Translatable Text in ABAP
5		Lesson: Processing Strings Using Functions and Regular Expressions
7	Unit 4:	Using Code Pushdown in ABAP SQL
7		Lesson: Implementing Joins
7		Lesson: Working with Expressions in ABAP SQL
7		Lesson: Performing Calculations and String Processing in ABAP SQL
7		Lesson: Using Special Built-in Functions in ABAP SQL
7		Lesson: Sorting and Condensing Data Sets in ABAP SQL
9	Unit 5:	Improving Internal Table Performance
9		Lesson: Processing the Contents of Internal Tables
9		Lesson: Using Field Symbols to Process Internal Tables
9		Lesson: Working with Sorted and Hashed Tables
9		Lesson: Improving Internal Table Performance Using Secondary Keys
11	Unit 6:	Implementing Authorization Checks
11		Lesson: Describing the Authorization Concept in ABAP
11		Lesson: Using CDS Access Controls
11		Lesson: Using the AUTHORITY-CHECK Statement

© Copyright. All rights reserved.

13	**Unit 7:**	**Designing Effective Object-Oriented Code**
13		Lesson: Implementing Inheritance
13		Lesson: Using Inheritance
13		Lesson: Defining Interfaces
13		Lesson: Using Interfaces
13		Lesson: Implementing Factory Methods
15	**Unit 8:**	**Defining and Working with Exception Classes**
15		Lesson: Working with Exception Classes
15		Lesson: Defining Your Own Exception Classes
17	**Unit 9:**	**Adding Documentation to ABAP Code**
17		Lesson: Documenting ABAP Code

© Copyright. All rights reserved.

Course Overview

TARGET AUDIENCE

This course is intended for the following audiences:

- Development Consultant
- Developer

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 1 Analyzing and Testing Code

Lesson 1: Improving Code Quality using ABAP Test Cockpit

Lesson Objectives

After completing this lesson, you will be able to:

- Create ATC check variants
- Perform static code checks with ATC

Lesson 2: Implementing Code Tests with ABAP Unit

Lesson Objectives

After completing this lesson, you will be able to:

- Implement a test class
- Run an ABAP unit test

Lesson 3: Measuring Runtime Consumption with ABAP Profiling

Lesson Objectives

After completing this lesson, you will be able to:

- Profile an ABAP program
- Detect sequential reads using ABAP Profiling

Lesson 4: Analyzing Database Access with SQL Trace

Lesson Objectives

After completing this lesson, you will be able to:

- Start the SQL trace
- Analyze SQL trace results

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 2 Using Data Types and Type Conversions Correctly

Lesson 1: Classifying Technical Data Types in ABAP

Lesson Objectives

After completing this lesson, you will be able to:

- Classify technical data types in ABAP

Lesson 2: Avoiding the Pitfalls of Type Conversions

Lesson Objectives

After completing this lesson, you will be able to:

- Avoid the pitfalls of type conversions

Lesson 3: Calculating with Dates, Times, and Timestamps

Lesson Objectives

After completing this lesson, you will be able to:

- Calculate with dates, times, and timestamps

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 3 Processing Character Fields

Lesson 1: Using Translatable Text in ABAP

Lesson Objectives

After completing this lesson, you will be able to:

- Describe the translation process for ABAP developments
- Use text elements for making developments translatable

Lesson 2: Processing Strings Using Functions and Regular Expressions

Lesson Objectives

After completing this lesson, you will be able to:

- Describe built-in string functions in ABAP
- Work with built-in string functions in ABAP
- Explain the use of regular expressions in ABAP

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 4 Using Code Pushdown in ABAP SQL

Lesson 1: Implementing Joins

Lesson Objectives
After completing this lesson, you will be able to:

- Implement joins
- Differentiate between inner joins and outer joins
- Implement nested joins

Lesson 2: Working with Expressions in ABAP SQL

Lesson Objectives
After completing this lesson, you will be able to:

- Use some simple expressions in ABAP SQL

Lesson 3: Performing Calculations and String Processing in ABAP SQL

Lesson Objectives
After completing this lesson, you will be able to:

- Perform calculations on the database
- Perform string processing on the database

Lesson 4: Using Special Built-in Functions in ABAP SQL

Lesson Objectives
After completing this lesson, you will be able to:

- Process dates, times, and timestamps on the database
- Use built-in conversions functions

Lesson 5: Sorting and Condensing Data Sets in ABAP SQL

Lesson Objectives
After completing this lesson, you will be able to:

© Copyright. All rights reserved.

- Request sorted result sets from the database
- Retrieve condensed and aggregated data sets

© Copyright. All rights reserved.

UNIT 5 Improving Internal Table Performance

Lesson 1: Processing the Contents of Internal Tables

Lesson Objectives
After completing this lesson, you will be able to:

- Process the contents of an internal table

Lesson 2: Using Field Symbols to Process Internal Tables

Lesson Objectives
After completing this lesson, you will be able to:

- Process internal tables using field symbols

Lesson 3: Working with Sorted and Hashed Tables

Lesson Objectives
After completing this lesson, you will be able to:

- Work with sorted and hashed tables

Lesson 4: Improving Internal Table Performance Using Secondary Keys

Lesson Objectives
After completing this lesson, you will be able to:

- Improve internal table performance using secondary keys

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 6 Implementing Authorization Checks

Lesson 1: Describing the Authorization Concept in ABAP

Lesson Objectives

After completing this lesson, you will be able to:

- Describe the authorization concept in ABAP

Lesson 2: Using CDS Access Controls

Lesson Objectives

After completing this lesson, you will be able to:

- Use CDS access controls

Lesson 3: Using the AUTHORITY-CHECK Statement

Lesson Objectives

After completing this lesson, you will be able to:

- Use the AUTHORITY-CHECK statement

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 7 Designing Effective Object-Oriented Code

Lesson 1: Implementing Inheritance

Lesson Objectives
After completing this lesson, you will be able to:

- Implement a specialized class

Lesson 2: Using Inheritance

Lesson Objectives
After completing this lesson, you will be able to:

- Use inheritence

Lesson 3: Defining Interfaces

Lesson Objectives
After completing this lesson, you will be able to:

- Define interfaces

Lesson 4: Using Interfaces

Lesson Objectives
After completing this lesson, you will be able to:

- Use Interfaces

Lesson 5: Implementing Factory Methods

Lesson Objectives
After completing this lesson, you will be able to:

- Use factory methods

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 8 Defining and Working with Exception Classes

Lesson 1: Working with Exception Classes

Lesson Objectives

After completing this lesson, you will be able to:

- Work with exception classes

Lesson 2: Defining Your Own Exception Classes

Lesson Objectives

After completing this lesson, you will be able to:

- Define your own exception classes

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 9

Adding Documentation to ABAP Code

Lesson 1: Documenting ABAP Code

Lesson Objectives

After completing this lesson, you will be able to:

- Document ABAP code

© Copyright. All rights reserved.

S4D430

Data Modeling in ABAP Dictionary and ABAP Core Data Services

COURSE OUTLINE

Course Version: 24
Course Duration:

SAP Copyrights, Trademarks and Disclaimers

© 2024 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. Please see https://www.sap.com/corporate/en/legal/copyright.html for additional trademark information and notices.

Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors.

National product specifications may vary.

These materials may have been machine translated and may contain grammatical errors or inaccuracies.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP SE or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP SE or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

In particular, SAP SE or its affiliated companies have no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation, and SAP SE's or its affiliated companies' strategy and possible future developments, products, and/or platform directions and functionality are all subject to change and may be changed by SAP SE or its affiliated companies at any time for any reason without notice. The information in this document is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.

Typographic Conventions

American English is the standard used in this handbook.

The following typographic conventions are also used.

This information is displayed in the instructor's presentation	
Demonstration	
Procedure	
Warning or Caution	
Hint	
Related or Additional Information	
Facilitated Discussion	
User interface control	*Example text*
Window title	*Example text*

© Copyright. All rights reserved.

Contents

vii	Course Overview	
1	Unit 1:	Exploring Data Modeling in ABAP
1		Lesson: Exploring ABAP Dictionary
1		Lesson: Exploring ABAP Core Data Services
3	Unit 2:	Creating Database Tables
3		Lesson: Defining Domains and Data Elements
3		Lesson: Creating Database Tables
3		Lesson: Handling Changes to Database Tables
5	Unit 3:	Defining Global Data Types
5		Lesson: Using Dictionary Objects as Data Types
5		Lesson: Defining Dictionary Structures
5		Lesson: Defining Dictionary Table Types
7	Unit 4:	Defining Basic CDS Views
7		Lesson: Defining a Basic CDS View
7		Lesson: Using ABAP Annotations in CDS Views
7		Lesson: Building Views on Views
9	Unit 5:	Defining Relationships and Associations
9		Lesson: Defining Relationships Between Database Tables
9		Lesson: Defining Associations Between CDS Views
9		Lesson: Using Associations in Path Expressions
11	Unit 6:	Using Code Pushdown in CDS Views
11		Lesson: Implementing SQL Expressions in CDS Views
11		Lesson: Calling Built-in Functions in CDS Views
11		Lesson: Defining CDS Views with Input Parameters
11		Lesson: Processing Data Sets in CDS Views
13	Unit 7:	Defining Meta Objects for Dictionary Objects and CDS Views
13		Lesson: Preventing Unauthorized Access to Data
13		Lesson: Extending Dictionary Objects
13		Lesson: Extending CDS Views
13		Lesson: Creating Metadata Extensions

© Copyright. All rights reserved.

© Copyright. All rights reserved.

Course Overview

TARGET AUDIENCE

This course is intended for the following audiences:

- Development Consultant
- Developer

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 1 Exploring Data Modeling in ABAP

Lesson 1: Exploring ABAP Dictionary

Lesson Objectives

After completing this lesson, you will be able to:

- Describe the basic tasks of the ABAP Dictionary
- Name the most important Dictionary objects

Lesson 2: Exploring ABAP Core Data Services

Lesson Objectives

After completing this lesson, you will be able to:

- Describe the basic tasks of the ABAP Core Data Services
- Name the most important ABAP CDS objects

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 2 Creating Database Tables

Lesson 1: Defining Domains and Data Elements

Lesson Objectives

After completing this lesson, you will be able to:

- Describe the use of data elements and domains when defining database tables
- Create domains
- Create data elements

Lesson 2: Creating Database Tables

Lesson Objectives

After completing this lesson, you will be able to:

- Create a table definition
- Edit the field list of a database table
- Maintain additional table properties
- Define and use include structures

Lesson 3: Handling Changes to Database Tables

Lesson Objectives

After completing this lesson, you will be able to:

- Describe the adjustment of database tables
- Adjust direct changes to database tables
- Describe the conversion process for database tables
- Adjust indirect changes to database tables

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 3 Defining Global Data Types

Lesson 1: Using Dictionary Objects as Data Types

Lesson Objectives

After completing this lesson, you will be able to:

- Describe the use of dictionary objects as data types

Lesson 2: Defining Dictionary Structures

Lesson Objectives

After completing this lesson, you will be able to:

- Define dictionary structures

Lesson 3: Defining Dictionary Table Types

Lesson Objectives

After completing this lesson, you will be able to:

- Define a dictionary table type
- Define a nested table type

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 4 Defining Basic CDS Views

Lesson 1: Defining a Basic CDS View

Lesson Objectives

After completing this lesson, you will be able to:

- Create a data definition
- Maintain the FROM clause and element list

Lesson 2: Using ABAP Annotations in CDS Views

Lesson Objectives

After completing this lesson, you will be able to:

- Use ABAP annotations in CDS views
- Work with translatable texts in CDS

Lesson 3: Building Views on Views

Lesson Objectives

After completing this lesson, you will be able to:

- Define a CDS view that reads from another view
- Control the propagation of element annotations

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 5 Defining Relationships and Associations

Lesson 1: Defining Relationships Between Database Tables

Lesson Objectives

After completing this lesson, you will be able to:

- Understand relationships in data models
- Define foreign key dependencies in dictionary tables

Lesson 2: Defining Associations Between CDS Views

Lesson Objectives

After completing this lesson, you will be able to:

- Define associations
- Expose associations

Lesson 3: Using Associations in Path Expressions

Lesson Objectives

After completing this lesson, you will be able to:

- Use path expressions in CDS views
- Use filter conditions in path expressions
- Use path expressions in ABAP SQL

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 6 Using Code Pushdown in CDS Views

Lesson 1: Implementing SQL Expressions in CDS Views

Lesson Objectives

After completing this lesson, you will be able to:

- Motivate the use of code pushdown in CDS Views
- Use SQL expressions in CDS views

Lesson 2: Calling Built-in Functions in CDS Views

Lesson Objectives

After completing this lesson, you will be able to:

- Use built-in functions in ABAP CDS
- Use session variables

Lesson 3: Defining CDS Views with Input Parameters

Lesson Objectives

After completing this lesson, you will be able to:

- Define CDS views with input parameters
- Provide values for CDS view parameters
- Link parameters to ABAP system fields

Lesson 4: Processing Data Sets in CDS Views

Lesson Objectives

After completing this lesson, you will be able to:

- Describe the techniques for processing datasets in ABAP CDS
- Use the DISTINCT addition in ABAP CDS views
- Include aggregations and grouping in CDS views
- Use joins and unions in CDS views

© Copyright. All rights reserved.

© Copyright. All rights reserved.

UNIT 7

Defining Meta Objects for Dictionary Objects and CDS Views

Lesson 1: Preventing Unauthorized Access to Data

Lesson Objectives

After completing this lesson, you will be able to:

- Create authorization fields and authorization objects
- Implement CDS access controls

Lesson 2: Extending Dictionary Objects

Lesson Objectives

After completing this lesson, you will be able to:

- Extend dictionary objects using append structures

Lesson 3: Extending CDS Views

Lesson Objectives

After completing this lesson, you will be able to:

- Extend CDS entities using CDS view extensions

Lesson 4: Creating Metadata Extensions

Lesson Objectives

After completing this lesson, you will be able to:

- Extend views using CDS metadata extensions

© Copyright. All rights reserved.