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ABAP Workbench Fundamentals-I

Unit 1: SAP Solutions

- Name some of the options for using *mySAP Business Suite* and *mySAP ERP* in your company.
- Name the integration aspects of *SAP NetWeaver*

Unit 2: Navigation

- Log on to the system successfully
- List some variants of the *SAP GUI*
- Name and use elements of a *SAP GUI* screen
- Log off from the system successfully
- Use various methods to start SAP system functions
- Create a list of favorites
- Use the help functions
- Carry out complex, selective searches
- Sort and filter listed data
- Execute a where-used list
- Describe the standard menus **System** and **Help**.
- Use the various options for personalizing the SAP system
- Explain the basic concepts of the individual integration levels of *SAP NetWeaver*

Unit 3: The System Kernel

- Outline simple client/server configurations
- Name the most important processes on an *SAP Web Application Server*
- Define the term instance and recognize the characteristics of a central instance
- Describe the processing flow for user requests in SAP systems
- Outline the processing flow for a dialog step in the SAP system
- Describe the concept of work process multiplexing
- Describe how the SAP system communicates with the database
- List the advantages of open SQL statements

Unit 4: Communication and Integration Technologies

- Name various cross-system business processes
- Explain the ideas behind the ALE concept
- List various interface technologies used by SAP systems
- Describe the process for a Remote Function Call
- Explain the significance and use of business objects and their BAPIs
- Make a Remote Function Call
- Explain Web Services
- Describe UDDI and WSDL
- Describe the *SAP Business Workflow* concept

- Explain the flow of a workflow process
- Submit a leave request within the *SAP Business Workflow*
- Describe additional application areas for the *SAP Business Workflow* concept

Unit 5: Sources of Information for Developers

- List some of the services provided on the *SAP Service Marketplace*
- Find and use SAP Notes in the *SAP Service Marketplace*
- List some of the services of the SAP Developer Network
- Find development news in the SAP Developer Network

Unit 6: ABAP Program Process

- Describe the architecture of the *SAP Web Application Server*
- Describe how a simple dialog program is executed by the ABAP runtime system

Unit 7: Introduction to ABAP Workbench

- Describe the structure of the *Repository*
- Name and use the search tools of the *Repository*
- Use the *Object Navigator* for displaying Repository objects
- Name and use the utilities for orderly software development
- Create packages
- Create programs
- Create transactions

Unit 8: Basic ABAP Language Elements

- Define elementary data objects (simple variables)
- Use basic ABAP statements with elementary data objects
- Execute and analyze programs in debugging mode
- Define structured data objects (structure variables)
- Use basic ABAP statements for structured data objects
- Analyze structured data objects in debugging mode
- Define internal tables
- Use basic ABAP statements with internal tables
- Analyze internal tables in debugging mode

Unit 9: Data Retrieval

- List different methods for searching relevant database tables
- Program read access to specific columns and rows within a particular database table
- List different methods for read accesses to several database tables
- Explain the SAP authorization concept
- Implement authorization checks

Unit 10: Subprograms in ABAP

- Define subroutines
- Call subroutines

Unit 11: Introduction to ABAP Events

- Describe the event-controlled processing of an executable ABAP program
- List the most important basic events and explain their purpose
- Use the most important basic events expediently

Analyze the execution of subroutines in debugging mode

Unit 12: Classic List Processing

- Describe the attributes and benefits of ABAP lists
- Implement list and column headers
- Implement multi-level lists
- Implement interactive lists
- List the properties and benefits of selection screens
- Implement the options for restricting selections on the selection screen
- Implement the input and authorization check with an error dialog using the selection screen
- Explain the uses of selection screens
- Declare fields with PARAMETERS
- Declare fields with SELECTION-OPTIONS
- Design the selection screen
- Identify the characteristics of the logical database
- List the advantages of the logical database
- Explain the structure of logical database subobjects
- Use various selections in logical database subobjects
- Explain the concept of database programs in logical database subobjects
- Explain how to retrieve data from the database

Unit 13: Creating and Calling Function Groups and Function Modules

- Define function groups
- Explain the structure of a function group
- Define function modules
- Define interfaces of function modules
- Define and raise exceptions for function modules
- Test function modules
- Implement function module calls in ABAP
- Implement exception handling in ABAP

Unit 14: Programs Calls and Data Storage Management

- Explain how programs are called from within other programs

- Describe the various options for exchanging data between programs
- Explain how memory is managed in the ABAP virtual machine

ABAP Workbench Fundamentals-II

Unit 1: ABAP Dictionary

- Name the function of the ABAP Dictionary in the R/3 system
- Describe the possible ways of defining data objects and data types
- Describe the services provided by the ABAP Dictionary

Unit 2: Tables in ABAP Dictionary

- Create Tables
- Use the two-level domain concept
- Define the technical settings of a table
- Create and use include structures
- Describe table types in the SAP system apart from the transparent tables
- Distinguish pool and cluster tables from one another
- Describe the advantages and disadvantages of pool and cluster tables.

Unit 3: Performance When Accessing Tables

- Judge when table accesses can be speeded up by using indexes
- Create indexes in the ABAP Dictionary
- Explain the different buffering types
- Judge when it makes sense to buffer a table and which buffering type you should choose
- Buffer a table using the technical settings

Unit 4: Input Checks

- Create and use fixed values
- Define what a foreign key is
- Apply the conditions for the field assignment of the foreign key
- Know the difference between the value table and the check table
- Create foreign key

Unit 5: Dependencies with ABAP Dictionary Objects

- Explain how the Repository Information System and the Where-used list for ABAP Dictionary objects function
- Describe the mechanism for handling dependent objects in the ABAP Dictionary
- Differentiate between the active and inactive version of an ABAP Dictionary object.

Unit 6: Changing Tables

- Make changes to tables
- Estimate the effect of these changes on the database
- Convert tables
- Continue terminated conversions
- Add customer fields to SAP standard tables by means of append structures without modifications

Unit 7: Views and Maintenance Dialogs

- Judge how a view is created from tables with join, projection, and selection
- Create database views
- Set up a link between foreign keys and join conditions
- Use views in programs for data selection
- Judge when to use maintenance views
- Recognize the difference between an inner join and an outer join
- Create a maintenance view
- Create simple maintenance views
- Create complex maintenance views

Unit 8: Search Help

- Define an input help process with a search help
- Define a search help with several alternative search paths
- Use the different mechanisms for the search help attachment to assign a search help to a screen field
- Determine whether a screen field has an input help and determine its form
- Enhance a collective search help using an append search help without modifications
- Program a search help exit

Unit 9: ABAP Runtime

- Specify the components of an ABAP program
- Describe how an ABAP program is organized
- Explain the technical aspects of program execution

Unit 10: ABAP Types and Data Objects

- List the predefined ABAP types and generic types
- Classify the visibility and validity of data objects
- Understand and execute the operations on data objects, dependent on their data type
- Define program-local structure types and structures
- Differentiate and use nested, flat, and deep structures.
- Use named includes
- Implement Unicode-compatible value assignments between structures
- Categorize operations on internal tables
- Identify the different table kinds and use them as appropriate for different situations

Unit 11: Analysis Tools for Programs

- Plan correctness of your ABAP programs
- Illustrate how to improve the maintainability of ABAP coding
- Analyze programs using the *Code Inspector*
- Describe the most important properties of the *Code Inspector*
- Define inspections

Unit 12: ABAP Open SQL

- Explain the importance of the SAP database interface
- Specify the relevant system components related to SAP Open SQL
- Explain the following terms: database interface, SAP buffer, database buffer, and cursor cache
- Use the SQL trace to analyze database accesses from programs
- Estimate the performance of programs and then optimize it
- Describe the purpose of using indexes
- Create indexes
- Verify index use by the optimizer
- Use important SQL statements efficiently
- Optimize application logic to achieve the best possible performance
- Access buffered tables
- Describe which accesses bypass the table buffer
- ABAP programs

Unit 13: Dynamic Programming

- Create objects dynamically
- Access class components and object components dynamically
- Define field symbols
- Define data references
- Dereference data references
- Generate data objects dynamically

ABAP Workbench Fundamentals-III

Unit 1: Introduction to Object-Oriented Programming

- Explain the differences between procedural and object-oriented programming models
- List the advantages of the object-oriented programming model
- Name the most important diagram types in UML
- Create simple class diagrams
- Create simple object diagrams
- Describe sequence diagrams
- Define classes
- Generate and delete objects
- Access attributes

- Call methods

Unit 2: Object-Oriented Concepts and Programming Techniques

- Define inheritance relationships between classes
- Redefine methods
- Create narrowing cast assignments
- Create widening cast assignments
- Explain the concept of polymorphism with reference to inheritance
- Use cast assignments with inheritance to make generic calls
- Define and implement interfaces
- Implement interface methods
- Use interface references to make narrowing cast assignments
- Use interface references to make widening cast assignments
- Define polymorphism with reference to interfaces
- Use cast assignments with interfaces to make generic calls
- Define and trigger events
- Handle events
- Register and deregister event handling
- Explain the key differences between explicit method calls and event-controlled method calls

Unit 3: Object-Oriented Repository Objects

- Describe the functions of the Class Builder
- Create global classes using the Class Builder
- Create interfaces using the Class Builder
- Reference global classes and interfaces in other Repository objects
- Create a simple ALV Grid Control
- React to a double-click on an ALV Grid Control with a handler method
- Explain the fundamentals of BAdI technology and implement a BAdI

Unit 4: ALV Grid Control

- Describe the Control Framework
- Create simple lists using ALV Grid Control
- Explain the purpose of the field catalog
- Add columns to the ALV Grid Control and change ALV columns
- Create the layout structure of an ALV Grid Control
- Set colors of lines and cells in the ALV Grid Control
- Hide standard toolbar functions
- React to ALV Grid Control events

Unit 5: Exception Handling and RTTS

- Create exception classes
- Raise class-based exceptions in ABAP Objects programs
- Propagate class-based exceptions in ABAP Objects programs

- Handle class-based exceptions in ABAP Objects programs
- Map class-based exceptions to each other in ABAP Objects programs
- Query type attributes at runtime

Unit 6: Shared Objects

- Explain how classes are created for shared objects
- Explain how you can use shared objects to implement applications
- Access shared objects from within an ABAP program
- Create types dynamically

Unit 7: Case Study

- Explain the concepts relating to object-oriented programming with ABAP Objects and apply these in a small, simple application
- Explain some of the new ABAP Objects concepts (such as ABAP Unit and shared objects) that are available as of SAP Web AS 6.40

Unit 8: ABAP Certification

- Name all topics about which questions are asked in the ABAP Certification test.

ABAP Workbench Concepts-I

Unit 1 Course Overview

- Program dynamic screen processing.
- Program user dialogs using the different screen elements in the SAP System.

Unit 2 Introduction to Screen Programming

- Introduction to Screen Programming
- Principles of screen programming
- Screen elements
- Screen processing
- Dynamic screen modifications
- Screen sequence

Unit 3 The Program Interface

- The Program Interface
- GUI titles and GUI statuses
- Creating a GUI status
- Using a GUI status

Unit 4 Output Elements

- Text fields
- Status icons
- Group boxes

Unit 5 Input/Output Elements

- Input help
- Checkboxes and radio button groups
- Pushbuttons

Unit 6 Subscreens and Tabstrips Controls Elements

- Subscreens
- Tabstrip controls

Unit 7 Table Controls Elements

- Table controls: overview
- Creating a table control
- Processing a table control
- Further techniques

Unit 8 Context Menus

- Creating, using, and modifying context menus

Unit 9 Lists on Screens

ABAP Workbench Concepts II

Unit 1 Changing the SAP Standard

- Overview of the Change Levels
- Decision diagram
- Change techniques

Unit 2 Personalization

- Personalizing transactions

Unit 3 Enhancements to ABAP Dictionary Elements

- Append structures

- Customizing includes
- Text enhancements

Unit 4 Enhancements Using Customer Exits

- Introduction
- Enhancement management
- Function module exits
- Menu exits
- Screen exits

Unit 5 Business Transaction Events

- What are business transaction events(BTE)?
- Different kinds of interfaces
- Using business transaction events
- Finding business transaction events
- Differences between customer exits and business transaction events

Unit 6 Business Adds-Ins

- What modifications are
- Making modifications
- Modification Browser
- User exits
- SAP Note Assistant
- Modification adjustment

Unit 7 Modifications

- Summary
- Evaluation of the different enhancement techniques

Unit 8 Conclusion

- Describe the course contents
- Describe how to proceed when changing the SAP standard
- List the advantages and disadvantages of modifications
- Name the alternatives to modifications