



# SAP S/4HANA Development

Teaching and Learning Environment  
SAP University Competence Center Magdeburg

# Application Development with SAP S/4HANA

Teach how to develop your own SAP S/4HANA applications! Use presentations and case studies to teach your students how to use different programming languages and concepts.

The curriculum is designed primarily for computer science students from first to last semester. A basic understanding of programming is assumed.

## Contents

### Introduction to SAP application development

- Introduction to the Eclipse IDE for ABAP development
- Implementation in application tasks
- Development of a first ABAP program

### Basic concepts

- Basic concepts in ABAP programs
- Focus: Data types and data manipulation with the most important instructions and data-driven inferences
- Use of external programs and functions (BAPIs)

### Database access

- Introduction to the Data Dictionary (storage location of all created data objects of a SAP system)
- Explanation of database access using SAP OpenSQL
- Development of an ABAP program for reading and manipulating data

### Dynamic Programs (Dynpros)

- Introduction of dynpros (combination of program logic and graphical user interface)

### Modularization

- Advantages of modularization (avoiding repetitive program code and reducing the complexity of a program)
- Presentation of different possibilities of modular outsourcing of program code in ABAP
- Focus: function modules

### ABAP objects

- Concept of object-oriented programming
- Focus: Implementation & Usability in own ABAP programs

### Lock Concept

- Use of previously defined lock objects to ensure data consistency (with multiple concurrent read and write operations on the same data record)

### Exception Handling

- Definition and handling of the different exception types in ABAP

### HTML5, CSS and JavaScript

- Creating an HTML5-based web app using Eclipse IDE
- Configuring the layout with CSS
- Programming the logic of the web app in JavaScript

### SAPUI5

- Creating an SAPUI5 application using XML & JavaScript
- Explanation of the Model View Controller (MVC) concept
- Explaining how to deploy the SAPUI5 application in the SAP system

### OData Services

- Presentation of the entire lifecycle of an OData service
- Development of an SAPUI5 app consuming an implemented OData service
- Deployment of the app into the SAP backend

### SAP Fiori

- Basic principles of SAP Fiori
- Configuration and personalization of a custom launchpad

### Analytical app development

- Creation of an analytical app based on OData and corresponding SAPUI5 controls
- Connection of data from the OData service to the smart controls
- Deployment of the app into the SAP backend

#### **Trial Account**

SAP UCC offers one-month trial access to SAP S/4HANA Development free of charge. If you are interested in a trial account, please register at [trial@ucc.ovgu.de](mailto:trial@ucc.ovgu.de).

# Services for teaching, research and co-innovation

SAP University Alliances is a global program that provides more than 3,000 universities with free SAP software licenses for academic purposes. Within this program the SAP University Competence Centers (UCC) host SAP solutions for teaching, research and co-innovation.

In addition UCCs develop and manage academic teaching materials to assist lecturers and researchers. While UCCs assure 24/7 availability of complex system landscapes and support users closely, faculty members can fully concentrate on their core competences: teaching and research.

By using our scenario-based and practical curricula on latest SAP solutions, lecturers and students can reach their full potential. Our comprehensive teaching materials consist of presentations, case studies and hands-on exercises. Additional teaching tools facilitate continuous student assessments and foster group discussions.

Our experts can support you through all phases.

## Contact

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