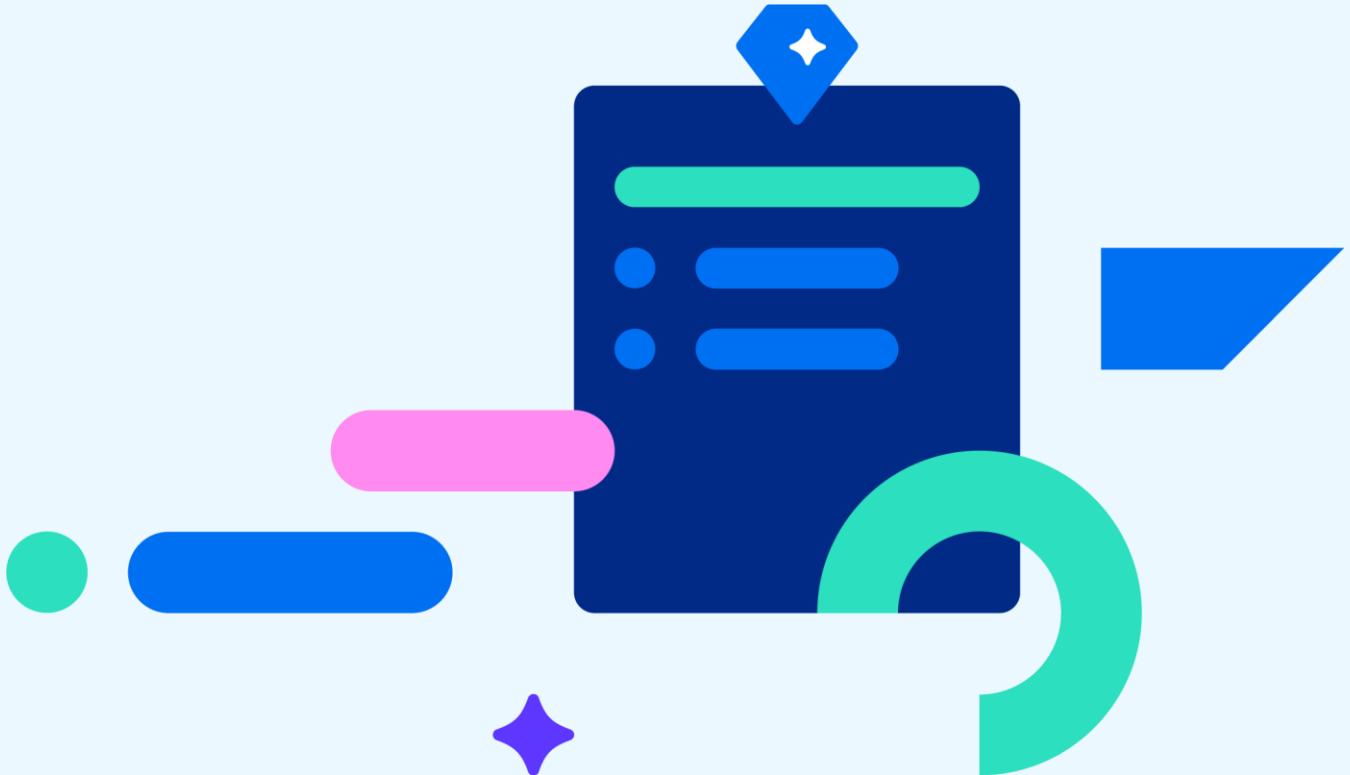


AD164

Get started with ABAP Cloud for classic ABAP developers

Carine Tchoutou Djomo, SAP
Volker Drees, SAP
Boris Gebhardt, SAP
Jürgen Reidl, SAP

November 2025



Agenda

Introduction

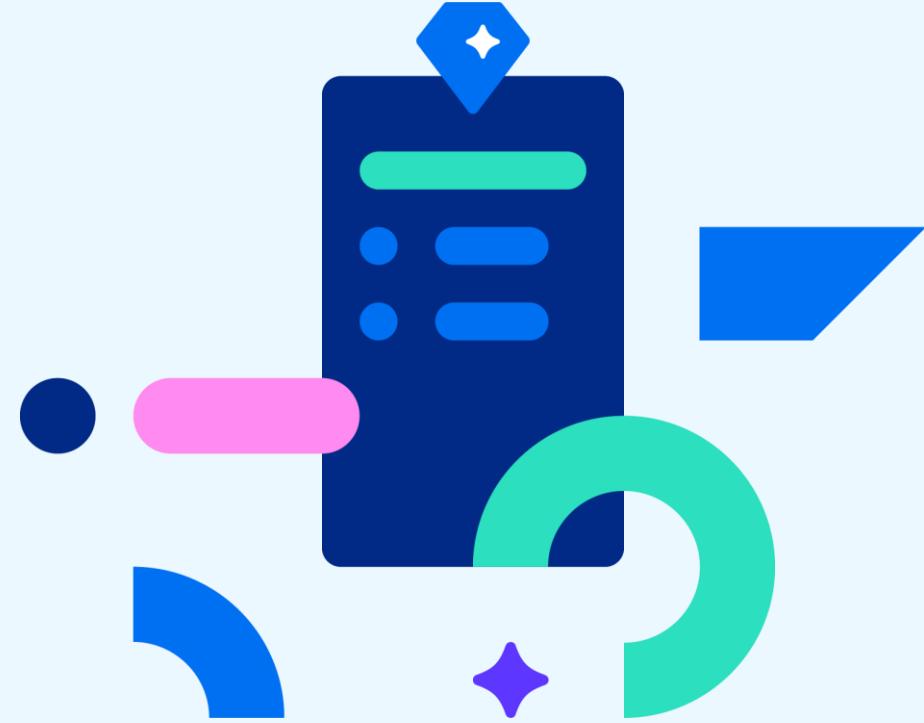
Today's scenario – Overview

Today's scenario – Exercises

Wrap up



Introduction



ABAP Cloud in a nutshell



ABAP CLOUD

Development model to build cloud-ready business apps, services, and extensions that adhere with clean core principles by default

Supports key user and developer extensibility scenarios

Available on SAP cloud ERP solutions and SAP BTP

ABAP CLOUD RULES FOR SMOOTH SOFTWARE UPDATES



No modifications to SAP objects allowed

Use of cloud-ready technologies, programming models, and tools

Only stable and released SAP APIs and SAP extension points can be used

Mandatory in public cloud and recommended in private cloud and on-premise

From classic ABAP to ABAP Cloud – Developer perspective

Differences between classic ABAP and ABAP Cloud

Classic ABAP development

~ Not cloud-ready and minimum upgrade stability. ~

Extremely flexible and powerful, but not public cloud-ready and limited to on-premise and private cloud

All SAP objects, APIs, and implicit extensions points can be used in custom code and to extend SAP apps

SAP objects can be modified

No clear separation between SAP code and extension code

Use of proven and mature, but not cloud-ready, server-side UI technologies

SAP software changes lead to high test and adaptation efforts, typically resulting in fewer upgrades

Slow agility and innovation speed



ABAP Cloud development model

~ Cloud-ready, upgrade-stable, future-proof, powered by generative AI*. ~

Powerful for building clean core-compliant apps, services, and extensions both on-stack and side-by-side

Only public SAP objects, APIs, and extension points can be used in custom code and to extend SAP apps

SAP objects cannot be modified

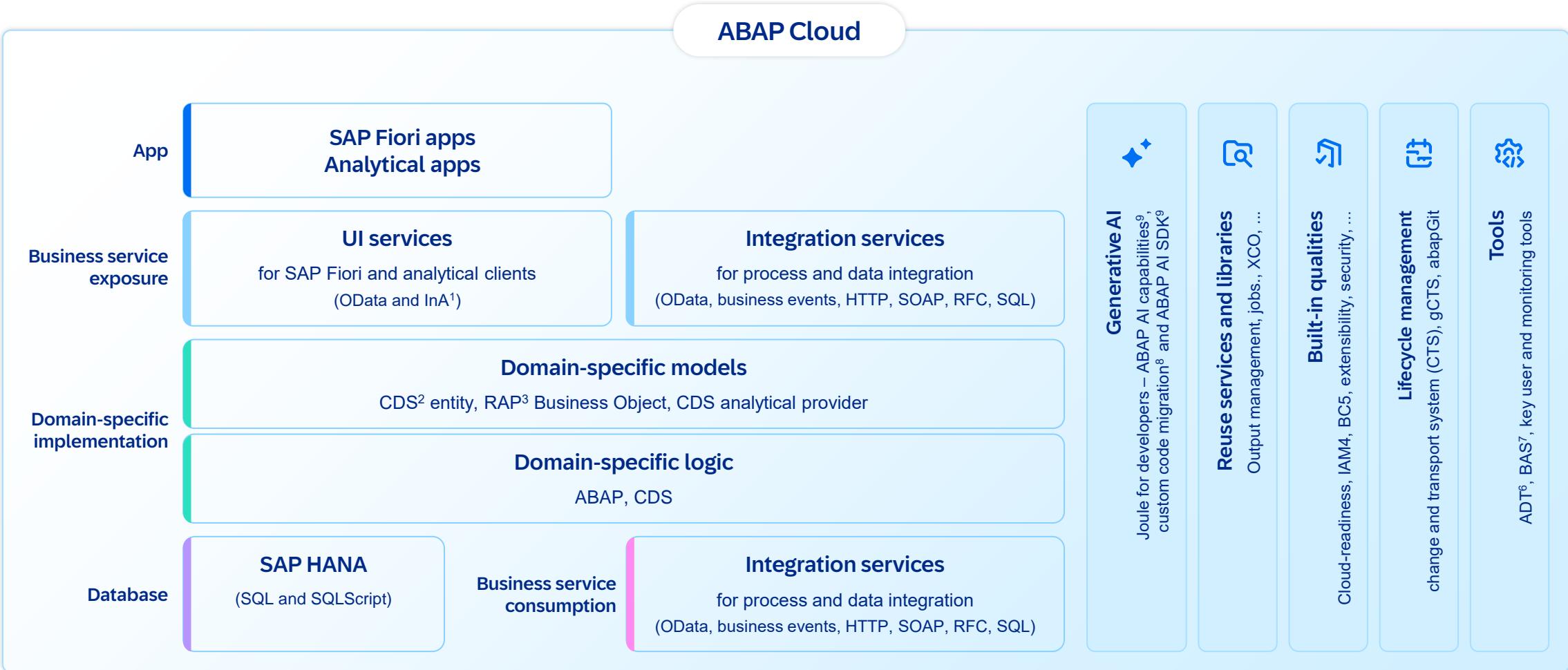
Clear separation between SAP code and extension code checked by the ABAP compiler

Use of proven cloud technologies and client-side UI technologies such as ABAP RAP and SAP Fiori

SAP software changes lead to low test and adaptation efforts, enabling easier, more frequent upgrades

Increased agility and innovation speed

ABAP Cloud map

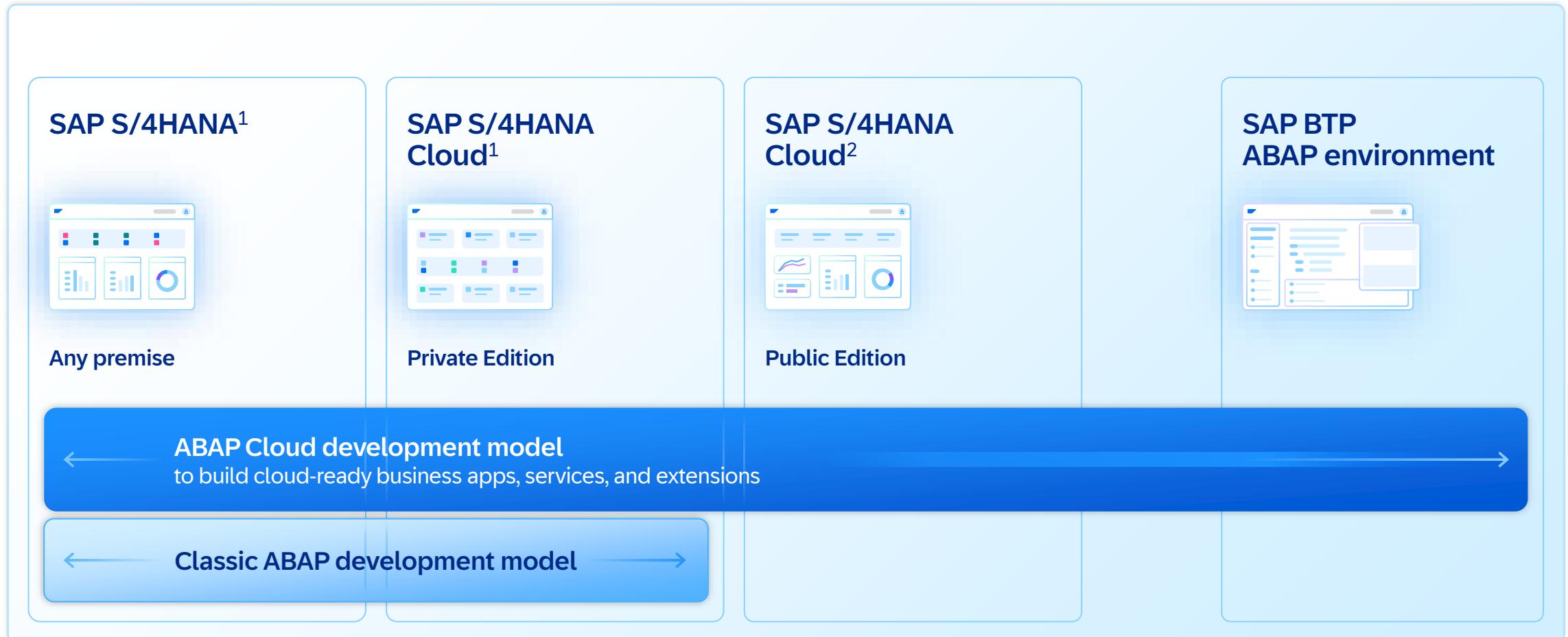


¹ Information access / ² Core Data Services / ³ ABAP RESTful application programming model / ⁴ Identity & Access Management / ⁵ Business Configuration / ⁶ ABAP Development Tools /

⁷ Business Application Studio / ⁸ Planned to be available in future releases / ⁹ Available for SAP S/4HANA Cloud Public Edition and SAP BTP ABAP environment

ABAP Cloud

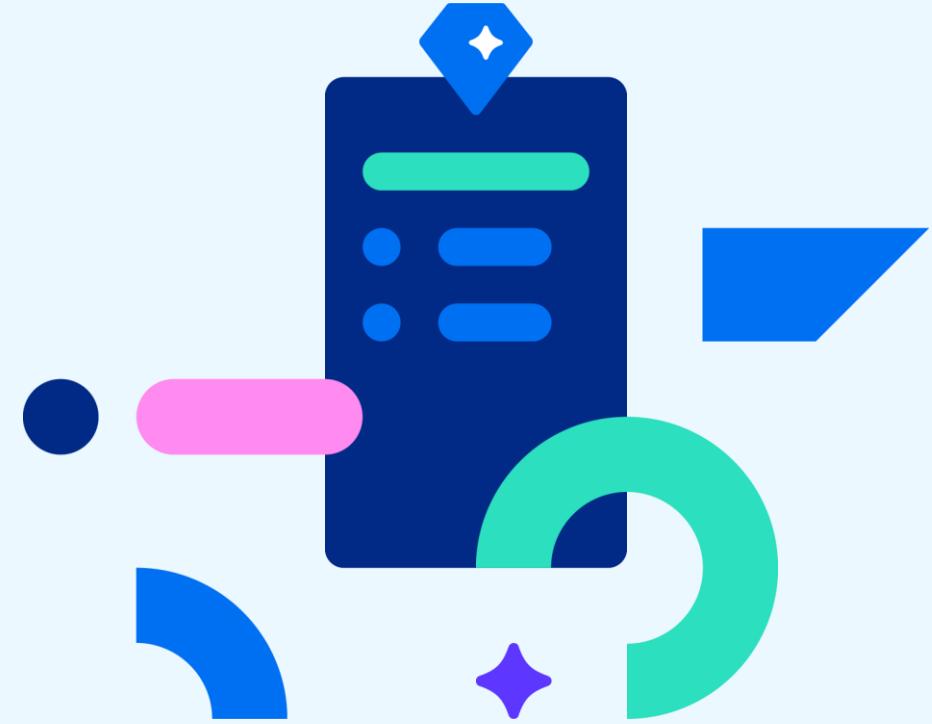
One development model for S/4HANA and SAP BTP ABAP environment



¹ SAP S/4HANA any premise or SAP S/4HANA Cloud, private edition release ≥ 2022

² SAP S/4HANA Cloud, public edition release ≥ 2208, 3-system landscape required

Today's scenario – Overview



From classic ABAP to ABAP Cloud – Developer perspective

Classic ABAP list viewer (ALV) report

Travels (4136)								
Travel ID	Agency ID	Agency Name	Cust. ID	Last Name	Starting Date	End Date	Book. Fee	Price
1	70041	Maxtrip	594	Ryan	07.06.2025	05.04.2026	40,00	1.889,00 USD
2	70007	Hot Socks Travel	608	Prinz	07.06.2025	07.06.2025	20,00	900,00 USD
3	70046	Hendrik's	93	Detemple	07.06.2025	05.04.2026	80,00	4.164,00 USD
4	70042	The Ultimate Answer	665	Madeira	07.06.2025	05.04.2026	40,00	1.871,00 USD
5	70007	Hot Socks Travel	225	Mechier	07.06.2025	07.06.2025	20,00	992,00 USD
6	70049	Flights and More	72	Neubauer	07.06.2025	05.04.2026	120,00	5.586,00 USD
7	70046	Hendrik's	138	Wohl	07.06.2025	05.04.2026	120,00	5.691,00 USD
8	70012	Ben McCloskey Ltd.	705	Müller	07.06.2025	09.06.2025	60,00	2.777,00 USD
9	70032	Sunny, Sunny, Sun...	115	Benz	07.06.2025	05.04.2026	120,00	5.792,00 USD
10	70016	A'l's Bazar	697	Leisert	07.06.2025	09.06.2025	20,00	959,00 USD
11	70005	Your Choice	582	Lautenba	07.06.2025	07.06.2025	20,00	959,00 USD
12	70028	Aussie Travel	583	Lautenba	07.06.2025	03.04.2026	90,00	4.304,00 USD
13	70014	Kangeroos	4	Buchholm	07.06.2025	09.06.2025	40,00	2.014,00 USD
14	70010	Travel from Walldorf	667	Madeira	07.06.2025	07.06.2025	10,00	544,00 USD
15	70028	Aussie Travel	465	Alina	07.06.2025	02.01.2026	60,00	3.201,00 USD

ALV: Manage Travels								
Travel ID	Starting Date	Total Price	Agency ID	End Date	Description	Customer ID	Overall Status	Actions
1	07.06.2025	1889,00 USD	Maxtrip - 70041	05.04.2026	Vacation		Open	<button>Accept</button> <button>Reject</button> <button>More</button>
Bookings (4)								
Booking No.	Booking Date	Cust. ID	Surname	Airline ID	Airline Name	Flight No.	Flight Date	Airfare
1	21.05.2025	594	Ryan	UA	United Airlines, Inc.	1537	07.06.2025	438,00 USD
2	07.06.2025	594	Ryan	AA	American Airlines In...	322	09.06.2025	438,00 USD
3	15.03.2026	594	Ryan	UA	United Airlines, Inc.	1537	03.04.2026	438,00 USD
4	19.03.2026	594	Ryan	AA	American Airlines In...	322	05.04.2026	438,00 USD

ABAP Cloud – SAP Fiori list report

Standard		
Travel ID	Agency ID	Customer ID
4136	Happy Holiday (70025)	Pan (629)
4135	Kangeroos (70014)	Gahn (438)
4134	Aussie Travel (70028)	Benz (115)
4133	Intertravel (70043)	D'Outrement (317)
4132	Hot Socks Travel (70007)	Kramer (394)
4131	Up 'n' Away (70029)	Goeke (185)
4130	Bella Italia (70006)	Henry (272)
4129	Rocky Horror Tours (70048)	Sessler (481)
4128	Honauer Reisen GmbH (70009)	Babilon (369)
4127	Caribbean Dream (70022)	Colombo (62)
4126	Aussie Travel (70028)	Picard (645)
4125	No Return (70020)	D'Outrement (315)

4130		
Travel	Booking	Actions
Travel ID: 4130	End Date: Apr 2, 2026	Description: Business trip for Friedrich, Juan, Pierre
Agency ID: Bella Italia (70006)	Booking Fee: 30,00 USD	Overall Status: Open
Customer ID: Henry (272)	Total Price: 11,008,00 USD	
Starting Date: Apr 2, 2026		
Booking		
Booking	Actions	
Bookings (3)	<button>Accept Travel</button> <button>Reject Travel</button>	
Booking No.	Booking Date	Customer ID
1	Mar 18, 2026	Eichbaum (549)
2	Mar 18, 2026	Hoffen (154)
3	Mar 18, 2026	Prinz (609)

AD164 – Classic app built with SAP List Viewer

Starting point

The screenshot illustrates a classic SAP application built using the SAP List Viewer (ALV). It consists of three vertically stacked ALV grids, each showing data for travel management.

- Top Grid:** "Travels (4136)"
- Middle Grid:** Displays detailed information for Travel ID 1, including:
 - Travel ID: 1
 - Agency ID: Maxitrip
 - Agency Name: Maxitrip
 - Cust. ID: 594
 - Last Name: Ryan
 - Starting Date: 07.06.2025
 - End Date: 05.04.2026
 - Book. Fee: 40,00
 - Price: 1.889,0...
 - Currency: USD
 - Description: Vacation
 - Overall Status: Open
- Bottom Grid:** "Bookings (4)"

Blue arrows indicate the navigation flow between the grids, starting from the top grid and moving down to the bottom grid.

Travel ID	Agency ID	Agency Name	Cust. ID	Last Name	Starting Date	End Date	Book. Fee	Price	Currency	Description	Overall St
1	70041	Maxitrip	594	Ryan	07.06.2025	05.04.2026	40,00	1.889,0...	USD	Vacation	Open
2	70007	Hot Socks Travel	608	Prinz	07.06.2025	07.06.2025	20,00	900,00	USD	Business Trip for Christine, Pier...	Accepted
3	70046	Hendrik's	93	Detemple	07.06.2025	05.04.					
4	70042	The Ultimate Answer	665	Madeira	07.06.2025	05.04.					
5	70007	Hot Socks Travel	225	Mechler	07.06.2025	07.06.					
6	70049	Flights and More	72	Neubasler	07.06.2025	05.04.					
7	70046	Hendrik's	138	Wohl	07.06.2025	05.04.					
8	70012	Ben McCloskey Ltd.	705	Müller	07.06.2025	09.06.					
9	70032	Sunny, Sunny, Sun...	115	Benz	07.06.2025	05.04.					
10	70016	All's Bazar	697	Leisert	07.06.2025	09.06.					
11	70005	Your Choice	582	Lautenba...	07.06.2025	07.06.					
12	70028	Aussie Travel	583	Lautenba...	07.06.2025	03.04.					
13	70014	Kangeroos	4	Buchholm	07.06.2025	09.06.					
14	70010	Travel from Walldorf	667	Madeira	07.06.2025	07.06.					
15	70028	Aussie Travel	466	Menzel	07.06.2025	02.04.					

Travel ID	Starting Date	Total Price
1	07.06.2025	1889,00 USD
Agency ID	End Date	Description
Maxitrip - 70041	05.04.2026	Vacation

Book. No.	Booking Date	Cust. ID	Surname	Airline ID	Airline Name	Flight No.	Flight Date	Airfare	Currency	Booking St
1	21.05.2025	594	Ryan	UA	United Airlines, Inc.	1537	07.06.2025	438,0...	USD	New
2	07.06.2025	594	Ryan	AA	American Airlines In...	322	09.06.2025	438,0...	USD	New
3	15.03.2026	594	Ryan	UA	United Airlines, Inc.	1537	03.04.2026	438,0...	USD	New
4	19.03.2026	594	Ryan	AA	American Airlines In...	322	05.04.2026	438,0...	USD	New

AD164 – Build a transactional SAP Fiori app with ABAP Cloud using RAP

Resulting app – with search, filter, quick actions, business events, and more

Standard ▾ **LIST REPORT**

Travel ID: Agency ID: Customer ID: Overall Status:

Search Go Adapt Filters

Travels (4,136)

Travel...	Agency ID	Customer ID	Overall Status
<input type="checkbox"/> 4136	Happy Holiday (70025)	Pan (629)	Rejected
<input type="checkbox"/> 4135	Kangeroos (70014)	Gahl (438)	Open
<input type="checkbox"/> 4134	Aussie Travel (70028)	Benz (115)	Rejected
<input type="checkbox"/> 4133	Intertravel (70043)	D'Oultrement (317)	Open
<input checked="" type="checkbox"/> 4132	Hot Socks Travel (70007)	Kramer (394)	Open
<input type="checkbox"/> 4131	Up 'n' Away (70029)	Goelke (185)	Accepted
<input checked="" type="checkbox"/> 4130	Bella Italia (70006)	Henry (272)	Open
<input type="checkbox"/> 4129	Rocky Horror Tours (70048)	Sessler (481)	Open
<input type="checkbox"/> 4128	Honauer Reisen GmbH (70009)	Babilon (369)	Open
<input type="checkbox"/> 4127	Caribian Dreams (70022)	Columbo (62)	Open
<input type="checkbox"/> 4126	Aussie Travel (70028)	Picard (645)	Accepted
<input type="checkbox"/> 4125	No Return (70020)	D'Oultrement (315)	Open

Accept Travel Reject Travel

4130 **OBJECT PAGE**

Travel Booking

Travel ID: 4130	End Date: Apr 2, 2026	Description: Business Trip for Friedrich, Juan, Pierre
Agency ID: Bella Italia (70006)	Booking Fee: 30.00 USD	Overall Status: Open
Customer ID: Henry (272)	Total Price: 11,008.00 USD	
Starting Date: Apr 2, 2026		

Booking

Bookings (3)

Booking Nu...	Booking Date	Customer ID	Booking Status
1	Mar 18, 2026	Eichbaum (549)	New
2	Mar 18, 2026	Hoffen (154)	New
3	Mar 18, 2026	Prinz (609)	New

Accept Travel Reject Travel

Some of the used ABAP Cloud features:

- Early managed numbering
- Internal update
- Actions
- Side effects
- Business events
- Authorization checks, etc.

11

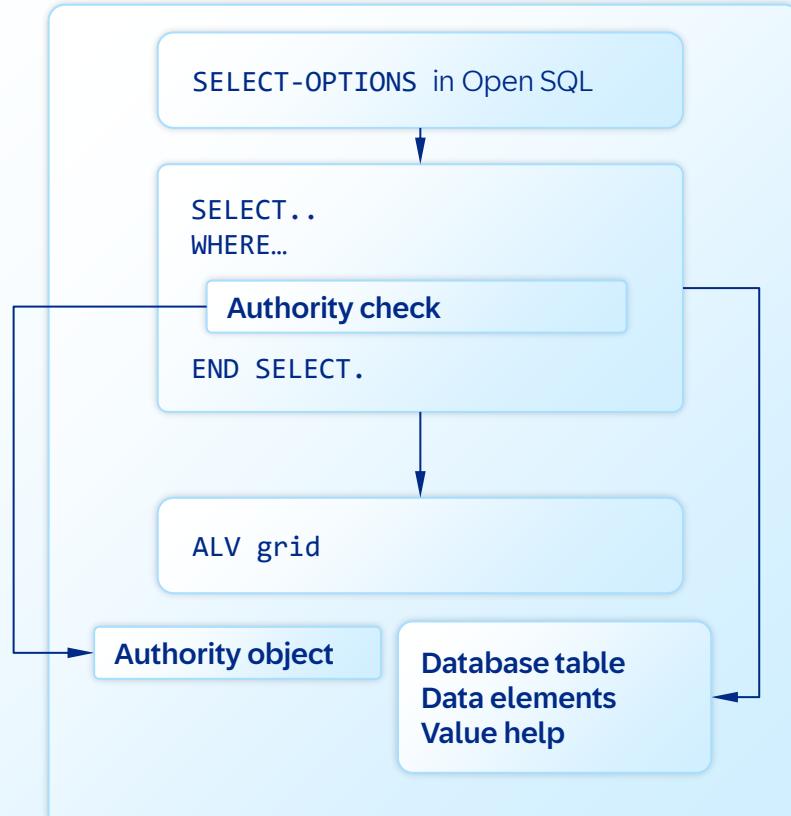
Classic ABAP list viewer (ALV) report

Open SQL queries

For all supported databases with common feature set

Fetching and processing of all data in the application server

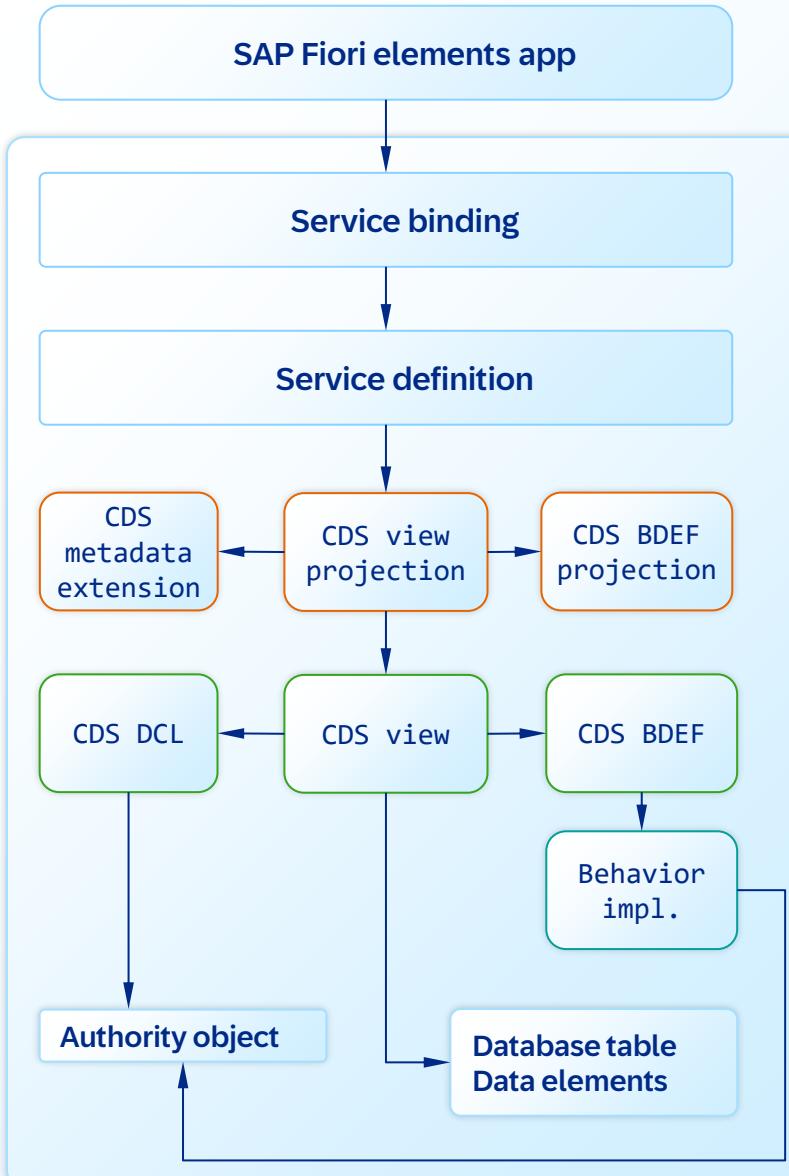
Manual authority check needed for each query



DDIC MODELING

For reuse in multiple places
Including field extensibility

ABAP Cloud – SAP Fiori list report



MODEL-DRIVEN ARCHITECTURE

Advanced data modeling with **ABAP Core Data Services (CDS)**, including DCL for read authorizations

CDS behavior definition (BDEF)

represents a transactional business object (BO) declaratively, with implementation hooks in ABAP

Native support in ABAP, with **Entity Manipulation Language (EML)** as a ABAP language extension to invoke RAP BO behavior via standardized, typed APIs

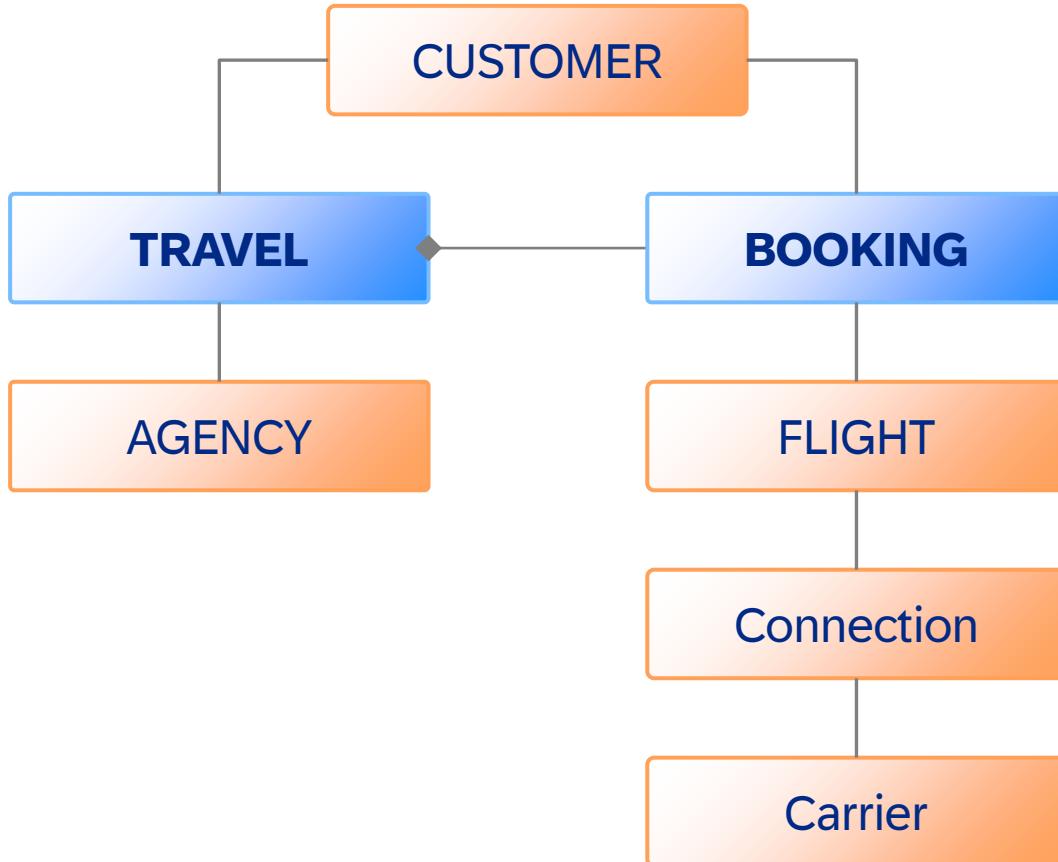
Business services consisting of a service definition and a service binding, used to expose data with specific protocols and scenarios

Extensibility as a first-class citizen for all artifacts

Open SQL evolved into **ABAP SQL**, with extended feature set and optimizations for SAP HANA

AD164 – Building transactional SAP Fiori apps with RAP

Underlying simplified flight data model



- █ Main business entities in current scenario
- █ Secondary business entities in current scenario

A **Travel entity** defines general travel data, such as the agency ID or customer ID, the overall status of the travel booking, and the total price of the travel

A **Booking entity** comprises general flight and booking data, the customer ID for whom the flight is booked as well as the travel ID to which the booking belongs

A **Customer entity** provides a detailed description of a flight customer, or passenger, such as the name, the address, and contact data

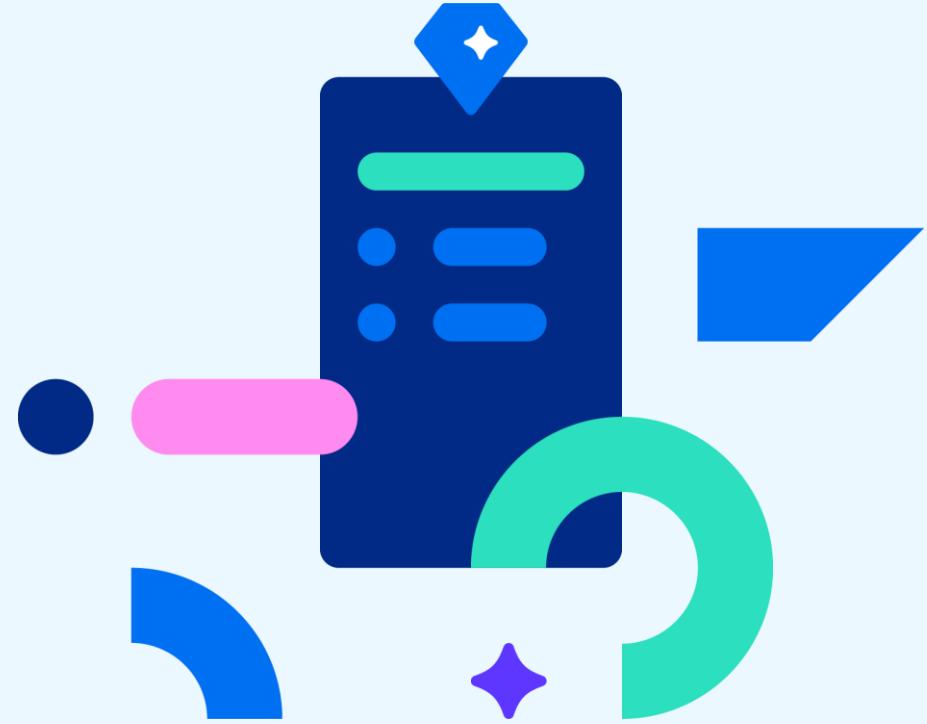
An **Agency entity** defines travel agency data, such as the address and contact data

A **Flight entity** defines the general flight data for each connection

A **Connectivity entity** defines general data about flight connections

A **Carrier entity** defines the general data about flight carriers

Today's scenario – Exercises



The AD164 hands-on exercises



Getting Started

1 - Define the base BO data model

2 - Define the data model of the BO projection

3 - Create the OData UI service

4 - Define the UI layout of SAP Fiori elements apps

5 - Add read authorization checks

6 - Add quick actions

7 - Add business events

Demos & Optional exercises – about ABAP Cloud generators, modify authorizations, full CRUD enablement, ...

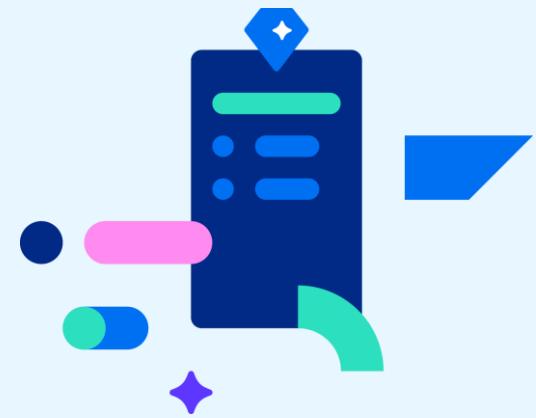
PREREQUISITES*

- Set up your ABAP Development Tools for Eclipse
- Access to an appropriate ABAP system (e.g.. HE24)

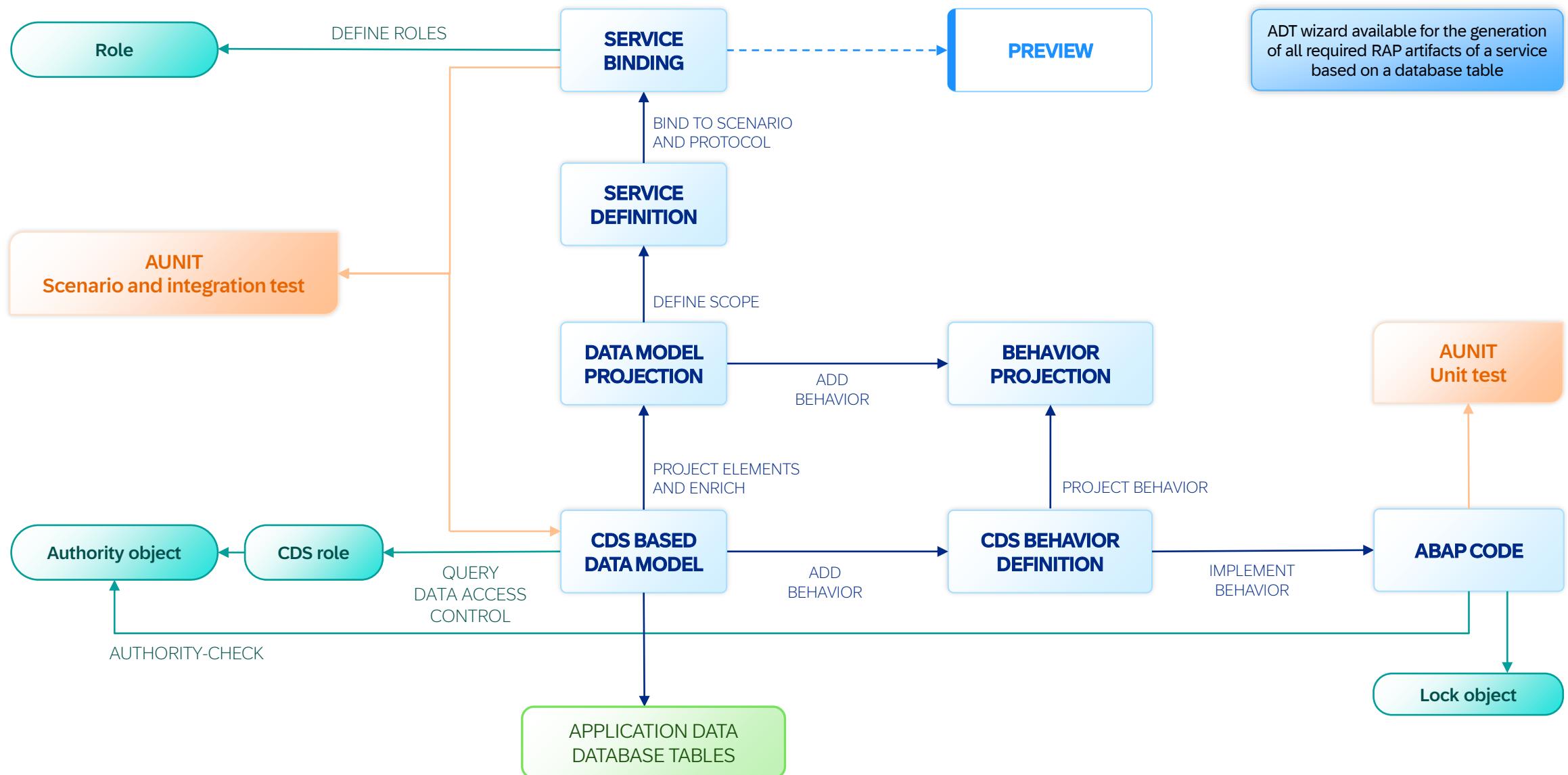
ACCESS THE EXERCISES

<https://github.com/SAP-samples/teched2025-AD164> ([Link](#))

DEMO



Development flow



AD164 hands-on exercises – Working on GitHub

Expand to see details

Replace all occurrences of `###` with your suffix

Click to expand!

1. Create the CDS view entity `ZAD164_R_Booking_###` to expose the Booking data stored in the database table `ZAD164_BOOK_###` using the appropriate data definition template `defineViewEntity`. Replace all occurrences of `###` with your personal suffix.

To do this, right-click `ZAD164_BOOK_###`, choose *New Data Definition* from the context menu, enter the name and description provided below, keep the prefilled values for *Package* (`ZAD164_EX_###`) and *Reference Object* (`ZAD164_BOOK_###`), and click *Next*.

- Name: `ZAD164_R_Booking_###`
- Description: `Booking Base View`

Assign a transport request if needed and click *Next* again – do not click *Finish*. Select the data definition template `defineViewEntity` under *View (creation)*, and choose *Finish* to confirm the creation.

Delete the complete source code in the data definition `ZAD164_R_Booking_###`, insert the code snippet provided below , and replace all occurrences of the placeholder `###` with your personal suffix using the ADT function *Find and Replace All (Ctrl+F)*.

Click to expand the source code!

- Make use of the *Copy Raw Content* function to copy the provided code snippet.
- Review the data definition below, check the *Brief explanation* section after the code snippet, and feel free to ask the instructors if anything is unclear.

```
@AbapCatalog.viewEnhancementCategory: [#NONE]
@AccessControl.authorizationCheck: #NOT_REQUIRED
@endUserText.label: 'Booking Base View'
@Metadata.ignorePropagatedAnnotations: true
define view entity ZAD164_R_Booking_###
  as select from zad164_book### as booking
    association [1..1] to /DMO/I_Customer
    association [1..1] to /DMO/I_Carrier
    association [1..1] to /DMO/I_Connection
    association [1..1] to /DMO/I_Booking_Status_VH
  {
    key booking_uuid      as BookingUUID,
    key airline_id        as AirlineID,
    key connection_id     as ConnectionID,
    key booking_status_id as BookingStatusID
    ...
  }
  as _Customer      on $projection.CustomerID = _Customer.CustomerID
  as _Carrier        on $projection.AirlineID = _Carrier.AirlineID
  as _Connection    on $projection.AirlineID = _Connection.AirlineID
  and $projection.ConnectionID = _Connection.ConnectionID
  as _BookingStatus  on $projection.BookingStatus = _BookingStatus.BookingStatus
```

Outline

Exercise 1: Define the base BO data model

- Introduction
- Exercise 1.1: Create the Travel base view
- Exercise 1.2: Create the Booking base view
- Exercise 1.3: Define the base Travel BO composition model
- Exercise 1.3.1: Adjust the Travel base view
- Exercise 1.3.2: Adjust the Booking base view
- Summary & Next exercise

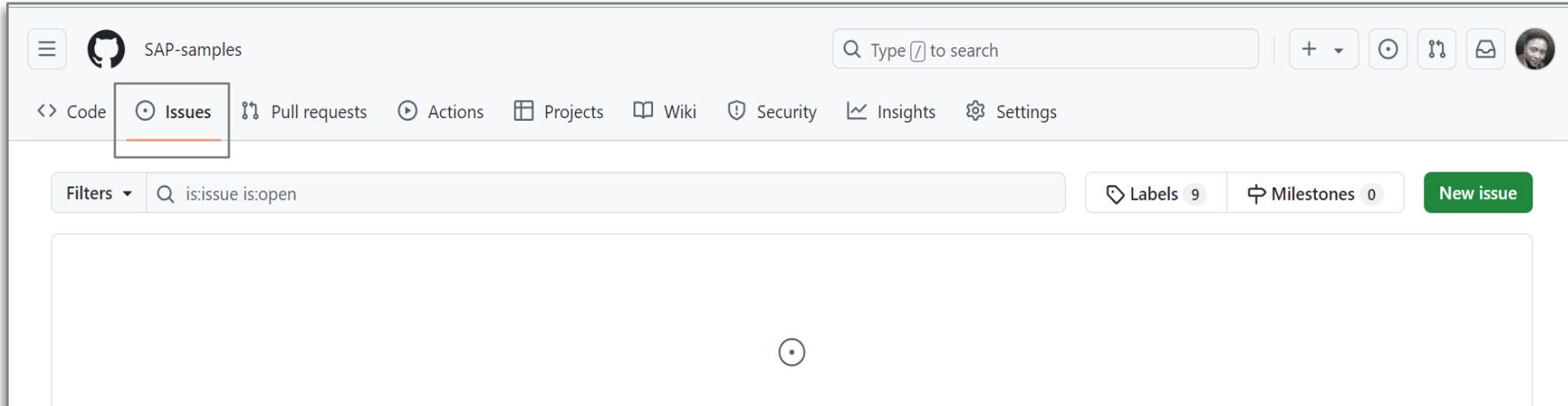
Use outline for a quick overview

Copy raw content

The AD164 hands-on exercises – Working on GitHub (2)

 Issues

Open GitHub Issues to get help from the SAP experts



The screenshot shows the GitHub interface for the repository "SAP-samples". The "Issues" tab is selected, indicated by a red underline. The top navigation bar includes links for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. A search bar with the placeholder "Type / to search" is present. Below the search bar are filters for "Labels 9", "Milestones 0", and a green "New issue" button. The main content area is currently empty, showing a loading indicator.

LET'S GET STARTED!



Move at your own pace!

Feel free to ask questions!

Wrap up



Key takeaways

ABAP Cloud



The icon features a blue rounded rectangle containing a dark blue smartphone-like device. On the screen of the device is a white star icon. To the right of the phone is a white square with a magnifying glass icon and a plus sign. Below the phone are three small colored shapes: a blue circle, a pink capsule, and a green semi-circle.

Is the ABAP development model to build cloud-ready business apps, services or extensions

Is an integral part of SAP Build

Is compliant with clean core principles

Comes with SAP BTP, SAP S/4HANA Cloud, SAP S/4HANA^{1,2}

Is mandatory in public cloud, and recommended in private cloud and on-premise

¹ SAP S/4HANA any premise or SAP S/4HANA Cloud Private Edition release ≥ 2022

² SAP S/4HANA Cloud Public Edition, 3-system landscape required

Upskill yourself in ABAP Cloud and Clean core



SAP Learning Offerings

[Acquiring Core ABAP Skills | SAP Learning](#)

[Managing Clean Core for SAP S/4HANA Cloud | SAP Learning](#)

[Practicing Clean Core Extensibility for SAP S/4HANA Cloud](#)

Become an [SAP Certified Associate – ABAP Cloud Back-End Developer](#)

More SAP training and certification opportunities: <https://learning.sap.com/>

SAP Help Portal

[ABAP Cloud development guide](#)

[ABAP RESTful application programming model \(RAP\)](#)

SAP Community

[ABAP Development](#)

[ABAP RESTful Application Programming Model \(RAP\)](#)

[ABAP Testing and Analysis](#)

ABAP Cloud-related sessions at SAP TechEd 2025

AD808 | SAP Build: ABAP Cloud road map

ST109 | SAP Build: ABAP Cloud strategy

AD104 | Boost your ABAP development with SAP Joule for developers

AD162 | Explore Joule for developers, ABAP AI capabilities *

AD201 | Explore ABAP Cloud in SAP Build – what's in for ABAP developers?

AD163 | Fusion Development with ABAP Cloud in SAP Build *

AD105 | Introduction to ABAP Cloud and how to get started

AD164 | Get started with ABAP Cloud for classic ABAP developers *

DT814 | Extensibility innovations road map for SAP Business Suite and cloud ERP

ST113 | Journey to unified extensibility in SAP Business Suite and cloud ERP

DT200 | Unravel the mysteries of Clean Core extensions in Cloud ERP Private

DT260 | Modernize classic extensions to clean core in Cloud ERP Private *

DT201 | Extensibility with ABAP Cloud and AI in SAP Cloud ERP

DT261 | Build on-stack extensions with ABAP Cloud in Cloud ERP Public *

DT266 | Troubleshoot and Optimize ABAP Cloud Extensions in Cloud ERP *

Visit us at the demo stations!

AD900 | Application Development with ABAP Cloud, CAP, SAPUI5 in SAP Build

DT916 | Discover the extensibility options for cloud ERP

See [Blog post](#)

Carine Tchoutou Djomo, SAP
Volker Drees, SAP
Boris Gebhardt, SAP
Jürgen Reidl, SAP

Thank you!



SAP Bring out your best.