

# Introducing the ABAP Workbench

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# What Can You Develop in ABAP?



What Can You Develop in **ABAP**?

Report Program	Dialog Program	Web Application	Database
Function Module	Class	Web Service	Enhancement



# ABAP Workbench



## Development Tools



ABAP Editor

Function  
Module



Screen Painter

Class



Web Dynpro  
Explorer

Web Service



ABAP Dictionary

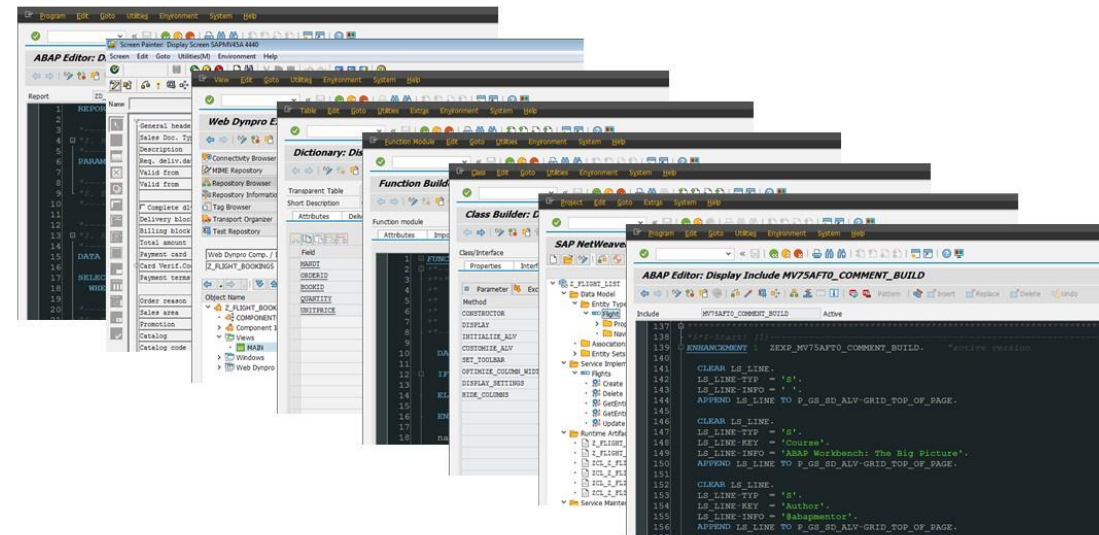
Enhancement



# ABAP Workbench Development Tools



## ABAP Workbench Tools



# What Else?



## ABAP in Eclipse

A screenshot of the Eclipse IDE interface. The top toolbar shows various icons for file operations and development. The left sidebar contains the 'Project Explorer' and 'Outline' views. The 'Project Explorer' shows a project structure with folders like 'ZPH\_REC\_SIG', 'ZPH\_REC\_SUBMISSION', 'ZPHMESIDES', 'ZPK\_DEMOS', 'ZPKGCCS191063', 'ZPKT', and 'ZPL'. Under 'ZPL', there is a folder 'ZPL\_AWB' containing 'Enhancements', 'Source Library', 'Classes', 'Function Groups', 'Interfaces', and 'Programs'. The 'ZPL\_AWB' folder is expanded, showing 'ZD\_FLIGHT\_BOOKING\_LIST'. The 'Outline' view shows the structure of the 'ZD\_FLIGHT\_BOOKING\_LIST' report, including 'PFLDATE', 'FLIGHT\_BOOKINGS', 'DAY\_OF\_THE\_WEEK', 'NAME\_OF\_THE\_DAY', 'FORMATTED\_DATE', 'TITLE\_OF\_ALV', 'ALV', 'SALV\_MSG', and 'SALV\_NOT\_FOUND'. The main editor area displays the ABAP code for the 'ZD\_FLIGHT\_BOOKING\_LIST' report. The code includes a report header, a selection field for 'Flight Date', a parameter 'pfldate' of type 'sy-datum' with a default value of '20100113', a data declaration for 'flight\_bookings' as a standard table of 'sbook', a SQL query to select data from 'sbook' into 'flight\_bookings' up to 40 rows, and a loop to process the data, including a calculation for the day of the week.

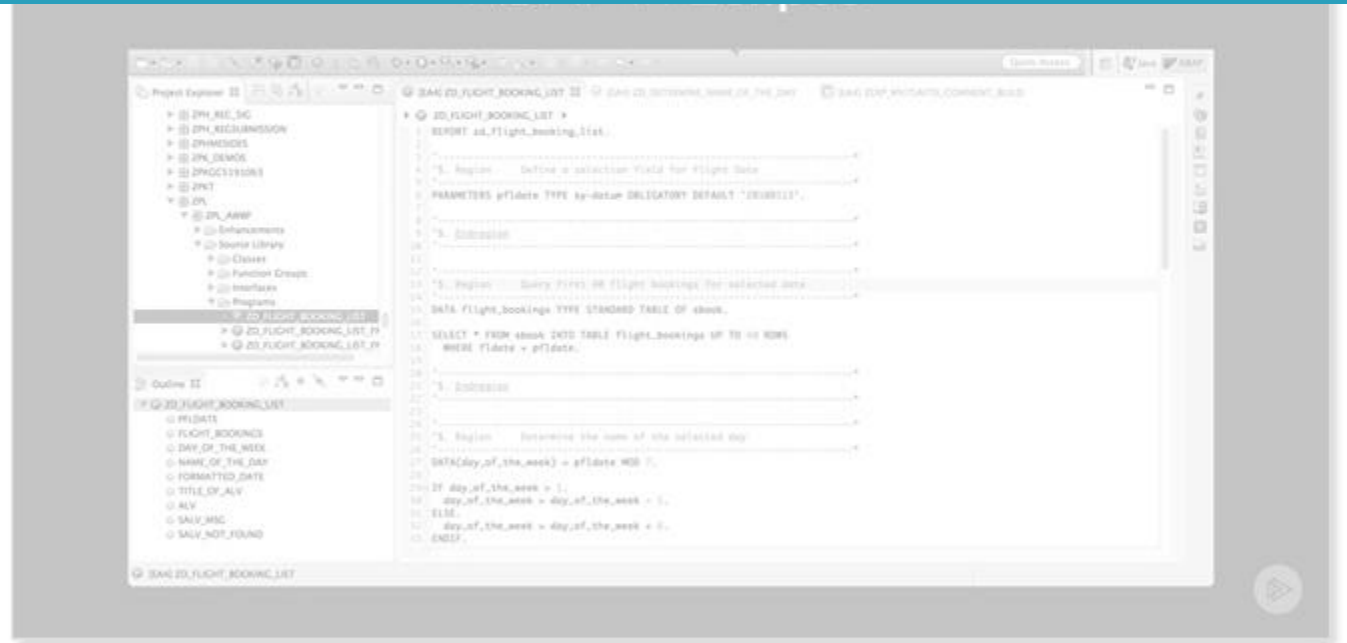
```
1 REPORT zd_flight_booking_list.  
2  
3  
4 "$. Region   Define a selection field for Flight Date  
5  
6 PARAMETERS pfldate TYPE sy-datum OBLIGATORY DEFAULT '20100113'.  
7  
8  
9 "$. Endregion  
10  
11  
12  
13 "$. Region   Query first 40 flight bookings for selected date  
14  
15 DATA flight_bookings TYPE STANDARD TABLE OF sbook.  
16  
17 SELECT * FROM sbook INTO TABLE flight_bookings UP TO 40 ROWS  
18 WHERE fldate = pfldate.  
19  
20  
21 "$. Endregion  
22  
23  
24  
25 "$. Region   Determine the name of the selected day  
26  
27 DATA(day_of_the_week) = pfldate MOD 7.  
28  
29 IF day_of_the_week > 1.  
30   day_of_the_week = day_of_the_week - 1.  
31 ELSE.  
32   day_of_the_week = day_of_the_week + 6.  
33 ENDIF.
```



Next

# What Can You Develop in ABAP?

What Else?



Look for this icon!



# What Can You Develop in ABAP?

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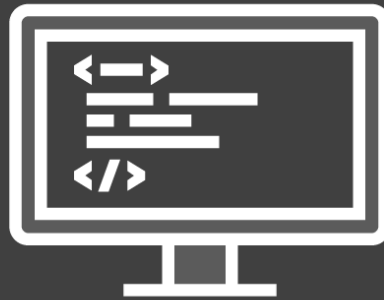
Um...



# C# Applications



Web



Windows



Mobile





# What Can You Develop in **ABAP**?

Report Program	Dialog Program	Web Application	Database
Function Module	Class	Web Service	Enhancement



What Can You Next

# ABAP Workbench

Report  
Program

Dialog  
Program

Web  
Application

Database

Function  
Module

Class

Web Service

Enhancement

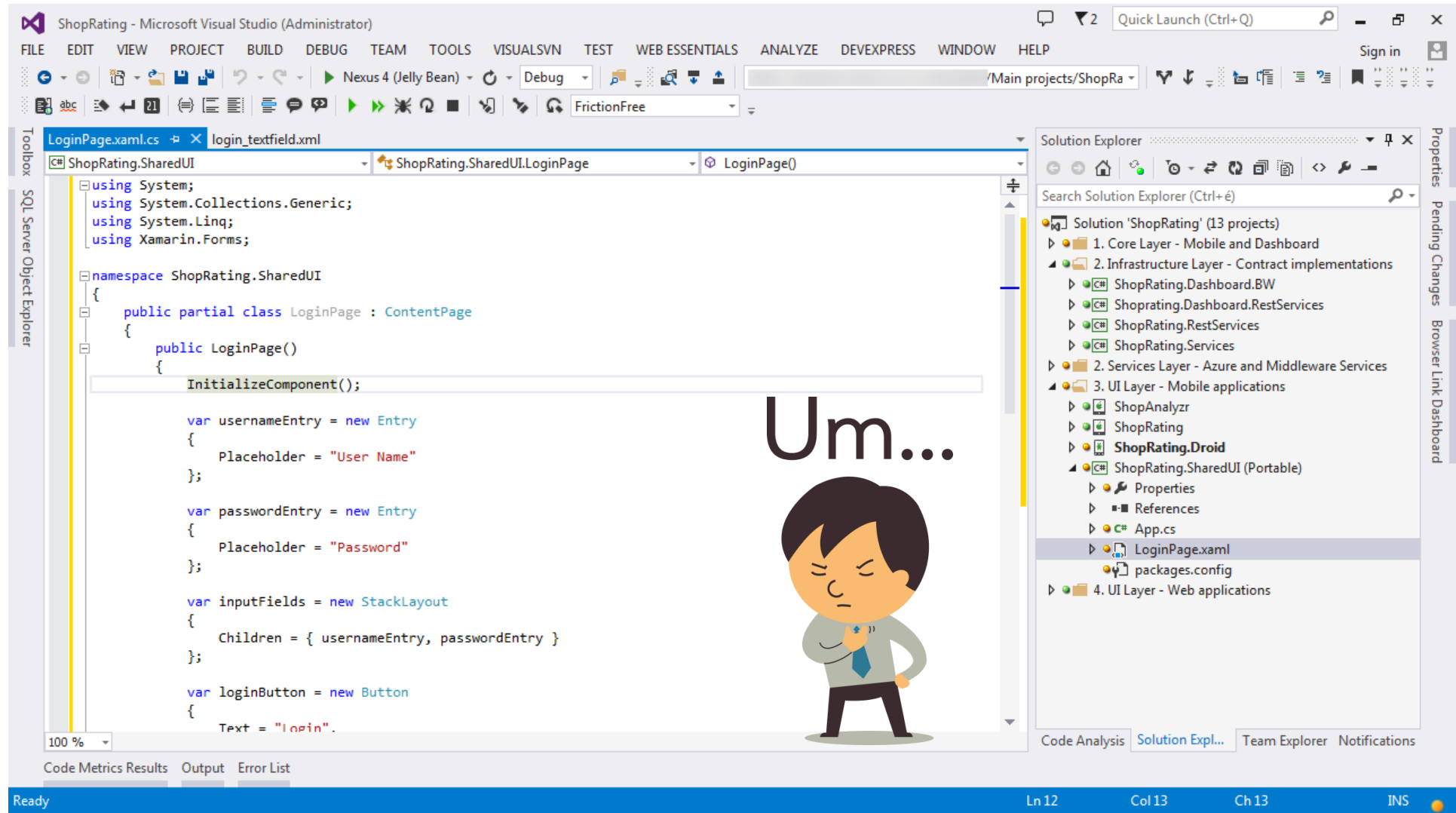


# ABAP Workbench

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# Microsoft Visual Studio



# ABAP Workbench Tools Are Transactions

Sales document Edit Goto Extras Environment System Help

✓ [dropdown] << [icons]

**Create Standard Order: Overview** 

[icons] Orders [icon] Document

Standard Order [input] Net value [input] 0,00 [input]  
Sold-To Party [input] [input]  
Ship-To Party [input]  
PO Number [input] PO date [input] [input]

Sales Item overview Item detail Ordering party Procurement Shipping Reason for rejection

Req. deliv.date D 12.02.2016 Deliver.Plant [input]  
☐ Complete dlv. Total Weight [input] 0,000 [input]  
Delivery block [input] Volume [input] 0,000 [input]  
Billing block [input] Pricing date 03.02.2016  
Payment card [input] Exp.date [input]  
Card Verif.Code [input]  
Payment terms [input] Incoterms [input]  
Order reason [input]

All items

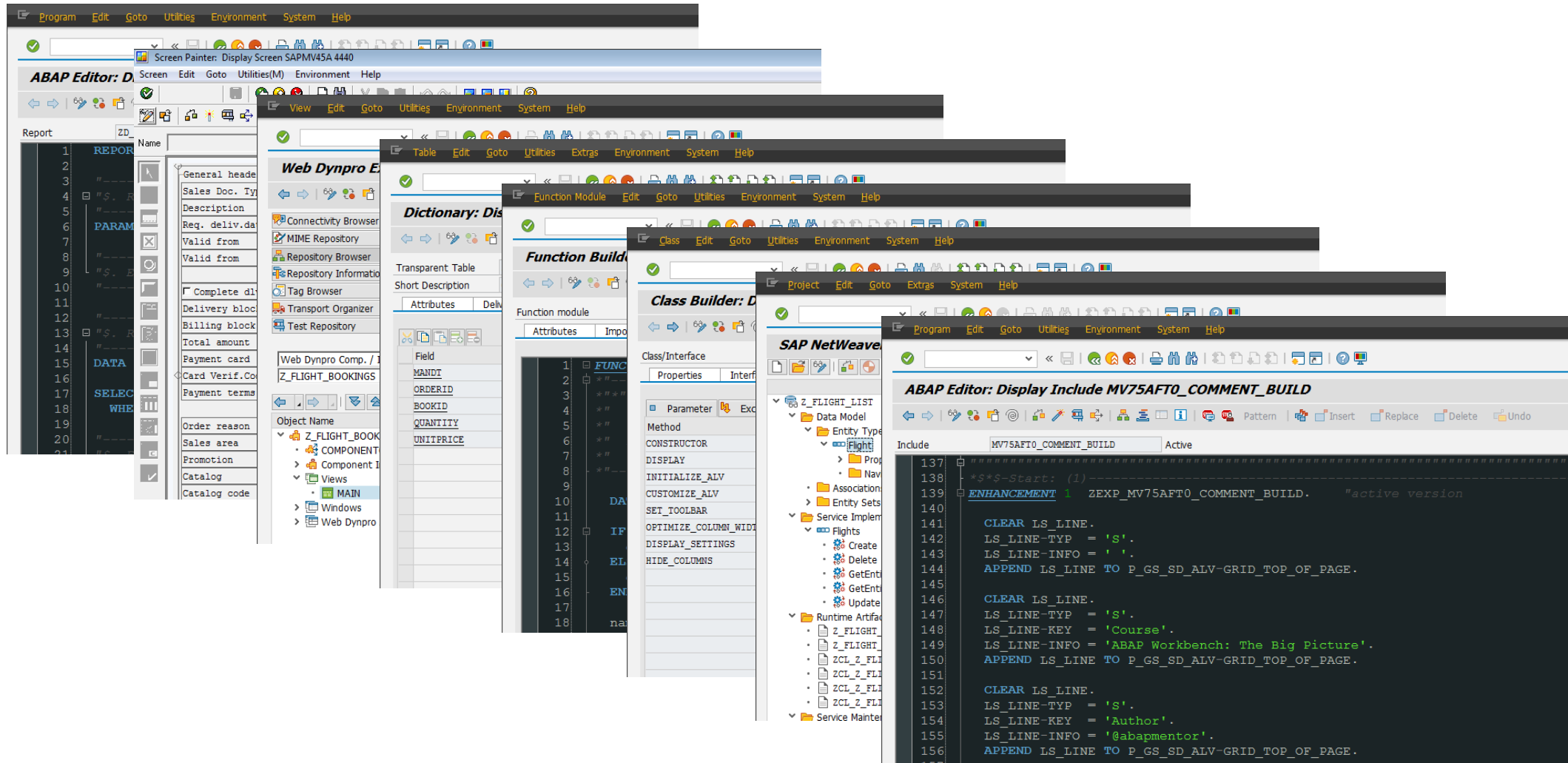
Item	Material	Order Quantity	Un	Description	S	Customer Material Numb	ItCa	DGIP	HL Itm	D First date	Plnt	Batch	CnTy	Amou
					<input type="checkbox"/>					D 12.02.2016				
					<input type="checkbox"/>					D 12.02.2016				

[icons] [Group]

SAP >> EA4 (1) 800 NW73SB INS [icons]



# ABAP Workbench Tools



# Navigation Within the ABAP Workbench

The screenshot illustrates the navigation within the ABAP Workbench. It shows two overlapping windows:

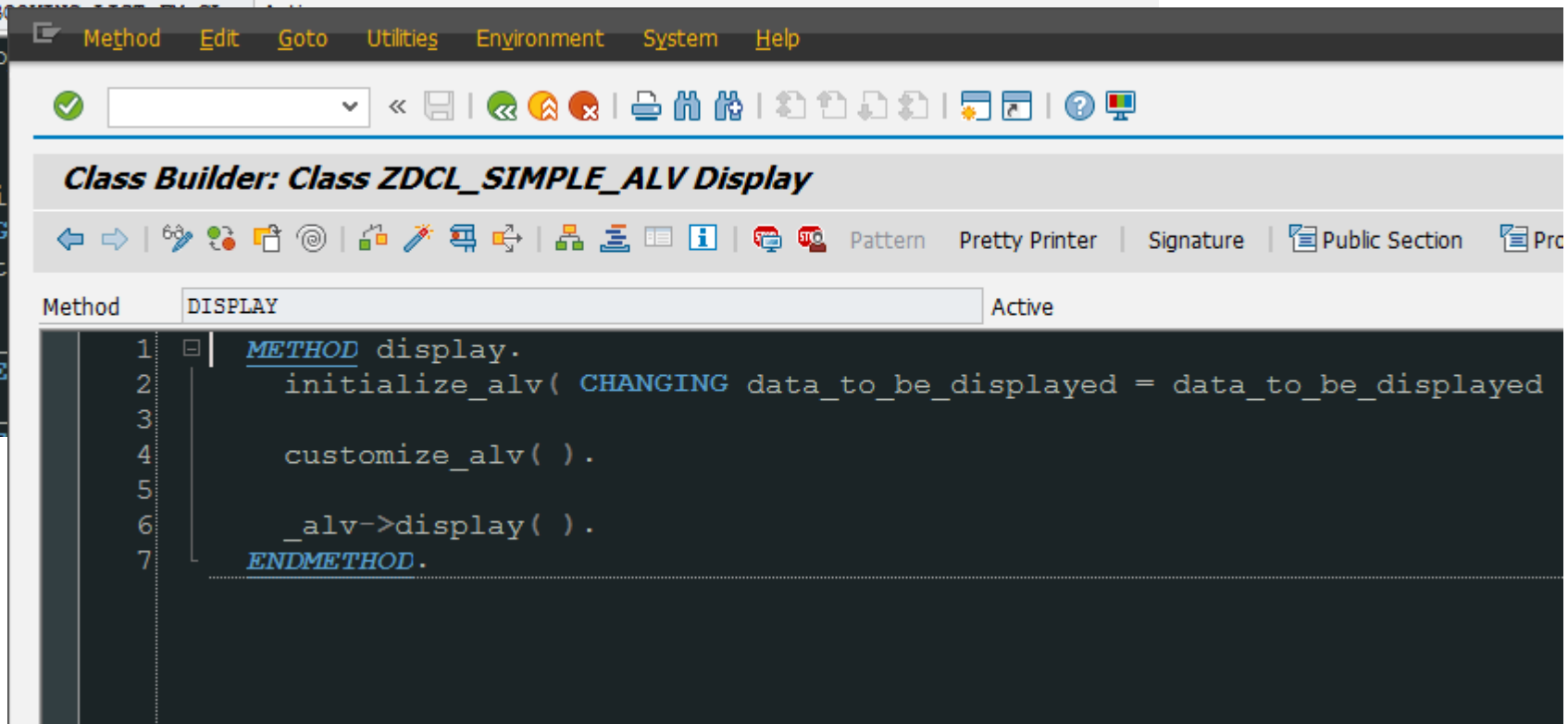
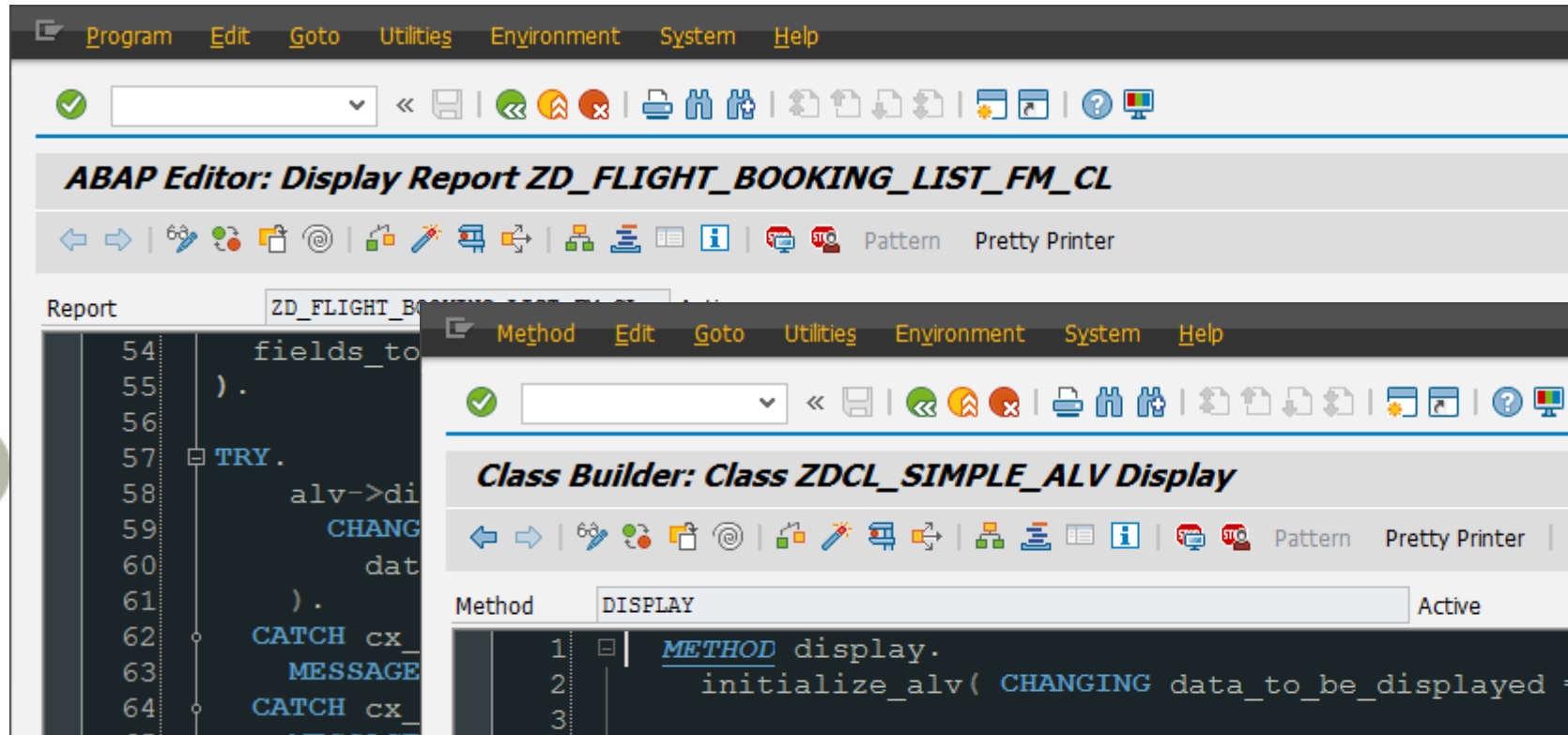
- ABAP Editor: Display Report ZD\_FLIGHT\_BOOKING\_LIST\_FM\_CL**
  - Menu: Program, Edit, Goto, Utilities, Environment, System, Help
  - Toolbar: Includes icons for saving, undo, redo, and other editor functions.
  - Code Snippet:

```
12 "-----
13 "$. Region
14 "-----
15 DATA flight
16
17 SELECT * FR
18 WHERE fld
19
20 "-----
21 "$. Endregi
22 "-----
```
- Dictionary: Display Table**
  - Menu: Table, Edit, Goto, Utilities, Extras, Environment, System, Help
  - Toolbar: Includes icons for technical settings, indexes, and structure.
  - Table Information:
    - Transparent Table: SBOOK
    - Short Description: Single Flight Booking
  - Tabs: Attributes, Delivery and Maintenance, **Fields**, Entry help/check, Currency/Quantity Fields
  - Table Structure (1 / 24):

Field	Key	Ini...	Data element	Data Type	Length	Deci...	Short Description
MANDT	✓	✓	S_MANDT	CLNT	3	0	Client
CARRID	✓	✓	S_CARR_ID	CHAR	3	0	Airline Code
CONNID	✓	✓	S_CONN_ID	NUMC	4	0	Flight Connection Number
FLDATE	✓	✓	S_DATE	DATS	8	0	Flight date
BOOKID	✓	✓	S_BOOK_ID	NUMC	8	0	Booking number

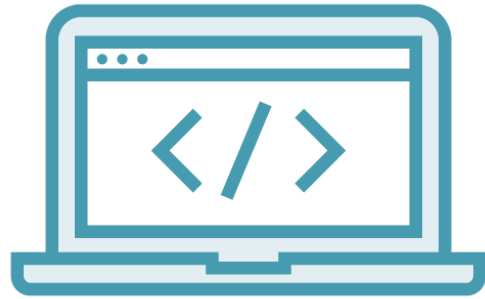


# Navigation Within the ABAP Workbench





# Type of the ABAP Workbench Tools



Development Tools



Analysis Tools

# Development Tools



ABAP Editor



Screen Painter



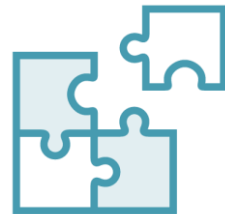
Web Dynpro  
Explorer



ABAP Dictionary



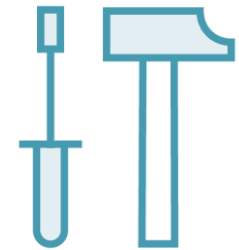
Function Builder



Class Builder



Gateway  
Service Builder



Enhancement  
Framework



Development

Next

**ABAP Editor**



ABAP Editor



Screen Painter



Web Dynpro  
Explorer



ABAP Dictionary



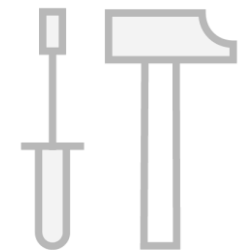
Function Builder



Class Builder



Gateway  
Service Builder



Enhancement  
Framework



# Demo



## SE38 ABAP Editor

A screenshot of the SAP SE38 ABAP Editor. The title bar reads "ABAP Editor: Display Report ZD\_FLIGHT\_BOOKING\_LIST". The menu bar includes "Program", "Edit", "Goto", "Utilities", "Environment", "System", and "Help". Below the menu is a toolbar with various icons for saving, undo, redo, and other editor functions. The main area shows the code for the report "ZD\_FLIGHT\_BOOKING\_LIST". The code is as follows:

```
1  REPORT zd_flight_booking_list.
2
3  "-----
4  "$. Region      Define a selection field for Flight Date
5  "-----
6  PARAMETERS pfldate TYPE sy-datum OBLIGATORY DEFAULT '20100113'.
7
8  "-----
9  "$. Endregion
10 "-----
11
12 "-----
13 "$. Region      Query first 40 flight bookings for selected date
14 "-----
15 DATA flight_bookings TYPE STANDARD TABLE OF sbook.
16
17 SELECT * FROM sbook INTO TABLE flight_bookings UP TO 40 ROWS
18     WHERE fldate = pfldate.
19
20 "-----
21 "$. Endregion
```



# Demo



## SE51 Screen Painter

Screen Painter: Display Screen SAPMV45A 4440

Screen Edit Goto Utilities(M) Environment Help

Flow logic Attributes Element List

Name

General header data

Sales Doc. Type									
Description									
Req. deliv.date				Deliver.Plant					
Valid from				Valid to					
Valid from				Valid to					
<input type="checkbox"/> Complete dlv.				Total Weight					
Delivery block				Volume					
Billing block				Pricing date					
Total amount				Doc. Currency					
Payment card				Exp.date					
Card Verif.Code									
Payment terms				Incoterms					
				Delivery time					
Order reason									
Sales area									
Promotion									
Catalog									
Catalog code									



# Demo



## SE80 Web Dynpro Explorer

View Edit Goto Utilities Environment System Help

Web Dynpro Explorer: Display View for Z\_FLIGHT\_BOOKINGS

Connectivity Browser  
MIME Repository  
Repository Browser  
Repository Information System  
Tag Browser  
Transport Organizer  
Test Repository

Web Dynpro Comp. / Intf. ▼  
Z\_FLIGHT\_BOOKINGS

Object Name Description

- ▼ Z\_FLIGHT\_BOOKINGS List of Flight Bookings
  - COMPONENTCONTROLLER
  - > Component Interface
  - ▼ Views
    - MAIN
  - > Windows
  - > Web Dynpro Applications

View MAIN

Properties Layout Inbound Plugs Out


### Search For Flights

From  
City: MAIN.DESTINATION\_F Country: MAIN.D

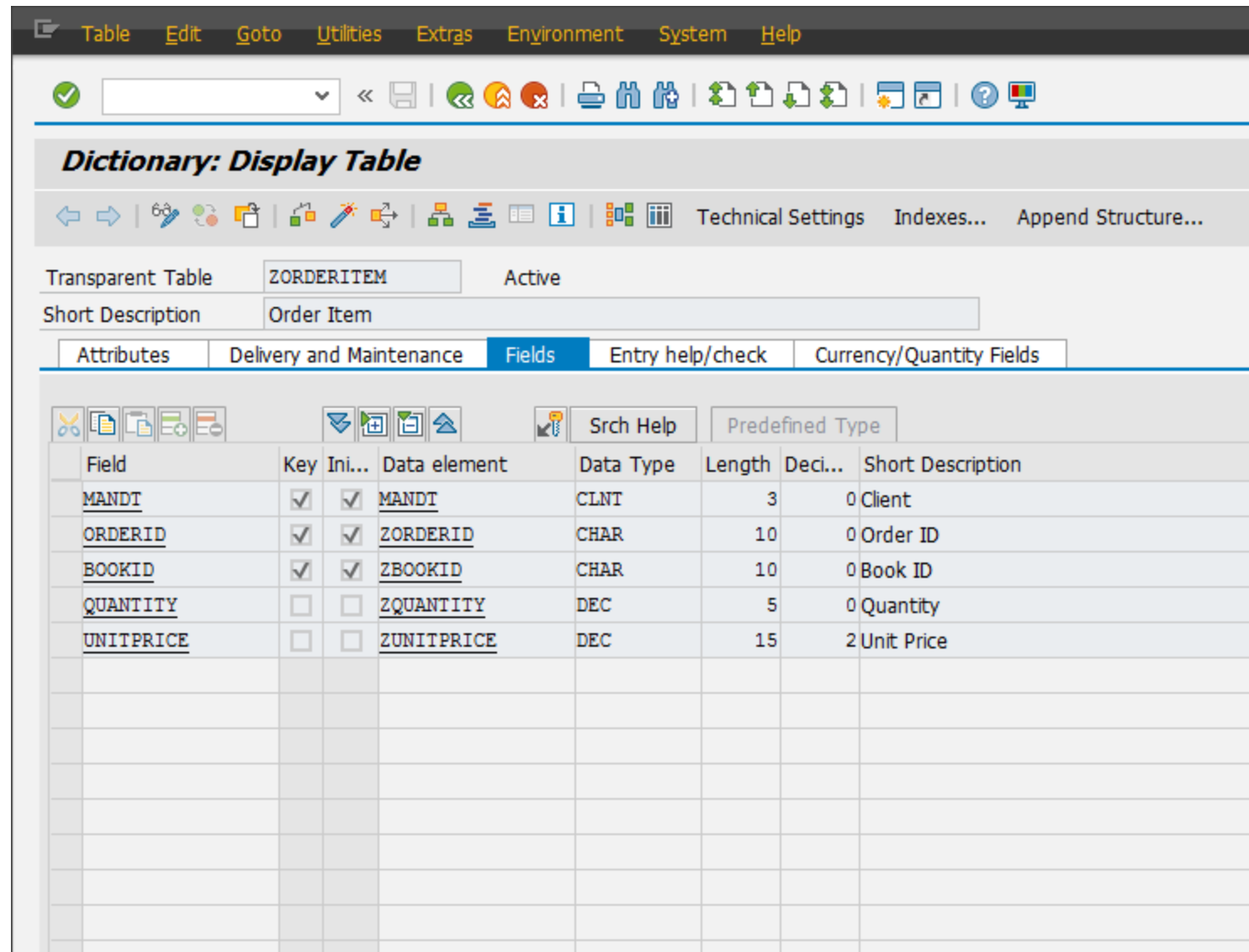
### Flights

Airline	Airline
MAIN.FLIGHT_LIST.AIRLINEID	MAIN.FLIGHT_L
MAIN.FLIGHT_LIST.AIRLINEID	MAIN.FLIGHT_L
MAIN.FLIGHT_LIST.AIRLINEID	MAIN.FLIGHT_L
MAIN.FLIGHT_LIST.AIRLINEID	MAIN.FLIGHT_L





# SE11



# Demo



## SE37 Function Builder

The screenshot shows the SE37 Function Builder interface. At the top, there's a menu bar with 'Function Module', 'Edit', 'Goto', 'Utilities', 'Environment', 'System', and 'Help'. Below the menu is a toolbar with various icons. The main title bar reads 'Function Builder: Display ZD\_DETERMINE\_NAME\_OF\_THE\_DAY'. Below this is another toolbar with icons for navigation and editing, followed by the text 'Pattern', 'Pretty Printer', and 'Function Module Document'. A tab labeled 'Function module' is active, showing 'ZD\_DETERMINE\_NAME\_OF\_THE\_DAY' as 'Active'. Below the tab are several sub-tabs: 'Attributes', 'Import', 'Export', 'Changing', 'Tables', 'Exceptions', and 'Source code'. The 'Source code' tab is selected, displaying the following code:

```
1  FUNCTION zd_determine_name_of_the_day.  
2  *"  
3  *""Local Interface:  
4  *"  IMPORTING  
5  *"    REFERENCE (DATE) TYPE  D  
6  *"  EXPORTING  
7  *"    REFERENCE (NAME_OF_THE_DAY) TYPE  STRING  
8  *"  
9  
10 DATA(day_of_the_week) = date MOD 7.  
11  
12 IF day_of_the_week > 1.  
13   day_of_the_week = day_of_the_week - 1.  
14 ELSE.  
15   day_of_the_week = day_of_the_week + 6.  
16 ENDIF.  
17  
18 name_of_the_day = SWITCH string(
```





# Demo



## SE24 Class Builder

Class Edit Goto Utilities Environment System Help

Class Builder: Display Class ZDCL\_SIMPLE\_ALV

Local Definitions/Implementations Local Test C

Class/Interface ZDCL\_SIMPLE\_ALV Implemented / Active

Properties Interfaces Friends Attributes **Methods** Events Types Aliases

Parameter Exception

Method	Level	Visibility	M...	Description
CONSTRUCTOR	Instance Method	Public		
DISPLAY	Instance Method	Public		
INITIALIZE_ALV	Instance Method	Private		
CUSTOMIZE_ALV	Instance Method	Private		
SET_TOOLBAR	Instance Method	Private		
OPTIMIZE_COLUMN_WIDTH	Instance Method	Private		
DISPLAY_SETTINGS	Instance Method	Private		
HIDE_COLUMNS	Instance Method	Private		



# Demo



## SEGW Gateway Service Builder

Project Edit Goto Extras System Help

Properties

Name	Key	Edm Type	Prec.	Scale	Max...	Unit Prop.	Crea...	Upd...	S
AirlineId	<input checked="" type="checkbox"/>	Edm.String	0	0	3		<input type="checkbox"/>	<input type="checkbox"/>	
FlightConne...	<input checked="" type="checkbox"/>	Edm.String	0	0	4		<input type="checkbox"/>	<input type="checkbox"/>	
FlightDate	<input checked="" type="checkbox"/>	Edm.DateTi...	0	0	0		<input type="checkbox"/>	<input type="checkbox"/>	
Price	<input type="checkbox"/>	Edm.Decimal	8	2	0		<input type="checkbox"/>	<input type="checkbox"/>	
Currency	<input type="checkbox"/>	Edm.String	0	0	5		<input type="checkbox"/>	<input type="checkbox"/>	
PlaneType	<input type="checkbox"/>	Edm.String	0	0	10		<input type="checkbox"/>	<input type="checkbox"/>	
EconomyM...	<input type="checkbox"/>	Edm.Int32	0	0	0		<input type="checkbox"/>	<input type="checkbox"/>	
EconomyO...	<input type="checkbox"/>	Edm.Int32	0	0	0		<input type="checkbox"/>	<input type="checkbox"/>	
TotalPayme...	<input type="checkbox"/>	Edm.Decimal	9	2	0		<input type="checkbox"/>	<input type="checkbox"/>	
BusinessMa...	<input type="checkbox"/>	Edm.Int32	0	0	0		<input type="checkbox"/>	<input type="checkbox"/>	
BusinessOc...	<input type="checkbox"/>	Edm.Int32	0	0	0		<input type="checkbox"/>	<input type="checkbox"/>	
FirstClassMa...	<input type="checkbox"/>	Edm.Int32	0	0	0		<input type="checkbox"/>	<input type="checkbox"/>	
FirstClassOc...	<input type="checkbox"/>	Edm.Int32	0	0	0		<input type="checkbox"/>	<input type="checkbox"/>	

Properties

- z\_FLIGHT\_LIST
  - Data Model
    - Entity Types
      - Flight
        - Properties
          - Navigation Properties
        - Associations
        - Entity Sets
      - Service Implementation
        - Flights
          - Create
          - Delete
          - GetEntity (Read)
          - GetEntitySet (Query)
          - Update
      - Runtime Artifacts
        - z\_FLIGHT\_LIST\_MDL
        - z\_FLIGHT\_LIST\_SRV
        - ZCL\_Z\_FLIGHT\_LIST\_DPC
        - ZCL\_Z\_FLIGHT\_LIST\_DPC\_E
        - ZCL\_Z\_FLIGHT\_LIST\_MPC
        - ZCL\_Z\_FLIGHT\_LIST\_MPC\_E
      - Service Maintenance



# Demo



# Enhancement Framework

A screenshot of the SAP ABAP Editor interface. The title bar reads "ABAP Editor: Display Include MV75AFT0\_COMMENT\_BUILD". The editor shows an "Include" list with "MV75AFT0\_COMMENT\_BUILD" selected and marked as "Active". The code area displays an enhancement framework implementation starting at line 137. Line 139 contains the enhancement point: `ENHANCEMENT 1 ZEXP_MV75AFT0_COMMENT_BUILD. "active version`. The code then defines three lines of text to be added to an ALV grid. Line 141: `CLEAR LS_LINE.` Line 142: `LS_LINE-TYP = 'S'.` Line 143: `LS_LINE-INFO = ' '.` Line 144: `APPEND LS_LINE TO P_GS_SD_ALV-GRID_TOP_OF_PAGE.` Line 146: `CLEAR LS_LINE.` Line 147: `LS_LINE-TYP = 'S'.` Line 148: `LS_LINE-KEY = 'Course'.` Line 149: `LS_LINE-INFO = 'ABAP Workbench: The Big Picture'.` Line 150: `APPEND LS_LINE TO P_GS_SD_ALV-GRID_TOP_OF_PAGE.` Line 152: `CLEAR LS_LINE.` Line 153: `LS_LINE-TYP = 'S'.` Line 154: `LS_LINE-KEY = 'Author'.` Line 155: `LS_LINE-INFO = '@abapmentor'.` Line 156: `APPEND LS_LINE TO P_GS_SD_ALV-GRID_TOP_OF_PAGE.` Line 157 is partially visible at the bottom.

```
137 *****
138 *$$$-Start: (1)-----
139 ENHANCEMENT 1 ZEXP_MV75AFT0_COMMENT_BUILD.      "active version
140
141 CLEAR LS_LINE.
142 LS_LINE-TYP = 'S'.
143 LS_LINE-INFO = ' '.
144 APPEND LS_LINE TO P_GS_SD_ALV-GRID_TOP_OF_PAGE.
145
146 CLEAR LS_LINE.
147 LS_LINE-TYP = 'S'.
148 LS_LINE-KEY = 'Course'.
149 LS_LINE-INFO = 'ABAP Workbench: The Big Picture'.
150 APPEND LS_LINE TO P_GS_SD_ALV-GRID_TOP_OF_PAGE.
151
152 CLEAR LS_LINE.
153 LS_LINE-TYP = 'S'.
154 LS_LINE-KEY = 'Author'.
155 LS_LINE-INFO = '@abapmentor'.
156 APPEND LS_LINE TO P_GS_SD_ALV-GRID_TOP_OF_PAGE.
157
```



# What Else?

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# Object Navigator

The screenshot displays the SAP ABAP Editor interface. The title bar indicates the current report is **Display Report ZD\_FLIGHT\_BOOKING\_LIST\_FM\_CL**. The menu bar includes Program, Edit, Goto, Utilities, Environment, System, and Help. The toolbar contains various icons for file operations and development tools.

On the left, the **Object Navigator** pane shows a tree structure of the project. The selected object is **ZD\_FLIGHT\_BOOKING\_LIST\_FM\_CL**, which is a Flight Booking List. The tree structure is as follows:

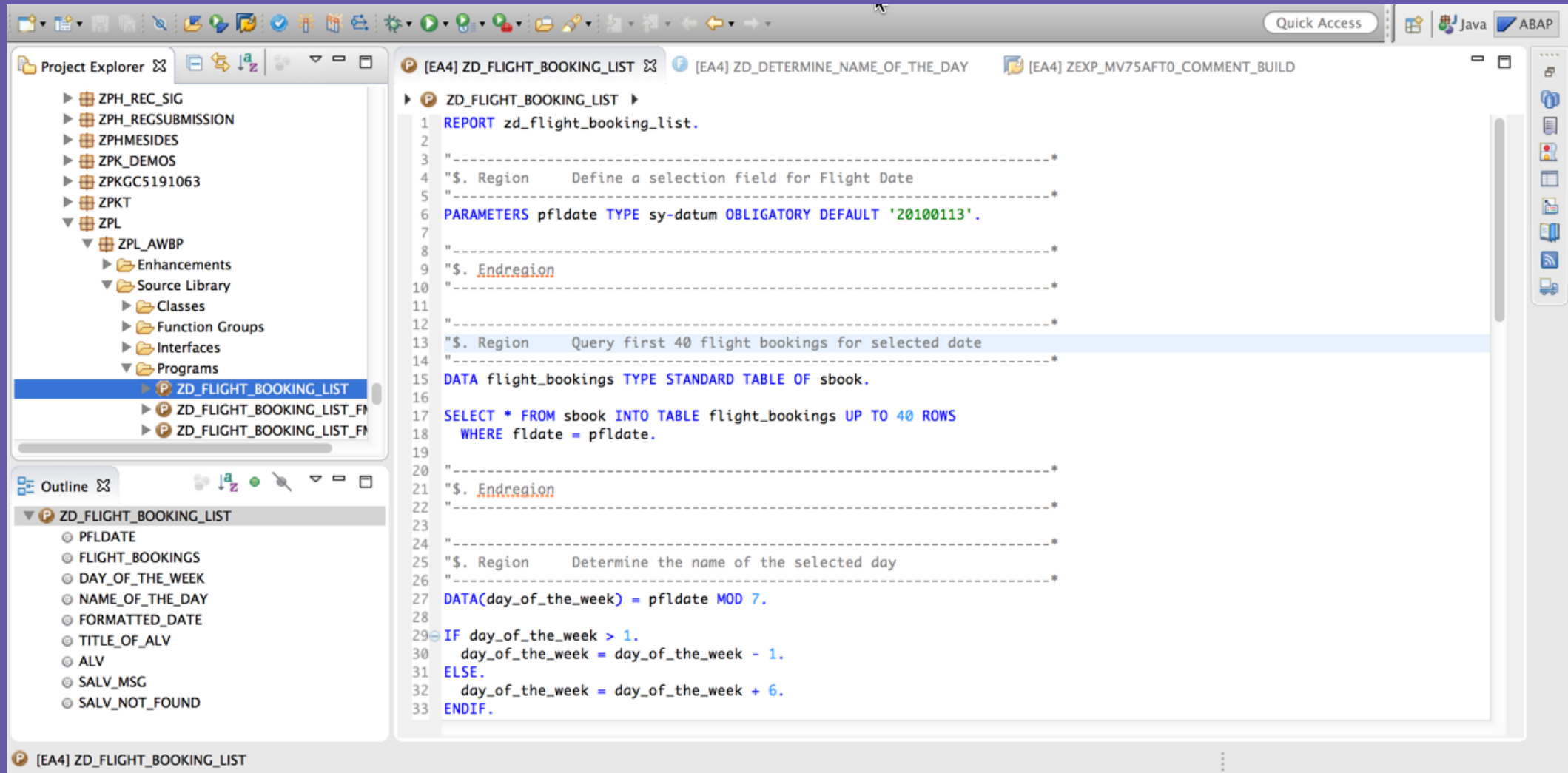
- Package: ZPL
  - Subpackages
    - ZPL\_AWBP
      - Class Library
        - Programs
          - ZD\_FLIGHT\_BOOKING\_LIST (Flight Booking Li)
          - ZD\_FLIGHT\_BOOKING\_LIST\_FM (Flight Booking Li)
          - ZD\_FLIGHT\_BOOKING\_LIST\_FM\_CL** (Flight Booking Li)
          - Fields
          - Screens
- Function Groups
- Web Dynpro
- Switch Framework Objects
- GW Service Builder Projects

The main editor area displays the ABAP code for the report. The code is as follows:

```
1 REPORT zd_flight_booking_list_fm_cl.
2
3 "-----
4 "$. Region    Define a selection field for Flight Date
5 "-----
6 PARAMETERS pfldate TYPE sy-datum OBLIGATORY DEFAULT '20100113'.
7
8 "-----
9 "$. Endregion
10 "-----
11
12 "-----
13 "$. Region    Query first 40 flight bookings for selected date
14 "-----
15 DATA flight_bookings TYPE STANDARD TABLE OF sbook.
16
17 SELECT * FROM sbook INTO TABLE flight_bookings UP TO 40 ROWS
18   WHERE fldate = pfldate.
19
20 "-----
21 "$. Endregion
22 "-----
23
24 "-----
25 "$. Region    Display the data of the selected date
26 "-----
```

The status bar at the bottom indicates the current position is line 1, column 1, and the language is ABAP.

# ABAP in Eclipse



# ABAP in BW

## Introduction to ABAP for SAP Business Warehouse Developers

by Laszlo Meszaros

This course brings ABAP programming and SAP Business Warehouse together. Learn ABAP development practices that will bring balance, quality, and performance to your projects.

▶ Resume Course

Table of contents

Description

Transcript

Exercise files

Discussion

Learning Check

Recommended

Course author



Laszlo Meszaros

Laszlo is an official certified SAP BW/BI consultant and trainer with over 10 years of IT experience. He specializes in SAP Business Warehouse/Business Intelligence but also enthusiastic about ot...

Course info

Level Intermediate

Rating ★★★★★ (41)

My rating ★★★★★

Duration 3h 47m





# ABAP in BW

Next

## Summary

### Introduction to ABAP for SAP Business Warehouse Developers

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This course brings ABAP programming and SAP Business Warehouse together. Learn ABAP development practices that will bring balance, quality, and performance to your projects.

▶ Resume Course



Laszlo Meszaros

Laszlo is an official certified SAP BW/BI consultant and trainer with over 10 years of IT experience. He specializes in SAP Business Warehouse/Business Intelligence but also enthusiastic about ot...

#### Course info

Level Intermediate

Rating ★★★★★ (41)

My rating ★★★★★

Duration 3h 47m

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# Summary



## What Can You Develop in ABAP?

- Not ABAP applications
- Report & Dialog Programs, ...

## ABAP Workbench

- Integration among the tools
- Development & Analysis Tools

## ABAP Workbench: Development Tools

- Implemented as different transactions
- Checked an example for each of them

## What Else?

- Object Navigator, Eclipse
- SAP Business Warehouse



Next Module

# Working with the ABAP Editor



- Integration among the tools
- Development & Analysis Tools

## ABAP Workbench: Development Tools

- Implemented as different transactions
- Checked an example for each of them

## What Else?

- Object Navigator, Eclipse
- SAP Business Warehouse

