Enterprise Wide Information Systems

ABAP/ 4 Programming Language

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Objectives

- **Upon completion of this topic, you should be able to:**

  - **Define the general terms associated with the ABAP/4 Workbench.**

  - **Work with the ABAP/4 Object Browser.**

  - **Create a program object.**

  - **Access tables to generate a report.**

Topics

- **ABAP/4 Development Workbench**

- ABAP/4 Data Dictionary

- ABAP/4 Repository Information

ABAP/4 Development Workbench Architecture

- **The Development Workbench provides access to SAP's development tools.**
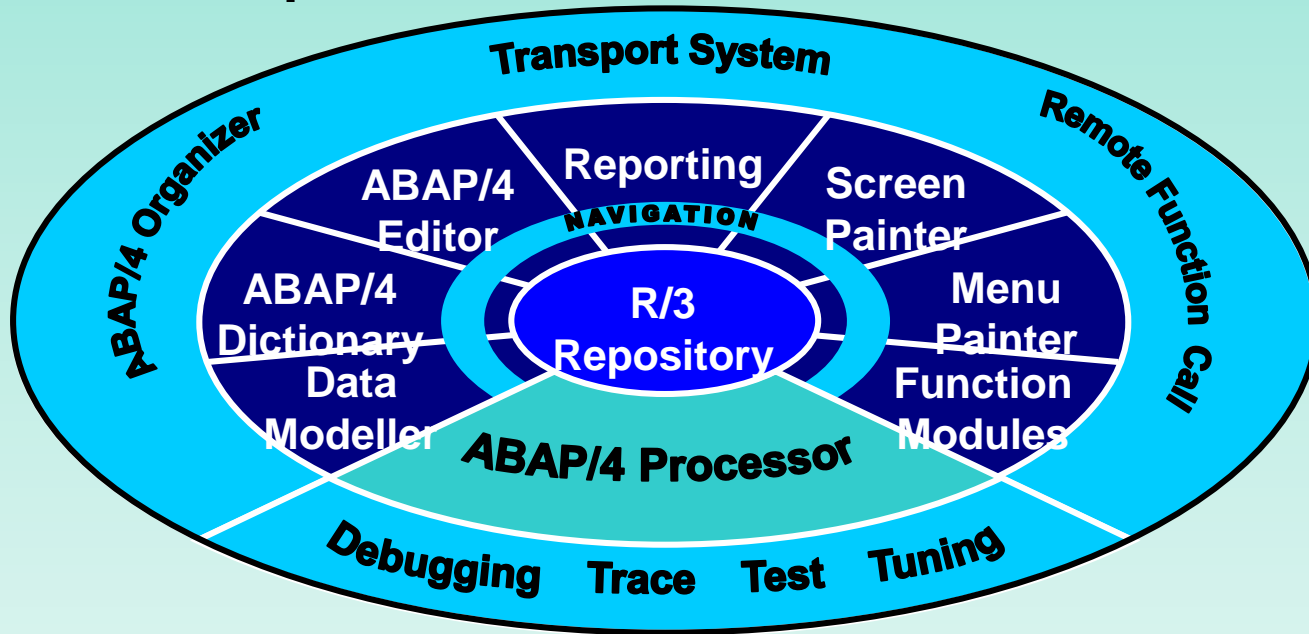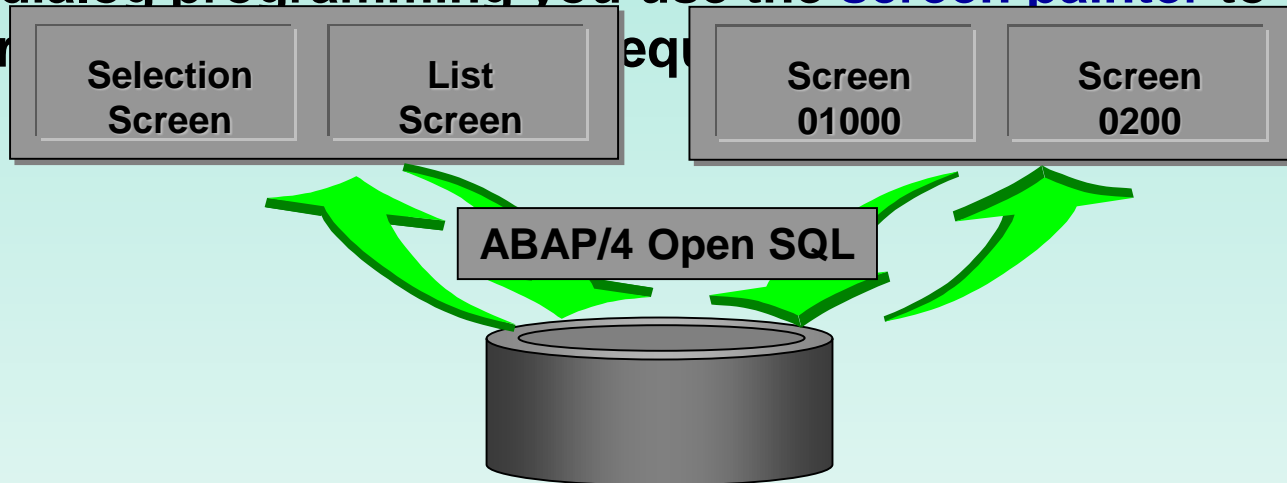
ABAP/4 Development Workbench Architecture

- **All programs are stored in the R/3 Repository.**

  - A program is simply an object.

- **All definitions are kept in the data dictionary.**

  - e.g. variable descriptions and parameters of fields.

- **Double-clicking will navigate you to wherever the object is stored.**

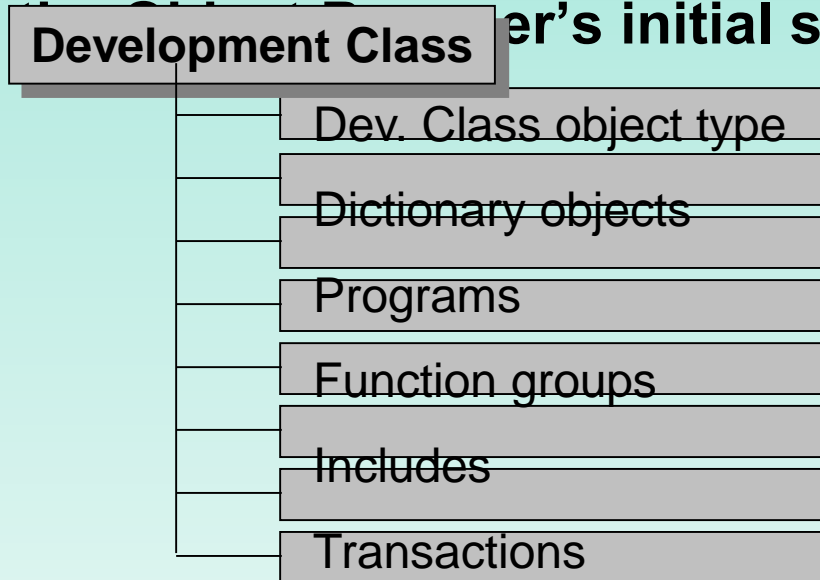- **Remote call functions let you access other systems.**

Reporting and Dialog Programming

- **In reporting you use the ABAP/4 Open SQL to read data from the R/3 database**

  - **A report consists of a selection screen on which you define the dataset you wish to display, and a list which displays the data itself.**

- **In dialog programming you use the screen painter to create scr**equ**ear.**

Selection Screen	List Screen

Screen 01000	Screen 0200

ABAP/4 Open SQL

ABAP/4 Program Objects

- **You can use the ABAP/4 Development Workbench to create ABAP/4 programs.**

- **You can call objects from the object list generated from the Object Browser's initial screen.**

Development Class

Dev. Class object type

Dictionary objects

Programs

Function groups

Includes

Transactions

ABAP/4 Programs

- **All ABAP/4 programs (objects) are made up of:**

  - **Source code**

  - **Text elements**

  - **Attributes**

ABAP/4 Program

Attributes

Source Code

Text Elements
• Titles
• Headers
• Text symbols

Creating Programs

- **Begin by first specifying a development class.**

  - **Development classes are categories of SAP objects (e.g.** *program object***).**

- **Customer-specific program names begin with Y or Z.**

- **If you are creating a test object which you <u>do not wish to be transported</u>, choose** *Local Object***.**

  - **The development class is then set to $TMP automatically.**

The ABAP/4 Editor

- **The ABAP/4 Editor can run in three different modes:**

  1. **Command mode**

  2. **PC mode with line numbering**

  3. **PC mode without line numbering**

- **You can switch between editor modes by choosing** *Settings → Editor mode*

  - **It is recommended that you do your work in PC mode with line numbering**

ABAP/4 Syntax

- **An ABAP/4 program consists of individual statements**
  - **Each statement must end with a period.**
  - **The first word of a statement is known as the key word.**
  - **Words are separated from each other by at least one blank.**
  - **Statements can be indented.**
  - **Statements can extend over several lines.**
- **You can concatenate several consecutive statements with an identical key word (e.g. *WRITE:*).**
  - **Follow the key word with a colon.**
  - **Separate each concatenated part with a comma.**

ABAP/4 Syntax (cont.)

● **You can insert comments into a program in two ways:**

  1. **An asterisk (*) in column 1 flags the whole line as a comment.**

  2. **A quotation mark (") within a line flags the remainder of the line as a comment.**

Tables and the Select Statement

- The *Tables: <name>* statement declares an ABAP/4 Dictionary table in the ABAP/4 program and allocates a table work area with the structure of *<name>*.

- The *Select* statement reads the table *<name>* line by line and places each line read in the table work area.

e *Tables:* statement in the editor will
ned in the d

```
Report   ZDEMO1.
TABLES:  SBOOK.
SELECT  *  FROM SBOOK
            WHERE CARRID  =  'LH'.
ENDSELECT.
WRITE :  CARRID, FLTDATE.
```

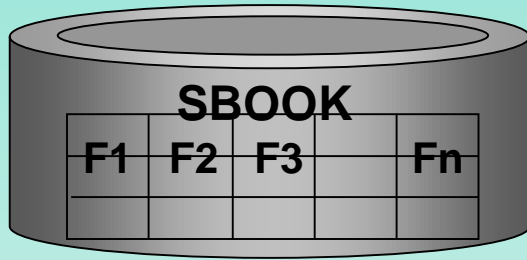**Read table**

Table SBOOK

Table work area

Accessing Tables   (In summary…)
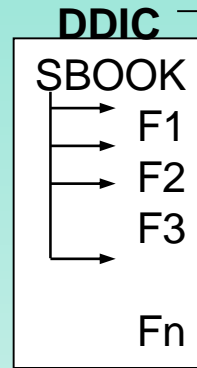
DDIC — Definition in the Data Dictionary

SBOOK
- F1
- F2
- F3

Fn

Database

SBOOK

F1	F2	F3		Fn

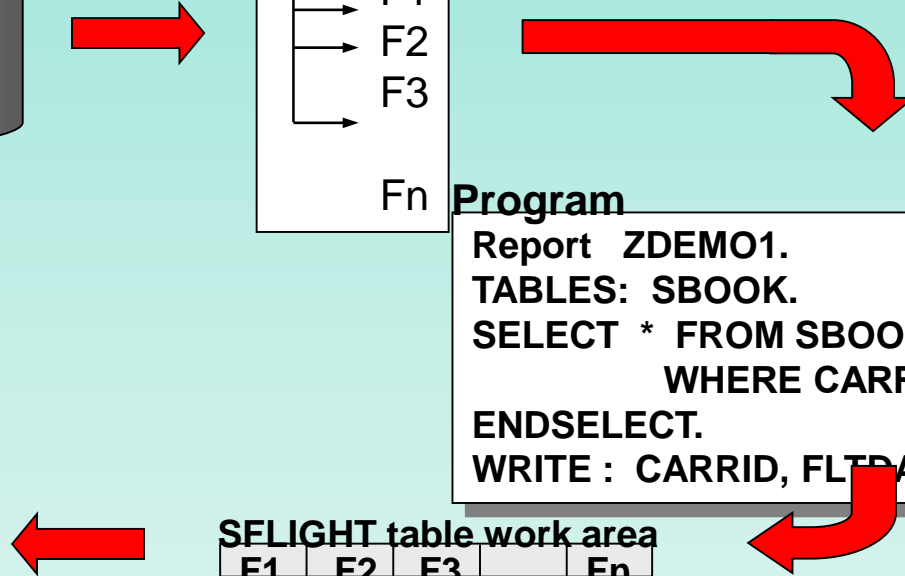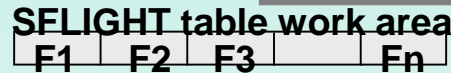**Program**

```
Report   ZDEMO1.
TABLES:  SBOOK.
SELECT  *  FROM SBOOK
             WHERE CARRID  =  'LH'.
ENDSELECT.
WRITE :  CARRID, FLTDATE.
```

Report

SFLIGHT table work area

| F1	F2	F3		Fn

Topics

- ABAP/4 Development Workbench

- **ABAP/4 Data Dictionary**

- ABAP/4 Repository Information

Basic Dictionary Objects

- **Tables - collection of records of data in fields.**

- **Data elements - contain the semantic definition (e.g. short description) of what is contained w/in a field.**

- **Domains - describe the technical attributes of the table's fields (e.g. field type, length, value range, etc.).**

Table		
	Table field	

uses → **Data element**

uses → **Domain**
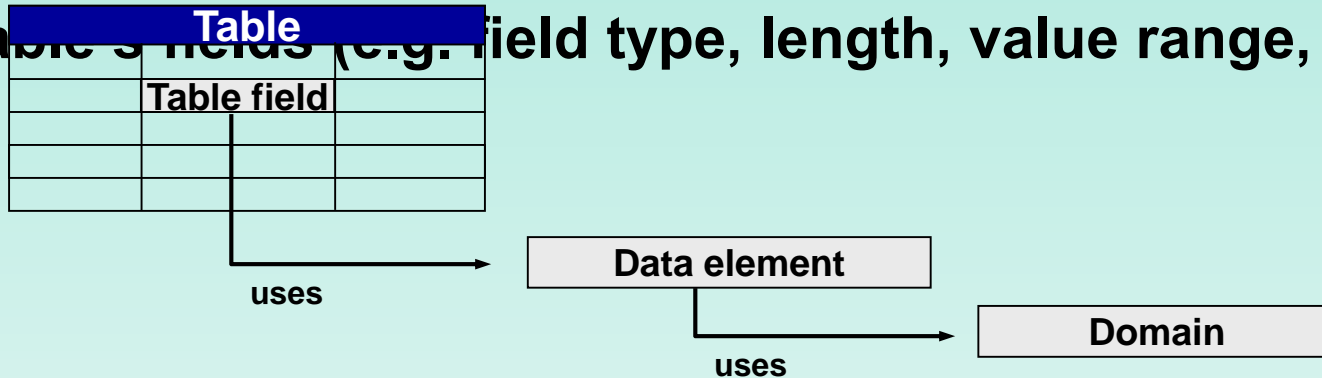
Structures and Aggregated Objects (Views)

- **Besides defining tables stored in the database, you can also define the structure of data which occurs when performing calculations in programs, or when passing data between programs.**

    - **Structures are defined and activated in the ABAP/4 Dictionary.**

    - **While data can be permanently stored in the database, data in structures exists only during the runtime of a program.**

- **Aggregated objects are objects which come from several different tables.**

    - **Views are application-specific views of different ABAP/4 Dictionary tables.**

    - **Views allow you to gather information from fields of different**
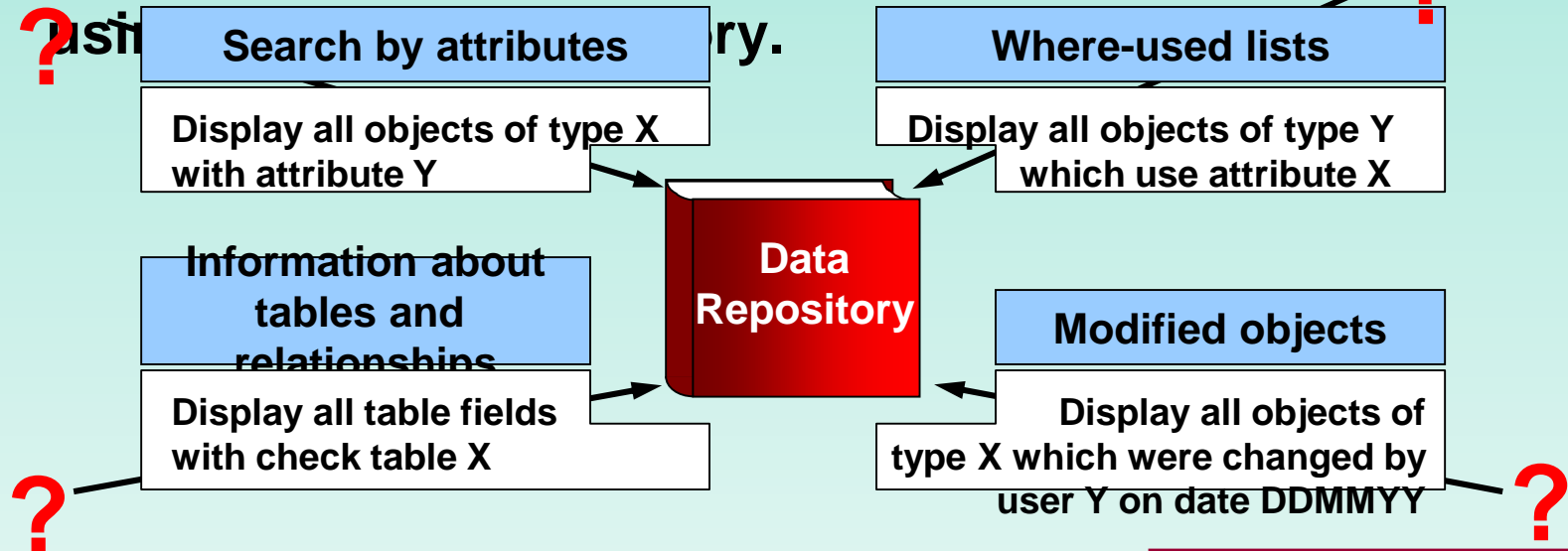
ABAP/4 Dictionary (In summary)

- **The ABAP/4 Dictionary is the central facility in the system where you can create and maintain data declarations, tables, structures and aggregated objects.**

- **Since it is integrated into the ABAP/4 Development Workbench as an active component, any change made in the ABAP/4 Dictionary takes immediate effect in programs affected.**

Topics

- ABAP/4 Development Workbench

- ABAP/4 Data Dictionary

- **ABAP/4 Repository Information**

ABAP/4 Repository Information

- **The ABAP/4 Repository Information System allows you to obtain information about objects (tables, fields, domains, etc.) in the ABAP/4 Repository.**

- **You can find anything that is used in programs by using the Repository.**

?

Search by attributes
Display all objects of type X with attribute Y

?

Where-used lists
Display all objects of type Y which use attribute X

Data Repository

Information about tables and relationships
Display all table fields with check table X

?

Modified objects
Display all objects of type X which were changed by user Y on date DDMMYY

?

ABAP/4 Repository (In summary)

- **The ABAP/4 Repository Information System allows search for ABAP/4 Development Workbench objects by specifying required attributes.**

   From the ABAP/4 Development Workbench:

   Overview → Repository Infosy.