

# **ABAP RAP-**

# **RESTFUL APPLICATION PROGRAMMING**

## **PART 1**

SUMMARY & COMPILATION OF MY LEARNING WITH A NUMBER OF ONLINE  
COURSES & TUTORIALS INCLUDING DEVELOPED BY ME SAMPLES

# T here are 3 main layers in ABAP RAP Model—

- Data Modeling & Behavior Layer
- Business Service Provisioning Layer
- Service Consumption Layer

**Data Modeling and Behavior Layer** contains business objects which are defined by the CDS(Core Data Services) and transactional behavior.

**Business Service Provisioning Layer** defines the projection views of the behavior to focus on specific aspect of the data model which is exposed as business services through OData protocol.

**Service Consumption Layer** allows to consume the OData Services and OData web APIs.

# Architecture Deep Dive

## CONSUMPTION

### WEB APIs

Consume OData based services

### EVENTS

Consume business events

### SAP FIORI UIs

Consume OData based UI services

## BUSINESS SERVICE EXPOSURE

**SERVICE BINDING** – Bind to protocol version and scenario

**SERVICE DEFINITION** – Define scope to be exposed

### BUSINESS OBJECT PROJECTION AND INTERFACES

CDS: BO projection views

BDEF: Behavior projection

ABAP: Behavior implementation\*

EXTENSIBILITY

## DATA MODELING & BEHAVIOR

### CDS ENTITIES

CDS: Data modeling

### BUSINESS OBJECTS

CDS: Data modeling

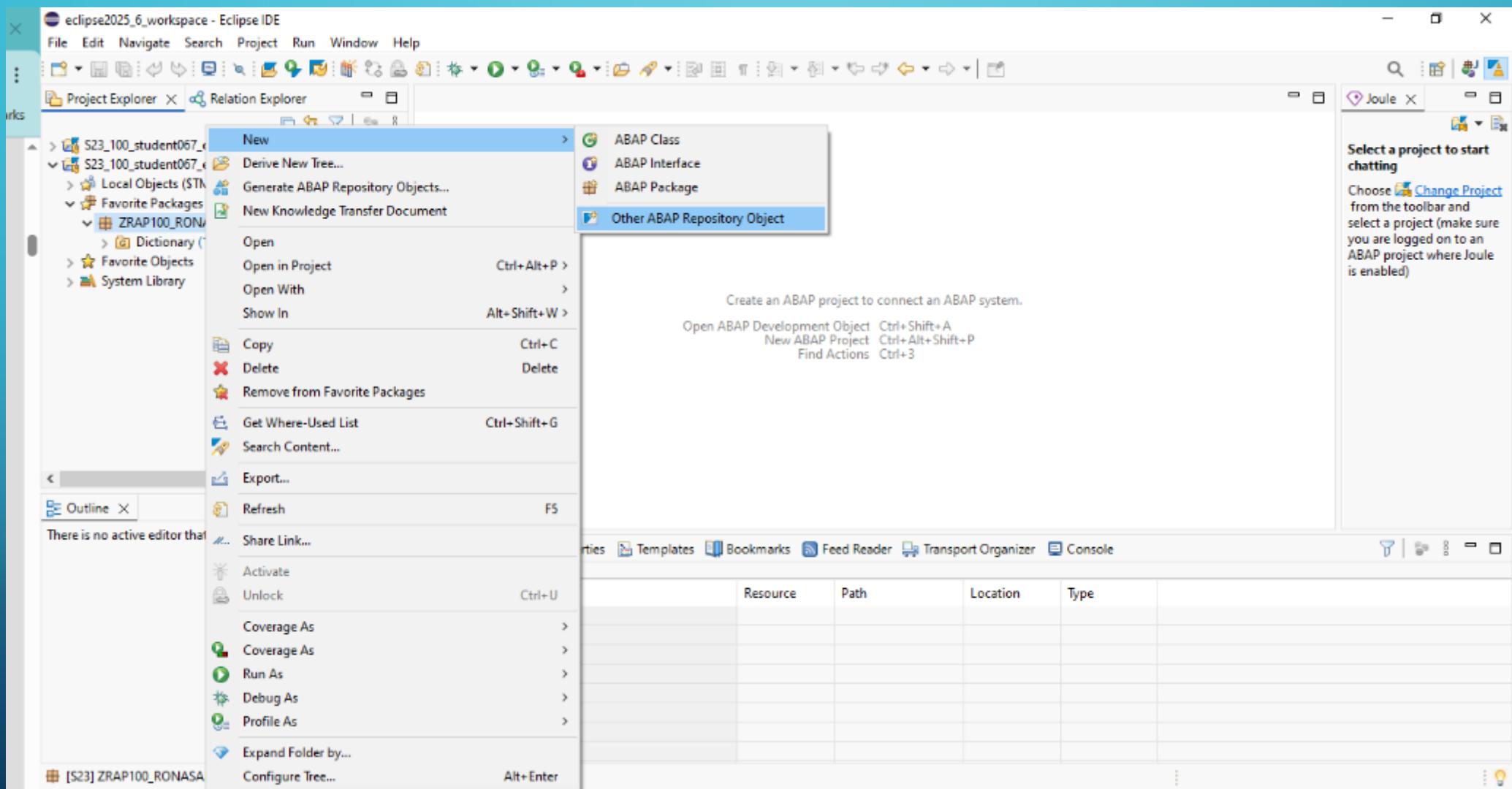
BDEF: Behavior definition

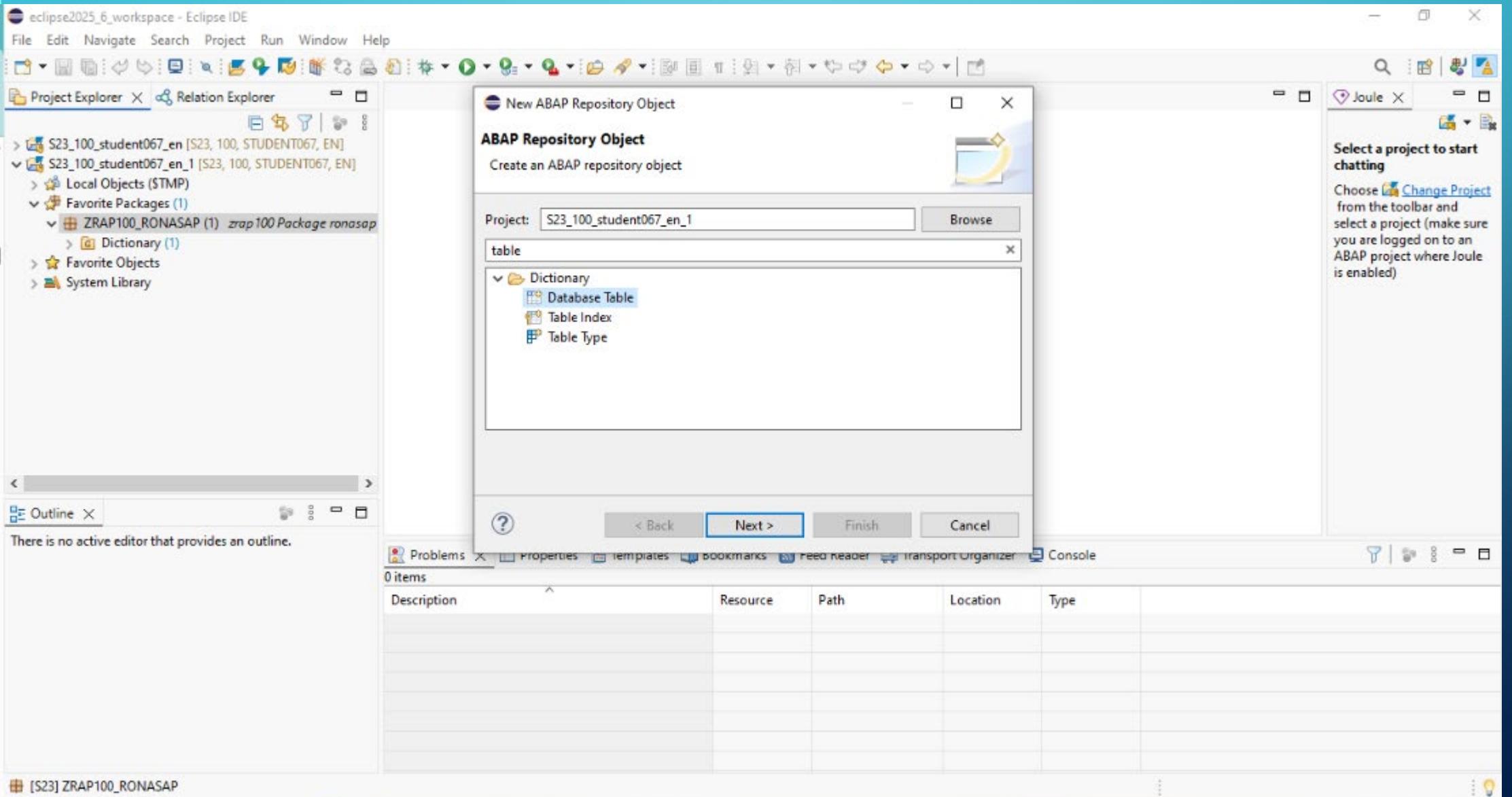
ABAP: Behavior implementation

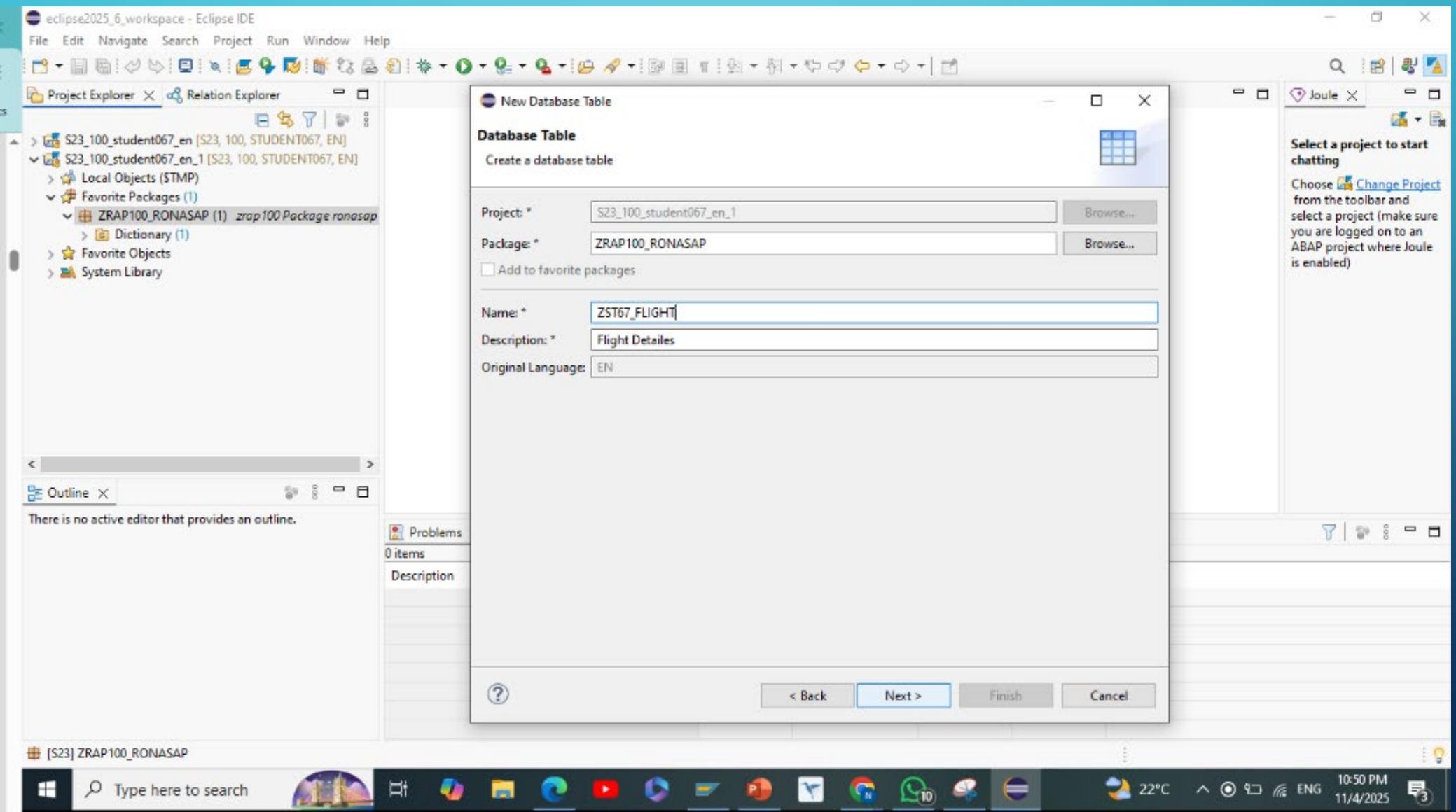
## THE STEPS INVOLVED IN THIS EXERCISE-

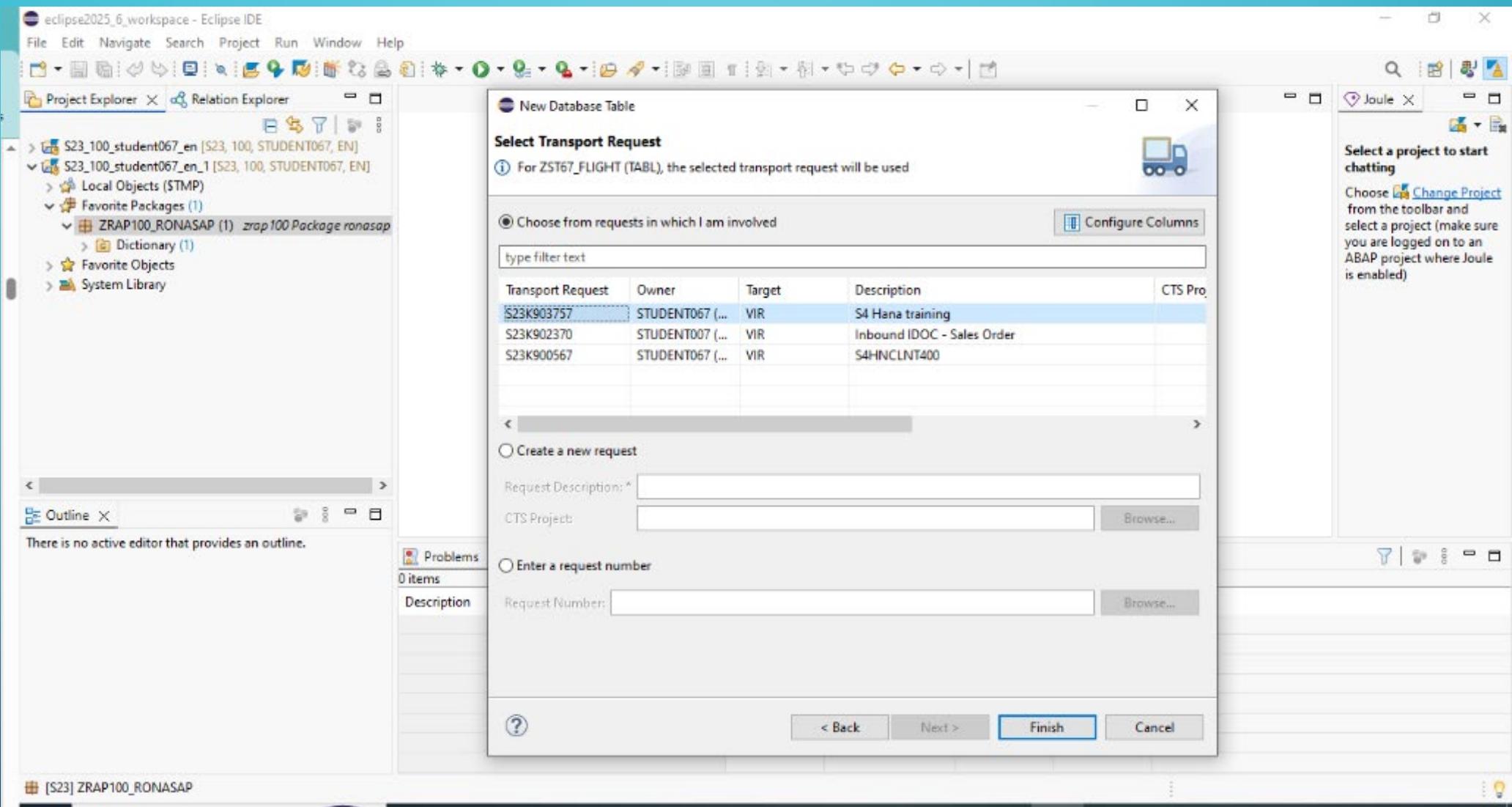
- To create a DB table
- To create a CDS View ( Interface view)
- To create a consumption view
- To create a metadata extension
- To create a behavior definition for interface view
- To create a behavior definition for consumption view
- To create a service definition
- To create a service binding

# 1.CREATE A DB TABLE(FLIGHT MODEL) IN ECLIPSE WITH INSTALLED ADT TOOLS.









# BELOW SYNTAX APPEARS:

eclipse2025\_6\_workspace - Database Table ZST67\_FLIGHT [S23,100] - new, locked - S23\_100\_student067\_en\_1 [S23, 100, STUDENT067, EN] - Eclipse IDE

File Edit Source Code Navigate Search Project Run Window Help

Project Explorer Relation Explorer

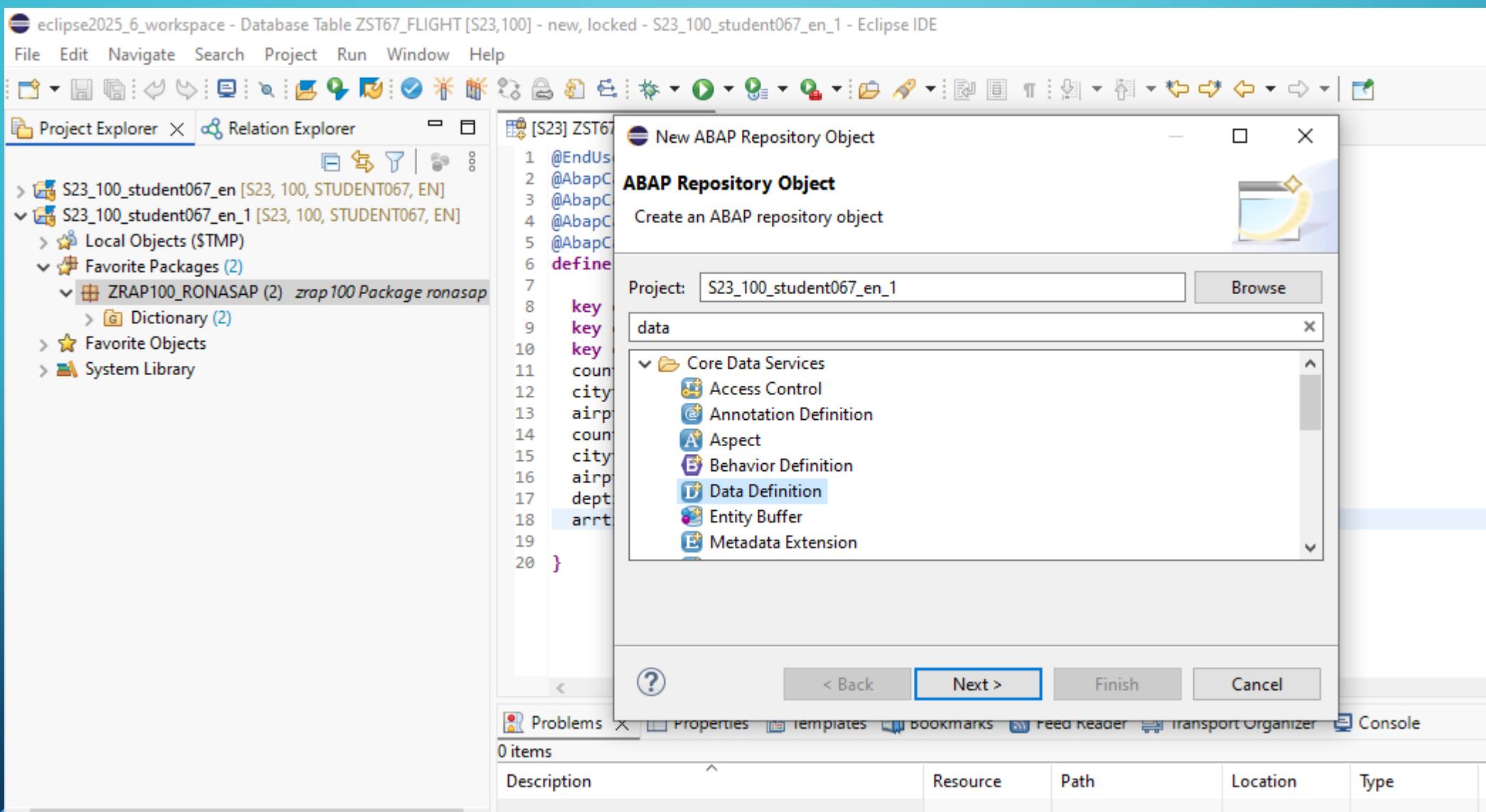
```
[S23] ZST67_FLIGHT
1 @EndUserText.label : 'Flight Detailes'
2 @AbapCatalog.enhancement.category : #NOT_EXTENSIBLE
3 @AbapCatalog.tableCategory : #TRANSPARENT
4 @AbapCatalog.deliveryClass : #A
5 @AbapCatalog.dataMaintenance : #RESTRICTED
6 define table zst67_flight {
7
8   key client : abap.clnt not null;
9
10 }
```

# CREATE A FLIGHT MODEL TABLE WITH FEW FIELDS- SAVE AND ACTIVATE.

The screenshot shows the Eclipse IDE interface for creating a database table named ZST67\_FLIGHT. The window title is "eclipse2025\_6\_workspace - Database Table ZST67\_FLIGHT [S23,100] - new, locked - S23\_100\_student067\_en\_1 - Eclipse IDE". The menu bar includes File, Edit, Source Code, Navigate, Search, Project, Run, Window, and Help. The toolbar contains various icons for file operations like New, Open, Save, Print, and Database-related functions. The Project Explorer view shows two projects: "S23\_100\_student067\_en [S23, 100, STUDENT067, EN]" and "S23\_100\_student067\_en\_1 [S23, 100, STUDENT067, EN]". The "S23\_100\_student067\_en\_1" project is expanded, showing Local Objects (\$TMP), Favorite Packages (2), Favorite Objects, and System Library. Under Favorite Packages, "ZRAP100\_RONASAP (2) zrap100 Package ronasap" is selected, and its Dictionary (2) is shown. The main editor area displays the ABAP code for defining the table:

```
1 @EndUserText.label : 'Flight Detailes'  
2 @AbapCatalog.enhancement.category : #NOT_EXTENSIBLE  
3 @AbapCatalog.tableCategory : #TRANSPARENT  
4 @AbapCatalog.deliveryClass : #A  
5 @AbapCatalog.dataMaintenance : #RESTRICTED  
6 define table zst67_flight {  
7  
8     key client : abap.clnt not null;  
9     key carrid : abap.char(3) not null;  
10    key connid : abap.clnt not null;  
11    countryfr : abap.char(3);  
12    cityfrom : abap.char(20);  
13    airpfrom : abap.char(3);  
14    countryto : abap.char(3);  
15    cityto : abap.char(20);  
16    airpto : abap.char(3);  
17    deptime : abap.tims;  
18    arrtime : abap.tims;  
19  
20 }
```

# CREATE A CDS VIEW – INTERFACE VIEW.



File Edit Navigate Search Project Run Window Help

The screenshot shows the Eclipse IDE interface with the following details:

- Project Explorer:** Shows the project `S23_100_student067_en_1` expanded, revealing `S23_100_student067_en`, `Local Objects ($TMP)`, `Favorite Packages (2)` (containing `ZRAP100_RONASAP`), `Favorite Objects`, and `System Library`.
- Outline View:** Shows the outline of the `ZST67_FLIGHT` table, listing `CLIENT`, `CARRID`, `CONNID`, and `COUNTRYFR`.
- Central Area:** A dialog box titled "New Data Definition" is open, showing the "Data Definition" configuration screen. The "Project:" field is set to `S23_100_student067_en_1`. The "Package:" field is set to `ZRAP100_RONASAP`. The "Name:" field contains `zst67_l_db_flight`. The "Description:" field contains "Interface Flight View". The "Original Language:" field is set to EN. The "Referenced Object:" field is empty.
- Bottom Buttons:** The dialog includes buttons for `?`, `< Back`, `Next >` (which is highlighted in blue), `Finish`, and `Cancel`.
- Problems View:** Shows 0 items and a "Description" section.

Project Explorer X Relation Explorer

S23\_100\_student067\_en [S23, 100, STUDENT067, EN]  
S23\_100\_student067\_en\_1 [S23, 100, STUDENT067, EN]

Local Objects (\$TMP)  
Favorite Packages (2)  
ZRAP100\_RONASAP (2) zrap100 Package ronasap  
Dictionary (2)

Favorite Objects  
System Library

[S23] ZST67

1 @EndUs  
2 @AbapC  
3 @AbapC  
4 @AbapC  
5 @AbapC  
define  
key  
key  
key  
coun  
city  
airp  
coun  
city  
airp  
dept  
arrt  
}

New Data Definition

Select Transport Request

For ZST67\_I\_DB\_FLIGHT (DDLS), the selected transport request will be used

Choose from requests in which I am involved

Configure Columns

type filter text

Transport Request	Owner	Target	Description
S23K903757	STUDENT067 (...)	VIR	S4 Hana training
S23K902370	STUDENT007 (...)	VIR	Inbound IDOC - Sales Order
S23K900567	STUDENT067 (...)	VIR	S4HNCLNT400

< >

Create a new request

Request Description: \*

CTS Project:  Browse...

Enter a request number

Request Number:  Browse...

?

Back Next > Finish Cancel



Project Explorer X Relation Explorer

- > S23\_100\_student067\_en [S23, 100, STUDENT067, EN]
- ✓ S23\_100\_student067\_en\_1 [S23, 100, STUDENT067, EN]
  - > Local Objects (STMP)
  - ✓ Favorite Packages (2)
    - ✓ ZRAP100\_RONASAP (2) zrap100 Package ronasap
      - > Dictionary (2)
  - > Favorite Objects
  - > System Library



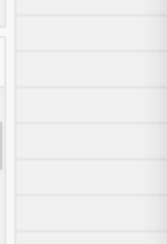
[S23] ZST67

```
1 @EndUs
2 @AbapC
3 @AbapC
4 @AbapC
5 @AbapC
6 define
7
8   key
9   key
10  key
11  coun
12  city
13  airp
14  coun
15  city
16  airp
17  dept
18  arrt
19
20 }
```

Problems

0 items

Description



## New Data Definition

## Templates

⚠ Selected template uses features which are not yet supported by the backend system.

 Use the selected template

Name	Description
View (creation)	
defineViewEntity	Define View Entity
defineRootViewEntity	Define Root View Entity
defineViewEntityWithToParentAssociation	Define View Entity with To-Parent Association
defineView	Define View (obsolete as of AS ABAP 7.57)
Projection View (creation)	
View Extend (creation)	
Table Function (creation)	

```
@AbapCatalog.sqlViewName: '${sql_view_name}'
@AbapCatalog.compiler.compareFilter: true
@AbapCatalog.preserveKey: true
@AccessControl.authorizationCheck: #NOT_REQUIRED
@EndUserText.label: '${ddl_source_description}'
@Metadata.ignorePropagatedAnnotations: true
define view ${ddl_source_name_editable} as select from ${data_source_name}
{
  ${data_source_elements}${cursor}
}
```



&lt; Back

Next &gt;

Finish

Cancel

# THE BELOW SYNTAX APPEARS:

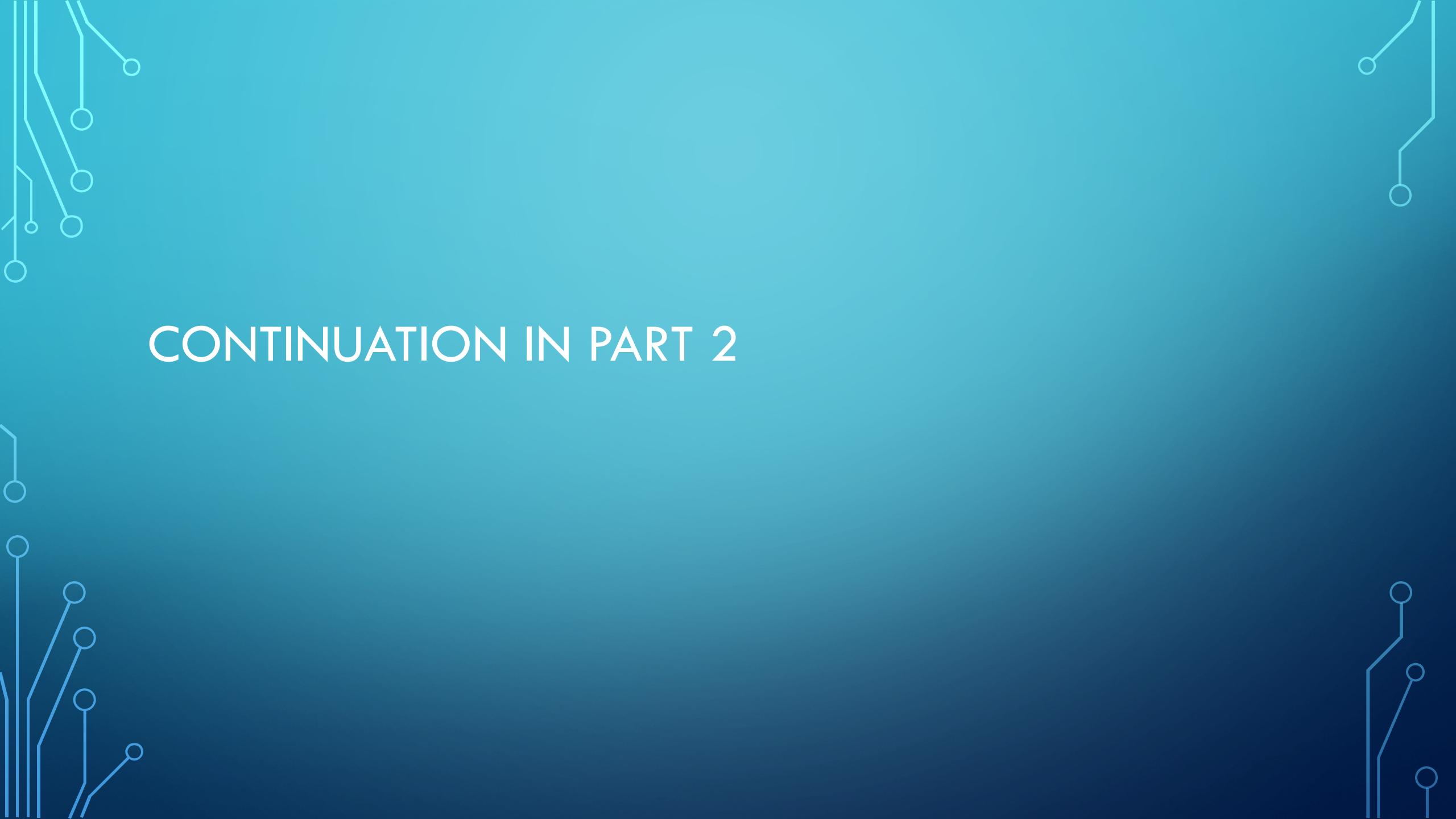
The screenshot shows the Eclipse IDE interface with the title "eclipse2025\_6\_workspace - Data Definition ZST67\_I\_DB\_FLIGHT [S23,100] - inactive, locked - S23\_100\_student067\_en\_1 - Eclipse IDE". The menu bar includes File, Edit, Source Code, Navigate, Search, Project, Run, Window, and Help. The toolbar contains various icons for file operations like Open, Save, Print, and search. The Project Explorer view shows two projects: "S23\_100\_student067\_en" and "S23\_100\_student067\_en\_1". The "S23\_100\_student067\_en\_1" project is expanded, showing Local Objects (\$TMP), Favorite Packages (3), and a selected package "ZRAP100\_RONASAP (3) zrap100 Package ronasap" which contains Core Data Services (1) and Dictionary (2). The Relation Explorer view is also visible. The code editor displays the following ABAP code:

```
1 @AbapCatalog.sqlViewName: ''
2 @AbapCatalog.compiler.compareFilter: true .
3 @AbapCatalog.preserveKey: true
4 @AccessControl.authorizationCheck: #NOT_REQUIRED
5 @EndUserText.label: 'Interface Flight View'
6 @Metadata.ignorePropagatedAnnotations: true
7 define view zst67_I_db_flight as select from data_source_name
8 {
9
10 }
```

PROVIDE THE SOURCE WHICH IS THE DB TABLE AND ADD ALL THE FIELDS OF THE TABLE IN THE VIEW AND DEFINE SUITABLE ALIAS NAME FOR EACH FIELD.  
ADD 'ROOT-> AS THIS IS THE ROOT VIEW.

The screenshot shows the Eclipse IDE interface with the title bar "eclipse2025\_6\_workspace - Data Definition ZST67\_I\_DB\_FLIGHT [S23,100] - inactive, locked - S23\_100\_student067\_en\_1 [S23, 100, STUDENT067, EN]". The menu bar includes File, Edit, Source Code, Navigate, Search, Project, Run, Window, and Help. The toolbar has various icons for file operations. The left side features the Project Explorer and Relation Explorer. The main area displays the code for the view:

```
[S23] ZST67_FLIGHT *[S23] ZST67_I_DB_FLIGHT
1 @AbapCatalog.sqlViewName: 'ZST67_DB_FLIGHT'
2 @AbapCatalog.compiler.compareFilter: true
3 @AccessControl.authorizationCheck: #NOT_REQUIRED
4 @EndUserText.label: 'Interface Flight View'
5 @Metadata.ignorePropagatedAnnotations: true
6 define root view zst67_I_db_flight
7   as select from zst67_flight
8 {
9   key carrid      as Carrid,
10  key connid      as Connid,
11  countryfr     as CountryFrom,
12  cityfrom       as CityFrom,
13  airpfrom       as AirportFrom,
14  countryto      as CountryTo,
15  cityto         as CityTo,
16  airpto         as AirportTo,
17  deptime        as DepTime,
18  arrtime        as ArrTime
19 }
```

The background features a subtle, abstract pattern of branching lines and small circles in white and light blue, resembling a network or a tree structure.

CONTINUATION IN PART 2