Step by Step Creation of Custom Planning Function to Change Cube Data as Per Your Own Logic

Applies to:

SAP BI 7.0. For more information, visit the Business Intelligence Homepage.

Summary

This article will explain the step by step procedure to retrieve cube data in an internal table via planning function exit. This document will also explain how cube data can be change via exit code. This document also shows how exit type planning function can be debugging via ABAP.

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Author Bio

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Scenario

Let's take an example where cube data is like below mentioned way. It has loaded from flat file. Now the output for cube is bellow.

YMEASURE1	YMEA_VAL	ZSEMPLORG	0CHNGID	Record type	Request ID	0FISCVARNT	Fiscal year	0UNIT	Quantity
M1	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	10.000
M2	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	20.000
M3	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	30.000
M4	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	40.000
M5	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	50.000
M6	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	60.000
M7	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	70.000

Business Case

The user wants to create his own define planning function which will calculate as per his customs logic. In run time, he can take data in to ABAP internal table then he can calculate the data as per his own logic. So he needs to create an aggregation level, a filter, a customs planning function and a planning sequence.

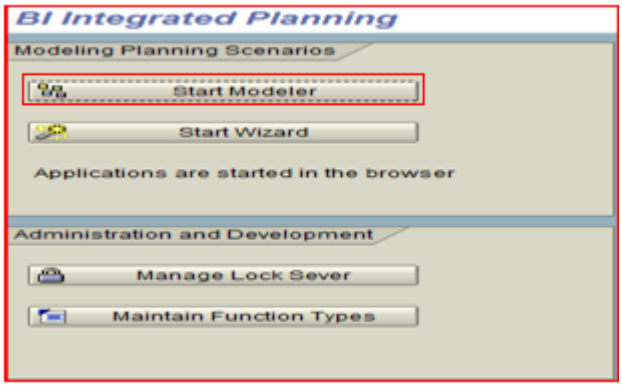
Setting up the environment

Cube is defined like below mentioned way: It is a Real Time Cube. The cube should be in the position of planning mode.

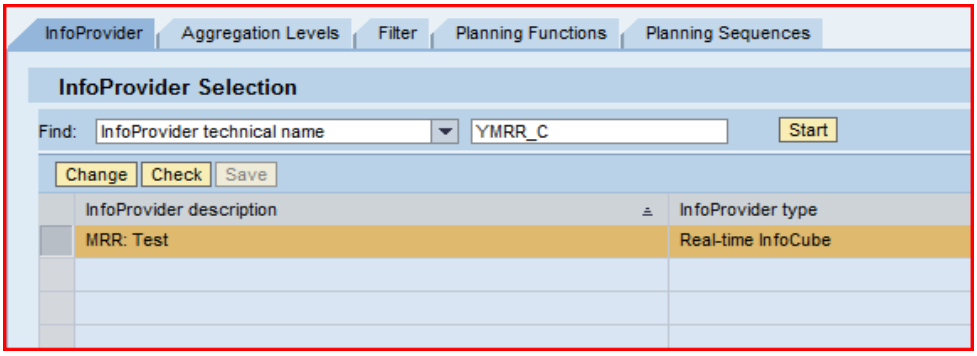
Object Overview	Field	InfoObject	Data elem.	Data Type	Length	DataSource
Characteristics						
Measure / KPI	/BIC/YMEASURE1	YMEASURE1	/BIC/OIYMEASURE1	CHAR	20	
Measure Value	/BIC/YMEA_VAL	YMEA_VAL	/BIC/OIYMEA_VAL	CHAR	3	
Planning Organizational Unit	/BIC/ZSEMPLORG	ZSEMPLORG	/BIC/OIZSEMPLORG	NUMC	8	
Key Figures						
Quantity	QUANTITY	0QUANTITY	/BI0/OIQUANTITY	QUAN	9	
Time Characteristics						
Fiscal year	FISCYEAR	0FISCYEAR	/BI0/OIFISCYEAR	NUMC	4	
Fiscal year variant	FISCVARNT	0FISCVARNT	/BI0/OIFISCVARNT	CHAR	2	
Units						
Unit of measure	UNIT	0UNIT	/BI0/OIUNIT	UNIT	3	
Other Fields						
Change Run ID	CHNGID	0CHNGID	/BI0/OICHNGID	NUMC	14	
Record type	RECORDTP	0RECORDTP	/BI0/OIRECORDTP	NUMC	1	
Request ID	REQUID	0REQUID	/BI0/OIREQUID	CHAR	30	

Create Aggregation Level

Execute the tcode RSPLAN to start the planning object creation.

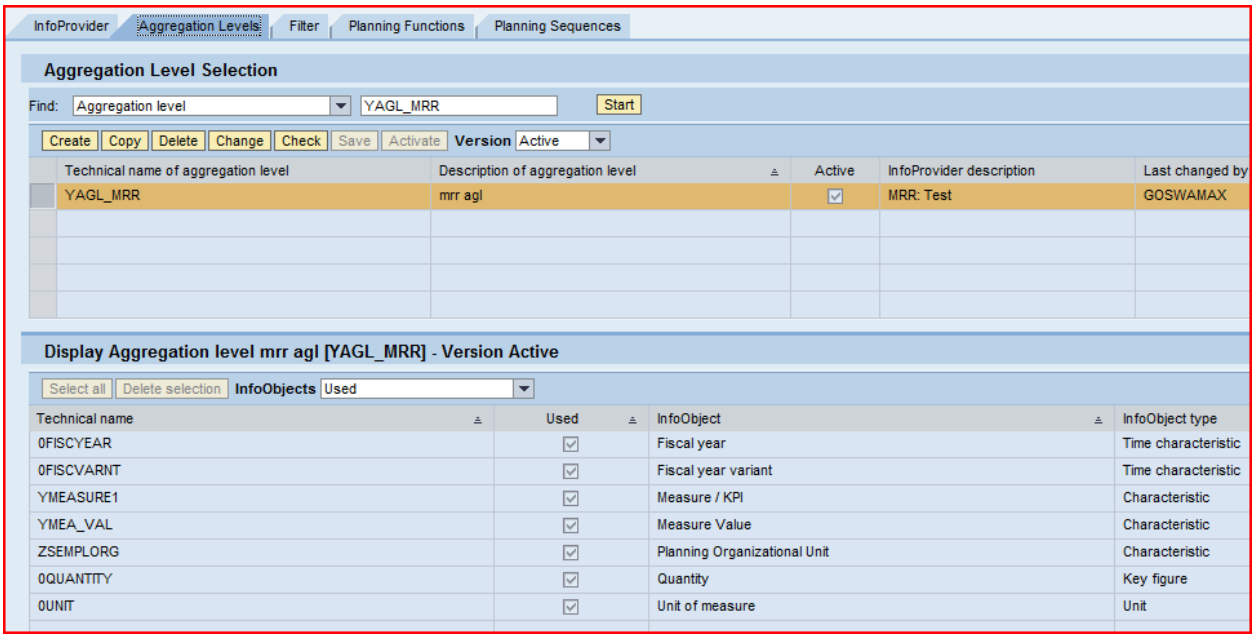


Execute the start modeler button to create planning objects. Aggregation level can be created on the top of info provider. So first you need to select the info provider name.



Hare you need to provide the cube name as an info provider and press the Start button. For our example the cube name YMRR_C.

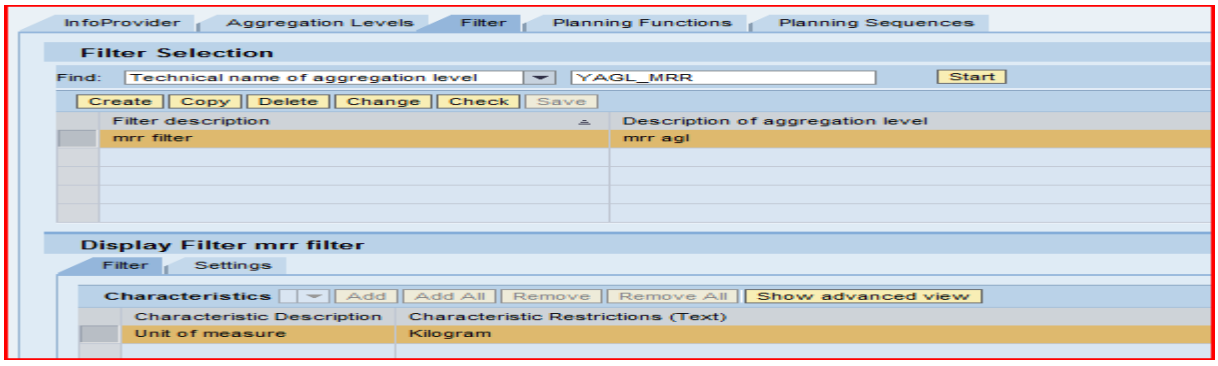
Go to Aggregation Level tab and put a name in YAGL_MRR. Select all the info objects in the used column.



Save and activate the aggregation level.

Create Filter

Go to the filter tab and create a filter for our planning function. For our example, we have used unit of measure as 'KG'. Give a technical name for filter and Save it.

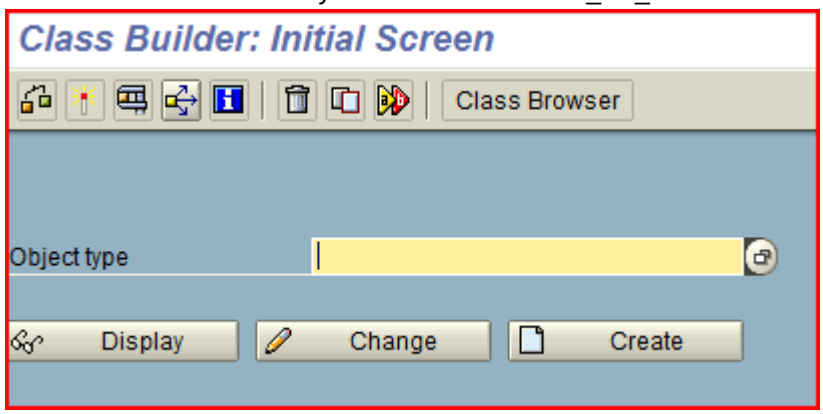


Create Planning Function

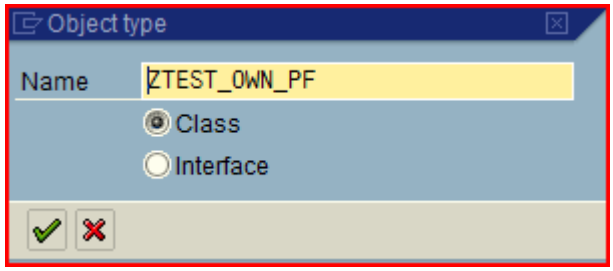
To create my own planning function we need to perform few steps.

Exit Class Creation

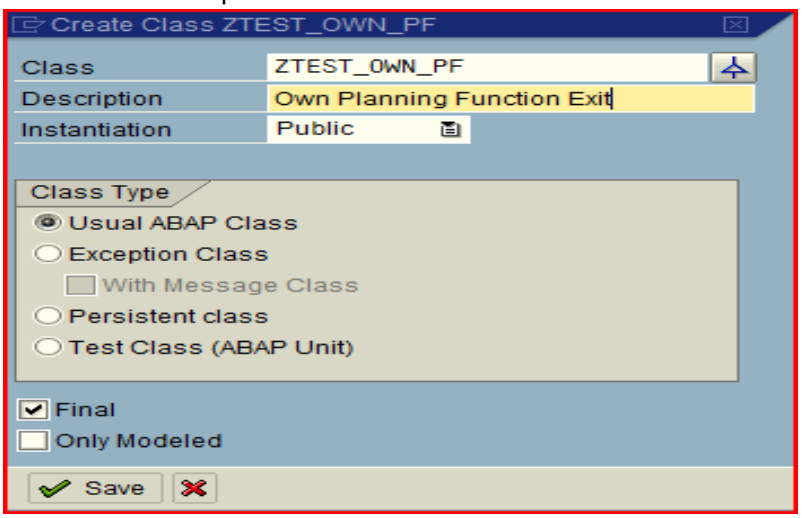
(a) Go to tcode SE24. Create your own class ZTEST_PF_TYP.



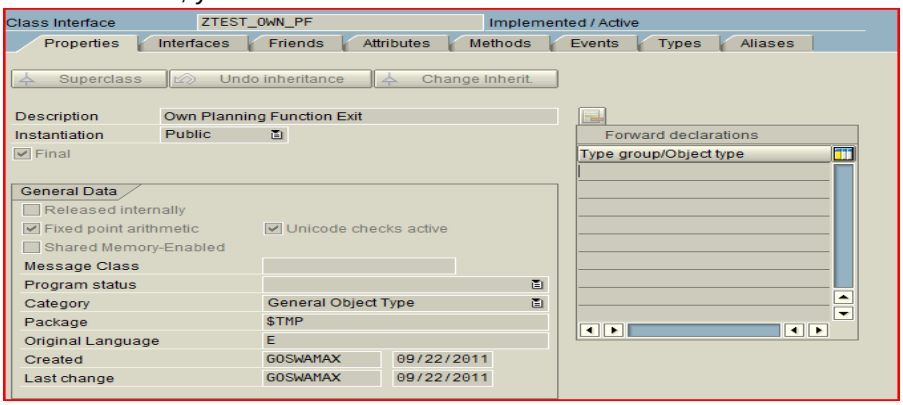
(b) Select the class radio button.



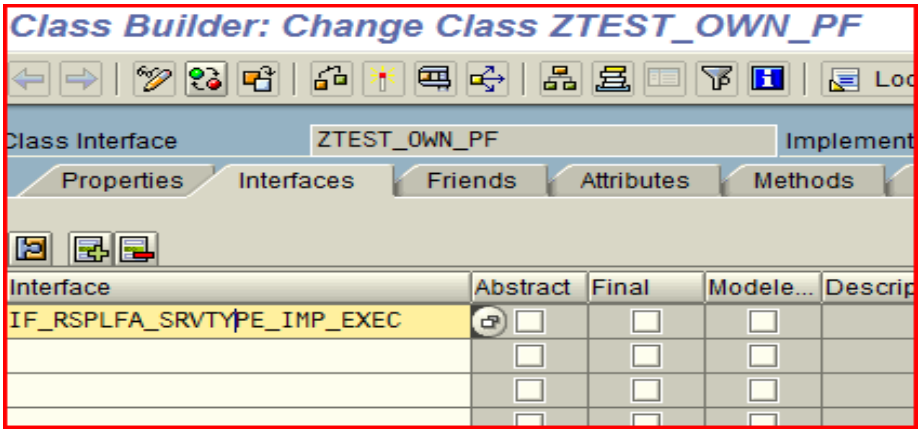
(c) Provide the Description and Save it. Activate it also.



After activation, you can find the below screen.

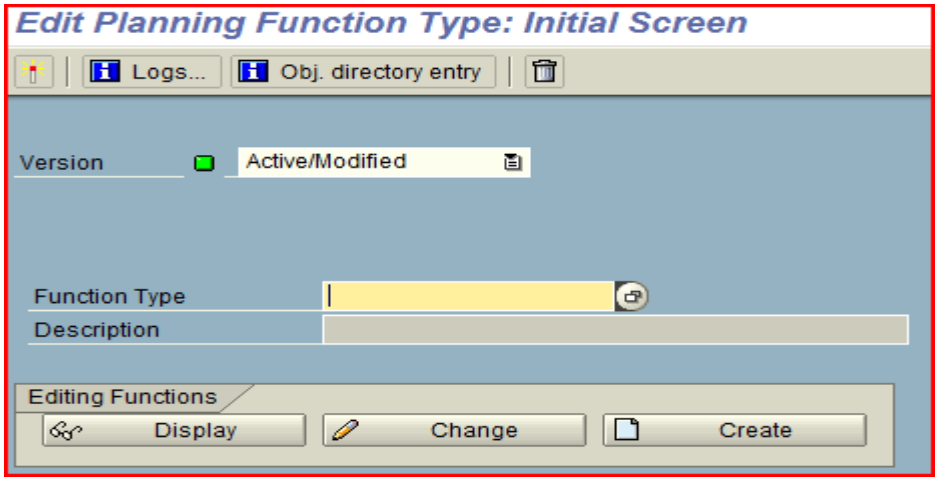


(d) Put **IF_RSPLFA_SRVTYPE_IMP_EXEC** in interface tab. Save and activate it.

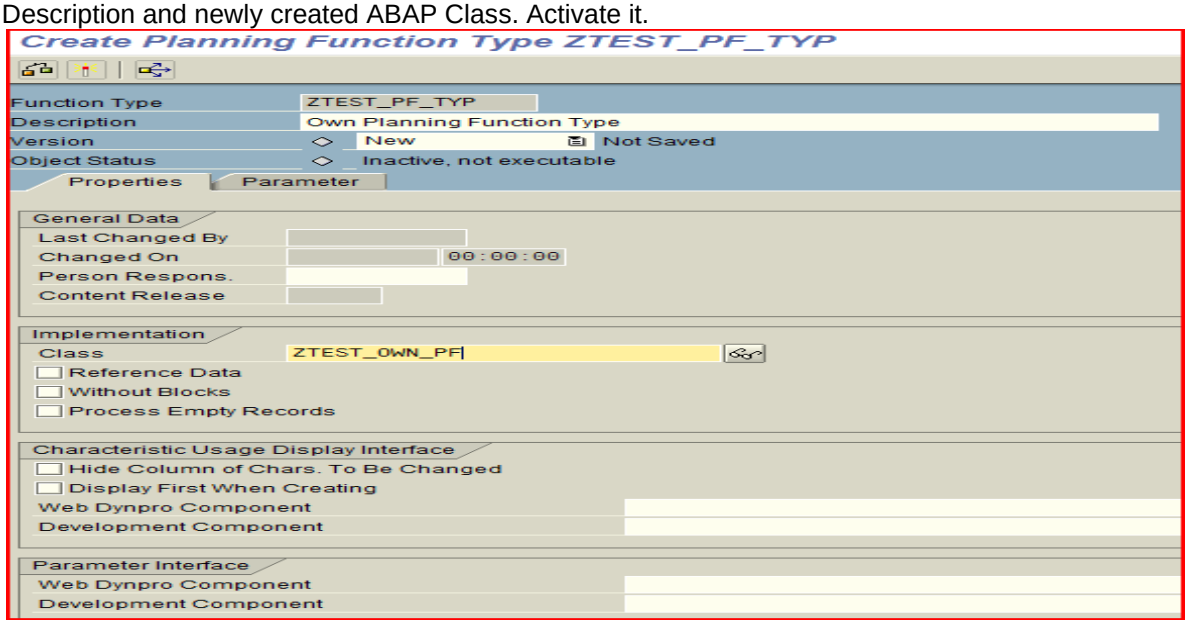


Planning Function Type Creation

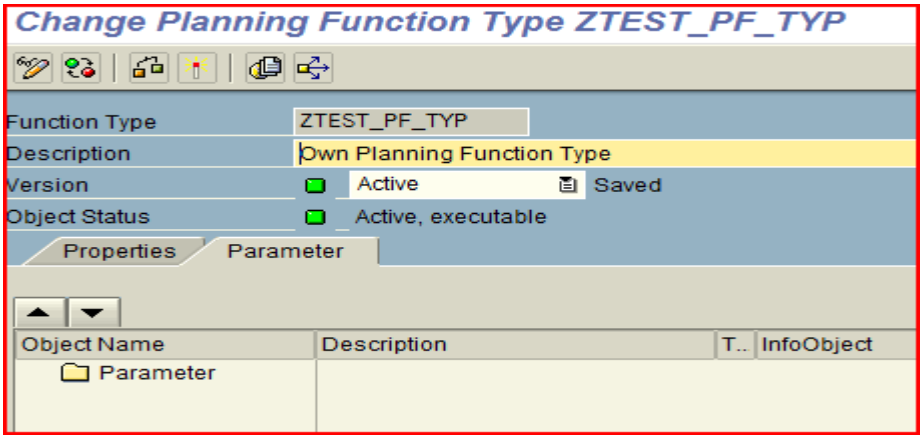
(a) Go to tcode **RSPLF1** to create planning function type.



Put Description and newly created ABAP Class. Activate it.

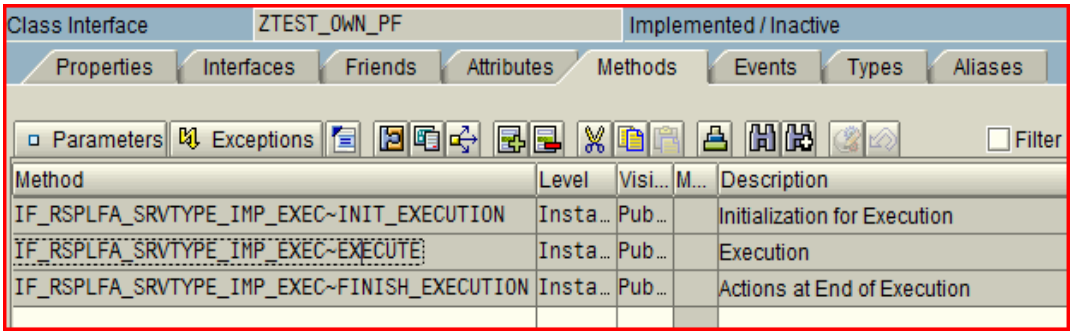


For parameter tab nothing is required for our examples.

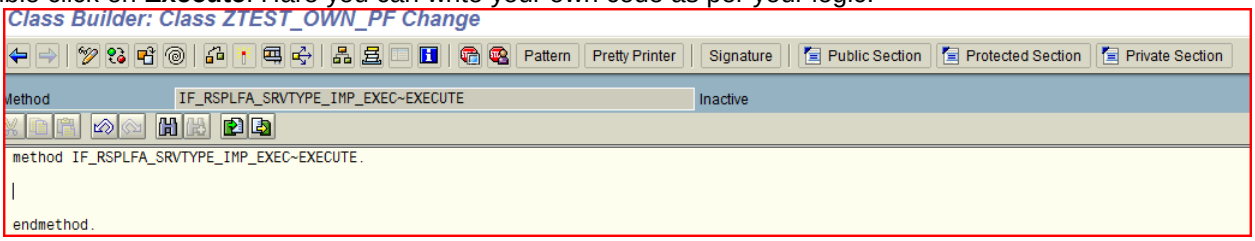


Code Written in Exit Class

(a) Go to **Method** tab in exit class.

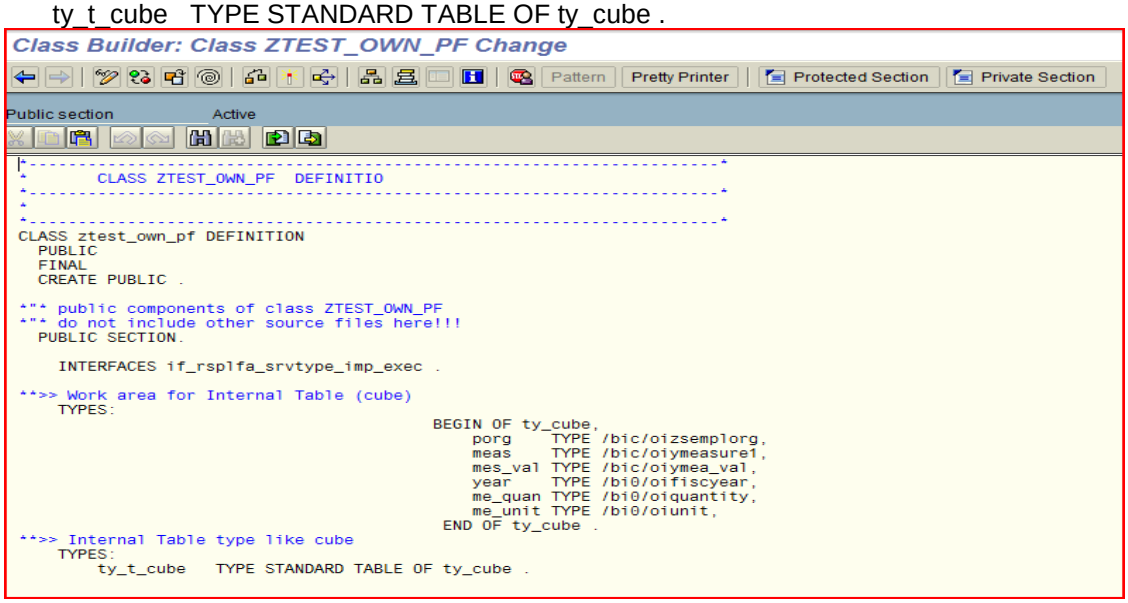


Double click on **Execute**. Hare you can write your own code as per your logic.

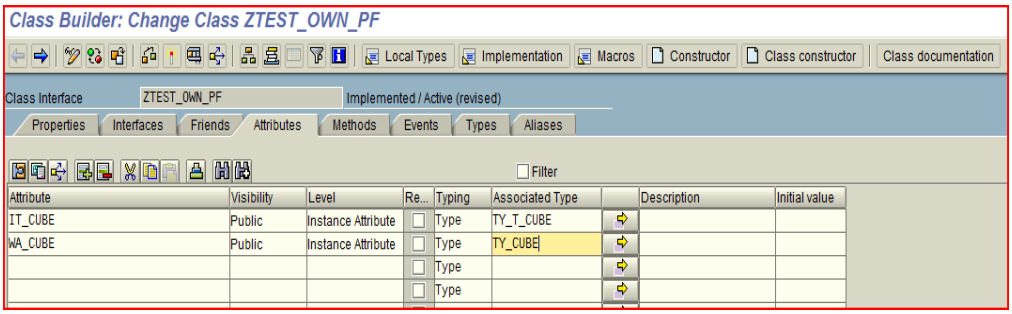


(b) To collect the data in a container, you need to create an internal table. Go to **Public Section** and create your own container type. In our example, we have created a work area type and a table type.

```
**>> Work area for Internal Table (cube)
   TYPES:
                                  BEGIN OF ty_cube,
                                     porg    TYPE /bic/oizsemplorg,
                                     meas    TYPE /bic/oiymeasure1,
                                     mes_val TYPE /bic/oiymea_val,
                                     year    TYPE /bi0/oifiscyear,
                                     me_quan TYPE /bi0/oiquantity,
                                     me_unit TYPE /bi0/oiunit,
                                   END OF ty_cube .
**>> Internal Table type like cube
   TYPES:
     ty_t_cube   TYPE STANDARD TABLE OF ty_cube .
```



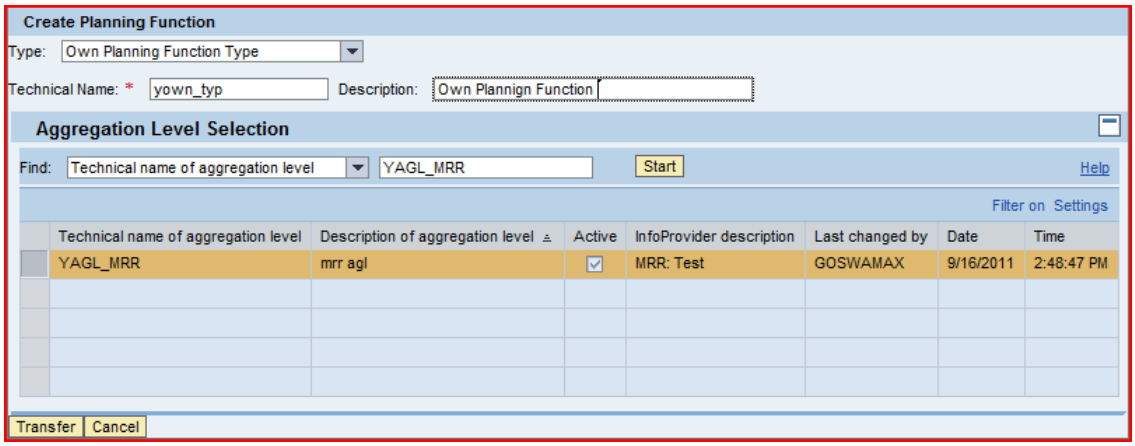
Go to **Attribute** tab in Class to define internal table and work area globally. Put the global work area name wa_cube (type ty_cube) and global internal table name it_cube (type ty_t_cube). Save and Activate it.



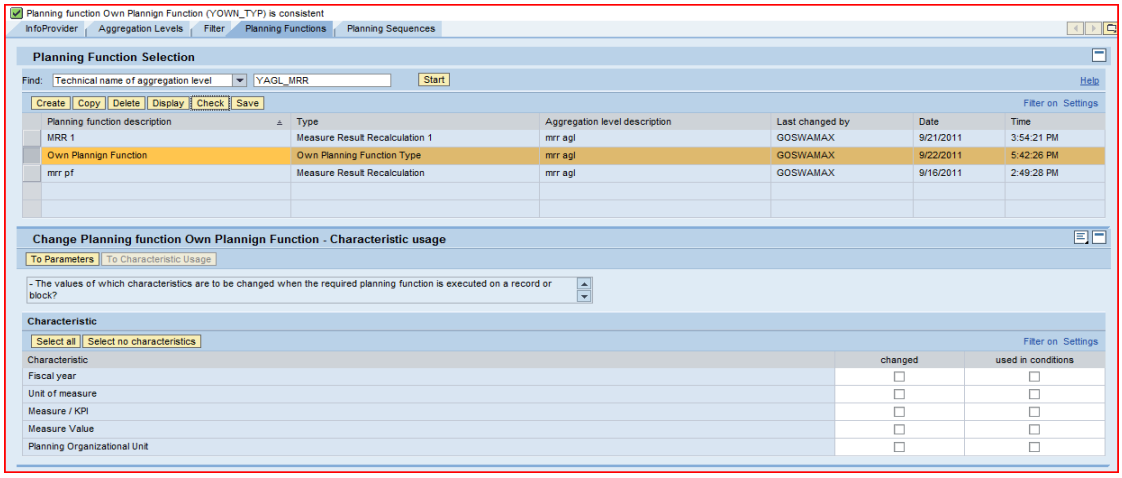
(c) Write the below mentioned code to store the data in internal table.

```
DATA :  l_r_s_data          TYPE REF TO data,
        l_data_tab          TYPE REF TO data.

 FIELD-SYMBOLS: <data_tab>      TYPE ANY TABLE,
                <l_s_data>      TYPE ANY,
                <p_org>         TYPE ANY,
                <measure>       TYPE ANY,
                <me_val>        TYPE ANY,
                <me_quan>       TYPE ANY,
                <fis_year>      TYPE ANY,
                <me_unit>       TYPE ANY.

 CREATE DATA l_data_tab       LIKE STANDARD TABLE OF c_th_data INITIAL SIZE 0.
ASSIGN l_data_tab->*   TO <data_tab>.
CREATE DATA l_r_s_data       LIKE LINE OF c_th_data.
**>>We need change C_TH_DATA for cube data change.
ASSIGN l_r_s_data->*         TO <l_s_data>.


**>> Retrieve all value from cube into internal table.
  LOOP AT c_th_data INTO <l_s_data>.

ASSIGN COMPONENT 'ZSEMPLORG' OF STRUCTURE <l_s_data> TO <p_org>. " Org
ASSIGN COMPONENT 'YMEASURE1' OF STRUCTURE <l_s_data> TO <measure>. " Measure
ASSIGN COMPONENT 'YMEA_VAL' OF STRUCTURE <l_s_data> TO <me_val>. " Meas Val
ASSIGN COMPONENT '0FISCYEAR' OF STRUCTURE <l_s_data> TO <fis_year>. " Year
ASSIGN COMPONENT '0QUANTITY' OF STRUCTURE <l_s_data> TO <me_quan>. " Qty
ASSIGN COMPONENT '0UNIT' OF STRUCTURE <l_s_data> TO <me_unit>. " Unit

**>> We have not given Fiscal Year Variant because we have fixed it 'K4' in cube level.
    CLEAR wa_cube.
    wa_cube-porg    = <p_org>.
    wa_cube-meas    = <measure>.
    wa_cube-mes_val = <me_val>.
    wa_cube-year    = <fis_year>.
    wa_cube-me_quan = <me_quan>.
    wa_cube-me_unit = <me_unit>.

**>> Retrieve the cube data in to internal table.
    COLLECT wa_cube INTO it_cube[] .

    CLEAR wa_cube.
  ENDLOOP.
```

Create Planning Function from RSPLAN >Start Modeler>Planning Function Tab.

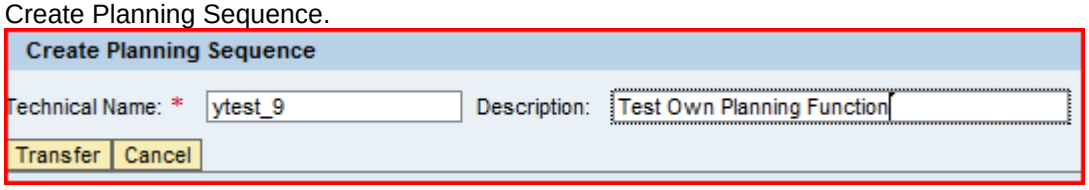


Save and activate the planning function.

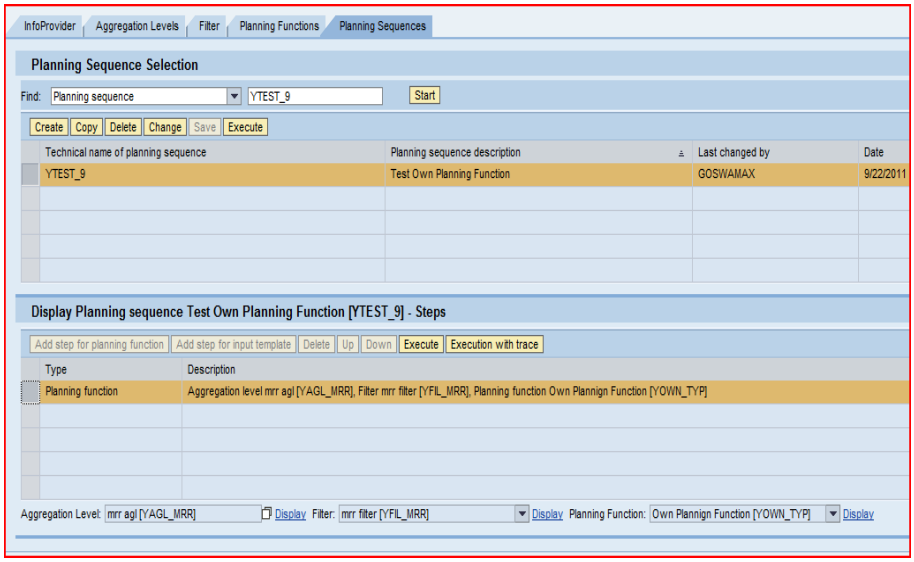


Create Planning Sequence

Create Planning Sequence.

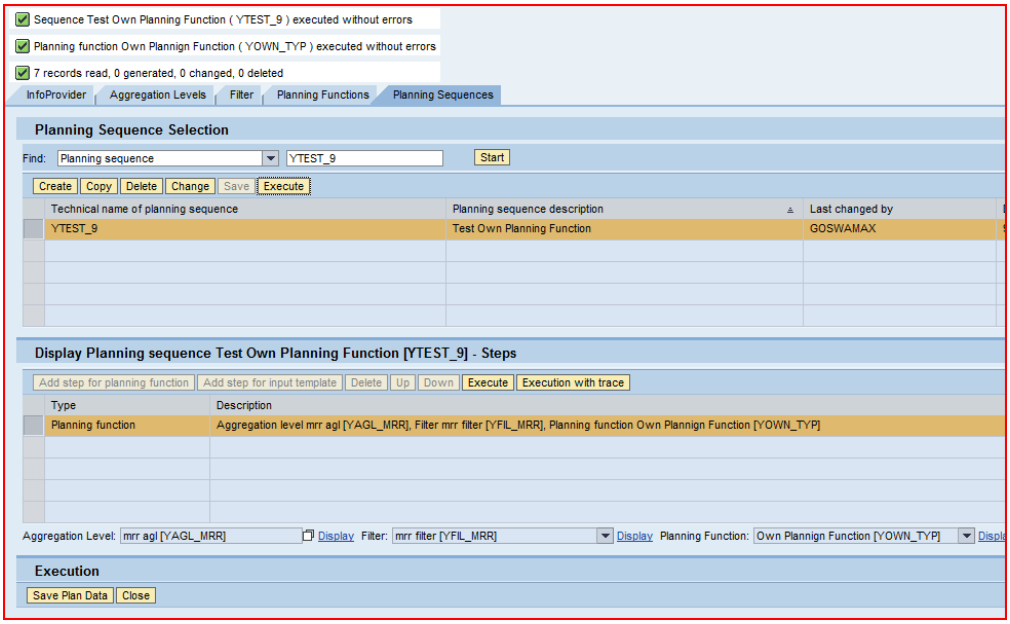


Save it. Add Filter and Planning Function name in the planning sequence.



Execute a Planning Sequence

If you execute the planning sequence then you will find the below mention screen shot. You can find easily that 7 records have been read by planning sequence.

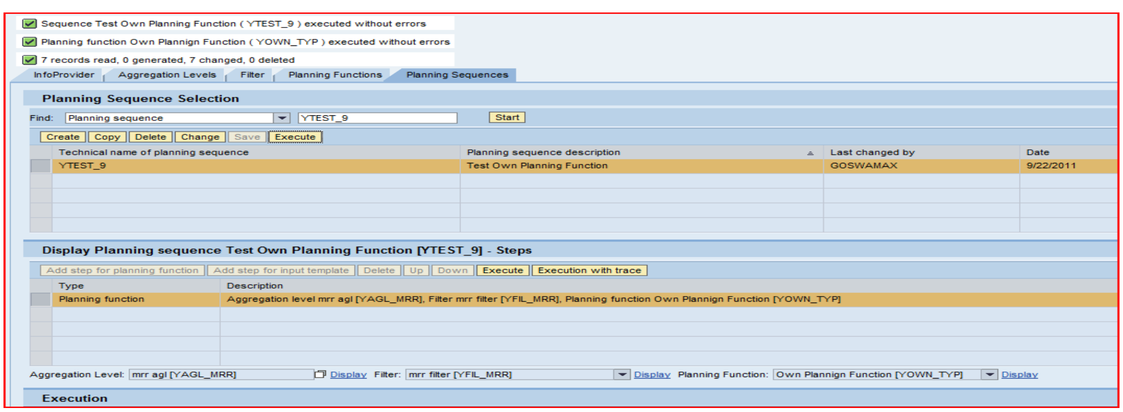


In exit code, still now we have not written any code where we have change the C_TH_DATA. So we are getting only 7 records have been read. Now we are just adding in every record ‘10’ extra. So 7 records have been read and 7 records have change.

Exit code has been changed:

```
DATA :      l_r_s_data       TYPE REF TO data,
            l_data_tab       TYPE REF TO data.
 FIELD-SYMBOLS: <data_tab>    TYPE ANY TABLE,
           <l_s_data>    TYPE ANY,
           <p_org>       TYPE ANY,
           <measure>     TYPE ANY,
           <me_val>      TYPE ANY,
           <me_quan>     TYPE ANY,
           <fis_year>    TYPE ANY,
           <me_unit>     TYPE ANY.
 CREATE DATA l_data_tab      LIKE STANDARD TABLE OF c_th_data INITIAL SIZE 0.
 ASSIGN l_data_tab->*        TO <data_tab>.
 CREATE DATA l_r_s_data      LIKE LINE OF c_th_data.
 ASSIGN l_r_s_data->*        TO <l_s_data>.
**>> Retrieve all value from cube into internal table.
 LOOP AT c_th_data INTO <l_s_data>.
  ASSIGN COMPONENT 'ZSEMPLORG'     OF STRUCTURE <l_s_data> TO <p_org>. " Org
  ASSIGN COMPONENT 'YMEASURE1'     OF STRUCTURE <l_s_data> TO <measure>. " Measure
  ASSIGN COMPONENT 'YMEA_VAL'      OF STRUCTURE <l_s_data> TO <me_val>. " Measure Value
  ASSIGN COMPONENT '0FISCYEAR'     OF STRUCTURE <l_s_data> TO <fis_year>. " Year
  ASSIGN COMPONENT '0QUANTITY'     OF STRUCTURE <l_s_data> TO <me_quan>. " Quantity
  ASSIGN COMPONENT '0UNIT'         OF STRUCTURE <l_s_data> TO <me_unit>. " Unit
**>> Add ten (10) extra in quantity.
  <me_quan> = <me_quan> + '10'.
**>> C_TH_DATA modifying that means it will save the data in cube.
  MODIFY TABLE c_th_data FROM <l_s_data>.
 ENDLOOP.
```

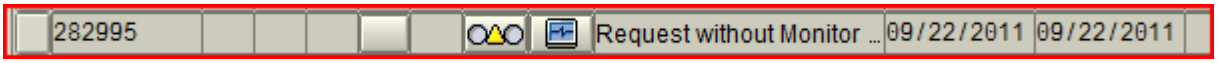
Output from planning Sequence run:



Check data in cube

If you save the data then it will affect in cube data.

A request has been loaded in to cube.



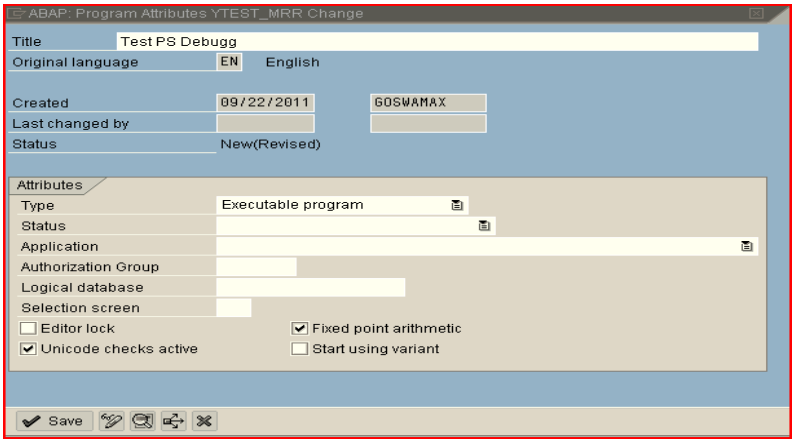
Change in cube data.

YMEASURE1	YMEA_VAL	ZSEMPLORG	0CHNGID	Record type	Request ID	0FISCVARNT	Fiscal year	0UNIT	Quantity
M1	A	500010			APO_R4N7YXXZO7M0B9IOWL06W3NDYE	K4	2011	KG	10.000
M2	A	500010			APO_R4N7YXXZO7M0B9IOWL06W3NDYE	K4	2011	KG	10.000
M3	A	500010			APO_R4N7YXXZO7M0B9IOWL06W3NDYE	K4	2011	KG	10.000
M4	A	500010			APO_R4N7YXXZO7M0B9IOWL06W3NDYE	K4	2011	KG	10.000
M5	A	500010			APO_R4N7YXXZO7M0B9IOWL06W3NDYE	K4	2011	KG	10.000
M6	A	500010			APO_R4N7YXXZO7M0B9IOWL06W3NDYE	K4	2011	KG	10.000
M7	A	500010			APO_R4N7YXXZO7M0B9IOWL06W3NDYE	K4	2011	KG	10.000
M1	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	10.000
M2	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	20.000
M3	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	30.000
M4	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	40.000
M5	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	50.000
M6	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	60.000
M7	A	500010			DTPR_4N6CLNNLI2NCAI3ELH2ROJ61Y	K4	2011	KG	70.000

Debug a Planning Function Exit.

(a) Create a Test ABAP Program.

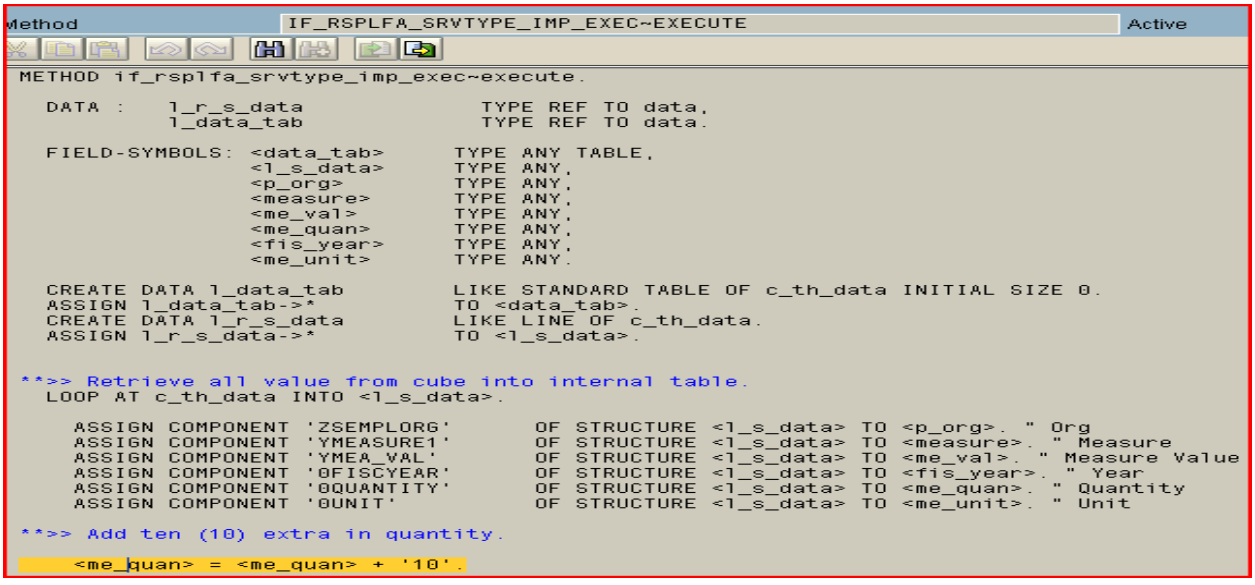
Go to tcode SE38 to create an ABAP program. Put a name and activate it.



Write a code like below mention way.Call the planning sequence **YTEST_9** via function module from ABAP program.

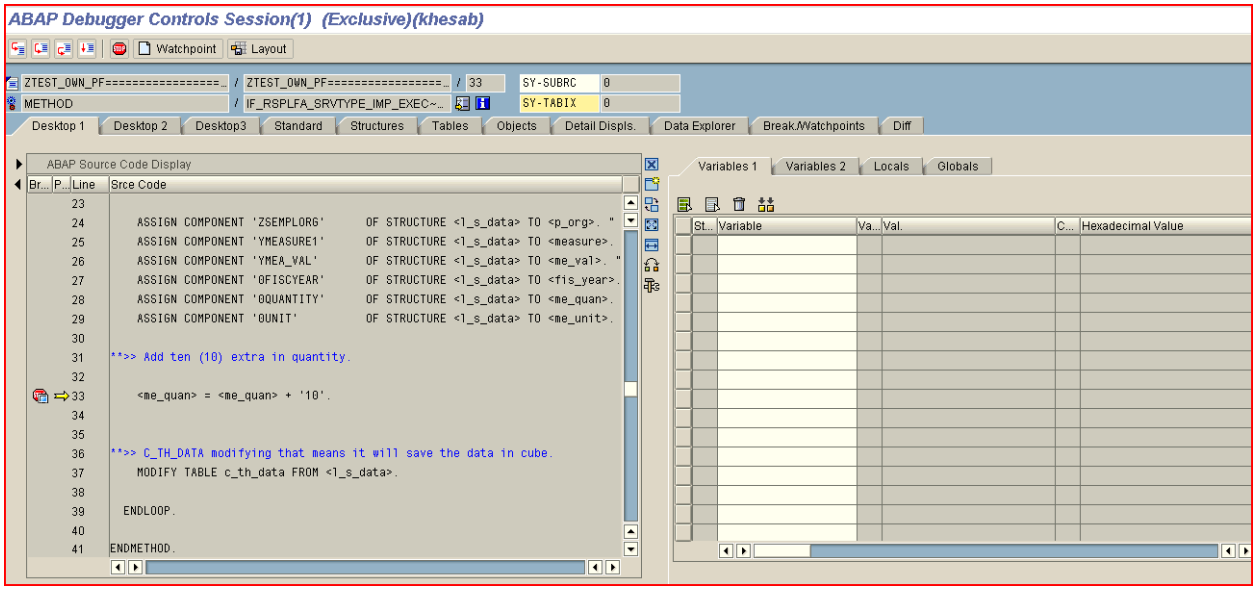
```
DATA: e_tk_return LIKE  bapiret2 OCCURS 0.

CALL FUNCTION 'RSPLSSE_PLSEQ_EXECUTE'

 EXPORTING

  i_seqnm          = 'YTEST_9'

*  I_VARIANT         = ' '

*  I_FAST_ENQUEUE     = RS_C_FALSE

 TABLES

  e_tk_return        = e_tk_return

          .
```

(b) Set Break point in Exit Code. Go to tcode SE24 and put a break point.

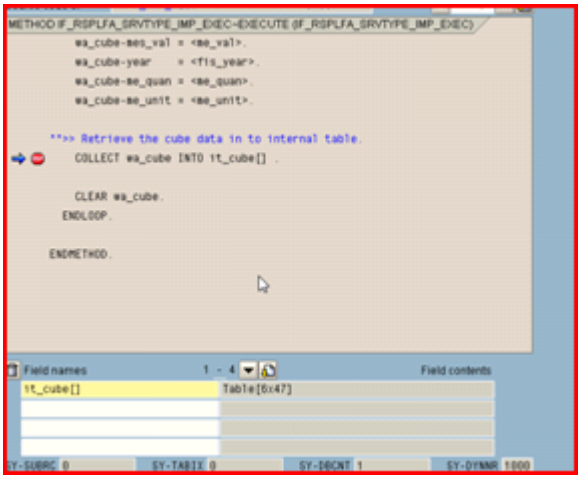



```
METHOD if_rsplfa_srvtype_imp_exec~execute.

  DATA :    l_r_s_data              TYPE REF TO data,
            l_data_tab              TYPE REF TO data.

  FIELD-SYMBOLS: <data_tab>      TYPE ANY TABLE,
                 <l_s_data>      TYPE ANY,
                 <p_org>         TYPE ANY,
                 <measure>       TYPE ANY,
                 <me_val>        TYPE ANY,
                 <me_quan>       TYPE ANY,
                 <fis_year>      TYPE ANY,
                 <me_unit>       TYPE ANY.

  CREATE DATA l_data_tab         LIKE STANDARD TABLE OF c_th_data INITIAL SIZE 0.
  ASSIGN l_data_tab->*           TO <data_tab>.
  CREATE DATA l_r_s_data         LIKE LINE OF c_th_data.
  ASSIGN l_r_s_data->*           TO <l_s_data>.

**>> Retrieve all value from cube into internal table.
  LOOP AT c_th_data INTO <l_s_data>.

    ASSIGN COMPONENT 'ZSEMPLORG'       OF STRUCTURE <l_s_data> TO <p_org>. " Org
    ASSIGN COMPONENT 'YMEASURE1'       OF STRUCTURE <l_s_data> TO <measure>. " Measure
    ASSIGN COMPONENT 'YMEA_VAL'        OF STRUCTURE <l_s_data> TO <me_val>. " Measure Value
    ASSIGN COMPONENT '0FISCYEAR'       OF STRUCTURE <l_s_data> TO <fis_year>. " Year
    ASSIGN COMPONENT '0QUANTITY'       OF STRUCTURE <l_s_data> TO <me_quan>. " Quantity
    ASSIGN COMPONENT '0UNIT'           OF STRUCTURE <l_s_data> TO <me_unit>. " Unit

**>> Add ten (10) extra in quantity.

    <me_quan> = <me_quan> + '10'.
```

(c) Press F8 button to run ABAP Program from SE38. It will start the debug screen.



You can easily check how many records are present in internal table.



Hare we can see at this point we can 6 records are present in internal table.

Related Content

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