CDS Test Double Framework
Student Exercise Manual
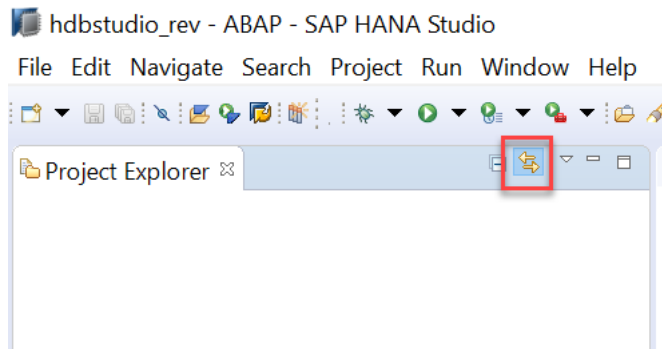
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Exercise 1. CDS Test Double Framework

Task 1: Project Set up.

1. Go to ADT or HANA Studio.

2. Open ABAP perspective

    a. Window tab->Perspective->Open Perspective->other->select ABAP->Open

3. Add ER9 project to Project explorer

    a. Right click->New->Project->Select ABAP Project->select ER9 system->Next->Next->give Client, User details->Finish

4. Make sure "**link with editor**" is selected in project explorer
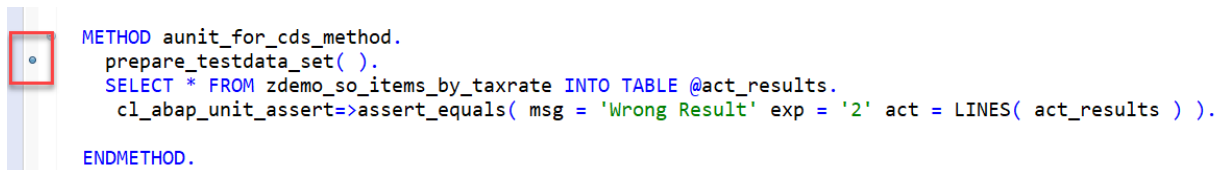

Task 2: Basic Test Double Creation

1. Select ER9 Project in Project Explorer.

2. Use key CTRL+SHIFT+A (for Search string).

3. Give CDS View **ZDEMO_SO_ITEMS_BY_TAXRATE** in search string it will search for the cds view and click on OK to open it.

4. In Project explorer select cds view **ZDEMO_SO_ITEMS_BY_TAXRATE** right click to open menu -> New Test Class -> give name of test class as **ZCL_TC_BASIC_DOUBLE_XX** (## being your student number) and Description of test class as **Basic Test Double Creation** and click next.

5. Select Test type as **Unit Test** and click next.

6. In the Dependency list select **snwd_so** and give test data as follows:

    a. client = sy-mandt, node_key = 'AB', so_id = '01', currency_code = 'EUR', gross_amount = '120'

7. In the Dependency list select **cdsfrwk_sales_order_item and** give test data as follows:

    a. so_item_guid = '1234', so_guid = 'AB', currency_code = 'EUR', gross_amount = '120', tax_rate = '20'

8. Click Finish

9. Global Test Class is created navigate to **Test Classes Tab**

10. Go to method **aunit_for_cds_method** remove "**cl_abap_unit_assert=>fail( )."**

11. Copy below code at the end of method **aunit_for_cds_method**

a. cl_abap_unit_assert=>assert_equals(msg = 'Wrong Result' exp = '1' act = LINES(act_results)).

12. Press key CTRL + F3 activate your test class

13. Press key CTRL + SHIFT + F10 to execute you test class to see the output or navigate to execute:

   a. Right Click to Open Menu -> Run As -> ABAP Unit Test

14. Copy below code at the end of method **aunit_for_cds_method**

   a. cl_abap_unit_assert=>assert_equals(msg = 'Not Found' exp = 'EUR' act = act_results[1]-currency_code).

15. Repeat steps 12, 13 and see the output.

Task 3: Debug Test Class:

1. Double click on the left side of desired methods to create a break points as shown below:

```
METHOD aunit_for_cds_method.
  prepare_testdata_set( ).
  SELECT * FROM zdemo_so_items_by_taxrate INTO TABLE @act_results.
  cl_abap_unit_assert=>assert_equals( msg = 'Wrong Result' exp = '2' act = LINES( act_results ) ) ).

ENDMETHOD.
```

2. Press key CTRL + SHIFT + F10 to execute you test class to see the output or navigate to execute:

   a. Right Click to Open Menu -> Run As -> ABAP Unit Test

3. Then **Debug perspective** will be opened in ADT or HANA Studio where you can use F5(Step Into), F6(Step Over), F7(Step Return), F8(Resume or Execute) keys to debug the logic.

Exercise 2. Test Double for CDS with Aggregations

Task 1: Same Currency Aggregation:

4. Select ER9 Project in Project Explorer.

5. Use key CTRL+SHIFT+A (for Search string).

6. Give CDS View **ZDEMO_SO_ITEMS_BY_TAXRATE** in search string it will search for the cds view and click on OK to open it.

7. In Project explorer select cds view **ZDEMO_SO_ITEMS_BY_TAXRATE** right click to open menu -> New Test Class -> give name of test class as **ZCL_TC_AGGREGATIONS_XX** (## being your student number) and Description of test class as **Test Double for Aggregations** and click next.

8. Select Test type as **Unit Test** and click next.

9. Give Test method name as **samecurrency_aggr**

10. In the Dependency list select **cdsfrwk_sales_order_item and** give test data values as follows:

   a. so_item_guid = '01', so_guid = '1234', currency_code = 'EUR', gross_amount = '10', tax_rate = '10'

b. so_item_guid = '01', so_guid = '1234', currency_code = 'EUR', gross_amount = '100', tax_rate = '10'

add new row by clicking on button "**add a new editable row to enter test data**" as shown below

11. Click Finish

12. Global Test Class is created navigate to **Test Classes Tab**

13. Go to method **samecurrency_aggr**remove "**cl_abap_unit_assert=>fail( )."**

14. Copy below code at the end of method **samecurrency_aggr**

a. cl_abap_unit_assert=>assert_equals(msg = 'Error in Result' exp = '110' act = act_results[1]-sum_gross_amount).

15. Press key CTRL + F3 activate your test class

16. Press key CTRL + SHIFT + F10 to execute you test class to see the output or navigate to execute:

a. Right Click to Open Menu -> Run As -> ABAP Unit Test

Task 2: Different currency Aggregation:

1. In continuation to task 1 add one more method **diffcurrency_aggr** at the end of the class.

2. Copy and paste below code before the **endclass.**

```abap
METHOD diffcurrency_aggr.

lt_cdsfrwk_sales_order_item = VALUE #(
  (
    so_item_guid = '01'
    so_guid = '1234'
    currency_code = 'USD'
    gross_amount = '10'
    tax_rate = '10'
  )
  (
    so_item_guid = '01'
    so_guid = '1234'
    currency_code = 'EUR'
    gross_amount = '100'
    tax_rate = '10'
  ) ).

  insert_test_data_into_double( it_test_data = lt_cdsfrwk_sales_order_item ).

  select * from zdemo_so_items_by_taxrate INTO TABLE @act_results.

  exp_results = VALUE #( ( so_id = 'ID' currency_code = 'USD' sum_gross_amount = '10' tax_rate = '10.00' )
                ( so_id = 'ID' currency_code = 'EUR' sum_gross_amount = '100' tax_rate = '10.00' ) ).

  "Verify results
  cl_abap_unit_assert=>assert_equals( exp = lines( exp_results ) act = lines( act_results ) ).

ENDMETHOD.
```

3. Add one more method **insert_test_data_into_double** at the end of the class
4. Copy and paste below code before the **endclass.**

```abap
METHOD insert_test_data_into_double.
```

> environment->insert_test_data(i_data = it_test_data i_parameter_values = it_parameter_table).

> ENDMETHOD.

5. add two methods **diffcurrency_aggr, insert_test_data_into_double** signature in the **methods** sections of the class. Copy and paste below code in the methods section:

   insert_test_data_into_double

   > **IMPORTING**

   > **it_test_data   TYPE ANY TABLE**

   > **it_parameter_table TYPE**
   if_cds_parameter_values_config=>ty_parameter_value_pairs OPTIONAL,

   > **diffcurrency_aggr FOR TESTING RAISING cx_static_check,**

6. declare **exp_results** in **data** section of class. Copy and paste below snippet in the data section:

   exp_results TYPE STANDARD TABLE OF zdemo_so_items_by_taxrate WITH EMPTY KEY,

7. Press key CTRL + F3 activate your test class

8. Press key CTRL + SHIFT + F10 to execute you test class to see the output or navigate to execute:

   a. Right Click to Open Menu -> Run As -> ABAP Unit Test

Exercise 3. Test Double for CDS With Parameters

Task 1: CDS With Parameters:

1. Select ER9 Project in Project Explorer.

2. Use key CTRL+SHIFT+A (for Search string).

3. Give CDS View **ZDEMO_SO_ITEMS_WITHPARAM** in search string it will search for the cds view and click on OK to open it.

4. Use key CTRL+SHIFT+A (for Search string).

5. Give Test Class **ZCL_TC_PARAM_12** in search string it will search for the class and click on OK to open it.

6. Navigate to **Test Classes Tab**

7. Debug to understand the logic in methods

   a. Repeat exercise 1-Task-3 for steps to debug

Exercise 4. CDS Parameters 2

Task 1: CDS With Parameters having underlying CDS View with Parameters:

1. Select ER9 Project in Project Explorer.

2. Use key CTRL+SHIFT+A (for Search string).

3. Give CDS View **ZDEMO_SO_ITEMS_WITHPARAM2** in search string it will search for the cds view and click on OK to open it.

4. Use key CTRL+SHIFT+A (for Search string).

5. Give Test Class **ZCL_TC_PARAM2_12** in search string it will search for the class and click on OK to open it.

6. Navigate to **Test Classes Tab**

7. Debug to understand the logic in methods

   a. Repeat exercise 1-Task-3 for steps to debug

Exercise 5. Test Double for CDS with DCL

Task 1: CDS with DCL:

1. Select ER9 Project in Project Explorer.

2. Use key CTRL+SHIFT+A (for Search string).

3. Give CDS View **ZCDS_WITH_DCL_PFCG** in search string it will search for the cds view/entity and click on OK to open it.

4. Use key CTRL+SHIFT+A (for Search string).

5. Give CDS Access control **ZCDS_WITH_DCL_PFCG** in search string it will search for access control for cds view **ZCDS_WITH_DCL_PFCG** and click on OK to open it. Understand the access control mapped to CDS view.

6. Use key CTRL+SHIFT+A (for Search string).

7. Give Test Class **ZTC_CL_CDS_WITH_DCL** in search string it will search for the class and click on OK to open it.

8. Navigate to **Test Classes Tab**

9. Debug to understand the logic in methods

   a. Repeat exercise 1-Task-3 for steps to debug

Exercise 6. Hierarchy Unit Test

Task 1: Hierarchy Unit Test:

1. Select ER9 Project in Project Explorer.

2. Use key CTRL+SHIFT+A (for Search string).

3. Give CDS View **ZHCDS_DOUBLE** in search string it will search for the cds view/entity and click on OK to open it.

4. Use key CTRL+SHIFT+A (for Search string).

5. Give Test Class **ZCL_TC_HIERARCHY_TEST_12** in search string it will search for the class and click on OK to open it.

6. Navigate to **Test Classes Tab**

7. Debug to understand the logic in methods

   a. Repeat exercise 1-Task-3 for steps to debug