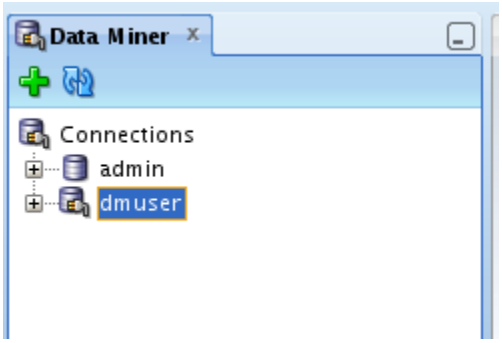
Oracle Association Rule Assignment

Note: There are four "**Required"** screens.

Start SQL Developer.

Create a project and a workflow

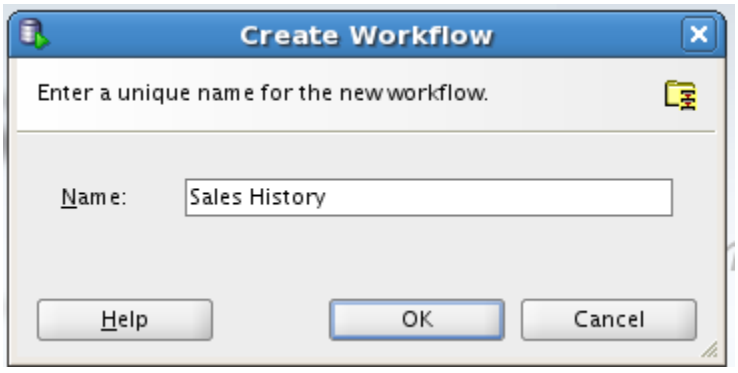
1. On the right side of the screen, there is Data Miner tab. If it is not there, you can bring it in with View – Data Miner – Data Miner Connections.



2. Right click dmuser and select New Project

Type Association Rule Mining for Name, and click OK.

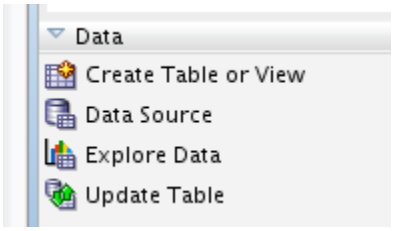
3. Right click the project name (Association Rule Mining) and select New Workflow.

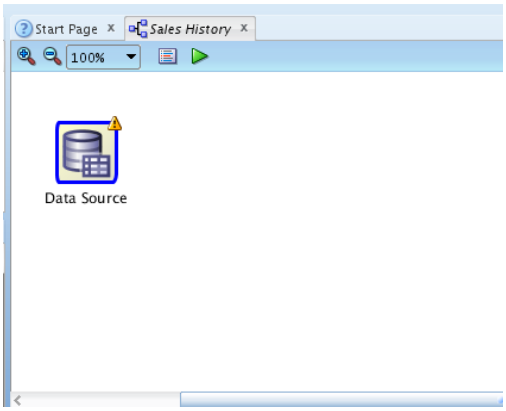


Type Sales History for Name, and click OK.

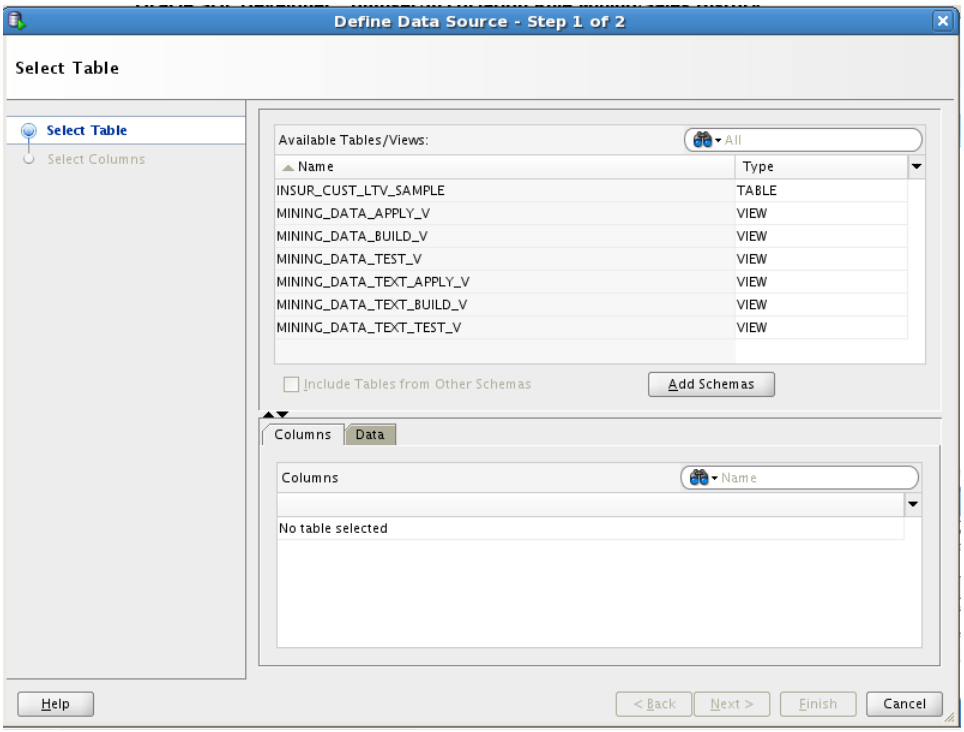
Setup a data source

1. Under Component Palette, click Data. Then, click Data Source and drag it to the Sales History workspace.

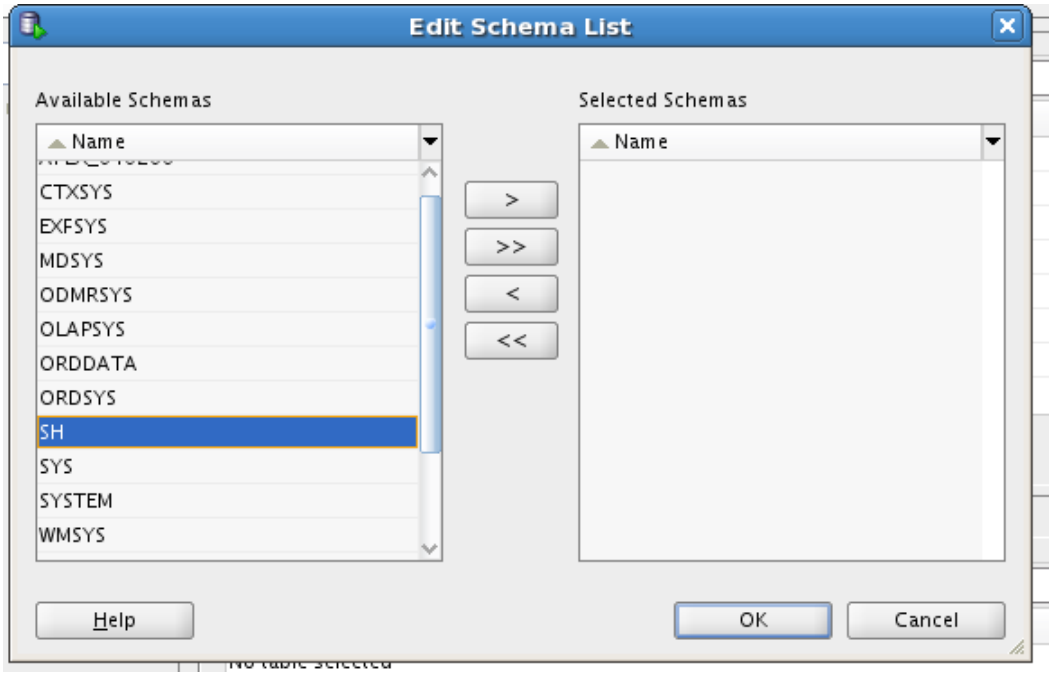




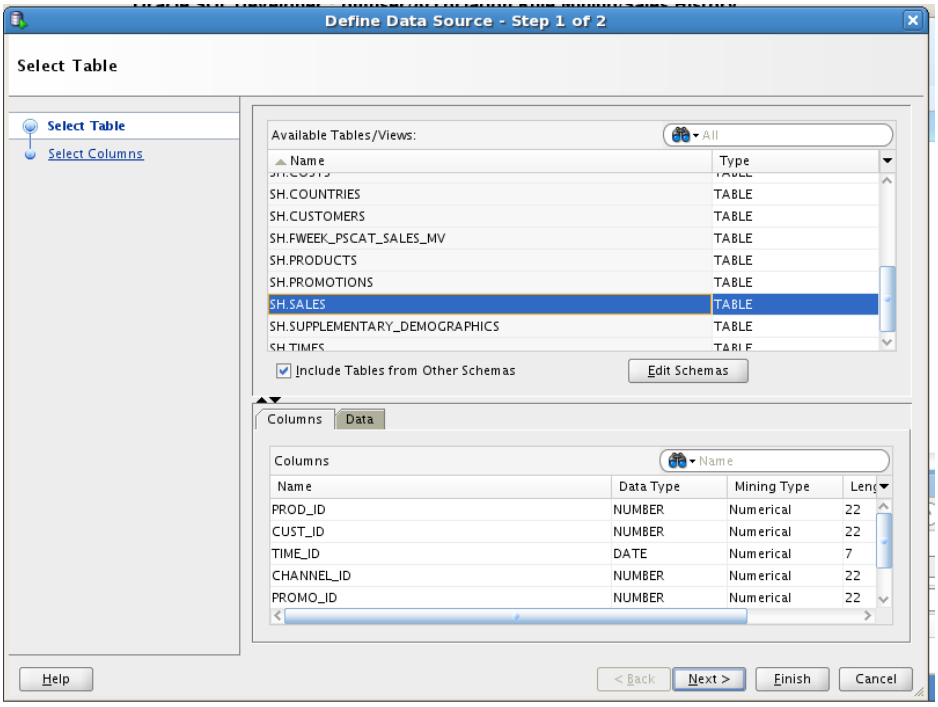
Data Source node is created in the workspace and Define Data Source window pops up.



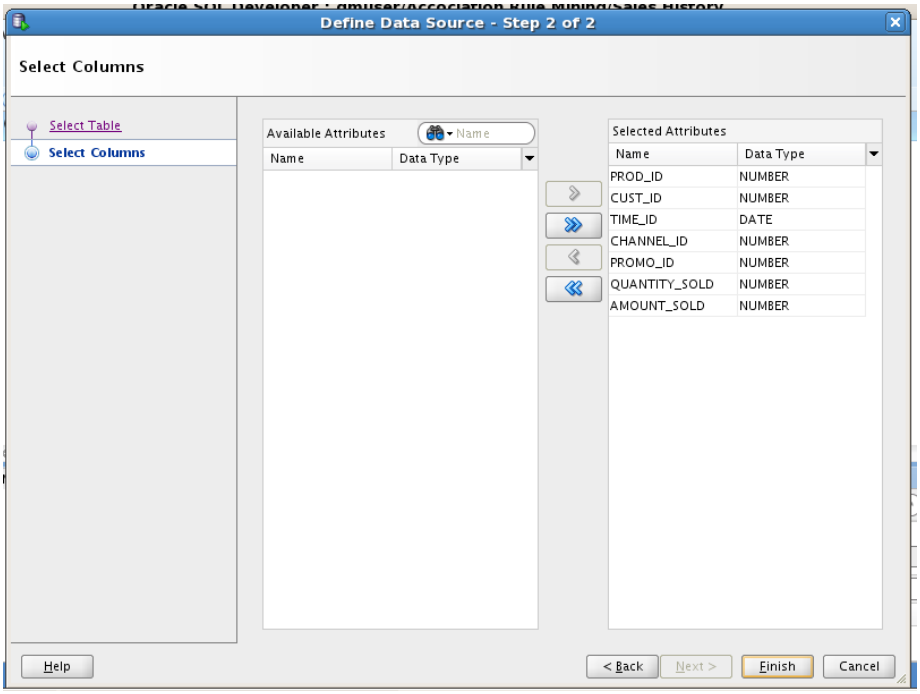
2. Click Add Schemas.



3. In the Edit Schema List, select SH and move it to the right using “>” button and click OK. You are back to Define Data Source Window.



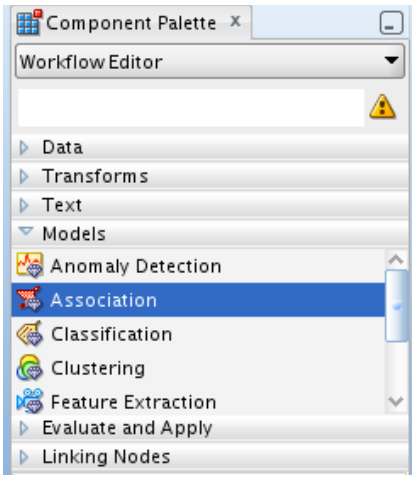
4. Check the box of Include Tables from Other Schemas, scroll down and select SH.SALES, and click Next.



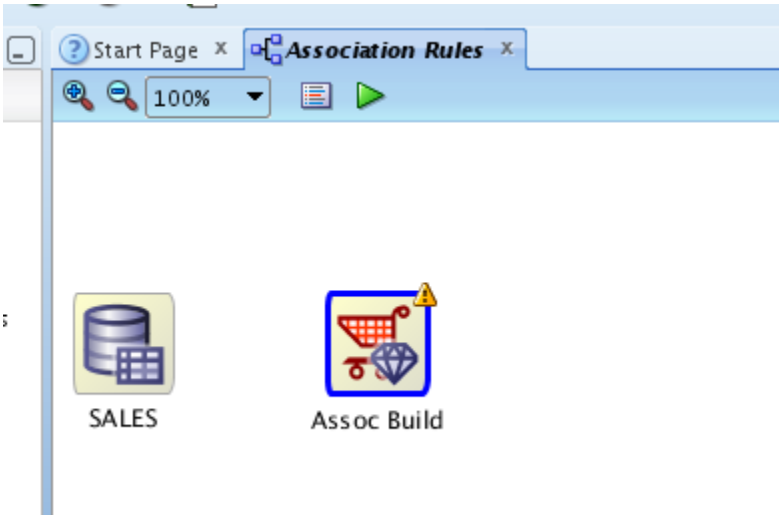
Verify that all attributes are selected on the right side and click Finish.

Build and run Association Rule Mining model

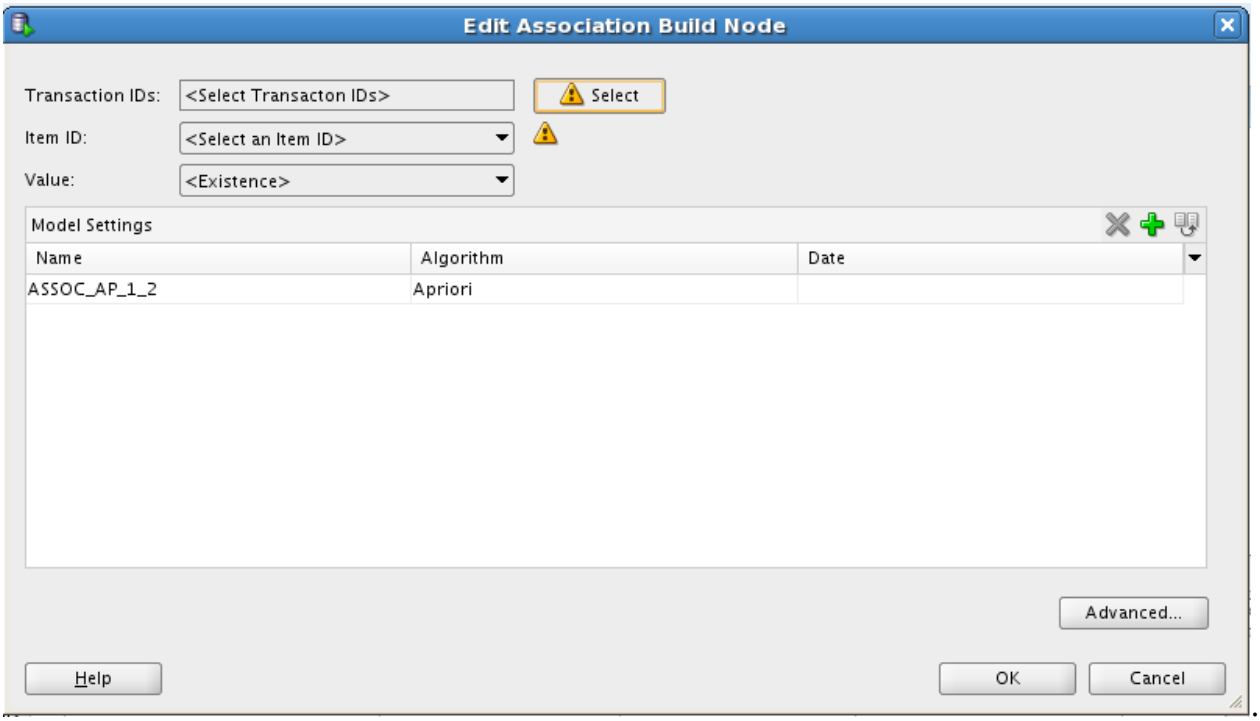
1. Click Association under Models, and drag it to the workspace.



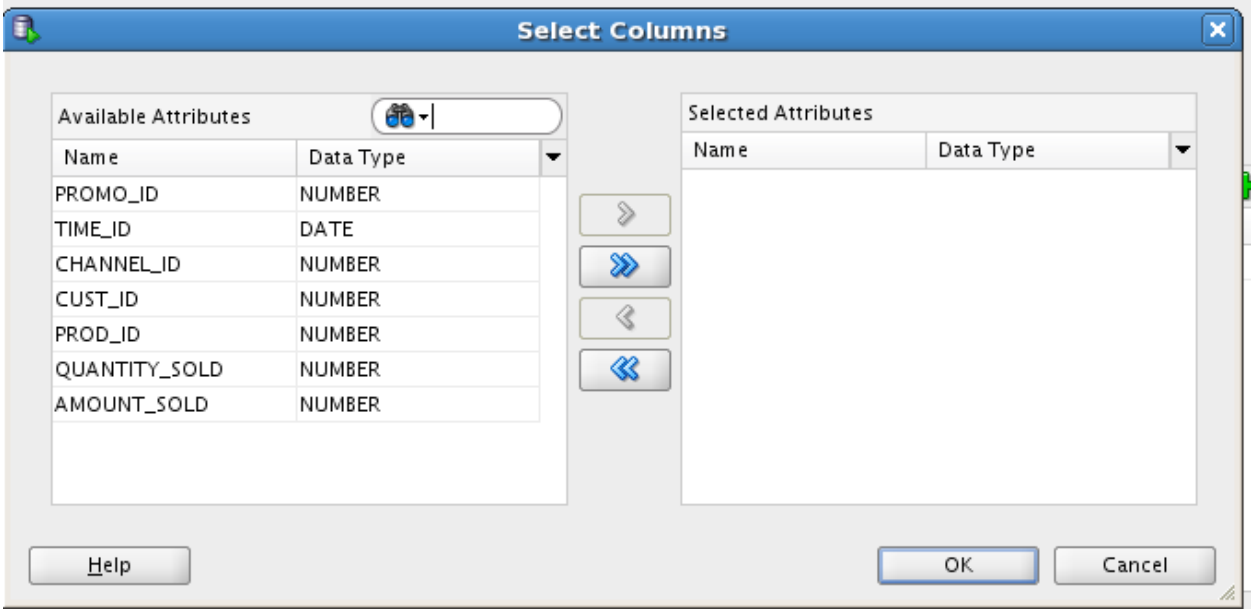
Assoc Build node is created.



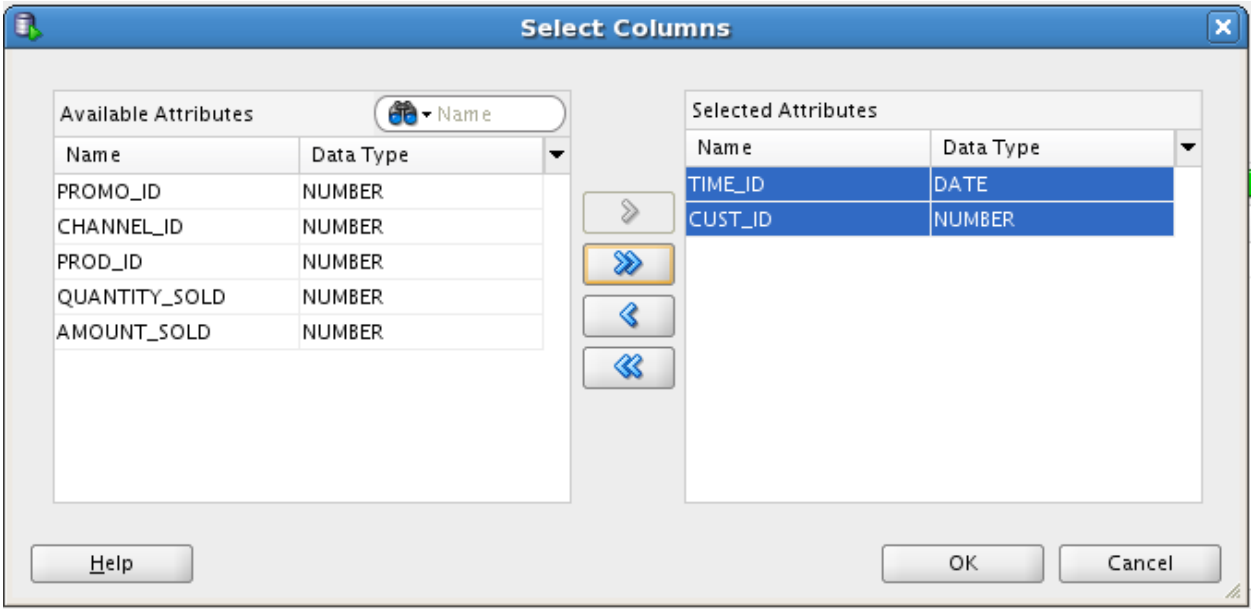
2. Right click Sales node and connect it to Asso Build node. Edit Association Build Node window pops up. Click Select.



3. In the Select Columns window, select and move CUST_ID and TIME_ID to the right.

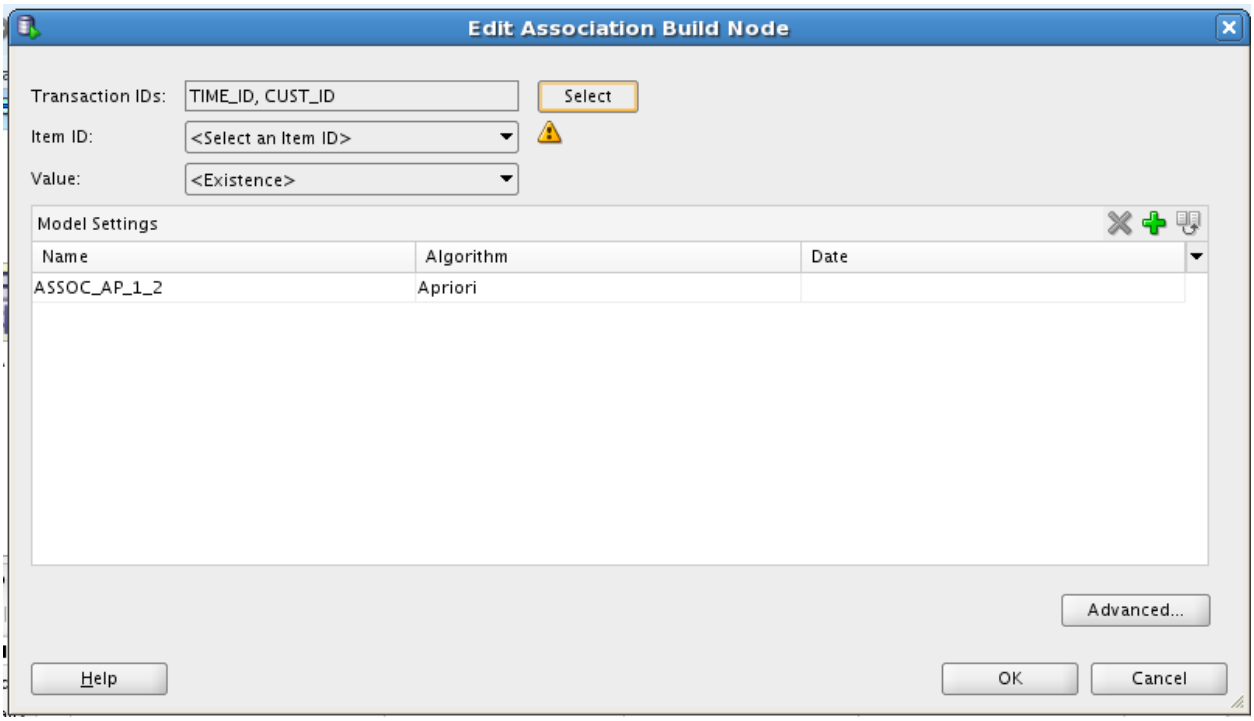


The (CUST_ID, TIME_ID) pair represents a transaction (or a market basket).

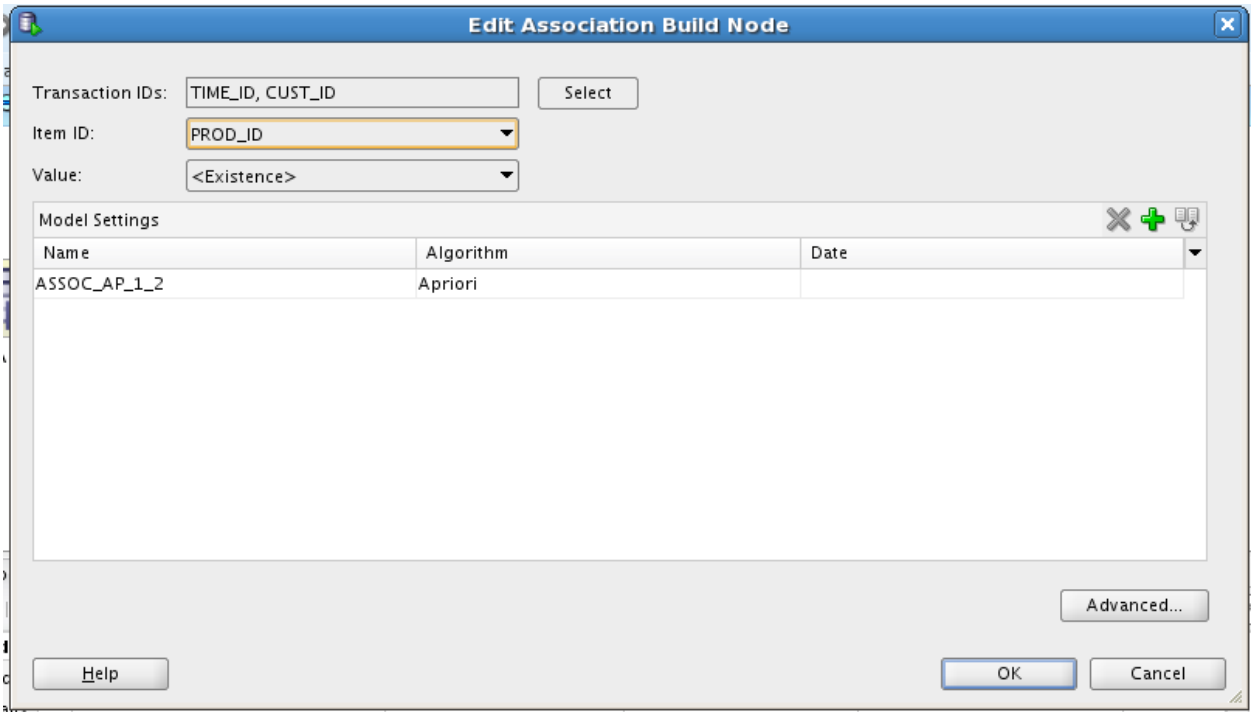


Click OK

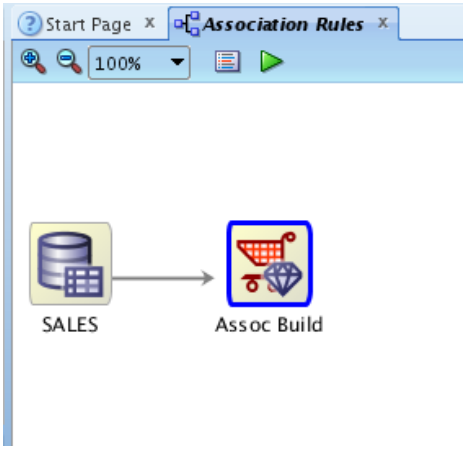
4. You are back to Edit Association Build Node window.



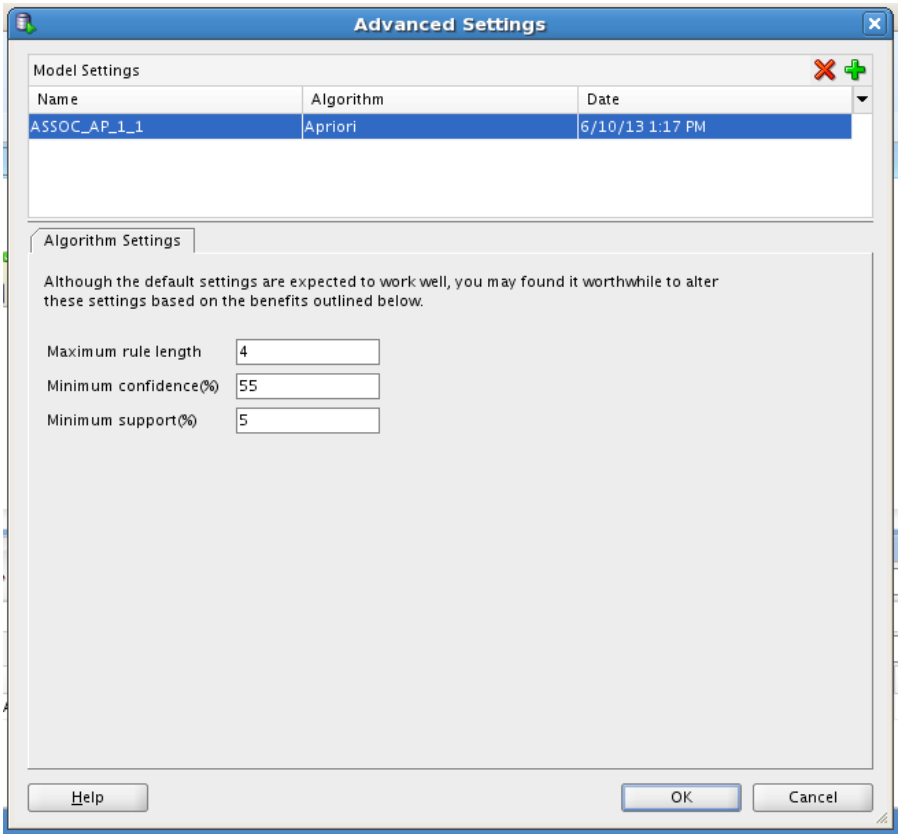
5. Select PROD_ID for Item ID and accept <Existence> for Value, and click OK.



6. You can see the two nodes in the workspace.

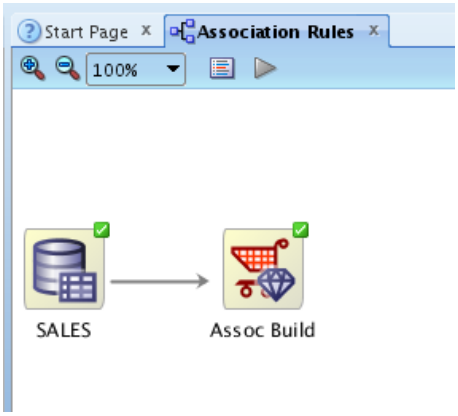


7. Right click Association Build node and select Advanced Settings. Enter 55 for Minimum confidence and 5 for Minimum support, and click OK.



8. You are back to workspace. Right click Association Build node and click Run.

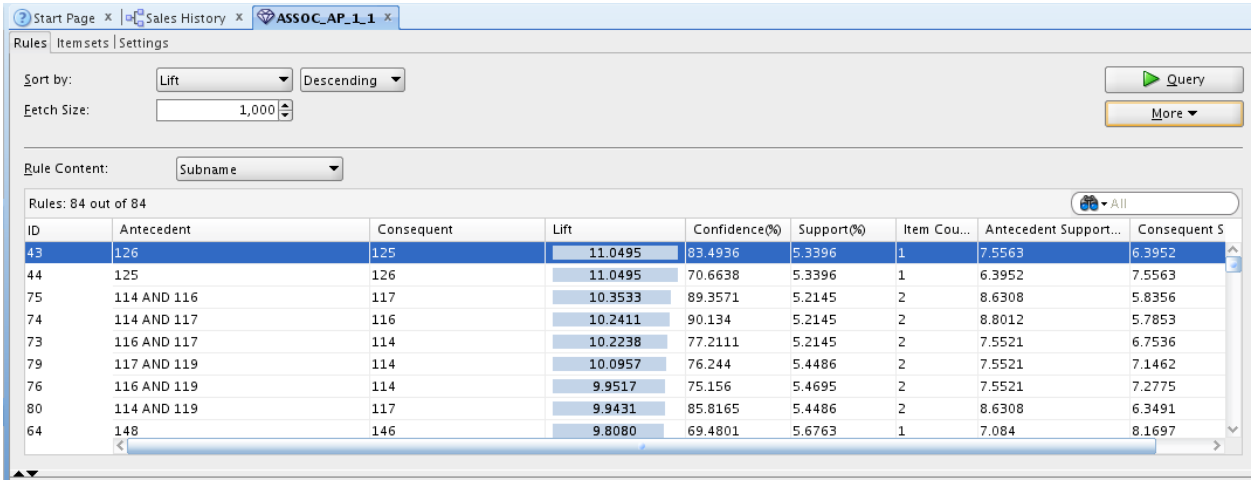
After the processing is finished (which takes a minute or so), you will see green check marks at the upper right corners of both nodes.



Required: Capture this screen and paste it onto your submission.

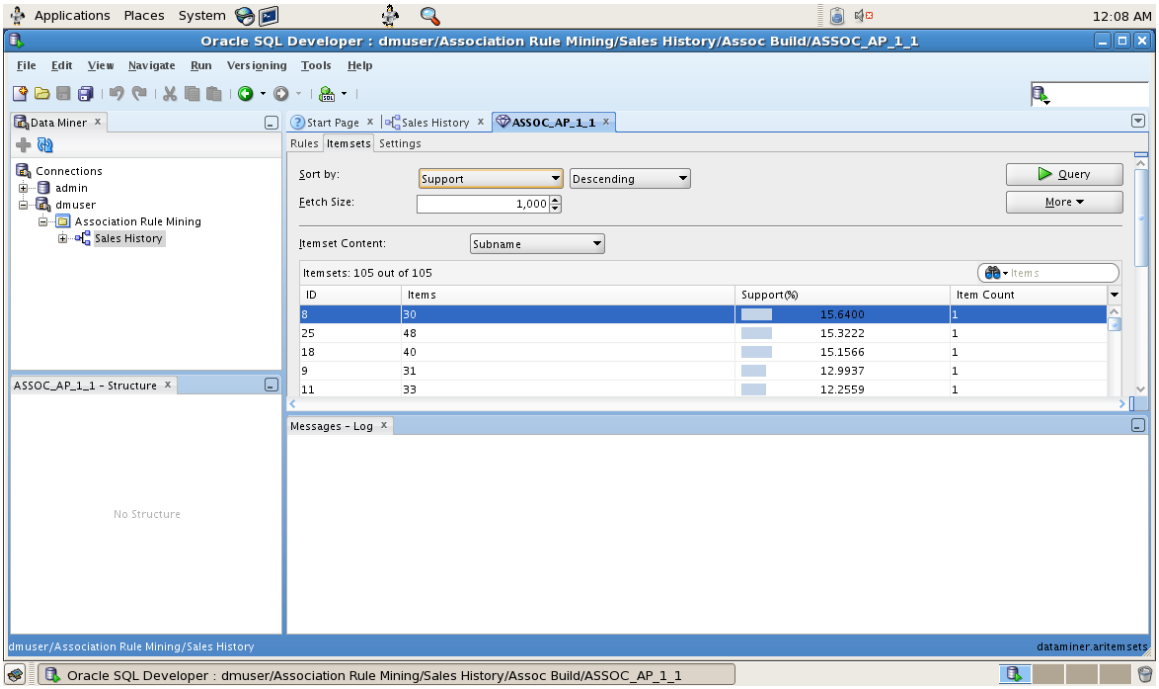
Explore the Model

1. Right click Association Build node, select View Models, and click the model name (e.g., ASSOC_AP_1_1). You will see in the workspace the details of the model. Note that there is an error here. The antecedent support and the consequent support are switched.



ID	Antecedent	Consequent	Lift	Confidence(%)	Support(%)	Item Cou...	Antecedent Support...	Consequent S
43	126	125	11.0495	83.4936	5.3396	1	7.5563	6.3952
44	125	126	11.0495	70.6638	5.3396	1	6.3952	7.5563
75	114 AND 116	117	10.3533	89.3571	5.2145	2	8.6308	5.8356
74	114 AND 117	116	10.2411	90.134	5.2145	2	8.8012	5.7853
73	116 AND 117	114	10.2238	77.2111	5.2145	2	7.5521	6.7536
79	117 AND 119	114	10.0957	76.244	5.4486	2	7.5521	7.1462
76	116 AND 119	114	9.9517	75.156	5.4695	2	7.5521	7.2775
80	114 AND 119	117	9.9431	85.8165	5.4486	2	8.6308	6.3491
64	148	146	9.8080	69.4801	5.6763	1	7.084	8.1697

2. Click Itemsets tab and you will see all frequent itemsets along with their supports.



ID	Items	Support(%)	Item Count
8	30	15.6400	1
25	48	15.3222	1
18	40	15.1566	1
9	31	12.9937	1
11	33	12.2559	1

Required: Capture this screen and paste it on to your submission.

3. From the itemsets shown, find the 3-itemset {116, 117, 119}. Note that the order of items in an itemset is not important, i.e., on your screen it may show as {119, 116, 117} or in any other order.

Manually mine all association rules from this three itemset {116, 117, 119} and compute the confidence of each rule. To compute the confidence of a rule, you need supports of some itemsets. You can find the supports of all necessary itemsets on this screen by scrolling up and down the itemsets.

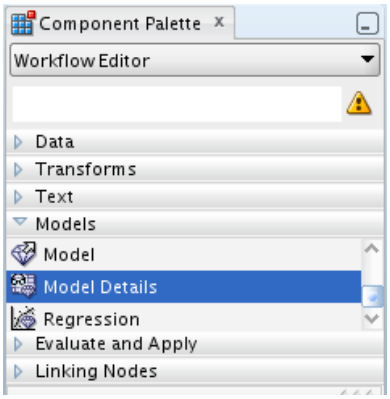
Required: After you mine all association rules and compute their confidences, include them in your submission in the following format. Assume the 3-itemset is {a, b, c}.

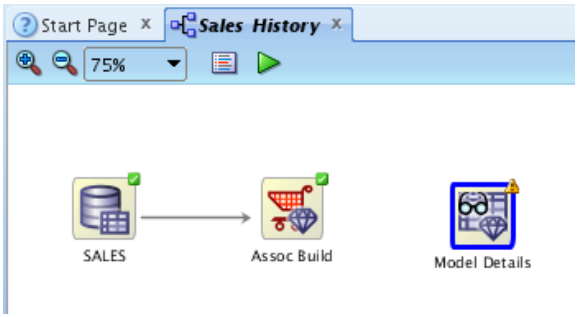
{a} => {b,c}: confidence = <write percent here>
{b} => {a,c}: confidence = <write percent here>
{c} => {a,b}: confidence = <write percent here>
{a, b} => {c}: confidence = <write percent here>
{a, c} => {b}: confidence = <write percent here>
{b,c} => {a}: confidence = <write percent here>

Note that not all rules you mine are under Rules tab.

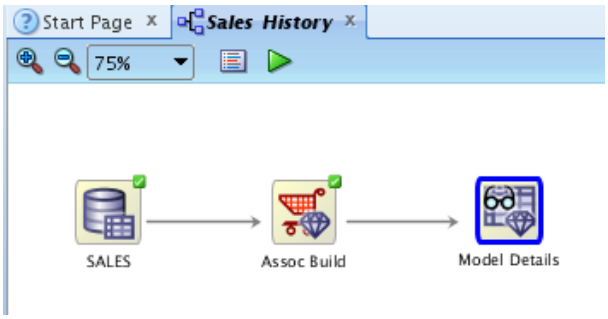
6. You can further explore the association rule mining result using Model Details node.

Under Model, click and drag Model Details node to the workspace.

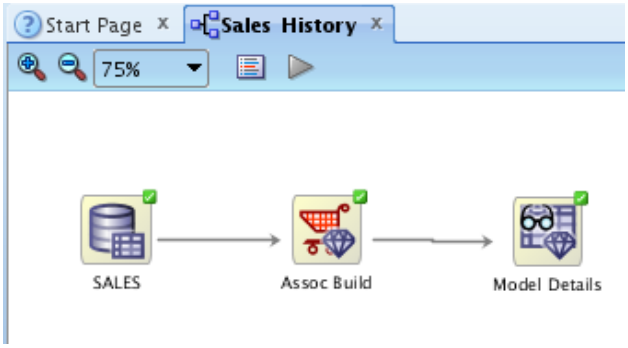




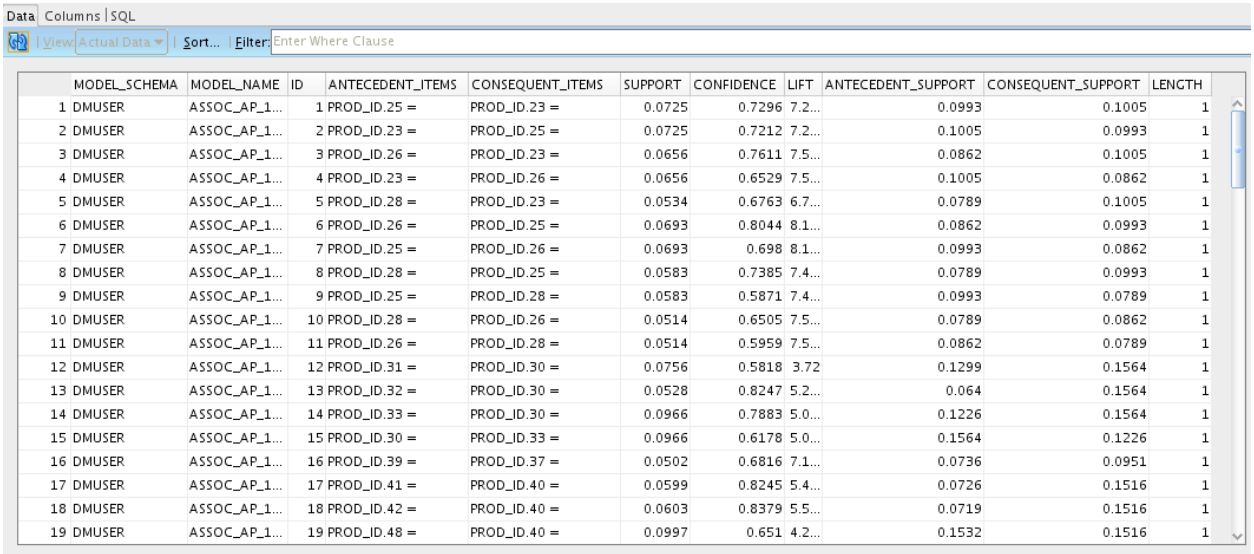
7. Right click Assoc Build node and connect it to Model Details node.



8. Right click Model Details node and click Run. Green check mark will appear at the upper right corner of the node after the processing is finished.



9. Right click Model Details and select View Data. You will see all association rules along with their properties.



	MODEL_SCHEMA	MODEL_NAME	ID	ANTECEDENT_ITEMS	CONSEQUENT_ITEMS	SUPPORT	CONFIDENCE	LIFT	ANTECEDENT_SUPPORT	CONSEQUENT_SUPPORT	LENGTH
1	DMUSER	ASSOC_AP_1...	1	PROD_ID.25 =	PROD_ID.23 =	0.0725	0.7296	7.2...	0.0993	0.1005	1
2	DMUSER	ASSOC_AP_1...	2	PROD_ID.23 =	PROD_ID.25 =	0.0725	0.7212	7.2...	0.1005	0.0993	1
3	DMUSER	ASSOC_AP_1...	3	PROD_ID.26 =	PROD_ID.23 =	0.0656	0.7611	7.5...	0.0862	0.1005	1
4	DMUSER	ASSOC_AP_1...	4	PROD_ID.23 =	PROD_ID.26 =	0.0656	0.6529	7.5...	0.1005	0.0862	1
5	DMUSER	ASSOC_AP_1...	5	PROD_ID.28 =	PROD_ID.23 =	0.0534	0.6763	6.7...	0.0789	0.1005	1
6	DMUSER	ASSOC_AP_1...	6	PROD_ID.26 =	PROD_ID.25 =	0.0693	0.8044	8.1...	0.0862	0.0993	1
7	DMUSER	ASSOC_AP_1...	7	PROD_ID.25 =	PROD_ID.26 =	0.0693	0.698	8.1...	0.0993	0.0862	1
8	DMUSER	ASSOC_AP_1...	8	PROD_ID.28 =	PROD_ID.25 =	0.0583	0.7385	7.4...	0.0789	0.0993	1
9	DMUSER	ASSOC_AP_1...	9	PROD_ID.25 =	PROD_ID.28 =	0.0583	0.5871	7.4...	0.0993	0.0789	1
10	DMUSER	ASSOC_AP_1...	10	PROD_ID.28 =	PROD_ID.26 =	0.0514	0.6505	7.5...	0.0789	0.0862	1
11	DMUSER	ASSOC_AP_1...	11	PROD_ID.26 =	PROD_ID.28 =	0.0514	0.5959	7.5...	0.0862	0.0789	1
12	DMUSER	ASSOC_AP_1...	12	PROD_ID.31 =	PROD_ID.30 =	0.0756	0.5818	3.72	0.1299	0.1564	1
13	DMUSER	ASSOC_AP_1...	13	PROD_ID.32 =	PROD_ID.30 =	0.0528	0.8247	5.2...	0.064	0.1564	1
14	DMUSER	ASSOC_AP_1...	14	PROD_ID.30 =	PROD_ID.33 =	0.0966	0.7883	5.0...	0.1226	0.1564	1
15	DMUSER	ASSOC_AP_1...	15	PROD_ID.30 =	PROD_ID.33 =	0.0966	0.6178	5.0...	0.1564	0.1226	1
16	DMUSER	ASSOC_AP_1...	16	PROD_ID.39 =	PROD_ID.37 =	0.0502	0.6816	7.1...	0.0736	0.0951	1
17	DMUSER	ASSOC_AP_1...	17	PROD_ID.41 =	PROD_ID.40 =	0.0599	0.8245	5.4...	0.0726	0.1516	1
18	DMUSER	ASSOC_AP_1...	18	PROD_ID.42 =	PROD_ID.40 =	0.0603	0.8379	5.5...	0.0719	0.1516	1
19	DMUSER	ASSOC_AP_1...	19	PROD_ID.48 =	PROD_ID.40 =	0.0997	0.651	4.2...	0.1532	0.1516	1

Required: Capture this screen and paste it onto your submission.