

U2M4.LW.Core PL/SQL

Shkrabatouskaya Vera

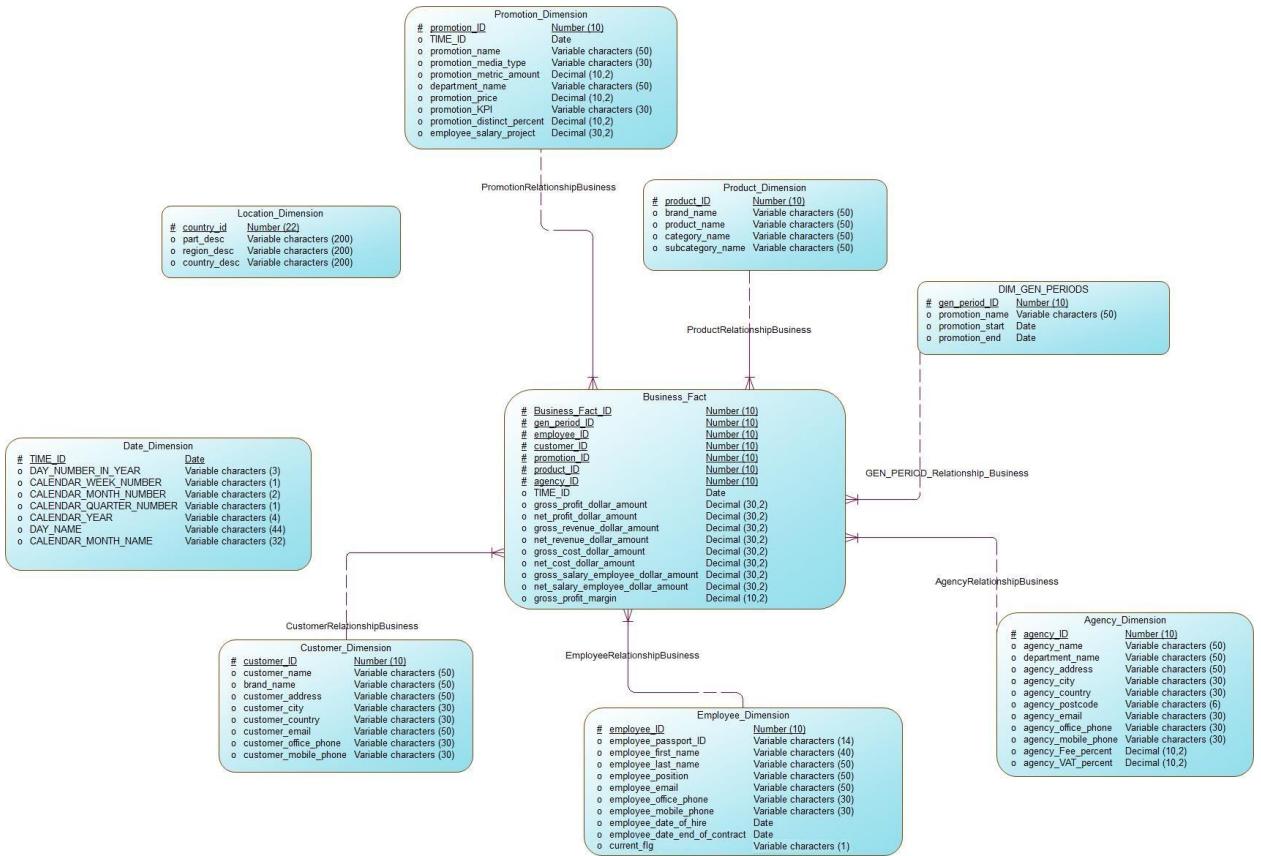
https://github.com/VeraShkrabatouskaya/DataMola_Data-Camping-2022

2. Business analyses tasks – Reports

At the customer's request, the following changes were made to the data warehouse in order to optimize costs.

History of changes

Name	Date	Reason for change	Version
Vera Shkrabatouskaya	7/25/2022	Creation of a STAR data warehouse model.	1.0 draft 1
Vera Shkrabatouskaya	7/26/2022	Changes after approval. Added details to the Business Model.	1.0 approved
Vera Shkrabatouskaya	8/3/2022	Changes after approval. The agency_country field was added to the Agency_Dimension table of the business model. The employee_salary field was renamed to employee_salary_project in Employee_Dimension.	1.1 approved
Vera Shkrabatouskaya	8/11/2022	Changes after approval. The Date_Dimension and Location_Dimension tables can be used as references, but will not be used in the data warehouse. The employee_salary_project field was moved from Employee_Dimension to Promotion_Dimension of the business model. The current_flg field was added to Employee_Dimension. The employee_date_of_dismissal field was renamed to employee_date_end_of_contract in Employee_Dimension. The department_name field and the agency_name field were removed from Employee_Dimension. The promotion_ID field has been renamed to promotion_name in DIM_GEN_PERIODS. Also, the promotion_description field in DIM_GEN_PERIODS has been removed. The promotion_name and promotion_media_type field in Product_Dimension have been removed. The TIME_ID field has been added to the Promotion_Dimension and Business_Fact. The customer_quantity, employee_quantity, and promotion_quantity parameters will not be calculated in this Business_Fact table. The revenue_cost_percent parameter has been replaced with gross_profit_margin due to the change of the repository's goal to calculate the margin indicator.	1.2 approved



2.1. Task 01: Create Packages for Reload Dimension from SA_*

- `cls_t_customer`

Create a `cls_t_customer` table at the DW - Cleansing Level.

```

-- alter session set current_schema=DW_CL;
-- drop table cls_t_customer;

alter session set current_schema=DW_CL;

Create table cls_t_customer (
    customer_name          VARCHAR2(50) NOT NULL,
    brand_name              VARCHAR2(50) NOT NULL,
    customer_address        VARCHAR2(50) NOT NULL,
    customer_city            VARCHAR2(30) NOT NULL,
    customer_country         VARCHAR2(30) NOT NULL,
    customer_email           VARCHAR2(50) NOT NULL,
    customer_office_phone   VARCHAR2(30) NOT NULL,
    customer_mobile_phone   VARCHAR2(30) NOT NULL
);

```

Script Output: Task completed in 0.053 seconds

Table CLS_T_CUSTOMER created.

Let's create packages to get data from Storage level SA_* in DW - Cleanup level for the table cls_t_customer.

```

1 alter session set current_schema = DW_CL;
2
3 CREATE OR REPLACE PACKAGE pkg_etl_cls_customer
4 AS
5   PROCEDURE load_cls_customer;
6 END pkg_etl_cls_customer;
7 /

```

Session altered.

Package PKG_ETL_CLS_CUSTOMER compiled

Grant permissions to user DW_CL in tablespace ts_dw_cl to use data from table SA_CUSTOMER_DATA_with_department in tablespace ts_sa_customers_data_01.

```

1 --GRANT UNLIMITED TABLESPACE TO VShkrabatovskaya;
2 --GRANT CONNECT,RESOURCE TO sa_customers;
3 --SELECT * from dba_data_files ;
4 --select * from USER tablespaces;
5 alter session set current_schema=sa_customers;
6 alter user sa_customers QUOTA UNLIMITED ON ts_sa_customers_data_01;
7
8 --alter session set current_schema=sa_customers;
9 --GRANT SELECT ON SA_CUSTOMER_DATA_total TO DW_CL;
10
11 alter session set current_schema=sa_customers;
12 GRANT SELECT ON SA_CUSTOMER DATA with_department TO DW_CL;
13

```

Session altered.

User SA_CUSTOMERS altered.

Session altered.

Grant succeeded.

```

1 alter session set current_schema = DW_CL;
2
3 CREATE OR REPLACE PACKAGE BODY pkg_etl_cls_customer
4 AS
5   PROCEDURE load_cls_customer
6   AS
7     CURSOR cursor_cls_customer
8     IS
9       SELECT DISTINCT customer_name, brand_name, customer_address, customer_city, customer_country, customer_
10         FROM sa_customers.SA_CUSTOMER DATA with_department
11        WHERE customer_name IS NOT NULL
12          AND brand_name IS NOT NULL
13          AND customer_address IS NOT NULL
14          AND customer_city IS NOT NULL
15          AND customer_country IS NOT NULL
16          AND customer_email IS NOT NULL
17          AND customer_office_phone IS NOT NULL
18          AND customer_mobile_phone IS NOT NULL
19        ;
20
21   BEGIN
22     EXECUTE IMMEDIATE 'TRUNCATE TABLE DW_CL.cls_t_customer';
23   FOR i IN cursor_cls_customer LOOP
24     INSERT INTO DW_CL.cls_t_customer(

```

Session altered.

Package Body PKG_ETL_CLS_CUSTOMER compiled

Code:

```
CREATE OR REPLACE PACKAGE body pkg_etl_cls_customer
AS
  PROCEDURE load_cls_customer
  AS
    CURSOR cursor_cls_customer
    IS
      SELECT DISTINCT customer_name, brand_name, customer_address, customer_city, customer_country, customer_email,
customer_office_phone, customer_mobile_phone
      FROM sa_customers.SA_CUSTOMER_DATA_with_department
      WHERE customer_name IS NOT NULL
        AND brand_name IS NOT NULL
        AND customer_address IS NOT NULL
        AND customer_city IS NOT NULL
        AND customer_country IS NOT NULL
        AND customer_email IS NOT NULL
        AND customer_office_phone IS NOT NULL
        AND customer_mobile_phone IS NOT NULL
      ;
BEGIN
  EXECUTE IMMEDIATE 'TRUNCATE TABLE DW_CL.cls_t_customer';
  FOR i IN cursor_cls_customer LOOP
    INSERT INTO DW_CL.cls_t_customer(
      customer_name,
      brand_name,
      customer_address,
      customer_city,
      customer_country,
      customer_email,
      customer_office_phone,
      customer_mobile_phone)
    VALUES (
      i.customer_name,
      i.brand_name,
      i.customer_address,
      i.customer_city,
      i.customer_country,
      i.customer_email,
      i.customer_office_phone,
      i.customer_mobile_phone);
    EXIT WHEN cursor_cls_customer%NOTFOUND;
  END LOOP;
  COMMIT;
END load_cls_customer;
END pkg_etl_cls_customer;
```

The screenshot shows the Oracle SQL Developer interface with two panes. The top pane is the Script Output window, which displays the execution of a script containing package creation and procedure calls. The bottom pane is the Query Result window, which shows the output of a query against the newly created table.

Script Output Window (Top):

```
48 alter session set current_schema = DW_CL;
49 alter user DW_CL QUOTA UNLIMITED ON ts_dw_cl;
50
51 EXEC pkg_etl_cls_customer.load_cls_customer;
52
53
```

Session altered.
User DW_CL altered.
PL/SQL procedure successfully completed.

Query Result Window (Bottom):

```
54 SELECT * FROM cls_t_customer;
55
56
```

CUSTOMER_NAME	BRAND_NAME	CUSTOMER_ADDRESS	CUSTOMER_CITY	CUSTOMER_COUNTRY	CUSTOMER_EMAIL	CUSTOMER_PHONE
1 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park	New Jersey	United States	www.facebook.com/SamsungUS	1-201-229
2 Visa International Service Association	VISA	900 Metro Center Blvd.	Foster City	United States	https://usa.visa.com/contact-us.html	1-800-847

- cls_t_employee

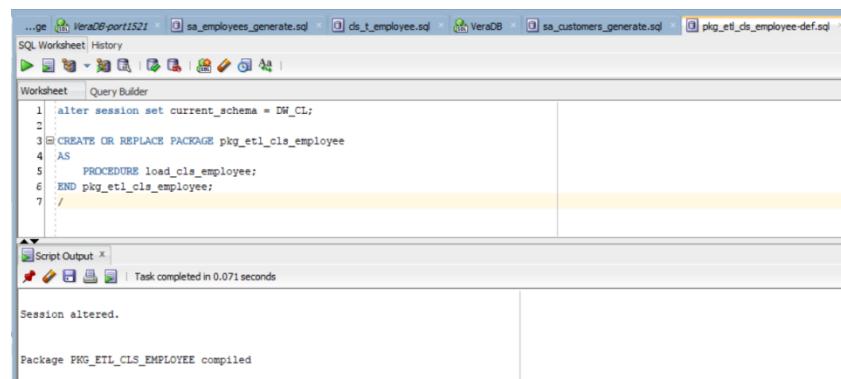
Create a cls_t_employee table at the DW - Cleansing Level.

```

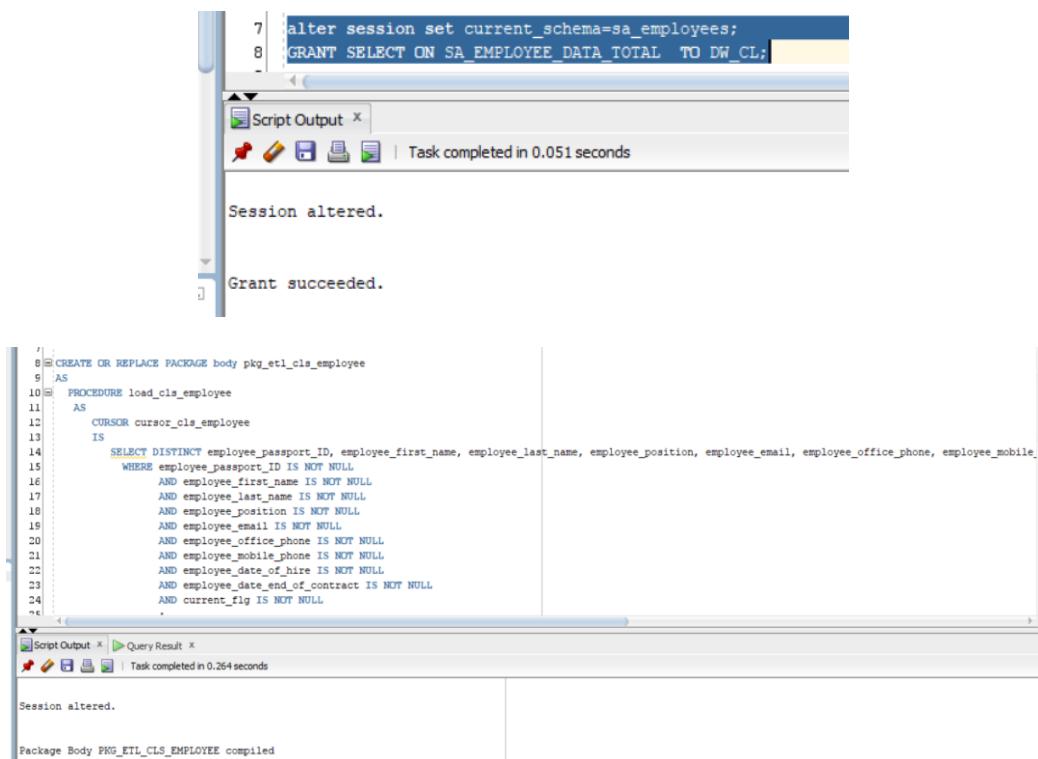
5
6 Create table cls_t_employee (
7   employee_passport_ID           VARCHAR2(14) NOT NULL,
8   employee_first_name            VARCHAR2(40) NOT NULL,
9   employee_last_name             VARCHAR2(50) NOT NULL,
10  employee_position              VARCHAR2(50) NOT NULL,
11  employee_email                VARCHAR2(50) NOT NULL,
12  employee_office_phone         VARCHAR2(30) NOT NULL,
13  employee_mobile_phone          VARCHAR2(30) NOT NULL,
14  employee_date_of_hire          DATE NOT NULL,
15  employee_date_end_of_contract DATE NOT NULL,
16  current_flg                   VARCHAR2(1) NOT NULL
17 );
18

```

Let's create packages to get data from Storage level SA_* in DW - Cleanup level for the table cls_t_employee.



Grant permissions to user DW_CL in tablespace ts_dw_cl to use data from table SA_EMPLOYEE_DATA_TOTAL in tablespace ts_sa_employees_data_01.



Code:

```
alter session set current_schema=sa_employees;
GRANT SELECT ON SA_EMPLOYEE_DATA_TOTAL TO DW_CL;
alter session set current_schema = DW_CL;

CREATE OR REPLACE PACKAGE body pkg_etl_cls_employee
AS
  PROCEDURE load_cls_employee
  AS
    CURSOR cursor_cls_employee
    IS
      SELECT DISTINCT employee_passport_ID, employee_first_name, employee_last_name, employee_position, employee_email,
      employee_office_phone, employee_mobile_phone, employee_date_of_hire, employee_date_end_of_contract, current_flg FROM
      sa_employees.SA_EMPLOYEE_DATA_TOTAL
      WHERE employee_passport_ID IS NOT NULL
        AND employee_first_name IS NOT NULL
        AND employee_last_name IS NOT NULL
        AND employee_position IS NOT NULL
        AND employee_email IS NOT NULL
        AND employee_office_phone IS NOT NULL
        AND employee_mobile_phone IS NOT NULL
        AND employee_date_of_hire IS NOT NULL
        AND employee_date_end_of_contract IS NOT NULL
        AND current_flg IS NOT NULL
      ;
      
BEGIN
  EXECUTE IMMEDIATE 'TRUNCATE TABLE DW_CL.cls_t_employee';
  FOR i IN cursor_cls_employee LOOP
    INSERT INTO DW_CL.cls_t_employee(
      employee_passport_ID,
      employee_first_name,
      employee_last_name,
      employee_position,
      employee_email,
      employee_office_phone,
      employee_mobile_phone,
      employee_date_of_hire,
      employee_date_end_of_contract,
      current_flg)
    VALUES (
      i.employee_passport_ID,
      i.employee_first_name,
      i.employee_last_name,
      i.employee_position,
      i.employee_email,
      i.employee_office_phone,
      i.employee_mobile_phone,
      i.employee_date_of_hire,
      i.employee_date_end_of_contract,
      i.current_flg);
    EXIT WHEN cursor_cls_employee%NOTFOUND;
  END LOOP;
  
  COMMIT;
END load_cls_employee;
END pkg_etl_cls_employee;
```

```

51 alter session set current_schema = DW_CL;
52 alter user DW_CL QUOTA UNLIMITED ON ts_dw_cl;
53
54 EXEC pkg_etl_cls_employee.load_cls_employee;

```

Session altered.

User DW_CL altered.

PL/SQL procedure successfully completed.

```

56 SELECT * FROM cls_t_employee;
57
58

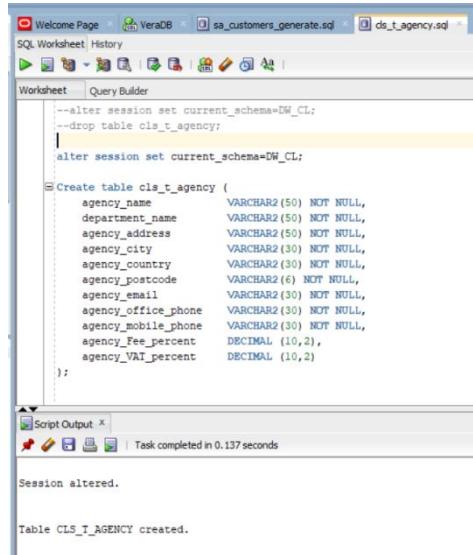
```

Script Output X | Query Result X | Fetched 50 rows in 0.017 seconds

	EMPLOYEE_PASSPORT_ID	EMPLOYEE_FIRST_NAME	EMPLOYEE_LAST_NAME	EMPLOYEE_POSITION	EMPLOYEE_EMAIL	EMPLOYEE_OFFICE_PHONE	EMPLOYEE_MOBILE_PHONE	EMPLOYEE_DATE_C
1	463389049	Alex	Abramson	specialist	Alex.Abramson@gmail.com	286-516-741	755-713-280	26-FEB-20
2	463389049	Alex	Abramson	manager	Alex.Abramson@gmail.com	286-516-741	755-713-280	26-FEB-20
3	887508591	Alex	Barnes	specialist	Alex.Barnes@gmail.com	978-183-440	458-626-642	16-NOV-19
4	887508591	Alex	Barnes	manager	Alex.Barnes@gmail.com	978-183-440	458-626-642	16-NOV-19
5	233896512	Alex	Campbell	specialist	Alex.Campbell@gmail.com	527-636-298	932-286-141	05-JUN-20
6	233896512	Alex	Campbell	manager	Alex.Campbell@gmail.com	527-636-298	932-286-141	05-JUN-20
7	584943123	Alex	Delon	specialist	Alex.Delon@gmail.com	880-128-809	736-262-743	19-NOV-19
8	584943123	Alex	Delon	manager	Alex.Delon@gmail.com	880-128-809	736-262-743	19-NOV-19

- `cls_t_agency`

Create a `cls_t_agency` table at the DW - Cleansing Level.

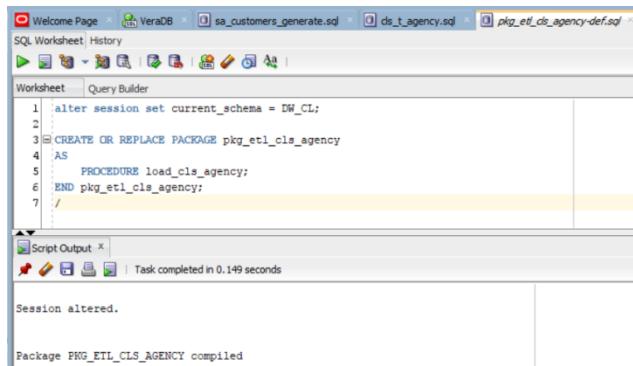


The screenshot shows the Oracle SQL Developer interface with the 'Query Builder' tab selected. The code in the worksheet pane is:

```
--alter session set current_schema=DW_CL;
--drop table cls_t_agency;
|
| alter session set current_schema=DW_CL;
|
| Create table cls_t_agency (
|   agency_name          VARCHAR2(50) NOT NULL,
|   department_name       VARCHAR2(50) NOT NULL,
|   agency_address        VARCHAR2(50) NOT NULL,
|   agency_city           VARCHAR2(30) NOT NULL,
|   agency_country        VARCHAR2(30) NOT NULL,
|   agency_postcode       VARCHAR2(6) NOT NULL,
|   agency_email          VARCHAR2(30) NOT NULL,
|   agency_office_phone   VARCHAR2(30) NOT NULL,
|   agency_mobile_phone   VARCHAR2(30) NOT NULL,
|   agency_fee_percent    DECIMAL (10,2),
|   agency_VAT_percent    DECIMAL (10,2)
| );
|
Session altered.
Table CLS_T_AGENCY created.
```

The 'Script Output' pane shows the message: 'Task completed in 0.137 seconds'.

Let's create packages to get data from Storage level SA_* in DW - Cleanup level for the table `cls_t_agency`.

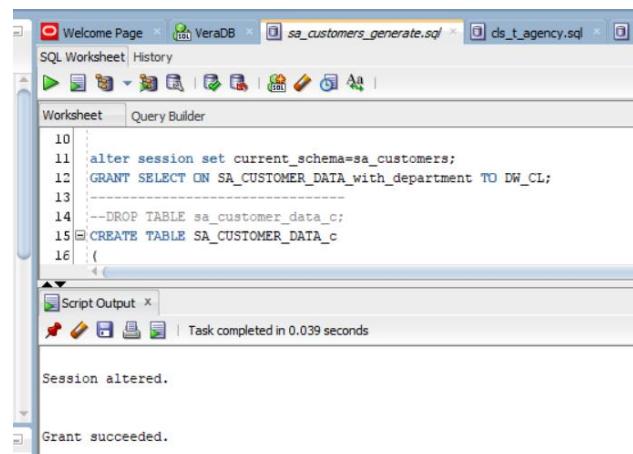


The screenshot shows the Oracle SQL Developer interface with the 'Query Builder' tab selected. The code in the worksheet pane is:

```
1 | alter session set current_schema = DW_CL;
2 |
3 | CREATE OR REPLACE PACKAGE pkg_etl_cls_agency
4 | AS
5 |   PROCEDURE load_cls_agency;
6 | END pkg_etl_cls_agency;
7 |
|
Session altered.
Package PKG_ETL_CLS_AGENCY compiled
```

The 'Script Output' pane shows the message: 'Task completed in 0.149 seconds'.

Grant permissions to user DW_CL in tablespace ts_dw_cl to use data from table SA_CUSTOMER_DATA_with_department in tablespace ts_sa_customers_data_01.



The screenshot shows the Oracle SQL Developer interface with the 'Query Builder' tab selected. The code in the worksheet pane is:

```
10 |
11 | alter session set current_schema=sa_customers;
12 | GRANT SELECT ON SA_CUSTOMER_DATA_with_department TO DW_CL;
13 |
14 | --DROP TABLE sa_customer_data_c;
15 | CREATE TABLE SA_CUSTOMER_DATA_c
16 | (
|
|
Session altered.
Grant succeeded.
```

The 'Script Output' pane shows the message: 'Task completed in 0.039 seconds'.

```

1 alter session set current_schema = DW_CL;
2
3 CREATE OR REPLACE PACKAGE body pkg_etl_cls_agency
4 AS
5   PROCEDURE load_cls_agency
6   AS
7     CURSOR cursor_cls_agency
8   IS
9     SELECT DISTINCT agency_name, department_name, agency_address, agency_city, agency_country, agency_postcode, agency_email, agency_office_
10    FROM sa_customers.SA_CUSTOMER_DATA_with_department
11   WHERE agency_name IS NOT NULL
12     AND department_name IS NOT NULL
13     AND agency_address IS NOT NULL
14     AND agency_city IS NOT NULL
15     AND agency_postcode IS NOT NULL
16     AND agency_country IS NOT NULL
17     AND agency_email IS NOT NULL
18     AND agency_office_phone IS NOT NULL
19     AND agency_mobile_phone IS NOT NULL
20     AND agency_fee_percent IS NOT NULL
21     AND agency_VAT_percent IS NOT NULL
22   ;
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
579
580
581
582
583
584
585
586
587
588
589
589
590
591
592
593
594
595
596
597
598
599
599
600
601
602
603
604
605
606
607
608
609
609
610
611
612
613
614
615
616
617
618
619
619
620
621
622
623
624
625
626
627
628
629
629
630
631
632
633
634
635
636
637
638
639
639
640
641
642
643
644
645
646
647
648
649
649
650
651
652
653
654
655
656
657
658
659
659
660
661
662
663
664
665
666
667
668
669
669
670
671
672
673
674
675
676
677
678
679
679
680
681
682
683
684
685
686
687
688
689
689
690
691
692
693
694
695
696
697
698
699
699
700
701
702
703
704
705
706
707
708
709
709
710
711
712
713
714
715
716
717
718
719
719
720
721
722
723
724
725
726
727
728
729
729
730
731
732
733
734
735
736
737
738
739
739
740
741
742
743
744
745
746
747
748
749
749
750
751
752
753
754
755
756
757
758
759
759
760
761
762
763
764
765
766
767
768
769
769
770
771
772
773
774
775
776
777
778
779
779
780
781
782
783
784
785
786
787
788
789
789
790
791
792
793
794
795
796
797
798
799
799
800
801
802
803
804
805
806
807
808
809
809
810
811
812
813
814
815
816
817
818
819
819
820
821
822
823
824
825
826
827
828
829
829
830
831
832
833
834
835
836
837
838
839
839
840
841
842
843
844
845
846
847
848
849
849
850
851
852
853
854
855
856
857
858
859
859
860
861
862
863
864
865
866
867
868
869
869
870
871
872
873
874
875
876
877
878
879
879
880
881
882
883
884
885
886
887
888
889
889
890
891
892
893
894
895
896
897
898
899
899
900
901
902
903
904
905
906
907
908
909
909
910
911
912
913
914
915
916
917
918
919
919
920
921
922
923
924
925
926
927
928
929
929
930
931
932
933
934
935
936
937
938
939
939
940
941
942
943
944
945
946
947
948
949
949
950
951
952
953
954
955
956
957
958
959
959
960
961
962
963
964
965
966
967
968
969
969
970
971
972
973
974
975
976
977
978
979
979
980
981
982
983
984
985
986
987
988
989
989
990
991
992
993
994
995
996
997
998
999
999
1000
1001
1002
1003
1004
1005
1006
1007
1008
1009
1009
1010
1011
1012
1013
1014
1015
1016
1017
1018
1019
1019
1020
1021
1022
1023
1024
1025
1026
1027
1028
1029
1029
1030
1031
1032
1033
1034
1035
1036
1037
1038
1039
1039
1040
1041
1042
1043
1044
1045
1046
1047
1048
1049
1049
1050
1051
1052
1053
1054
1055
1056
1057
1058
1059
1059
1060
1061
1062
1063
1064
1065
1066
1067
1068
1069
1069
1070
1071
1072
1073
1074
1075
1076
1077
1078
1079
1079
1080
1081
1082
1083
1084
1085
1086
1087
1088
1088
1089
1090
1091
1092
1093
1094
1095
1096
1097
1097
1098
1099
1099
1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1139
1140
1141
1142
1143
1144
1145
1146
1147
1148
1148
1149
1150
1151
1152
1153
1154
1155
1156
1157
1158
1159
1159
1160
1161
1162
1163
1164
1165
1166
1167
1168
1169
1169
1170
1171
1172
1173
1174
1175
1176
1177
1178
1178
1179
1180
1181
1182
1183
1184
1185
1186
1187
1187
1188
1189
1189
1190
1191
1192
1193
1194
1195
1196
1196
1197
1198
1199
1199
1200
1201
1202
1203
1204
1205
1206
1207
1208
1209
1209
1210
1211
1212
1213
1214
1215
1216
1217
1218
1219
1219
1220
1221
1222
1223
1224
1225
1226
1227
1228
1229
1229
1230
1231
1232
1233
1234
1235
1236
1237
1238
1239
1239
1240
1241
1242
1243
1244
1245
1246
1247
1248
1248
1249
1250
1251
1252
1253
1254
1255
1256
1257
1258
1259
1259
1260
1261
1262
1263
1264
1265
1266
1267
1268
1269
1269
1270
1271
1272
1273
1274
1275
1276
1277
1278
1278
1279
1280
1281
1282
1283
1284
1285
1286
1287
1287
1288
1289
1289
1290
1291
1292
1293
1294
1295
1296
1296
1297
1298
1299
1299
1300
1301
1302
1303
1304
1305
1306
1307
1308
1309
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
1319
1319
1320
1321
1322
1323
1324
1325
1326
1327
1328
1329
1329
1330
1331
1332
1333
1334
1335
1336
1337
1338
1338
1339
1340
1341
1342
1343
1344
1345
1346
1347
1348
1348
1349
1350
1351
1352
1353
1354
1355
1356
1357
1358
1359
1359
1360
1361
1362
1363
1364
1365
1366
1367
1368
1368
1369
1370
1371
1372
1373
1374
1375
1376
1377
1378
1378
1379
1380
1381
1382
1383
1384
1385
1386
1387
1387
1388
1389
1389
1390
1391
1392
1393
1394
1395
1396
1396
1397
1398
1399
1399
1400
1401
1402
1403
1404
1405
1406
1407
1408
1409
1409
1410
1411
1412
1413
1414
1415
1416
1417
1418
1418
1419
1420
1421
1422
1423
1424
1425
1426
1427
1428
1428
1429
1430
1431
1432
1433
1434
1435
1436
1437
1438
1438
1439
1440
1441
1442
1443
1444
1445
1446
1447
1448
1448
1449
1450
1451
1452
1453
1454
1455
1456
1457
1458
1458
1459
1460
1461
1462
1463
1464
1465
1466
1467
1468
1468
1469
1470
1471
1472
1473
1474
1475
1476
1477
1478
1478
1479
1480
1481
1482
1483
1484
1485
1486
1487
1487
1488
1489
1489
1490
1491
1492
1493
1494
1495
1496
1496
1497
1498
1499
1499
1500
1501
1502
1503
1504
1505
1506
1507
1508
1509
1509
1510
1511
1512
1513
1514
1515
1516
1517
1518
1518
1519
1520
1521
1522
1523
1524
1525
1526
1527
1528
1528
1529
1530
1531
1532
1533
1534
1535
1536
1537
1538
1538
1539
1540
1541
1542
1543
1544
1545
1546
1547
1548
1548
1549
1550
1551
1552
1553
1554
1555
1556
1557
1558
1558
1559
1560
1561
1562
1563
1564
1565
1566
1567
1568
1568
1569
1570
1571
1572
1573
1574
1575
1576
1577
1578
1578
1579
1580
1581
1582
1583
1584
1585
1586
1587
1587
1588
1589
1589
1590
1591
1592
1593
1594
1595
1596
1596
1597
1598
1599
1599
1600
1601
1602
1603
1604
1605
1606
1607
1608
1609
1609
1610
1611
1612
1613
1614
1615
1616
1617
1618
1618
1619
1620
1621
1622
1623
1624
1625
1626
1627
1628
1628
1629
1630
1631
1632
1633
1634
1635
1636
1637
1638
1638
1639
1640
1641
1642
1643
1644
1645
1646
1647
1648
1648
1649
1650
1651
1652
1653
1654
1655
1656
1657
1658
1658
1659
1660
1661
1662
1663
1664
1665
1666
1667
1668
1668
1669
1670
1671
1672
1673
1674
1675
1676
1677
1678
1678
1679
1680
1681
1682
1683
1684
1685
1686
1687
1687
1688
1689
1689
1690
1691
1692
1693
1694
1695
1696
1696
1697
1698
1699
1699
1700
1701
1702
1703
1704
1705
1706
1707
1708
1709
1709
1710
1711
1712
1713
1714
1715
1716
1717
1718
1718
1719
1720
1721
1722
1723
1724
1725
1726
1727
1728
1728
1729
1730
1731
1732
1733
1734
1735
1736
1737
1738
1738
1739
1740
1741
1742
1743
1744
1745
1746
1747
1748
1748
1749
1750
1751
1752
1753
1754
1755
1756
1757
1758
1758
1759
1760
1761
1762
1763
1764
1765
1766
1767
1768
1768
1769
1770
1771
1772
1773
1774
1775
1776
1777
1778
1778
1779
1780
1781
1782
1783
1784
1785
1786
1787
1787
1788
1789
1789
1790
1791
1792
1793
1794
1795
1796
1796
1797
1798
1799
1799
1800
1801
1802
1803
1804
1805
1806
1807
1808
1809
1809
1810
1811
1812
1813
1814
1815
1816
1817
1818
1818
1819
1820
1821
1822
1823
1824
1825
1826
1827
1828
1828
1829
1830
1831
1832
1833
1834
1835
1836
1837
1838
1838
1839
1840
1841
1842
1843
1844
1845
1846
1847
1848
1848
1849
1850
1851
1852
1853
1854
1855
1856
1857
1858
1858
1859
1860
1861
1862
1863
1864
1865
1866
1867
1868
1868
1869
1870
1871
1872
1873
1874
1875
1876
1877
1877
1878
1879
1879
1880
1881
1882
1883
1884
1885
1886
1887
1887
1888
1889
1889
1890
1891
1892
1893
1894
1895
1896
1896
1897
1898
1899
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1988
1989
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2049
2050
2051
2052
2053
2054
2055
2056
2057
2058
2059
2059
2060
2061
2062
2063
2064
2065
2066
2067
2068
2069
2069
2070
2071
2072
2073
2074
2075
2076
2077
2078
2079
2079
2080
2081
2082
2083
2084
2085
2086
2087
2088
2088
2089
2090
2091
2092
2093
2094
2095
2096
2097
2098
2099
2099
2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2109
2110
2111
2112
2113
2114
2115
2116
2117
2118
2118
2119
2120
2121
2122
2123
2124
2125
2126
2127
2128
2129
2129
2130
2131
2132
2133
2134
2135
2136
2137
2138
2139
2139
2140
2141
2142
2143
2144
2145
2146
2147
2148
2148
2149
2150
2151
2152
2153
2154
2155
2156
2157
2158
2159
2159
2160
2161
2162
2163
2164
2165
2166
2167
2168
2169
2169
2170
2171
2172
2173
2174
2175
2176
2177
2178
2179
2179
2180
2181
2182
2183
2184
2185
2186
2187
2188
2188
2189
2190
2191
2192
2193
2194
2195
2196
2197
2198
2198
2199
2200
2201
2202
2203
2204
2205
2206
2207
2208
2209
2209
2210
2211
2212
2213
2214
2215
2216
2217
2218
2218
2219
2220
2221
2222
2223
2224
2225
2226
2227
2228
2229
2229
2230
2231
22
```

```

    i.agency_country,
    i.agency_email,
    i.agency_office_phone,
    i.agency_mobile_phone,
    i.agency_Fee_percent,
    i.agency_VAT_percent);
EXIT WHEN cursor_cls_agency%NOTFOUND;
END LOOP;

COMMIT;
END load_cls_agency;
END pkg_etl_cls_agency;

```

The screenshot shows the Oracle SQL Developer interface. The top part displays the PL/SQL code for the `load_cls_agency` procedure. The bottom part shows the `Script Output` window with the following log:

```

57 |-----+
58 | alter session set current_schema = DW_CL;
59 | alter user DW_CL QUOTA UNLIMITED ON ts_dw_cl;
60 |
61 | EXEC pkg_etl_cls_agency.load_cls_agency;
62 |

```

Task completed in 0.361 seconds

Package Body PKG_ETL_CLS_AGENCY compiled

Session altered.

User DW_CL altered.

PL/SQL procedure successfully completed.

The screenshot shows the Oracle SQL Developer interface with a query result window. The query is:

```

63 | SELECT * FROM cls_t_agency;
64 |
65 |

```

Query Result x | Fetched 50 rows in 0.026 seconds

AGENCY_NAME	DEPARTMENT_NAME	AGENCY_ADDRESS	AGENCY_CITY	AGENCY_COUNTRY	AGENCY_POSTCODE	AGENCY_EMAIL	AGENC
1 Starcom	Media Planning and Buying	375 Hudson St. Floor 12	New York	United States	10014	www.starcommw.com/contact 1-212-	
2 Starcom	Media Planning and Buying	21 Harris Street, Pyrmont	Sydney	Australia	2009	www.starcommw.com/contact 612-86	
3 Starcom	Media Planning and Buying	30-34 chemin Vert Street	Paris	France	75011	www.starcommw.com/contact 33-1-5	
4 Starcom	Media Planning and Buying	Stadelhofstrasse 258	Zurich	Switzerland	8001	www.starcommw.com/contact 41-43-	
5 Starcom	Media Planning and Buying	21 Academias Ave. KEMA Building	Nicosia	Cyprus	2107	www.starcommw.com/contact 357-22	
6 Starcom	Media Planning and Buying	29/F, Paul Y. Centre 51 Hung To Road Kwun Tong Hong Kong	China	12345		www.starcommw.com/contact 39-051-	
7 Starcom	Media Planning and Buying	Paul Lincke Ufer 39-40	Berlin	Germany	10999	www.starcommw.com/contact 49-211-	
8 Starcom	Media Planning and Buying	21/F Henderson 688	Shanghai	China	12345	www.starcommw.com/contact 39-051-	
9 Starcom	Media Planning and Buying	City Stars 4th Floor	Cairo	Egypt	10521	www.starcommw.com/contact 202-0-	
10 Starcom	Media Planning and Buying	M 3 Damrak 60, 1017	Helsinki	Finland	00-170	www.starcommw.com/contact 358-02	

- `cls_t_product`

Create a `cls_t_product` table at the DW - Cleansing Level.

The screenshot shows the Oracle SQL Developer interface with a query editor window. The code in the editor is:

```

1 --alter session set current_schema=DW_CL;
2 --drop table cls_t_product;
3 |
4 Create table cls_t_product (
5   brand_name      VARCHAR2(50) NOT NULL,
6   product_name    VARCHAR2(50) NOT NULL,
7   category_name   VARCHAR2(50) NOT NULL,
8   subcategory_name VARCHAR2(50) NOT NULL
9 );
10
11 );
12

```

The output window below shows the results of the execution:

```

Session altered.

Table CLS_T_PRODUCT created.

```

Let's create packages to get data from Storage level SA_* in DW - Cleanup level for the table `cls_t_product`.

The screenshot shows the Oracle SQL Developer interface with a query editor window. The code in the editor is:

```

1 alter session set current_schema = DW_CL;
2
3 CREATE OR REPLACE PACKAGE pkg_etl_cls_product
4 AS
5   PROCEDURE load_cls_product;
6 END pkg_etl_cls_product;
7 /

```

The output window below shows the results of the execution:

```

Session altered.

Package PRG_ETL_CLS_PRODUCT compiled

```

Grant permissions to user DW_CL in tablespace ts_dw_cl to use data from table `SA_CUSTOMER_DATA_with_department` in tablespace ts_sa_customers_data_01.

The screenshot shows the Oracle SQL Developer interface with a query editor window. The code in the editor is:

```

1 --GRANT UNLIMITED TABLESPACE TO VShkrabatovskaya;
2 --GRANT CONNECT,RESOURCE TO sa_customers;
3 --SELECT * from dba_data_files ;
4 --select * from USER tablespaces;
5 alter session set current_schema=sa_customers;
6 alter user sa_customers QUOTA UNLIMITED ON ts_sa_customers_data_01;
7
8 --alter session set current_schema=sa_customers;
9 --GRANT SELECT ON SA_CUSTOMER_DATA_total TO DW_CL;
10
11 alter session set current schema=sa_customers;
12 GRANT SELECT ON SA_CUSTOMER_DATA_with_department TO DW_CL;
13

```

The output window below shows the results of the execution:

```

Session altered.

Session altered.

Grant succeeded.

```

```

1 alter session set current_schema = DW_CL;
2
3 CREATE OR REPLACE PACKAGE body pkg_etl_cls_product
4 AS
5 PROCEDURE load_cls_product
6 AS
7     CURSOR cursor_cls_product
8     IS
9         SELECT DISTINCT brand_name, product_name, category_name, subcategory_name
10        FROM sa_customers.SA_CUSTOMER_DATA_with_department
11       WHERE brand_name IS NOT NULL
12          AND product_name IS NOT NULL
13          AND category_name IS NOT NULL
14          AND subcategory_name IS NOT NULL
15      ;
16

```

Script Output: X | Task completed in 0.089 seconds

Session altered.

Package Body PKG_ETL_CLS_PRODUCT compiled

Code:

```

CREATE OR REPLACE PACKAGE body pkg_etl_cls_product
AS
PROCEDURE load_cls_product
AS
CURSOR cursor_cls_product
IS
SELECT DISTINCT brand_name, product_name, category_name, subcategory_name
FROM sa_customers.SA_CUSTOMER_DATA_with_department
WHERE brand_name IS NOT NULL
    AND product_name IS NOT NULL
    AND category_name IS NOT NULL
    AND subcategory_name IS NOT NULL
;

BEGIN
EXECUTE IMMEDIATE 'TRUNCATE TABLE DW_CL.cls_t_product';
FOR i IN cursor_cls_product LOOP
INSERT INTO DW_CL.cls_t_product(
    brand_name,
    product_name,
    category_name,
    subcategory_name)
VALUES (
    i.brand_name,
    i.product_name,
    i.category_name,
    i.subcategory_name);
EXIT WHEN cursor_cls_product%NOTFOUND;
END LOOP;

COMMIT;
END load_cls_product;
END pkg_etl_cls_product;

```

SQL Worksheet: History

```

36
37 alter session set current_schema = DW_CL;
38 alter user DW_CL QUOTA UNLIMITED ON ts_dw_cl;
39
40 EXEC pkg_etl_cls_product.load_cls_product;

```

Session altered.

Package Body PNG_ETL_CLS_PRODUCT compiled

Session altered.

User DW_CL altered.

PL/SQL procedure successfully completed.

```

42 | SELECT * FROM cls_t_product;
43 |
44 |

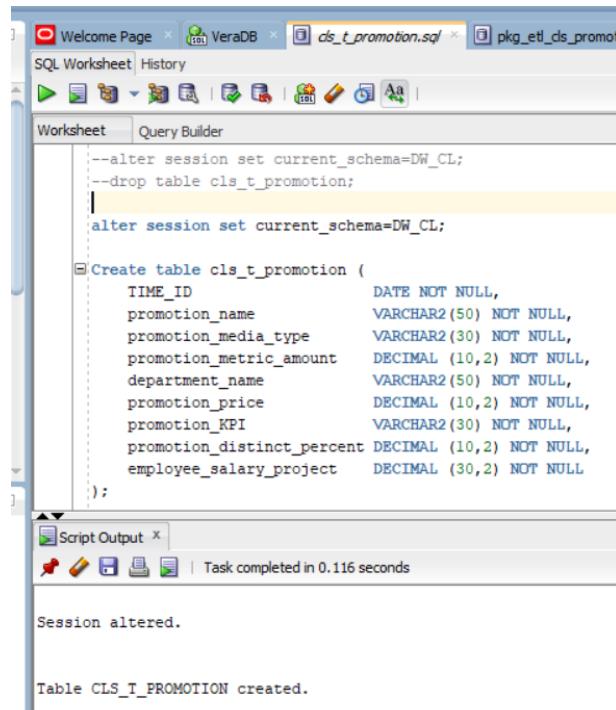
```

Script Output | Query Result | All Rows Fetched: 16 in 0.011 seconds

	BRAND_NAME	PRODUCT_NAME	CATEGORY_NAME	SUBCATEGORY_NAME
1	SAMSUNG	Refrigerators	Appliances	Fridge
2	SAMSUNG	Ovens	Appliances	Conventional ovens
3	SAMSUNG	Cooking ovens	Appliances	Electric cooktop
4	SAMSUNG	Washing machines	Appliances	Fully Automatic washing machine
5	SAMSUNG	Dishwashers	Appliances	Built-in Dishwasher
6	SAMSUNG	Microwave ovens	Appliances	Convection Microwave
7	SAMSUNG	Vacuum Cleaners	Appliances	Robotic vacuum cleaner
8	SAMSUNG	Smart watches	Computerized wristwatch	Smart watch for kids?
9	SAMSUNG	TVs	Appliances	QLED
10	SAMSUNG	Smartphones	Phones	Android Phones
11	SAMSUNG	Headphones	Accessories	Earbuds
12	SAMSUNG	Tablets	Tablet computer	Galaxy Tab series?
13	VISA	Sponsorship	Services	Networking sponsor
14	VISA	Card	Services	Contactless smart card

- `cls_t_promotion`

Create a `cls_t_promotion` table at the DW - Cleansing Level.



The screenshot shows the Oracle SQL Developer interface with the following details:

- SQL Worksheet:** The code being run is:

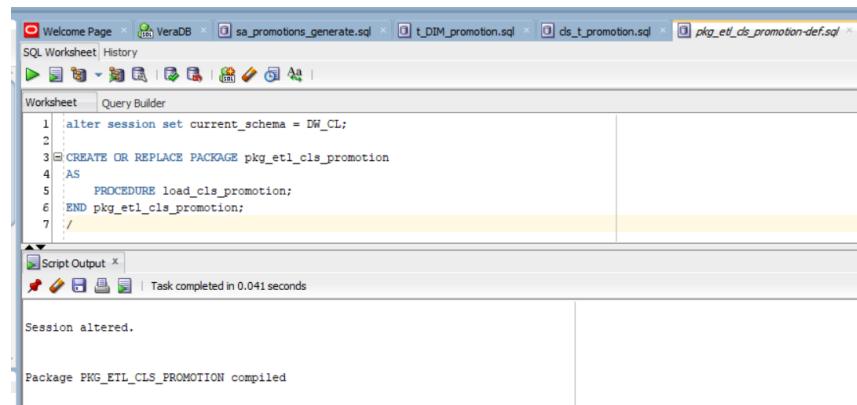

```
--alter session set current_schema=DW_CL;
--drop table cls_t_promotion;
|
| alter session set current_schema=DW_CL;

CREATE table cls_t_promotion (
    TIME_ID          DATE NOT NULL,
    promotion_name   VARCHAR2(50) NOT NULL,
    promotion_media_type  VARCHAR2(30) NOT NULL,
    promotion_metric_amount DECIMAL (10,2) NOT NULL,
    department_name  VARCHAR2(50) NOT NULL,
    promotion_price   DECIMAL (10,2) NOT NULL,
    promotion_KPI     VARCHAR2(30) NOT NULL,
    promotion_distinct_percent DECIMAL (10,2) NOT NULL,
    employee_salary_project DECIMAL (30,2) NOT NULL
);
```
- Script Output:** Shows the results of the execution:


```
Session altered.

Table CLS_T_PROMOTION created.
```

Let's create packages to get data from Storage level SA_* in DW - Cleanup level for the table `cls_t_promotion`.



The screenshot shows the Oracle SQL Developer interface with the following details:

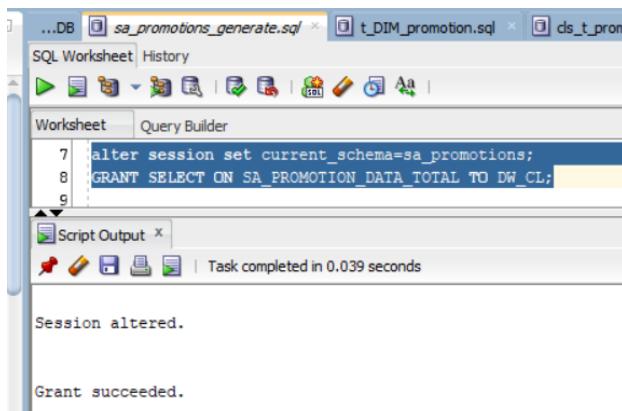
- SQL Worksheet:** The code being run is:


```
1 alter session set current_schema = DW_CL;
2
3 CREATE OR REPLACE PACKAGE pkg_etl_cls_promotion
4 AS
5   PROCEDURE load_cls_promotion;
6 END pkg_etl_cls_promotion;
7 /
```
- Script Output:** Shows the results of the execution:


```
Session altered.

Package PKG_ETL_CLS_PROMOTION compiled
```

Grant permissions to user DW_CL in tablespace ts_dw_cl to use data from table `SA_PROMOTION_DATA_TOTAL` in tablespace ts_sa_promotions_data_01.



The screenshot shows the Oracle SQL Developer interface with the following details:

- SQL Worksheet:** The code being run is:


```
7 alter session set current_schema=sa_promotions;
8 GRANT SELECT ON SA_PROMOTION_DATA_TOTAL TO DW_CL;
```
- Script Output:** Shows the results of the execution:


```
Session altered.

Grant succeeded.
```

```
 1  Welcome Page 2  VerLOB 3  ds_t_promotion.sq 4  pkg_etl.ds_promotion-def.adf 5  pkg_etl.ds_promotion-exp.adf
SQL Worksheet History
File Edit View Insert Run Help
Worksheet Query Builder
Worksheet > Query Builder
Query Builder
ALTER SESSION SET CURRENT_SCHEMA = DW_CL;
--> CREATE OR REPLACE PACKAGE BODY PKG_ETL_CLS_PROMOTION
AS
  PROCEDURE LOAD_CLS_PROMOTION
  AS
    CURSOR CURSOR_CLSPROMOTION
    IS
      SELECT DISTINCT TIME_ID, PROMOTION_NAME, PROMOTION_MEDIA_TYPE, PROMOTION_METRIC_AMOUNT, DEPARTMENT_NAME, PROMOTION_PRICE, PROMOTION_KPI, PROMOTION_DISTINCT_PERCENT
      FROM DS_PROMOTIONS.DS_PROMOTION_DATA_TOTAL
      WHERE TIME_ID IS NOT NULL
        AND PROMOTION_NAME IS NOT NULL
        AND PROMOTION_MEDIA_TYPE IS NOT NULL
        AND PROMOTION_METRIC_AMOUNT IS NOT NULL
        AND DEPARTMENT_NAME IS NOT NULL
        AND PROMOTION_PRICE IS NOT NULL
        AND PROMOTION_KPI IS NOT NULL
        AND PROMOTION_DISTINCT_PERCENT IS NOT NULL
        AND EMPLOYEE_SALARY_PROJECT IS NOT NULL
        ;
    BEGIN
      EXECUTE IMMEDIATE 'TRUNCATE TABLE DW_CL.CLS_T_PROMOTION';
    END;
  END;
END;
/
Session altered.

Package Body PKG_ETL_CLS_PROMOTION compiled
```

Code:

```

CREATE OR REPLACE PACKAGE body pkg_etl_cls_promotion
AS
PROCEDURE load_cls_promotion
AS
CURSOR cursor_cls_promotion
IS
  SELECT DISTINCT time_id, promotion_name, promotion_media_type, promotion_metric_amount, department_name, promotion_price,
promotion_KPI, promotion_distinct_percent, employee_salary_project
    FROM sa_promotions.SA_PROMOTION_DATA_TOTAL
   WHERE time_id IS NOT NULL
      AND promotion_name IS NOT NULL
      AND promotion_media_type IS NOT NULL
      AND promotion_metric_amount IS NOT NULL
      AND department_name IS NOT NULL
      AND promotion_price IS NOT NULL
      AND promotion_KPI IS NOT NULL
      AND promotion_distinct_percent IS NOT NULL
      AND employee_salary_project IS NOT NULL
;
BEGIN
  EXECUTE IMMEDIATE 'TRUNCATE TABLE DW_CL.cls_t_promotion';
  FOR i IN cursor_cls_promotion LOOP
    INSERT INTO DW_CL.cls_t_promotion(
      time_id,
      promotion_name,
      promotion_media_type,
      promotion_metric_amount,
      department_name,
      promotion_price,
      promotion_KPI,
      promotion_distinct_percent,
      employee_salary_project)
    VALUES (
      i.time_id,
      i.promotion_name,
      i.promotion_media_type,
      i.promotion_metric_amount,
      i.department_name,
      i.promotion_price,
      i.promotion_KPI,
      i.promotion_distinct_percent,
      i.employee_salary_project);
    EXIT WHEN cursor_cls_promotion%NOTFOUND;
  END LOOP;
  COMMIT;
END load_cls_promotion;
END pkg_etl_cls_promotion;

```

```

49  alter session set current_schema = DW_CL;
50  alter user DW_CL QUOTA UNLIMITED ON ts_dw_cl;
51  |
52  EXEC pkg_etl_cls_promotion.load_cls_promotion;

```

Session altered.

Package Body PKG_ETL_CLS_PROMOTION compiled

Session altered.

User DW_CL altered.

PL/SQL procedure successfully completed.

SELECT * FROM cls_t_promotion;

Script Output x | Query Result x | SQL | Fetched 50 rows in 0.016 seconds

TIME_ID	PROMOTION_NAME	PROMOTION_MEDIA_TYPE	PROMOTION_METRIC_AMOUNT	DEPARTMENT_NAME	PROMOTION_PRICE	PROMOTION_KPI	PROMOTION_DIS
1	01-JAN-22 5 SAMSUNG_Refrigerators_TV	TV	82	Media Planning and Buying	683	CPL	
2	01-JAN-22 26 SAMSUNG_Ovens_TV	TV	99	Media Planning and Buying	198	CPL	
3	01-JAN-22 49 SAMSUNG_Washing_machines_TV	TV	40	Media Planning and Buying	164	CPA	
4	01-JAN-22 62 SAMSUNG_Dishwashers_TV	TV	37	Media Planning and Buying	631	CPA	
5	01-JAN-22 83 SAMSUNG_Microwave_ovens_TV	TV	46	Media Planning and Buying	643	CPA	
6	01-JAN-22 105 SAMSUNG_Vacuum_Cleaners_TV	TV	52	Media Planning and Buying	150	CPA	
7	01-JAN-22 128 SAMSUNG_TVs_TV	TV	44	Media Planning and Buying	624	CPA	
8	01-JAN-22 148 SAMSUNG_Smartphones_TV	TV	96	Media Planning and Buying	870	CPA	
9	01-JAN-22 166 SAMSUNG_Tablets_TV	TV	66	Media Planning and Buying	346	CPL	
10	01-JAN-22 174 SAMSUNG_Tablets_TV	TV	71	Media Planning and Buying	178	CPL	
11	01-JAN-22 175 SAMSUNG_Tablets_TV	TV	8	Media Planning and Buying	859	CPA	
12	01-JAN-22 188 SAMSUNG_Refrigerators_press	press	36	Media Planning and Buying	626	CPL	

- `cls_t_DIM_gen_period`

Create a `cls_t_DIM_gen_period` table at the DW - Cleansing Level.

The screenshot shows the Oracle SQL Developer interface with a worksheet tab open. The code in the worksheet is:

```

1 --alter session set current_schema=DW_CL;
2 --drop table cls_t_DIM_gen_period;
3
4 alter session set current_schema=DW_CL;
5
6 Create table cls_t_DIM_gen_period (
7     promotion_name          VARCHAR2(50) NOT NULL,
8     promotion_start         Date,
9     promotion_end           Date
10 );
11

```

The script output pane below shows the results of the execution:

```

Session altered.

Table CLS_T_DIM_GEN_PERIOD created.

```

Let's create packages to get data from Storage level SA_* in DW - Cleanup level for the table `cls_DIM_gen_period`.

The screenshot shows the Oracle SQL Developer interface with a worksheet tab open. The code in the worksheet is:

```

1 alter session set current_schema = DW_CL;
2
3 CREATE OR REPLACE PACKAGE pkg_etl_cls_DIM_gen_period
4 AS
5     PROCEDURE load_cls_DIM_gen_period;
6 END pkg_etl_cls_DIM_gen_period;
7 /

```

The script output pane below shows the results of the execution:

```

Session altered.

Package PKG_ETL_CLS_DIM_GEN_PERIOD compiled

```

Grant permissions to user DW_CL in tablespace ts_dw_cl to use data from table `SA_PROMOTION_DATA_TOTAL` in tablespace ts_sa_promotions_data_01.

The screenshot shows the Oracle SQL Developer interface with a worksheet tab open. The code in the worksheet is:

```

7 alter session set current_schema=sa_promotions;
8 GRANT SELECT ON SA_PROMOTION_DATA_TOTAL TO DW_CL;
9

```

The script output pane below shows the results of the execution:

```

Session altered.

Grant succeeded.

```

```

1 alter session set current_schema = DW_CL;
2 |
3 CREATE OR REPLACE PACKAGE body pkg_etl_cls_DIM_gen_period
4 AS
5 PROCEDURE load_cls_DIM_gen_period
6 AS
7 CURSOR cursor_cls_DIM_gen_period
8 IS
9   SELECT DISTINCT promotion_name, promotion_start, promotion_end
10  FROM sa_promotions.SA_PROMOTION_DATA_TOTAL
11 WHERE promotion_name IS NOT NULL
12   AND promotion_start IS NOT NULL
13   AND promotion_end IS NOT NULL
14 ;
15
16 BEGIN

```

Script Output X | Task completed in 0.049 seconds

Session altered.

Package Body PKG_ETL_CLS_DIM_GEN_PERIOD compiled

Code:

```

CREATE OR REPLACE PACKAGE body pkg_etl_cls_DIM_gen_period
AS
PROCEDURE load_cls_DIM_gen_period
AS
CURSOR cursor_cls_DIM_gen_period
IS
SELECT DISTINCT promotion_name, promotion_start, promotion_end
FROM sa_promotions.SA_PROMOTION_DATA_TOTAL
WHERE promotion_name IS NOT NULL
  AND promotion_start IS NOT NULL
  AND promotion_end IS NOT NULL
;

BEGIN
EXECUTE IMMEDIATE 'TRUNCATE TABLE DW_CL.cls_t_DIM_gen_period';
FOR i IN cursor_cls_DIM_gen_period LOOP
  INSERT INTO DW_CL.cls_t_DIM_gen_period(
    promotion_name,
    promotion_start,
    promotion_end)
  VALUES (
    i.promotion_name,
    i.promotion_start,
    i.promotion_end);
  EXIT WHEN cursor_cls_DIM_gen_period%NOTFOUND;
END LOOP;

```

```

34 alter session set current_schema = DW_CL;
35 alter user DW_CL QUOTA UNLIMITED ON ts_dw_cl;
36 |
37 EXEC pkg_etl_cls_DIM_gen_period.load_cls_DIM_gen_period;
38

Script Output X | Task completed in 13.598 seconds

Session altered.

Package Body PKG_ETL_CLS_DIM_GEN_PERIOD compiled

Session altered.

User DW_CL altered.

PL/SQL procedure successfully completed.

```

```

1  SELECT * FROM cls_t_promotion;
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41

```

PROMOTION_NAME	PROMOTION_START	PROMOTION_END
1 9 SAMSUNG_Refrigerators_TV	01-JAN-22	12-FEB-22
2 56 SAMSUNG_Washing machines_TV	01-JAN-22	07-FEB-22
3 59 SAMSUNG_Washing machines_TV	01-JAN-22	06-FEB-22
4 77 SAMSUNG_Microwave ovens_TV	01-JAN-22	04-FEB-22
5 97 SAMSUNG_Vacuum Cleaners_TV	01-JAN-22	30-JAN-22
6 106 SAMSUNG_Smart watches_TV	01-JAN-22	20-MAR-22
7 114 SAMSUNG_Smart watches_TV	01-JAN-22	13-MAR-22
8 117 SAMSUNG_Smart watches_TV	01-JAN-22	21-JAN-22
9 127 SAMSUNG_TV_s_TV	01-JAN-22	23-FEB-22
10 142 SAMSUNG_Smartphones_TV	01-JAN-22	25-MAR-22
11 175 SAMSUNG_Tablets_TV	01-JAN-22	26-JAN-22
12 211 SAMSUNG_Cooking ovens_press	01-JAN-22	11-MAR-22
13 232 SAMSUNG_Washing machines_press	01-JAN-22	13-JAN-22

- `cls_t_transaction`

```

7  CREATE table cls_t_transaction (
8    time_ID DATE,
9    customer_name VARCHAR2(50) NOT NULL,
10   brand_name VARCHAR2(50) NOT NULL,
11   customer_address VARCHAR2(50) NOT NULL,
12   customer_city VARCHAR2(30) NOT NULL,
13   customer_country VARCHAR2(30) NOT NULL,
14   customer_email VARCHAR2(50) NOT NULL,
15   customer_office_phone VARCHAR2(30) NOT NULL,
16   customer_mobile_phone VARCHAR2(30) NOT NULL,
17   product_name VARCHAR2(50) NOT NULL,
18   agency_name VARCHAR2(50) NOT NULL,
19   agency_city VARCHAR2(30) NOT NULL,
20   agency_country VARCHAR2(30) NOT NULL,
21   agency_address VARCHAR2(50) NOT NULL,
22   agency_postcode VARCHAR2(6) NOT NULL,
23   agency_email VARCHAR2(30) NOT NULL,
24   agency_office_phone VARCHAR2(30) NOT NULL,
25   agency_mobile_phone VARCHAR2(30) NOT NULL,
26   agency_Fee_percent DECIMAL (10,2),
27   agency_VAT_percent DECIMAL (10,2),
28   promotion_media_type VARCHAR2(30) NOT NULL,
29   category_name VARCHAR2(50) NOT NULL,
30   subcategory_name VARCHAR2(50) NOT NULL,
31   department_name VARCHAR2(50) NOT NULL,

```

Table CLS_T_TRANSACTION created.

Let's create packages to get data from Storage level SA_* in DW - Cleanup level for the table `cls_t_transaction`.

```

1  alter session set current_schema = DW_CL;
2
3  CREATE OR REPLACE PACKAGE pkg_etl_cls_transaction
4  AS
5    PROCEDURE load_cls_transaction;
6  END pkg_etl_cls_transaction;
7  /

```

Session altered.

Package PKG_ETL_CLS_TRANSACTION compiled

Grant permissions to user DW_CL in tablespace ts_dw_cl to use data from table SA_SA_TRANSACTION in tablespace ts_sa_promotions_data_01.

The image shows two separate Oracle SQL Worksheet windows side-by-side.

Top Window:

```

1 alter session set current_schema=sa_promotions;
2 GRANT SELECT ON SA_TRANSACTION_FACT_DATA TO DW_CL;
3

```

Output:

```

Session altered.

Grant succeeded.

```

Bottom Window:

```

4 alter session set current_schema = DW_CL;
5
6 CREATE OR REPLACE PACKAGE body pkg_etl_cls_transaction
7 AS
8 PROCEDURE load_cls_transaction
9 AS
10 CURSOR cursor_cls_transaction
11 IS
12   SELECT DISTINCT time_ID
13     ,customer_name
14     ,brand_name
15     ,customer_address
16     ,customer_city
17     ,customer_country
18     ,customer_email
19     ,customer_office_phone
20     ,customer_mobile_phone
21     ,product_name
22     ,agency_name
23     ,agency_city
24     ,agency_country

```

Output:

```

Grant succeeded.

Session altered.

Session altered.

Package Body PKG_ETL_CLS_TRANSACTION compiled

```

Code:

```

CREATE OR REPLACE PACKAGE body pkg_etl_cls_transaction
AS
  PROCEDURE load_cls_transaction
  AS
    CURSOR cursor_cls_transaction
    IS
      SELECT DISTINCT time_ID
        ,customer_name
        ,brand_name
        ,customer_address
        ,customer_city
        ,customer_country
        ,customer_email
        ,customer_office_phone
        ,customer_mobile_phone
        ,product_name
        ,agency_name
        ,agency_city
        ,agency_country
        ,agency_address
        ,agency_postcode
        ,agency_email
        ,agency_office_phone
        ,agency_mobile_phone
        ,agency_Fee_percent
        ,agency_VAT_percent
        ,promotion_media_type
        ,category_name
        ,subcategory_name

```

```

,department_name
,employee_first_name
,employee_last_name
,employee_position
,employee_salary_project
,employee_passport_ID
,employee_email
,employee_office_phone
,employee_mobile_phone
,employee_date_of_hire
,employee_date_end_of_contract
,current_flg
,promotion_metric_amount
,promotion_price
,promotion_KPI
,promotion_distinct_percent
,promotion_name
,promotion_start
,promotion_end
,gross_revenue_dollar_amount
,net_revenue_dollar_amount
,gross_cost_dollar_amount
,net_cost_dollar_amount
,gross_profit_dollar_amount
,net_profit_dollar_amount
,net_salary_employee_dollar_amount
,gross_salary_employee_dollar_amount
,gross_profit_margin_percent
FROM sa_promotions.SA_TRANSACTION_FACT_DATA
WHERE time_ID IS NOT NULL
    AND customer_name IS NOT NULL
    AND brand_name IS NOT NULL
    AND customer_address IS NOT NULL
    AND customer_city IS NOT NULL
    AND customer_country IS NOT NULL
    AND customer_email IS NOT NULL
    AND customer_office_phone IS NOT NULL
    AND customer_mobile_phone IS NOT NULL
    AND product_name IS NOT NULL
    AND agency_name IS NOT NULL
    AND agency_city IS NOT NULL
    AND agency_country IS NOT NULL
    AND agency_address IS NOT NULL
    AND agency_postcode IS NOT NULL
    AND agency_email IS NOT NULL
    AND agency_office_phone IS NOT NULL
    AND agency_mobile_phone IS NOT NULL
    AND agency_Fee_percent IS NOT NULL
    AND agency_VAT_percent IS NOT NULL
    AND promotion_media_type IS NOT NULL
    AND category_name IS NOT NULL
    AND subcategory_name IS NOT NULL
    AND department_name IS NOT NULL
    AND employee_first_name IS NOT NULL
    AND employee_last_name IS NOT NULL
    AND employee_position IS NOT NULL
    AND employee_salary_project IS NOT NULL
    AND employee_passport_ID IS NOT NULL
    AND employee_email IS NOT NULL
    AND employee_office_phone IS NOT NULL
    AND employee_mobile_phone IS NOT NULL
    AND employee_date_of_hire IS NOT NULL
    AND employee_date_end_of_contract IS NOT NULL
    AND current_flg IS NOT NULL

```

```

        AND promotion_metric_amount IS NOT NULL
        AND promotion_price IS NOT NULL
        AND promotion_KPI IS NOT NULL
        AND promotion_distinct_percent IS NOT NULL
        AND promotion_name IS NOT NULL
        AND promotion_start IS NOT NULL
        AND promotion_end IS NOT NULL
        AND gross_revenue_dollar_amount IS NOT NULL
        AND net_revenue_dollar_amount IS NOT NULL
        AND gross_cost_dollar_amount IS NOT NULL
        AND net_cost_dollar_amount IS NOT NULL
        AND gross_profit_dollar_amount IS NOT NULL
        AND net_profit_dollar_amount IS NOT NULL
        AND net_salary_employee_dollar_amount IS NOT NULL
        AND gross_salary_employee_dollar_amount IS NOT NULL
        AND gross_profit_margin_percent IS NOT NULL ;

BEGIN
  EXECUTE IMMEDIATE 'TRUNCATE TABLE DW_CL.cls_t_transaction';
  FOR i IN cursor_cls_transaction LOOP
    INSERT INTO DW_CL.cls_t_transaction(
      time_ID
      ,customer_name
      ,brand_name
      ,customer_address
      ,customer_city
      ,customer_country
      ,customer_email
      ,customer_office_phone
      ,customer_mobile_phone
      ,product_name
      ,agency_name
      ,agency_city
      ,agency_country
      ,agency_address
      ,agency_postcode
      ,agency_email
      ,agency_office_phone
      ,agency_mobile_phone
      ,agency_Fee_percent
      ,agency_VAT_percent
      ,promotion_media_type
      ,category_name
      ,subcategory_name
      ,department_name
      ,employee_first_name
      ,employee_last_name
      ,employee_position
      ,employee_salary_project
      ,employee_passport_ID
      ,employee_email
      ,employee_office_phone
      ,employee_mobile_phone
      ,employee_date_of_hire
      ,employee_date_end_of_contract
      ,current_flg
      ,promotion_metric_amount
      ,promotion_price
      ,promotion_KPI
      ,promotion_distinct_percent
      ,promotion_name
      ,promotion_start
      ,promotion_end
      ,gross_revenue_dollar_amount
      ,net_revenue_dollar_amount
    )
  END LOOP;
END;
/

```

```

,gross_cost_dollar_amount
,net_cost_dollar_amount
,gross_profit_dollar_amount
,net_profit_dollar_amount
,net_salary_employee_dollar_amount
,gross_salary_employee_dollar_amount
,gross_profit_margin_percent    )
VALUES (
    i.time_ID
    , i.customer_name
    , i.brand_name
    , i.customer_address
    , i.customer_city
    , i.customer_country
    , i.customer_email
    , i.customer_office_phone
    , i.customer_mobile_phone
    , i.product_name
    , i.agency_name
    , i.agency_city
    , i.agency_country
    , i.agency_address
    , i.agency_postcode
    , i.agency_email
    , i.agency_office_phone
    , i.agency_mobile_phone
    , i.agencyFee_percent
    , i.agency_VAT_percent
    , i.promotion_media_type
    , i.category_name
    , i.subcategory_name
    , i.department_name
    , i.employee_first_name
    , i.employee_last_name
    , i.employee_position
    , i.employee_salary_project
    , i.employee_passport_ID
    , i.employee_email
    , i.employee_office_phone
    , i.employee_mobile_phone
    , i.employee_date_of_hire
    , i.employee_date_end_of_contract
    , i.current_flg
    , i.promotion_metric_amount
    , i.promotion_price
    , i.promotion_KPI
    , i.promotion_distinct_percent
    , i.promotion_name
    , i.promotion_start
    , i.promotion_end
    , i.gross_revenue_dollar_amount
    , i.net_revenue_dollar_amount
    , i.gross_cost_dollar_amount
    , i.net_cost_dollar_amount
    , i.gross_profit_dollar_amount
    , i.net_profit_dollar_amount
    , i.net_salary_employee_dollar_amount
    , i.gross_salary_employee_dollar_amount
    , i.gross_profit_margin_percent );
EXIT WHEN cursor_cls_transaction%NOTFOUND;
END LOOP;
COMMIT;
END load_cls_transaction;
END pkg_etl_cls_transaction;

```

```

190 alter session set current_schema = DW_CL;
191 alter user DW_CL QUOTA UNLIMITED ON ts_dw_cl;
192
193 EXEC pkg_etl_cls_transaction.load_cls_transaction;
194
195

```

Script Output | Task completed in 19.673 seconds
PACKAGE BODY PKG_ETL_CLS_TRANSACTION COMPILED

Session altered.
User DW_CL altered.
PL/SQL procedure successfully completed.

SELECT * FROM cls_t_transaction
order by 1;

Script Output | Query Result | Fetched 50 rows in 0.647 seconds

TIME_ID	CUSTOMER_NAME	BRAND_NAME	CUSTOMER_ADDRESS	CUSTOMER_CITY	CUSTOMER_COUNTRY	CUSTOMER_EMAIL
1	01-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
2	01-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
3	01-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
4	01-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
5	01-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
6	01-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
7	01-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
8	01-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
9	01-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
10	01-JAN-22 Visa International Service Association VISA	900 Metro Center Blvd.	Foster City	United States	https://usa.visa.com/contact-us.html	
11	01-JAN-22 Visa International Service Association VISA	900 Metro Center Blvd.	Foster City	United States	https://usa.visa.com/contact-us.html	
12	01-JAN-22 Visa International Service Association VISA	900 Metro Center Blvd.	Foster City	United States	https://usa.visa.com/contact-us.html	
13	01-JAN-22 Visa International Service Association VISA	900 Metro Center Blvd.	Foster City	United States	https://usa.visa.com/contact-us.html	
14	01-JAN-22 Visa International Service Association VISA	900 Metro Center Blvd.	Foster City	United States	https://usa.visa.com/contact-us.html	

We can run all the procedures at the same time.

Welcome Page | VerADB | reload_business.ds.sql |

SQL Worksheet; History

Worksheet | Query Builder

```

1 alter session set current_schema = DW_CL;
2 alter user DW_CL QUOTA UNLIMITED ON ts_dw_cl;
3
4 BEGIN
5   pkg_etl_cls_customer.load_cls_customer;
6   pkg_etl_cls_employee.load_cls_employee;
7   pkg_etl_cls_agency.load_cls_agency;
8   pkg_etl_cls_DIM_gen_period.load_cls_DIM_gen_per
9   pkg_etl_cls_product.load_cls_product;
10  pkg_etl_cls_promotion.load_cls_promotion;
11  pkg_etl_cls_transaction.load_cls_transaction;
12 END;
13

```

Script Output | Task completed in 49.815 seconds

Session altered.
User DW_CL altered.
PL/SQL procedure successfully completed.

```

14 EXEC pkg_etl_cls_customer.load_cls_customer;
15 EXEC pkg_etl_cls_employee.load_cls_employee;
16 EXEC pkg_etl_cls_agency.load_cls_agency;
17 EXEC pkg_etl_cls_DIM_gen_period.load_cls_DIM_gen_period;
18 EXEC pkg_etl_cls_product.load_cls_product;
19 EXEC pkg_etl_cls_promotion.load_cls_promotion;
20 EXEC pkg_etl_cls_transaction.load_cls_transaction;

```

Script Output | Task completed in 49.708 seconds

PL/SQL procedure successfully completed.
PL/SQL procedure successfully completed.
PL/SQL procedure successfully completed.
PL/SQL procedure successfully completed.
PL/SQL procedure successfully completed.

```

22 | SELECT * FROM DW_CL.cls_t_customer;
23 | SELECT * FROM DW_CL.cls_t_employee;
24 | SELECT * FROM DW_CL.cls_t_agency;
25 | SELECT * FROM DW_CL.cls_t_DIM_gen_period;
26 | SELECT * FROM DW_CL.cls_t_product;
27 | SELECT * FROM DW_CL.cls_t_promotion;
28 | SELECT * FROM cls_t_transaction;

```

Script Output | Query Result 1 | Query Result 2 | Query Result 3 | Query Result 4 | Query Result 5 | Query Result 6 | Fetched 50 rows in 0.018 seconds

TIME_ID	CUSTOMER_NAME	BRAND_NAME	CUSTOMER_ADDRESS	CUSTOMER_CITY	CUSTOMER_COUNTRY	CUSTOMER_EMAIL
1	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
2	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
3	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
4	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
5	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
6	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
7	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
8	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
9	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
10	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
11	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
12	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
13	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
14	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
15	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
16	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
17	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
18	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	
19	02-JAN-22 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park New Jersey	United States	www.facebook.com/SamsungUS	

Let's create all necessary tables and sequences at the DW layer for the DW_DATA user in the ts_dw_data_01 tablespace.

- DW_DATA.DIM_customer

```

...sql pkg_etl_dw_customer-impl.sql ds_t_customer.sql pkg_etl_dls_customer-def.sql pkg_etl_dls_customer-impl.sql t_DIM_customer.sql
SQL Worksheet: History
Worksheet Query Builder
1 --drop table DW_DATA.DIM_customer;
2 --alter session set current_schema = DW_DATA;
3 
4 CREATE TABLE DW_DATA.DIM_customer(
5     customer_ID NUMBER(10),
6     customer_name          VARCHAR2(50),
7     brand_name             VARCHAR2(50),
8     customer_address       VARCHAR2(50),
9     customer_city          VARCHAR2(30),
10    customer_country       VARCHAR2(30),
11    customer_email         VARCHAR2(50),
12    customer_office_phone VARCHAR2(30),
13    customer_mobile_phone VARCHAR2(30),
14
15    CONSTRAINT "PK_T.DIM_customer" PRIMARY KEY(customer_ID)
16 );

```

Script Output | Task completed in 0.04 seconds

Table DW_DATA.DIM_CUSTOMER created.

```

Welcome Page VeraDB sq_t_DIM_customer.sql
SQL Worksheet: History
Worksheet Query Builder
1 --drop sequence DW_DATA.SQ_DIM_customer;
2 --alter session set current_schema = DW_DATA;
3 
4 CREATE SEQUENCE DW_DATA.SQ_DIM_customer
5     START WITH 1
6     INCREMENT BY 1
7     NOCACHE
8     NOCYCLE;
9

```

Script Output | Task completed in 0.032 seconds

Sequence DW_DATA.SQ_DIM_CUSTOMER created.

- DW_DATA.DIM_employee

```

2 alter session set current_schema = DW_DATA;
3
4 CREATE TABLE DW_DATA.DIM_employee(
5   employee_ID NUMBER(10),
6   employee_passport_ID      VARCHAR2(14),
7   employee_first_name       VARCHAR2(40),
8   employee_last_name        VARCHAR2(50),
9   employee_position         VARCHAR2(50),
10  employee_email            VARCHAR2(50),
11  employee_office_phone    VARCHAR2(30),
12  employee_mobile_phone    VARCHAR2(30),
13  employee_date_of_hire    DATE,
14  employee_date_end_of_contract DATE,
15  current_flg              VARCHAR2(1),
16  CONSTRAINT "PK_T.DIM_employee" PRIMARY KEY(employee_ID)
17 );
18

```

Table DW_DATA.DIM_EMPLOYEE created.

The screenshot shows the Oracle SQL Developer interface with a worksheet tab open. The code being run is:

```

1 --drop sequence DW_DATA.SQ_DIM_employee;
2 --alter session set current_schema = DW_DATA;
3
4 CREATE SEQUENCE DW_DATA.SQ_DIM_employee
5   START WITH      1
6   INCREMENT BY   1
7   NOCACHE
8   NOCYCLE;

```

The output pane shows the message: Sequence DW_DATA.SQ_DIM_EMPLOYEE created.

- DW_DATA.DIM_agency

The screenshot shows the Oracle SQL Developer interface with a worksheet tab open. The code being run is:

```

1 --drop table DW_DATA.DIM_agency;
2 --alter session set current_schema = DW_DATA;
3
4 CREATE TABLE DW_DATA.DIM_agency(
5   agency_ID NUMBER(10),
6   agency_name      VARCHAR2(50),
7   department_name  VARCHAR2(50),
8   agency_city     VARCHAR2(30),
9   agency_country  VARCHAR2(30),
10  agency_address   VARCHAR2(50),
11  agency_postcode  VARCHAR2(6),
12  agency_email     VARCHAR2(30),
13  agency_office_phone VARCHAR2(30),
14  agency_mobile_phone VARCHAR2(30),
15  agency_fee_percent DECIMAL(10,2),
16  agency_VAT_percent DECIMAL(10,2),
17
18  CONSTRAINT "PK_T.DIM_agency" PRIMARY KEY(agency_ID)
19 );
20

```

The output pane shows the message: Table DW_DATA.DIM_AGENCY created.

The screenshot shows the Oracle SQL Developer interface with a worksheet tab open. The code being run is:

```

1 --drop sequence DW_DATA.SQ_DIM_agency;
2 --alter session set current_schema = DW_DATA;
3
4 CREATE SEQUENCE DW_DATA.SQ_DIM_agency
5   START WITH      1
6   INCREMENT BY   1
7   NOCACHE
8   NOCYCLE;

```

The output pane shows the message: Sequence DW_DATA.SQ_DIM_AGENCY created.

- DW_DATA.DIM_gen_period

The screenshot shows two consecutive operations in Oracle SQL Developer:

```

1 --drop table DW_DATA.DIM_gen_period;
2 --alter session set current_schema = DW_DATA;
3
4 CREATE TABLE DW_DATA.DIM_gen_period(
5     gen_period_ID NUMBER(10),
6     promotion_name      VARCHAR2(50),
7     promotion_start    Date,
8     promotion_end      Date,
9
10    CONSTRAINT "PK_T.DIM_gen_period" PRIMARY KEY(gen_period_ID)
11 );

```

Script Output: Table DW_DATA.DIM_GEN_PERIOD created.


```

1 --drop sequence DW_DATA.SQ_DIM_gen_period;
2 --alter session set current_schema = DW_DATA;
3
4 CREATE SEQUENCE DW_DATA.SQ_DIM_gen_period
5     START WITH      1
6     INCREMENT BY   1
7     NOCACHE
8     NOCYCLE;

```

Script Output: Sequence DW_DATA.SQ_DIM_GEN_PERIOD created.

- DW_DATA.DIM_product

The screenshot shows two consecutive operations in Oracle SQL Developer:

```

1 --drop table DW_DATA.DIM_product;
2 --alter session set current_schema = DW_DATA;
3
4 CREATE TABLE DW_DATA.DIM_product(
5     product_ID NUMBER(10),
6     brand_name      VARCHAR2(50),
7     product_name    VARCHAR2(50),
8     category_name   VARCHAR2(50),
9     subcategory_name VARCHAR2(50),
10
11    CONSTRAINT "PK_T.DIM_product" PRIMARY KEY(product_ID)
12 );

```

Script Output: Table DW_DATA.DIM_PRODUCT created.


```

1 --drop sequence DW_DATA.SQ_DIM_product;
2 --alter session set current_schema = DW_DATA;
3
4 CREATE SEQUENCE DW_DATA.SQ_DIM_product
5     START WITH      1
6     INCREMENT BY   1
7     NOCACHE
8     NOCYCLE;

```

Script Output: Sequence DW_DATA.SQ_DIM_PRODUCT created.

- DW_DATA.DIM_promotion

```

1 alter session set current_schema = DW_DATA;
2
3 CREATE TABLE DW_DATA.DIM_promotion(
4     promotion_ID NUMBER(10),
5     TIME_ID DATE,
6     promotion_name VARCHAR2(50),
7     promotion_media_type VARCHAR2(50),
8     promotion_metric_amount DECIMAL (10,2),
9     department_name VARCHAR2(50),
10    promotion_price DECIMAL (10,2),
11    promotion_KPI VARCHAR2(30),
12    promotion_distinct_percent DECIMAL (10,2),
13    employee_salary_project DECIMAL (30,2),
14    CONSTRAINT "PK_T.DIM_promotion" PRIMARY KEY(promotion_ID)
15 );
16
17

```

Script Output: Task completed in 0.054 seconds

Table DW_DATA.DIM_PROMOTION created.

```

1 --drop sequence DW_DATA.SQ_DIM_promotion;
2 alter session set current_schema = DW_DATA;
3
4 CREATE SEQUENCE DW_DATA.SQ_DIM_promotion
5     START WITH      1
6     INCREMENT BY   1
7     NOCACHE
8     NOCYCLE;

```

Script Output: Task completed in 0.021 seconds

Session altered.

Sequence DW_DATA.SQ_DIM_PROMOTION created.

- DW_DATA.FCT_business

```

1 ...sg t_FCT_business.sql pkg_etl_dw_FCT_business-def.sql pkg_etl_dw_FCT_business-impl.sql
2 SQL Worksheet | History
3 Worksheet | Query Builder
4
5 CREATE TABLE FCT_business(
6     Business_Fact_ID NUMBER(10),
7     TIME_ID DATE,
8     customer_ID NUMBER(10),
9     employee_ID NUMBER(10),
10    agency_ID NUMBER(10),
11    gen_period_ID NUMBER(10),
12    product_ID NUMBER(10),
13    promotion_ID NUMBER(10),
14    gross_profit_dollar_amount DECIMAL (30,2),
15    net_profit_dollar_amount DECIMAL (30,2),
16    gross_revenue_dollar_amount DECIMAL (30,2),
17    net_revenue_dollar_amount DECIMAL (30,2),
18    gross_cost_dollar_amount DECIMAL (30,2),
19    net_cost_dollar_amount DECIMAL (30,2),
20    gross_salary_employee_dollar_amount DECIMAL (30,2),
21    net_salary_employee_dollar_amount DECIMAL (30,2),
22    gross_profit_margin_percent DECIMAL (10,2),
23    CONSTRAINT "PK_T.FCT_business" PRIMARY KEY(Business_Fact_ID)
24 )
25 PARTITION BY RANGE (TIME_ID)
26     subpartition by hash(agency_ID) subpartitions 4
27 (
28     PARTITION QUARTER_1 VALUES LESS THAN(TO_DATE('01/04/2022', 'DD/MM/YYYY'))
29     ( subpartition QUARTER_1_sub_1,
30       subpartition QUARTER_1_sub_2,
31       subpartition QUARTER_1_sub_3,

```

Script Output: Task completed in 0.075 seconds

Table FCT_BUSINESS created.

The screenshot shows two sessions in Oracle SQL Developer.

Session 1 (Top):

```

55 );
56 |
57 ALTER TABLE FCT_business
58 ADD CONSTRAINT "FK_FCT_business_DIM_customer" FOREIGN KEY (customer_ID )REFERENCES dim_customer (customer_ID);
59 |
60 ALTER TABLE FCT_business
61 ADD CONSTRAINT "FK_FCT_business_DIM_employee" FOREIGN KEY (employee_ID )REFERENCES dim_employee (employee_ID);
62 |
63 ALTER TABLE FCT_business
64 ADD CONSTRAINT "FK_FCT_business_DIM_agency" FOREIGN KEY (agency_ID )REFERENCES dim_agency (agency_ID);
65 |
66 ALTER TABLE FCT_business
67 ADD CONSTRAINT "FK_FCT_business_DIM_gen_period" FOREIGN KEY (gen_period_ID )REFERENCES dim_gen_period (gen_period_ID);
68 |
69 ALTER TABLE FCT_business
70 ADD CONSTRAINT "FK_FCT_business_DIM_product" FOREIGN KEY (product_ID )REFERENCES dim_product (product_ID);
71 |
72 ALTER TABLE FCT_business
73 ADD CONSTRAINT "FK_FCT_business_DIM_promotion" FOREIGN KEY (promotion_ID)REFERENCES dim_promotion (promotion_ID);

```

Session 2 (Bottom):

```

Table FCT_BUSINESS created.

Table FCT_BUSINESS altered.

Table FCT_BUSINESS altered.

Table FCT_BUSINESS altered.

```

Session 3 (Top):

```

1 --drop sequence DW_DATA.SQ_FCT_business;
2 --alter session set current_schema = DW_DATA;
3 |
4 CREATE SEQUENCE DW_DATA.SQ_FCT_business
5     START WITH      1
6     INCREMENT BY   1
7     NOCACHE
8     NOCYCLE;

```

Session 4 (Bottom):

```

Session altered.

Sequence DW_DATA.SQ_FCT_BUSINESS created.

```

Let's create packages to move all the data from the Cleansing Level to the DW Level, with the natural keys converted to primary keys.

- pkg_etl_dw_customer

The screenshot shows a session in Oracle SQL Developer.

```

1 alter session set current_schema = DW_DATA;
2 |
3 CREATE OR REPLACE PACKAGE pkg_etl_dw_customer
4 AS
5     PROCEDURE load_dw_customer;
6 END pkg_etl_dw_customer;
7 /

```

Script Output:

```

Session altered.

Package PKG_ETL_DW_CUSTOMER compiled

```

Grant permissions to table DW_CL.cls_t_customer from the Cleansing level to user DW_DATA on DW level and create pkg_etl_dw_customer-impl.

SQL Worksheet History

Worksheet | Query Builder

```

1 alter session set current_schema = DW_CL;
2 GRANT SELECT ON DW_CL.cls_t_customer TO DW_DATA;

```

Script Output X | Task completed in 0.036 seconds

Session altered.

Grant succeeded.

SQL Worksheet History

Worksheet | Query Builder

```

3
4 alter session set current_schema = DW_DATA;
5
6 CREATE OR REPLACE PACKAGE body pkg_etl_dw_customer
7 AS
8 PROCEDURE load_dw_customer
9 AS
10 BEGIN
11 DECLARE
12     TYPE CURSOR_VARCHAR IS TABLE OF varchar2(50);
13     TYPE CURSOR_NUMBER IS TABLE OF number(10);
14
15     TYPE BIG_CURSOR IS REF CURSOR;
16
17     ALL_INF BIG_CURSOR;
18
19     customer_name CURSOR_VARCHAR;
20     brand_name CURSOR_VARCHAR;
21     customer_address CURSOR_VARCHAR;
22     customer_city CURSOR_VARCHAR;
23     customer_country CURSOR_VARCHAR;
24     customer_email CURSOR_VARCHAR;
25     customer_office_phone CURSOR_VARCHAR;
26     customer_mobile_phone CURSOR_VARCHAR;
27     customer_name_stage CURSOR_VARCHAR;
28     customer_ID CURSOR_NUMBER;
29

```

Script Output X | Task completed in 0.021 seconds

Session altered.

Package Body PKG_ETL_DW_CUSTOMER compiled

Let's select data from the DW_DATA.DIM_customer table on DW layer.

108 alter session set current_schema = DW_DATA;
109 alter user DW_DATA QUOTA UNLIMITED ON TS_DW_DATA_01;
110
111 EXEC pkg_etl_dw_customer.load_dw_customer;

Script Output X | Task completed in 0.042 seconds

Session altered.

User DW_DATA altered.

PL/SQL procedure successfully completed.

112 | SELECT * FROM DW_DATA.DIM_customer;

Script Output X | Query Result X | All Rows Fetched: 2 in 0.004 seconds

CUSTOMER_ID	CUSTOMER_NAME	BRAND_NAME	CUSTOMER_ADDRESS	CUSTOMER_CITY	CUSTOMER_COUNTRY	CUSTOMER_EMAIL
1	1 Samsung Electronics	SAMSUNG	85 Challenger Rd. Ridgefield Park	New Jersey	United States	www.facebook.com/SamsungUS
2	2 Visa International Service Association	VISA	900 Metro Center Blvd.	Foster City	United States	https://usa.visa.com/contact-us.:

Code:

```
alter session set current_schema = DW_CL;
GRANT SELECT ON DW_CL.cls_t_customer TO DW_DATA;
alter session set current_schema = DW_DATA;

CREATE OR REPLACE PACKAGE body pkg_etl_dw_customer
AS
  PROCEDURE load_dw_customer
  AS
    BEGIN
      DECLARE
        TYPE CURSOR_VARCHAR IS TABLE OF varchar2(50);
        TYPE CURSOR_NUMBER IS TABLE OF number(10);
        TYPE BIG_CURSOR IS REF CURSOR;
        ALL_INF BIG_CURSOR;
        customer_name CURSOR_VARCHAR;
        brand_name CURSOR_VARCHAR;
        customer_address CURSOR_VARCHAR;
        customer_city CURSOR_VARCHAR;
        customer_country CURSOR_VARCHAR;
        customer_email CURSOR_VARCHAR;
        customer_office_phone CURSOR_VARCHAR;
        customer_mobile_phone CURSOR_VARCHAR;
        customer_name_stage CURSOR_VARCHAR;
        customer_ID CURSOR_NUMBER;

        BEGIN
          OPEN ALL_INF FOR
            SELECT
              source_CL.customer_name AS customer_name_source_CL,
              source_CL.brand_name AS brand_name_source_CL,
              source_CL.customer_address AS customer_address_source_CL,
              source_CL.customer_city AS customer_city_source_CL,
              source_CL.customer_country AS customer_country_source_CL,
              source_CL.customer_email AS customer_email_source_CL,
              source_CL.customer_office_phone AS customer_office_phone_source_CL,
              source_CL.customer_mobile_phone AS customer_mobile_phone_source_CL,
              stage.customer_name AS customer_name_stage,
              stage.customer_ID AS customer_ID
            FROM (SELECT DISTINCT * FROM DW_CL.cls_t_customer) source_CL
              LEFT JOIN DW_DATA.DIM_customer stage
                ON (source_CL.customer_name = stage.customer_name);
          FETCH ALL_INF
          BULK COLLECT INTO
            customer_name,
            brand_name,
            customer_address,
            customer_city,
            customer_country,
            customer_email,
            customer_office_phone,
            customer_mobile_phone,
            customer_name_stage,
            customer_ID;
          CLOSE ALL_INF;
        FOR i IN customer_ID.FIRST .. customer_ID.LAST LOOP
          IF (customer_ID(i) IS NULL) THEN
            INSERT INTO DW_DATA.DIM_customer (
              customer_ID,
              customer_name,
              brand_name,
              customer_address,
              customer_city,
              customer_country,
```

```

        customer_email,
        customer_office_phone,
        customer_mobile_phone)
VALUES ( SQ_DIM_customer.NEXTVAL,
        customer_name(i),
        brand_name(i),
        customer_address(i),
        customer_city(i),
        customer_country(i),
        customer_email(i),
        customer_office_phone(i),
        customer_mobile_phone(i)
    );
COMMIT;

ELSE UPDATE DW_DATA.DIM_customer
SET
    customer_name = customer_name(i),
    brand_name = brand_name(i),
    customer_address = customer_address(i),
    customer_city = customer_city(i),
    customer_country = customer_country(i),
    customer_email = customer_email(i),
    customer_office_phone = customer_office_phone(i),
    customer_mobile_phone = customer_mobile_phone(i)
WHERE customer_ID = customer_ID(i);
    COMMIT;
END IF;
END LOOP;

END;
END load_dw_customer;
END pkg_etl_dw_customer;

```

- pkg_etl_dw_employee

The screenshot shows the Oracle SQL Developer interface with the 'Worksheet' tab active. The code in the worksheet is:

```

1 alter session set current_schema = DW_DATA;
2 :
3 CREATE OR REPLACE PACKAGE pkg_etl_dw_employee
4 AS
5     PROCEDURE load_dw_employee;
6 END pkg_etl_dw_employee;
7 /

```

The 'Script Output' tab below shows the results of the execution:

```

Session altered.

Package PKG_ETL_DW_EMPLOYEE compiled

```

Grant permissions to table DW_CL.cls_t_employee from the Cleansing level to user DW_DATA on DW level and create pkg_etl_dw_employee-impl.

The screenshot shows the Oracle SQL Developer interface with the 'Worksheet' tab active. The code in the worksheet is:

```

1 alter session set current_schema = DW_CL;
2 GRANT SELECT ON DW_CL.cls_t_employee TO DW_DATA;
3 :

```

The 'Script Output' tab below shows the results of the execution:

```

Session altered.

Grant succeeded.

```

```

4 alter session set current_schema = DW_DATA;
5
6 CREATE OR REPLACE PACKAGE body pkg_etl_dw_employee
7 AS
8 PROCEDURE load_dw_employee
9 AS
10 BEGIN
11   DECLARE
12     TYPE CURSOR_VARCHAR IS TABLE OF varchar2(50);
13     TYPE CURSOR_NUMBER IS TABLE OF number(10);
14     TYPE CURSOR_DATE IS TABLE OF DATE;
15
16     TYPE BIG_CURSOR IS REF CURSOR;
17
18     ALL_INF BIG_CURSOR;
19
20     employee_passport_ID CURSOR_VARCHAR;
21     employee_first_name CURSOR_VARCHAR;
22     employee_last_name CURSOR_VARCHAR;
23     employee_position CURSOR_VARCHAR;
24     employee_email CURSOR_VARCHAR;
25     employee_office_phone CURSOR_VARCHAR;
26     employee_mobile_phone CURSOR_VARCHAR;

```

Script Output X | Task completed in 0.047 seconds

Grant succeeded.

Session altered.

Package Body PKG_ETL_DW_EMPLOYEE compiled

```

121
122 alter session set current_schema = DW_DATA;
123 alter user DW_DATA QUOTA UNLIMITED ON TS_DW_DATA_01;
124
125 EXEC pkg_etl_dw_employee.load_dw_employee;

```

Script Output X | Task completed in 0.082 seconds

Session altered.

User DW_DATA altered.

PL/SQL procedure successfully completed.

SELECT * FROM DW_DATA.DIM_employee;

Script Output X | Query Result X | Fetched 50 rows in 0.013 seconds

	EMPLOYEE_ID	EMPLOYEE_PASSPORT_ID	EMPLOYEE_FIRST_NAME	EMPLOYEE_LAST_NAME	EMPLOYEE_POSITION	EMPLOYEE_EMAIL	EMPLOYEE_OFFICE_PHONE	EMPLOYEE_MOBILE_PHONE
1	1 288060624	Ronnie	Abramson	specialist	Ronnie.Abramson@gmail.com	386-578-822	859-813-747	
2	2 614315484	Sam	Delon	specialist	Sam.Delon@gmail.com	836-329-404	350-600-222	
3	3 374952075	Robbie	Joukowski	manager	Robbie.Joukowski@gmail.com	983-570-389	789-665-977	
4	4 238172456	Steph	Delon	specialist	Steph.Delon@gmail.com	146-648-721	378-828-227	
5	5 325208747	Billie	Barnes	manager	Billie.Barnes@gmail.com	605-614-814	496-176-799	
6	6 503351236	Billie	Abramson	manager	Billie.Abramson@gmail.com	480-979-995	444-766-180	
7	7 804347498	Steph	Enderson	manager	Steph.Enderson@gmail.com	175-223-607	293-852-767	
8	8 597819409	Frankie	Gauss	specialist	Frankie.Gauss@gmail.com	245-464-208	545-268-268	
9	9 108955631	Alex	Kendall	specialist	Alex.Kendall@gmail.com	241-324-308	261-571-691	
10	10 2441119453	Frankie	Foster	manager	Frankie.Foster@gmail.com	550-677-649	806-772-115	
11	11 319638040	Nat	Campbell	specialist	Nat.Campbell@gmail.com	204-587-181	561-422-477	
12	12 830429493	Frankie	Delon	manager	Frankie.Delon@gmail.com	623-621-530	502-912-303	
13	13 108955631	Alex	Kendall	manager	Alex.Kendall@gmail.com	241-324-308	261-571-691	
14	14 288060624	Ronnie	Abramson	manager	Ronnie.Abramson@gmail.com	386-578-822	859-813-747	

Code:

```

alter session set current_schema = DW_CL;
CREATE OR REPLACE PACKAGE body pkg_etl_dw_employee
AS
PROCEDURE load_dw_employee
AS
BEGIN
DECLARE
  TYPE CURSOR_VARCHAR IS TABLE OF varchar2(50);
  TYPE CURSOR_NUMBER IS TABLE OF number(10);
  TYPE CURSOR_DATE IS TABLE OF DATE;
  TYPE BIG_CURSOR IS REF CURSOR;

```

TYPE BIG_CURSOR IS REF CURSOR;

```

ALL_INF BIG_CURSOR;

employee_passport_ID CURSOR_VARCHAR;
employee_first_name CURSOR_VARCHAR;
employee_last_name CURSOR_VARCHAR;
employee_position CURSOR_VARCHAR;
employee_email CURSOR_VARCHAR;
employee_office_phone CURSOR_VARCHAR;
employee_mobile_phone CURSOR_VARCHAR;
employee_date_of_hire CURSOR_DATE;
employee_date_end_of_contract CURSOR_DATE;
current_flg CURSOR_VARCHAR;

employee_passport_ID_stage CURSOR_VARCHAR;
employee_position_stage CURSOR_VARCHAR;
employee_ID CURSOR_NUMBER;

BEGIN
  OPEN ALL_INF FOR
    SELECT
      source_CL.employee_passport_ID AS employee_passport_ID_source_CL,
      source_CL.employee_first_name AS employee_first_name_source_CL,
      source_CL.employee_last_name AS employee_last_name_source_CL,
      source_CL.employee_position AS employee_position_source_CL,
      source_CL.employee_email AS employee_email_source_CL,
      source_CL.employee_office_phone AS employee_office_phone_source_CL,
      source_CL.employee_mobile_phone AS employee_mobile_phone_source_CL,
      source_CL.employee_date_of_hire AS employee_date_of_hire_source_CL,
      source_CL.employee_date_end_of_contract AS employee_date_end_of_contract_source_CL,
      source_CL.current_flg AS current_flg_source_CL,

      stage.employee_passport_ID AS employee_passport_ID_stage,
      stage.employee_position AS employee_position_stage,
      stage.employee_ID AS employee_ID
    FROM (SELECT DISTINCT * FROM DW_CL.cls_t_employee) source_CL
    LEFT JOIN DW_DATA.DIM_employee stage
    ON (source_CL.employee_passport_ID = stage.employee_passport_ID and source_CL.employee_position =
stage.employee_position);
  FETCH ALL_INF
  BULK COLLECT INTO
    employee_passport_ID,
    employee_first_name,
    employee_last_name,
    employee_position,
    employee_email,
    employee_office_phone,
    employee_mobile_phone,
    employee_date_of_hire,
    employee_date_end_of_contract,
    current_flg,

    employee_passport_ID_stage,
    employee_position_stage,
    employee_ID;
  CLOSE ALL_INF;

FOR i IN employee_ID.FIRST .. employee_ID.LAST LOOP
  IF ( employee_ID ( i ) IS NULL ) THEN
    INSERT INTO DW_DATA.DIM_employee (
      employee_ID,
      employee_passport_ID,
      employee_first_name,
      employee_last_name,

```

```

        employee_position,
        employee_email,
        employee_office_phone,
        employee_mobile_phone,
        employee_date_of_hire,
        employee_date_end_of_contract,
        current_flg)
VALUES ( SQ_DIM_employee.NEXTVAL,
          employee_passport_ID(i),
          employee_first_name(i),
          employee_last_name(i),
          employee_position(i),
          employee_email(i),
          employee_office_phone(i),
          employee_mobile_phone(i),
          employee_date_of_hire(i),
          employee_date_end_of_contract(i),
          current_flg (i)
      );
COMMIT;

ELSE UPDATE DW_DATA.DIM_employee
SET
    employee_passport_ID = employee_passport_ID(i),
    employee_first_name = employee_first_name(i),
    employee_last_name = employee_last_name(i),
    employee_position = employee_position(i),
    employee_email = employee_email(i),
    employee_office_phone = employee_office_phone(i),
    employee_mobile_phone = employee_mobile_phone(i),
    employee_date_of_hire = employee_date_of_hire(i),
    employee_date_end_of_contract = employee_date_end_of_contract(i),
    current_flg = current_flg (i)
WHERE employee_ID = employee_ID(i);
    COMMIT;

END IF;
END LOOP;

END;
END load_dw_employee;
END pkg_etl_dw_employee;

```

- pkg_etl_dw_agency

```

alter session set current_schema = DW_DATA;
CREATE OR REPLACE PACKAGE pkg_etl_dw_agency
AS
    PROCEDURE load_dw_agency;
END pkg_etl_dw_agency;
/

```

Session altered.

Package PKG_ETL_DW_AGENCY compiled

Grant permissions to table DW_CL.cls_t_agency from the Cleansing level to user DW_DATA on DW level and create pkg_etl_dw_agency-impl.

```

Session altered.

Grant succeeded.

Session altered.

CREATE OR REPLACE PACKAGE body pkg_etl_dw_agency
AS
  PROCEDURE load_dw_agency
  AS
    BEGIN
      DECLARE
        TYPE CURSOR_VARCHAR IS TABLE OF varchar2(50);
        TYPE CURSOR_DECIMAL IS TABLE OF DECIMAL(10,2);
        TYPE CURSOR_NUMBER IS TABLE OF number(10);

        TYPE BIG_CURSOR IS REF CURSOR;
        ALL_INF BIG_CURSOR;

        agency_name CURSOR_VARCHAR;
        department_name CURSOR_VARCHAR;
        agency_city CURSOR_VARCHAR;
        agency_country CURSOR_VARCHAR;
        agency_address CURSOR_VARCHAR;
        agency_postcode CURSOR_VARCHAR;
        agency_email CURSOR_VARCHAR;
        agency_office_phone CURSOR_VARCHAR;
        agency_mobile_phone CURSOR_VARCHAR;
        agency_fee_percent CURSOR_DECIMAL;
    END;
  END;
END;
/
```

```

Session altered.

Package Body PKG_ETL_DW_AGENCY compiled

Session altered.

alter session set current_schema = DW_DATA;
alter user DW_DATA QUOTA UNLIMITED ON TS_DW_DATA_01;
| EXEC pkg_etl_dw_agency.load_dw_agency;
```

AGENCY_ID	AGENCY_NAME	DEPARTMENT_NAME	AGENCY_CITY	AGENCY_COUNTRY	AGENCY_ADDRESS	AGENCY_POSTCODE	AGENCY_EMAIL
1	1Starcom	Media Planning and Buying	Hong Kong	China	29/F, Paul Y. Centre 51 Hung To Road Kwan Tong	12345	www.starcommw.com/c
2	2Starcom	Production	Berlin	Germany	Paul Lincke Ufer 35-40	10999	www.starcommw.com/c
3	3Starcom	Media Planning and Buying	Berlin	Germany	Paul Lincke Ufer 35-40	10999	www.starcommw.com/c
4	4Starcom	Media Planning and Buying	Dubai	UAE	King Salman Bin Abdulaziz Al Saud St.	7534	www.starcommw.com/c
5	5Starcom	Art and Visualization	Nicosia	Cyprus	21 Academias Ave. KEMA Building	2107	www.starcommw.com/c
6	6Starcom	Art and Visualization	Milan	Italy	C.R. Darwin Street, 20	20143	www.starcommw.com/c
7	7Starcom	Out-of-Home Media	New York	United States	375 Hudson St. Floor 12	10014	www.starcommw.com/c
8	8Starcom	Art and Visualization	Paris	France	30-34 chemin Vert Street	75011	www.starcommw.com/c
9	9Starcom	Art and Visualization	Warsaw	Poland	44 A Domianowska Street	02-672	www.starcommw.com/c
10	10Starcom	Media Planning and Buying	Nicosia	Cyprus	21 Academias Ave. KEMA Building	2107	www.starcommw.com/c
11	11Starcom	Out-of-Home Media	Cairo	Egypt	City Stars 4th Floor	10521	www.starcommw.com/c
12	12Starcom	Production	New York	United States	375 Hudson St. Floor 12	10014	www.starcommw.com/c
13	13Starcom	Production	Hong Kong	China	29/F, Paul Y. Centre 51 Hung To Road Kwan Tong	12345	www.starcommw.com/c
14	14Starcom	Production	Barcelona	Spain	365 Aragon Street	08013	www.starcommw.com/c
15	15Starcom	Art and Visualization	Sydney	Australia	21 Harris Street, Pyrmont	2009	www.starcommw.com/c
16	16Starcom	Media Planning and Buying	New York	United States	375 Hudson St. Floor 12	10014	www.starcommw.com/c
17	17Starcom	Out-of-Home Media	Moscow	Russia	16 Leningradsky prospekt, bld 1	194021	www.starcommw.com/c

Code:

```

alter session set current_schema = DW_DATA;
CREATE OR REPLACE PACKAGE body pkg_etl_dw_agency
AS
  PROCEDURE load_dw_agency
  AS
  BEGIN
  END;
END;
/
```

```

DECLARE
    TYPE CURSOR_VARCHAR IS TABLE OF varchar2(50);
    TYPE CURSOR_DECIMAL IS TABLE OF DECIMAL(10,2);
    TYPE CURSOR_NUMBER IS TABLE OF number(10);
    TYPE BIG_CURSOR IS REF CURSOR;
    ALL_INF BIG_CURSOR;

    agency_name CURSOR_VARCHAR;
    department_name CURSOR_VARCHAR;
    agency_city CURSOR_VARCHAR;
    agency_country CURSOR_VARCHAR;
    agency_address CURSOR_VARCHAR;
    agency_postcode CURSOR_VARCHAR;
    agency_email CURSOR_VARCHAR;
    agency_office_phone CURSOR_VARCHAR;
    agency_mobile_phone CURSOR_VARCHAR;
    agency_Fee_percent CURSOR_DECIMAL;
    agency_VAT_percent CURSOR_DECIMAL;

    agency_address_stage CURSOR_VARCHAR;
    agency_ID CURSOR_NUMBER;

BEGIN
    OPEN ALL_INF FOR
        SELECT
            source_CL.agency_name AS agency_name_source_CL,
            source_CL.department_name AS department_name_source_CL,
            source_CL.agency_city AS agency_city_source_CL,
            source_CL.agency_country AS agency_country_source_CL,
            source_CL.agency_address AS agency_address_source_CL,
            source_CL.agency_postcode AS agency_postcode_source_CL,
            source_CL.agency_email AS agency_email_source_CL,
            source_CL.agency_office_phone AS agency_office_phone_source_CL,
            source_CL.agency_mobile_phone AS agency_mobile_phone_source_CL,
            source_CL.agency_Fee_percent AS agency_Fee_percent_source_CL,
            source_CL.agency_VAT_percent AS agency_VAT_percent_source_CL,

            stage.agency_address AS agency_address_stage,
            stage.agency_ID AS agency_ID
        FROM (SELECT DISTINCT * FROM DW_CL.cls_t_agency) source_CL
        LEFT JOIN DW_DATA.DIM_agency stage
        ON (source_CL.agency_address = stage.agency_address and source_CL.department_name = stage.department_name);
    FETCH ALL_INF
    BULK COLLECT INTO
        agency_name,
        department_name,
        agency_city,
        agency_country,
        agency_address,
        agency_postcode,
        agency_email,
        agency_office_phone,
        agency_mobile_phone,
        agency_Fee_percent,
        agency_VAT_percent,
        agency_address_stage,
        agency_ID;
    CLOSE ALL_INF;
FOR i IN agency_ID.FIRST .. agency_ID.LAST LOOP
    IF ( agency_ID ( i ) IS NULL ) THEN
        INSERT INTO DW_DATA.DIM_agency (
            agency_ID,
            agency_name,

```

```

        department_name,
        agency_city,
        agency_country,
        agency_address,
        agency_postcode,
        agency_email,
        agency_office_phone,
        agency_mobile_phone,
        agency_Fee_percent,
        agency_VAT_percent)
VALUES ( DW_DATA.SQ_DIM_agency.NEXTVAL,
        agency_name(i),
        department_name(i),
        agency_city(i),
        agency_country(i),
        agency_address(i),
        agency_postcode(i),
        agency_email(i),
        agency_office_phone(i),
        agency_mobile_phone(i),
        agency_Fee_percent(i),
        agency_VAT_percent(i)
    );
COMMIT;
ELSE UPDATE DW_DATA.DIM_agency
SET
    agency_name = agency_name(i),
    department_name = department_name(i),
    agency_city = agency_city(i),
    agency_country = agency_country(i),
    agency_address = agency_address(i),
    agency_postcode = agency_postcode(i),
    agency_email = agency_email(i),
    agency_office_phone = agency_office_phone(i),
    agency_mobile_phone = agency_mobile_phone(i),
    agency_Fee_percent = agency_Fee_percent(i),
    agency_VAT_percent = agency_VAT_percent(i)
WHERE agency_ID = agency_ID(i);
    COMMIT;
END IF;
END LOOP;
END;
END load_dw_agency;
END pkg_etl_dw_agency;

```

- pkg_etl_dw_promotion

```

SQL Worksheet | History
Worksheet | Query Builder
alter session set current_schema = DW_DATA;
CREATE OR REPLACE PACKAGE pkg_etl_dw_promotion
AS
  PROCEDURE load_dw_promotion;
END pkg_etl_dw_promotion;
/

```

Script Output | Task completed in 0.067 seconds

Session altered.

Package PKG_ETL_DW_PROMOTION compiled

Grant permissions to table DW_CL.cls_t_promotion from the Cleansing level to user DW_DATA on DW level and create pkg_etl_dw_promotion-impl.

	PROMOTION_ID	TIME_ID	PROMOTION_NAME	PROMOTION_MEDIA_TYPE	PROMOTION_METRIC_AMOUNT	DEPARTMENT_NAME	PROMOTION_PRICE	PROMOTION_KPI
1	1	01-JAN-22 5	SAMSUNG_Refrigerators_TV	TV	82	Media Planning and Buying	683	CPL
2	2	01-JAN-22 26	SAMSUNG_Ovens_TV	TV	99	Media Planning and Buying	198	CPL
3	3	01-JAN-22 49	SAMSUNG_Washing_machines_TV	TV	40	Media Planning and Buying	164	CPA
4	4	01-JAN-22 62	SAMSUNG_Dishwashers_TV	TV	37	Media Planning and Buying	631	CPA
5	5	01-JAN-22 83	SAMSUNG_Microwave_ovens_TV	TV	46	Media Planning and Buying	643	CPA
6	6	01-JAN-22 105	SAMSUNG_Vacuum_Cleaners_TV	TV	52	Media Planning and Buying	150	CPA
7	7	01-JAN-22 128	SAMSUNG_TVs_TV	TV	44	Media Planning and Buying	624	CPA
8	8	01-JAN-22 148	SAMSUNG_Smartphones_TV	TV	96	Media Planning and Buying	870	CPA
9	9	01-JAN-22 166	SAMSUNG_Tablets_TV	TV	66	Media Planning and Buying	346	CPL
10	10	01-JAN-22 174	SAMSUNG_Tablets_TV	TV	71	Media Planning and Buying	178	CPL

Code:

```
alter session set current_schema = DW_DATA;
CREATE OR REPLACE PACKAGE body pkg_etl_dw_promotion
AS
  PROCEDURE load_dw_promotion
  AS
    BEGIN
      DECLARE
        TYPE CURSOR VARCHAR IS TABLE OF varchar(50);
```

```

TYPE CURSOR_DECIMAL IS TABLE OF DECIMAL(30,2);
TYPE CURSOR_DATE IS TABLE OF DATE;
TYPE CURSOR_NUMBER IS TABLE OF number(10);

TYPE BIG_CURSOR IS REF CURSOR;

ALL_INF BIG_CURSOR;

TIME_ID CURSOR_DATE;
promotion_name CURSOR_VARCHAR;
promotion_media_type CURSOR_VARCHAR;
promotion_metric_amount CURSOR_DECIMAL;
department_name CURSOR_VARCHAR;
promotion_price CURSOR_DECIMAL;
promotion_KPI CURSOR_VARCHAR;
promotion_distinct_percent CURSOR_DECIMAL;
employee_salary_project CURSOR_DECIMAL;

promotion_name_stage CURSOR_VARCHAR;
TIME_ID_stage CURSOR_DATE;
promotion_ID CURSOR_NUMBER;

BEGIN
  OPEN ALL_INF FOR
    SELECT
      source_CL.TIME_ID AS TIME_ID_source_CL,
      source_CL.promotion_name AS promotion_name_source_CL,
      source_CL.promotion_media_type AS promotion_media_type_source_CL,
      source_CL.promotion_metric_amount AS promotion_metric_amount_source_CL,
      source_CL.department_name AS department_name_source_CL,
      source_CL.promotion_price AS promotion_price_source_CL,
      source_CL.promotion_KPI AS promotion_KPI_source_CL,
      source_CL.promotion_distinct_percent AS promotion_distinct_percent_source_CL,
      source_CL.employee_salary_project AS aemployee_salary_project_source_CL,

      stage.promotion_name AS promotion_name_stage,
      stage.TIME_ID AS TIME_ID_stage,
      stage.promotion_ID AS promotion_ID
    FROM (SELECT DISTINCT * FROM DW_CL.cls_t_promotion) source_CL
      LEFT JOIN DW_DATA.DIM_promotion stage
        ON (source_CL.promotion_name = stage.promotion_name AND source_CL.TIME_ID = stage.TIME_ID)
    ;
    FETCH ALL_INF
    BULK COLLECT INTO
      TIME_ID,
      promotion_name,
      promotion_media_type,
      promotion_metric_amount,
      department_name,
      promotion_price,
      promotion_KPI,
      promotion_distinct_percent,
      employee_salary_project,
      promotion_name_stage,
      TIME_ID_stage,
      promotion_ID;
    CLOSE ALL_INF;

FOR i IN promotion_ID.FIRST .. promotion_ID.LAST LOOP
  IF ( promotion_ID ( i ) IS NULL ) THEN
    INSERT INTO DW_DATA.DIM_promotion (
      promotion_ID,
      TIME_ID,

```

```

promotion_name,
promotion_media_type,
promotion_metric_amount,
department_name,
promotion_price,
promotion_KPI,
promotion_distinct_percent,
employee_salary_project)
VALUES ( DW_DATA.SQ_DIM_promotion.NEXTVAL,
TIME_ID(i),
promotion_name(i),
promotion_media_type(i),
promotion_metric_amount(i),
department_name(i),
promotion_price(i),
promotion_KPI(i),
promotion_distinct_percent(i),
employee_salary_project(i)
);
COMMIT;

ELSE UPDATE DW_DATA.DIM_promotion
SET
TIME_ID = TIME_ID(i),
promotion_name = promotion_name(i),
promotion_media_type = promotion_media_type(i),
promotion_metric_amount = promotion_metric_amount(i),
department_name = department_name(i),
promotion_price = promotion_price(i),
promotion_KPI = promotion_KPI(i),
promotion_distinct_percent = promotion_distinct_percent(i),
employee_salary_project = employee_salary_project(i)
WHERE promotion_ID = promotion_ID(i);

COMMIT;

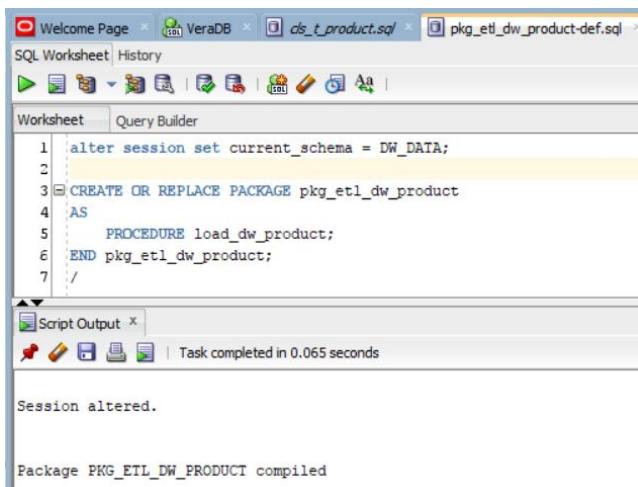
END IF;

END LOOP;

END;
END load_dw_promotion;
END pkg_etl_dw_promotion;

```

- `pkg_etl_dw_product`



The screenshot shows the Oracle SQL Developer interface with the following details:

- SQL Worksheet:** The main workspace where the PL/SQL code is entered.
- Code:**

```

1 alter session set current_schema = DW_DATA;
2
3 CREATE OR REPLACE PACKAGE pkg_etl_dw_product
4 AS
5     PROCEDURE load_dw_product;
6 END pkg_etl_dw_product;
7 /

```
- Script Output:** A panel at the bottom showing the execution results:
 - Session altered.
 - Package PKG_ETL_DW_PRODUCT compiled
- Toolbars and Menus:** Standard SQL Developer toolbars and menus are visible at the top and right side of the interface.

Grant permissions to table DW_CL.cls_t_product from the Cleansing level to user DW_DATA on DW level and create pkg_etl_dw_product-impl.

```

1 alter session set current_schema = DW_CL;
2 GRANT SELECT ON DW_CL.cls_t_product TO DW_DATA;
3

Session altered.

Grant succeeded.

-----  

4 alter session set current_schema = DW_DATA;
5
6 CREATE OR REPLACE PACKAGE body pkg_etl_dw_product
7 AS
8 PROCEDURE load_dw_product
9 AS
10 BEGIN
11 MERGE INTO DW_DATA.dim_product A
12 USING ( SELECT brand_name, product_name, category_name, subcategory_name FROM DW_CL.cls_t_product) B
13 ON (a.brand_name = b.brand_name AND a.product_name = b.product_name)
14 WHEN MATCHED THEN
15   UPDATE SET a.category_name = b.category_name, a.subcategory_name = b.subcategory_name
16 WHEN NOT MATCHED THEN
17   INSERT (a.product_ID, a.brand_name, a.product_name, a.category_name, a.subcategory_name)
18   VALUES (DW_DATA.SQ_DIM_product.NEXTVAL, b.brand_name, b.product_name, b.category_name, b.subcategory_name);
19
20 COMMIT;
21 END load_dw_product;
22 END pkg_etl_dw_product;
23

Session altered.

Grant succeeded.

Session altered.

-----  

24 alter session set current_schema = DW_DATA;
25 alter user DW_DATA QUOTA UNLIMITED ON TS_DW_DATA_01;
26
27 EXEC pkg_etl_dw_product.load_dw_product;

Session altered.

-----  

28 SELECT * FROM DW_DATA.DIM_product;
29
30

-----  

31 | PRODUCT_ID | BRAND_NAME | PRODUCT_NAME | CATEGORY_NAME | SUBCATEGORY_NAME |
32 | 1           | VISA       | Card         | Services      | Contactless smart card
33 | 2           | SAMSUNG    | Refrigerators | Appliances   | Fridge
34 | 3           | VISA       | Benefit      | Services      | Retirement Savings
35 | 4           | SAMSUNG    | Dishwashers  | Appliances   | Built-in Dishwasher
36 | 5           | VISA       | Sponsorship  | Services      | Networking sponsor
37 | 6           | SAMSUNG    | Smartphones  | Phones        | Android Phones
38 | 7           | SAMSUNG    | Microwave ovens | Appliances | Convection Microwave
39 | 8           | SAMSUNG    | Cooking ovens | Appliances   | Electric cooktop
40 | 9           | SAMSUNG    | TVs          | Appliances   | QLED
41 | 10          | SAMSUNG   | Tablets      | Tablet computer | Galaxy Tab series?
42 | 11          | SAMSUNG   | Vacuum Cleaners | Appliances | Robotic vacuum cleaner
43 | 12          | SAMSUNG   | Ovens         | Appliances   | Conventional ovens
44 | 13          | SAMSUNG   | Headphones   | Accessories  | Earbuds
45 | 14          | VISA       | Service      | Services      | Internet banks
46 | 15          | SAMSUNG   | Washing machines | Appliances | Fully Automatic washing machine
47 | 16          | SAMSUNG   | Smart watches | Computerized wristwatch | Smart watch for kids?
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
559
560
561
562
563
564
565
566
567
568
569
569
570
571
572
573
574
575
576
577
578
579
579
580
581
582
583
584
585
586
587
588
589
589
590
591
592
593
594
595
596
597
598
599
599
600
601
602
603
604
605
606
607
608
609
609
610
611
612
613
614
615
616
617
617
618
619
619
620
621
622
623
624
625
626
627
627
628
629
629
630
631
632
633
634
635
635
636
637
637
638
639
639
640
641
642
643
643
644
645
645
646
647
647
648
649
649
650
651
652
653
653
654
655
655
656
657
657
658
659
659
660
661
661
662
663
663
664
665
665
666
667
667
668
669
669
670
671
671
672
673
673
674
675
675
676
677
677
678
679
679
680
681
681
682
683
683
684
685
685
686
687
687
688
689
689
690
691
691
692
693
693
694
695
695
696
697
697
698
699
699
700
701
701
702
703
703
704
705
705
706
707
707
708
709
709
710
711
711
712
713
713
714
715
715
716
717
717
718
719
719
720
721
721
722
723
723
724
725
725
726
727
727
728
729
729
730
731
731
732
733
733
734
735
735
736
737
737
738
739
739
740
741
741
742
743
743
744
745
745
746
747
747
748
749
749
750
751
751
752
753
753
754
755
755
756
757
757
758
759
759
760
761
761
762
763
763
764
765
765
766
767
767
768
769
769
770
771
771
772
773
773
774
775
775
776
777
777
778
779
779
780
781
781
782
783
783
784
785
785
786
787
787
788
789
789
790
791
791
792
793
793
794
795
795
796
797
797
798
799
799
800
801
801
802
803
803
804
805
805
806
807
807
808
809
809
810
811
811
812
813
813
814
815
815
816
817
817
818
819
819
820
821
821
822
823
823
824
825
825
826
827
827
828
829
829
830
831
831
832
833
833
834
835
835
836
837
837
838
839
839
840
841
841
842
843
843
844
845
845
846
847
847
848
849
849
850
851
851
852
853
853
854
855
855
856
857
857
858
859
859
860
861
861
862
863
863
864
865
865
866
867
867
868
869
869
870
871
871
872
873
873
874
875
875
876
877
877
878
879
879
880
881
881
882
883
883
884
885
885
886
887
887
888
889
889
890
891
891
892
893
893
894
895
895
896
897
897
898
899
899
900
901
901
902
903
903
904
905
905
906
907
907
908
909
909
910
911
911
912
913
913
914
915
915
916
917
917
918
919
919
920
921
921
922
923
923
924
925
925
926
927
927
928
929
929
930
931
931
932
933
933
934
935
935
936
937
937
938
939
939
940
941
941
942
943
943
944
945
945
946
947
947
948
949
949
950
951
951
952
953
953
954
955
955
956
957
957
958
959
959
960
961
961
962
963
963
964
965
965
966
967
967
968
969
969
970
971
971
972
973
973
974
975
975
976
977
977
978
979
979
980
981
981
982
983
983
984
985
985
986
987
987
988
989
989
990
991
991
992
993
993
994
995
995
996
997
997
998
999
999
1000
1000
1001
1001
1002
1002
1003
1003
1004
1004
1005
1005
1006
1006
1007
1007
1008
1008
1009
1009
1010
1010
1011
1011
1012
1012
1013
1013
1014
1014
1015
1015
1016
1016
1017
1017
1018
1018
1019
1019
1020
1020
1021
1021
1022
1022
1023
1023
1024
1024
1025
1025
1026
1026
1027
1027
1028
1028
1029
1029
1030
1030
1031
1031
1032
1032
1033
1033
1034
1034
1035
1035
1036
1036
1037
1037
1038
1038
1039
1039
1040
1040
1041
1041
1042
1042
1043
1043
1044
1044
1045
1045
1046
1046
1047
1047
1048
1048
1049
1049
1050
1050
1051
1051
1052
1052
1053
1053
1054
1054
1055
1055
1056
1056
1057
1057
1058
1058
1059
1059
1060
1060
1061
1061
1062
1062
1063
1063
1064
1064
1065
1065
1066
1066
1067
1067
1068
1068
1069
1069
1070
1070
1071
1071
1072
1072
1073
1073
1074
1074
1075
1075
1076
1076
1077
1077
1078
1078
1079
1079
1080
1080
1081
1081
1082
1082
1083
1083
1084
1084
1085
1085
1086
1086
1087
1087
1088
1088
1089
1089
1090
1090
1091
1091
1092
1092
1093
1093
1094
1094
1095
1095
1096
1096
1097
1097
1098
1098
1099
1099
1100
1100
1101
1101
1102
1102
1103
1103
1104
1104
1105
1105
1106
1106
1107
1107
1108
1108
1109
1109
1110
1110
1111
1111
1112
1112
1113
1113
1114
1114
1115
1115
1116
1116
1117
1117
1118
1118
1119
1119
1120
1120
1121
1121
1122
1122
1123
1123
1124
1124
1125
1125
1126
1126
1127
1127
1128
1128
1129
1129
1130
1130
1131
1131
1132
1132
1133
1133
1134
1134
1135
1135
1136
1136
1137
1137
1138
1138
1139
1139
1140
1140
1141
1141
1142
1142
1143
1143
1144
1144
1145
1145
1146
1146
1147
1147
1148
1148
1149
1149
1150
1150
1151
1151
1152
1152
1153
1153
1154
1154
1155
1155
1156
1156
1157
1157
1158
1158
1159
1159
1160
1160
1161
1161
1162
1162
1163
1163
1164
1164
1165
1165
1166
1166
1167
1167
1168
1168
1169
1169
1170
1170
1171
1171
1172
1172
1173
1173
1174
1174
1175
1175
1176
1176
1177
1177
1178
1178
1179
1179
1180
1180
1181
1181
1182
1182
1183
1183
1184
1184
1185
1185
1186
1186
1187
1187
1188
1188
1189
1189
1190
1190
1191
1191
1192
1192
1193
1193
1194
1194
1195
1195
1196
1196
1197
1197
1198
1198
1199
1199
1200
1200
1201
1201
1202
1202
1203
1203
1204
1204
1205
1205
1206
1206
1207
1207
1208
1208
1209
1209
1210
1210
1211
1211
1212
1212
1213
1213
1214
1214
1215
1215
1216
1216
1217
1217
1218
1218
1219
1219
1220
1220
1221
1221
1222
1222
1223
1223
1224
1224
1225
1225
1226
1226
1227
1227
1228
1228
1229
1229
1230
1230
1231
1231
1232
1232
1233
1233
1234
1234
1235
1235
1236
1236
1237
1237
1238
1238
1239
1239
1240
1240
1241
1241
1242
1242
1243
1243
1244
1244
1245
1245
1246
1246
1247
1247
1248
1248
1249
1249
1250
1250
1251
1251
1252
1252
1253
1253
1254
1254
1255
1255
1256
1256
1257
1257
1258
1258
1259
1259
1260
1260
1261
1261
1262
1262
1263
1263
1264
1264
1265
1265
1266
1266
1267
1267
1268
1268
1269
1269
1270
1270
1271
1271
1272
1272
1273
1273
1274
1274
1275
1275
1276
1276
1277
1277
1278
1278
1279
1279
1280
1280
1281
1281
1282
1282
1283
1283
1284
1284
1285
1285
1286
1286
1287
1287
1288
1288
1289
1289
1290
1290
1291
1291
1292
1292
1293
1293
1294
1294
1295
1295
1296
1296
1297
1297
1298
1298
1299
1299
1300
1300
1301
1301
1302
1302
1303
1303
1304
1304
1305
1305
1306
1306
1307
1307
1308
1308
1309
1309
1310
1310
1311
1311
1312
1312
1313
1313
1314
1314
1315
1315
1316
1316
1317
1317
1318
1318
1319
1319
1320
1320
1321
1321
1322
1322
1323
1323
1324
1324
1325
1325
1326
1326
1327
1327
1328
1328
1329
1329
1330
1330
1331
1331
1332
1332
1333
1333
1334
1334
1335
1335
1336
1336
1337
1337
1338
1338
1339
1339
1340
1340
1341
1341
1342
1342
1343
1343
1344
1344
1345
1345
1346
1346
1347
1347
1348
1348
1349
1349
1350
1350
1351
1351
1352
1352
1353
1353
1354
1354
1355
1355
1356
1356
1357
1357
1358
1358
1359
1359
1360
1360
1361
1361
1362
1362
1363
1363
1364
1364
1365
1365
1366
1366
1367
1367
1368
1368
1369
1369
1370
1370
1371
1371
1372
1372
1373
1373
1374
1374
1375
1375
1376
1376
1377
1377
1378
1378
1379
1379
1380
1380
1381
1381
1382
1382
1383
1383
1384
1384
1385
1385
1386
1386
1387
1387
1388
1388
1389
1389
1390
1390
1391
1391
1392
1392
1393
1393
1394
1394
1395
1395
1396
1396
1397
1397
1398
1398
1399
1399
1400
1400
1401
1401
1402
1402
1403
1403
1404
1404
1405
1405
1406
1406
1407
1407
1408
1408
1409
1409
1410
1410
1411
1411
1412
1412
1413
1413
1414
1414
1415
1415
1416
1416
1417
1417
1418
1418
1419
1419
1420
1420
1421
1421
1422
1422
1423
1423
1424
1424
1425
1425
1426
1426
1427
1427
1428
1428
1429
1429
1430
1430
1431
1431
1432
1432
1433
1433
1434
1434
1435
1435
1436
1436
1437
1437
1438
1438
1439
1439
1440
1440
1441
1441
1442
1442
1443
1443
1444
1444
1445
1445
1446
1446
1447
1447
1448
1448
1449
1449
1450
1450
1451
1451
1452
1452
1453
1453
1454
1454
1455
1455
1456
1456
1457
1457
1458
1458
1459
1459
1460
1460
1461
1461
1462
1462
1463
1463
1464
1464
1465
1465
1466
1466
1467
1467
1468
1468
1469
1469
1470
1470
1471
1471
1472
1472
1473
1473
1474
1474
1475
1475
1476
1476
1477
1477
1478
1478
1479
1479
1480
1480
1481
1481
1482
1482
1483
1483
1484
1484
1485
1485
1486
1486
1487
1487
1488
1488
1489
1489
1490
1490
1491
1491
1492
1492
1493
1493
1494
1494
1495
1495
1496
1496
1497
1497
1498
1498
1499
1499
1500
1500
1501
1501
1502
1502
1503
1503
1504
1504
1505
1505
1506
1506
1507
1507
1508
1508
1509
1509
1510
1510
1511
1511
1512
1512
1513
1513
1514
1514
1515
1515
1516
1516
1517
1517
1518
1518
1519
1519
1520
1520
1521
1521
1522
1522
1523
1523
1524
1524
1525
1525
1526
1526
1527
1527
1528
1528
1529
1529
1530
1530
1531
1531
1532
1532
1533
1533
1534
1534
1535
1535
1536
1536
1537
1537
1538
1538
1539
1539
1540
1540
1541
1541
1542
1542
1543
1543
1544
1544
1545
1545
1546
1546
1547
1547
1548
1548
1549
1549
1550
1550
1551
1551
1552
1552
1553
1553
1554
1554
1555
1555
1556
1556
1557
1557
1558
1558
1559
1559
1560
1560
1561
1561
1562
1562
1563
1563
1564
1564
1565
1565
1566
1566
1567
1567
1568
1568
1569
1569
1570
1570
1571
1571
1572
1572
1573
1573
1574
1574
1575
1575
1576
1576
1577

```

```

AS
BEGIN
MERGE INTO DW_DATA.dim_product A
USING ( SELECT brand_name, product_name, category_name, subcategory_name FROM DW_CL.cls_t_product) B
    ON (a.brand_name = b.brand_name AND a.product_name = b.product_name)
WHEN MATCHED THEN
    UPDATE SET a.category_name = b.category_name, a.subcategory_name = b.subcategory_name
WHEN NOT MATCHED THEN
    INSERT (a.product_ID, a.brand_name, a.product_name, a.category_name, a.subcategory_name)
        VALUES (DW_DATA.SQ_DIM_product.NEXTVAL, b.brand_name, b.product_name, b.category_name, b.subcategory_name);
COMMIT;
END load_dw_product;
END pkg_etl_dw_product;
    • pkg_etl_dw_gen_period

```

The screenshot shows the Oracle SQL Developer interface with the 'Worksheet' tab selected. The code in the worksheet is:

```

1 alter session set current_schema = DW_DATA;
2
3 CREATE OR REPLACE PACKAGE pkg_etl_dw_gen_period
4 AS
5     PROCEDURE load_dw_gen_period;
6 END pkg_etl_dw_gen_period;
7 /

```

The 'Script Output' tab shows the results of the execution:

```

Session altered.

Package PKG_ETL_DW_GEN_PERIOD compiled

```

Grant permissions to table DW_CL.cls_t_DIM_gen_period from the Cleansing level to user DW_DATA on DW level and create pkg_etl_dw_product-impl.

The screenshot shows the Oracle SQL Developer interface with the 'Worksheet' tab selected. The code in the worksheet is:

```

1 alter session set current_schema = DW_CL;
2 GRANT SELECT ON DW_CL.cls_t_DIM_gen_period TO DW_DATA;
3

```

The 'Script Output' tab shows the results of the execution:

```

Session altered.

Grant succeeded.

```


The screenshot shows the Oracle SQL Developer interface with the 'Worksheet' tab selected. The code in the worksheet is the full implementation of the package body:

```

3
4 alter session set current_schema = DW_DATA;
5
6 CREATE OR REPLACE PACKAGE BODY pkg_etl_dw_gen_period
7 AS
8     PROCEDURE load_dw_gen_period
9     AS
10    BEGIN
11        MERGE INTO DW_DATA.DIM_gen_period A
12        USING ( SELECT promotion_name, promotion_start, promotion_end FROM DW_CL.cls_t_DIM_gen_period) B
13            ON (a.promotion_name = b.promotion_name)
14        WHEN MATCHED THEN
15            UPDATE SET a.promotion_start = b.promotion_start, a.promotion_end = b.promotion_end
16        WHEN NOT MATCHED THEN
17            INSERT (a.gen_period_ID, a.promotion_name, a.promotion_start, a.promotion_end)
18                VALUES (DW_DATA.SQ_DIM_gen_period.NEXTVAL, b.promotion_name, b.promotion_start, b.promotion_end);
19    COMMIT;
20 END load_dw_gen_period;
21 END pkg_etl_dw_gen_period;
22

```

The 'Script Output' tab shows the results of the execution:

```

Session altered.

Grant succeeded.

Session altered.

Package Body PKG_ETL_DW_GEN_PERIOD compiled

```

```

24 alter session set current_schema = DW_DATA;
25 alter user DW_DATA QUOTA UNLIMITED ON TS_DW_DATA_01;
26 |
27 EXEC pkg_etl_dw_gen_period.load_dw_gen_period;

```

Session altered.

User DW_DATA altered.

PL/SQL procedure successfully completed.

28 SELECT * FROM DW_DATA.DIM_gen_period;			
Script Output SQL Fetched 50 rows in 0.01 seconds			
GEN_PERIOD_ID	PROMOTION_NAME	PROMOTION_START	PROMOTION_END
1	1 9 SAMSUNG_Refrigerators_TV	01-JAN-22	12-FEB-22
2	2 56 SAMSUNG_Washing machines_TV	01-JAN-22	07-FEB-22
3	3 59 SAMSUNG_Washing machines_TV	01-JAN-22	06-FEB-22
4	4 77 SAMSUNG_Microwave ovens_TV	01-JAN-22	04-FEB-22
5	5 97 SAMSUNG_Vacuum Cleaners_TV	01-JAN-22	30-JAN-22
6	6 106 SAMSUNG_Smart watches_TV	01-JAN-22	20-MAR-22
7	7 114 SAMSUNG_Smart watches_TV	01-JAN-22	13-MAR-22
8	8 117 SAMSUNG_Smart watches_TV	01-JAN-22	21-JAN-22
9	9 127 SAMSUNG_TVs_TV	01-JAN-22	23-FEB-22
10	10 142 SAMSUNG_Smartphones_TV	01-JAN-22	25-MAR-22
11	11 175 SAMSUNG_Tablets_TV	01-JAN-22	26-JAN-22
12	12 211 SAMSUNG_Cooking ovens_press	01-JAN-22	11-MAR-22
13	13 232 SAMSUNG_Washing machines_press	01-JAN-22	13-JAN-22
14	14 235 SAMSUNG_Washing machines_press	01-JAN-22	17-MAR-22

Code:

```

alter session set current_schema = DW_DATA;
CREATE OR REPLACE PACKAGE body pkg_etl_dw_gen_period
AS
PROCEDURE load_dw_gen_period
AS
BEGIN
MERGE INTO DW_DATA.DIM_gen_period A
USING ( SELECT promotion_name, promotion_start, promotion_end FROM DW_CL.cls_t_DIM_gen_period) B
ON (a.promotion_name = b.promotion_name)
WHEN MATCHED THEN
    UPDATE SET a.promotion_start = b.promotion_start, a.promotion_end = b.promotion_end
WHEN NOT MATCHED THEN
    INSERT (a.gen_period_ID, a.promotion_name, a.promotion_start, a.promotion_end)
    VALUES (DW_DATA.SQ_DIM_gen_period.NEXTVAL, b.promotion_name, b.promotion_start, b.promotion_end);
COMMIT;
END load_dw_gen_period;
END pkg_etl_dw_gen_period;

```

Let's check what happens to the data after restarting the packages.

The screenshot shows the Oracle SQL Worksheet interface. The code being run is:

```

1 alter session set current_schema = DW_DATA;
2 |
3 CREATE OR REPLACE PACKAGE pkg_etl_dw_gen_period
4 AS
5     PROCEDURE load_dw_gen_period;
6 END pkg_etl_dw_gen_period;
7 /

```

The output shows:

Session altered.

Package PNG_ETL_DW_GEN_PERIOD compiled

Session altered.

Package PNG_ETL_DW_GEN_PERIOD compiled

```

28 | BEGIN
29 |   EXECUTE IMMEDIATE 'ALTER SESSION SET CURRENT_SCHEMA = DW_DATA';
30 | END;
/
PL/SQL procedure successfully completed.

Session altered.

User DW_DATA altered.

PL/SQL procedure successfully completed.

Session altered.

User DW_DATA altered.

PL/SQL procedure successfully completed.

28 | SELECT * FROM DW_DATA.DIM_gen_period;
29 |
30 |

```

Script Output X | Query Result X | Fetched 50 rows in 0.007 seconds

GEN_PERIOD_ID	PROMOTION_NAME	PROMOTION_START	PROMOTION_END
1	19 SAMSUNG_Refrigerators_IV	01-JAN-22	12-FEB-22
2	2 56 SAMSUNG_Washing machines_IV	01-JAN-22	07-FEB-22
3	3 59 SAMSUNG_Washing machines_IV	01-JAN-22	06-FEB-22
4	4 77 SAMSUNG_Microwave ovens_IV	01-JAN-22	04-FEB-22
5	5 97 SAMSUNG_Vacuum Cleaners_IV	01-JAN-22	30-JAN-22
6	6 10 SAMSUNG_Smart watches_IV	01-JAN-22	20-MAR-22
7	7 114 SAMSUNG_Smart watches_IV	01-JAN-22	13-MAR-22
8	8 117 SAMSUNG_Smart watches_IV	01-JAN-22	21-JAN-22
9	9 127 SAMSUNG_TVs_IV	01-JAN-22	23-FEB-22
10	10 142 SAMSUNG_Smartphones_IV	01-JAN-22	25-MAR-22
11	11 175 SAMSUNG_Tablets_IV	01-JAN-22	26-JAN-22
12	12 211 SAMSUNG_Cooking ovens_press	01-JAN-22	11-MAR-22
13	13 232 SAMSUNG_Washing machines_press	01-JAN-22	13-JAN-22
14	14 233 SAMSUNG_Washing machines_press	01-JAN-22	17-MAR-22
15	15 244 SAMSUNG_Diswashers_press	01-JAN-22	28-MAR-22
16	16 245 SAMSUNG_Diswashers_press	01-JAN-22	06-MAR-22
17	17 253 SAMSUNG_Diswashers_press	01-JAN-22	16-JAN-22
18	18 266 SAMSUNG_Microwave ovens_press	01-JAN-22	22-FEB-22
19	19 269 SAMSUNG_Microwave ovens_press	01-JAN-22	01-FEB-22
20	20 283 SAMSUNG_Vacuum Cleaners_press	01-JAN-22	27-JAN-22
21	21 289 SAMSUNG_Smart watches_press	01-JAN-22	21-FEB-22
22	22 300 SAMSUNG_Smart watches_press	01-JAN-22	30-MAR-22

As we can notice, the data does not change, all the data corresponds to the primary key.

- pkg_etl_dw_transaction

```

...sql | t_FCT_business.sql | pkg_etl_dw_FCT_business-def.sql |
SQL Worksheet | History
Worksheet | Query Builder
1 | alter session set current_schema = DW_DATA;
2 |
3 | CREATE OR REPLACE PACKAGE pkg_etl_dw_TRANSACTION
4 | AS
5 |   PROCEDURE load_dw_TRANSACTION;
6 | END pkg_etl_dw_TRANSACTION;
7 |

```

Script Output X | Task completed in 0.062 seconds

Session altered.

Package PKG_ETL_DW_TRANSACTION compiled

Grant permissions to table DW_CL.cls_t_transaction from the Cleansing level to user DW_DATA on DW level and create pkg_etl_dw_TRANSACTION-impl.

```
...ge_1 VeraDB x reload_business.cls.sql x cls_t_transaction.sql x t_FCT_business.sql x pkg_etl_dv_FCT_business-def.sql x pkg_etl_dv_FCT_business-impl.sql
SQL Worksheet History
Worksheet Query Builder
1 alter session set current_schema = DW_CL;
2 GRANT SELECT ON DW_CL.cls_t_transaction TO DW_DATA;
3

Script Output x
| Task completed in 0.035 seconds

Session altered.

Grant succeeded.
```

...sql **pkg_etl_dw_FCT_business-def.sql** **pkg_etl_dw_FCT_business-impl.sql**

SQL Worksheet History

Worksheet Query Builder

```
3
4 alter session set current_schema = DW_DATA;
5
6 CREATE OR REPLACE PACKAGE body pkg_etl_dw_transaction
7 AS
8   PROCEDURE load_dw_transaction
9   AS
10    BEGIN
11      DECLARE
12        TYPE CURSOR_VARCHAR IS TABLE OF varchar2(50);
13        TYPE CURSOR_DECIMAL IS TABLE OF decimal(30,2);
14        TYPE CURSOR_DATE IS TABLE OF DATE;
15        TYPE CURSOR_NUMBER IS TABLE OF number(10);
16
17        TYPE BIG_CURSOR IS REF CURSOR;
18
19        ALL_INF BIG_CURSOR;
20
21        TIME_ID CURSOR_DATE;
22        customer_ID CURSOR_NUMBER;
23        employee_ID CURSOR_NUMBER;
24        agency_ID CURSOR_NUMBER;
25        gen_period_ID CURSOR_NUMBER;
```

Script Output X | Task completed in 0.118 seconds

Grant succeeded.

Session altered.

Package Body PKG_ETL_DW_TRANSACTION compiled

```
161
162 alter session set current_schema = DW_DATA;
163 alter user DW_DATA QUOTA UNLIMITED ON TS_DW_DATA_01;
164
165 EXEC pkg_etl.dw transaction.load dw transaction;
```

A screenshot of a software interface showing a "Script Output" window. The window title is "Script Output". Inside, there is a toolbar with icons for file operations (New, Open, Save, Print, Copy, Paste) and a status bar at the bottom that says "Task completed in 132.542 seconds".

Session altered

Package Body PKG_ETL_DW TRANSACTION compiled

SELECT * from DW_DATA.FCT_business ORDER BY 1;											
Script Output		Query Result									
		Fetched 50 rows in 0.346 seconds									
	BUSINESS_FACT_ID	TIME_ID	CUSTOMER_ID	EMPLOYEE_ID	AGENCY_ID	GEN_PERIOD_ID	PRODUCT_ID	PROMOTION_ID	GROSS_PROFIT_DOLLAR_AMOUNT	NET_PROFIT_DOLLAR_AMOUNT	GROSS_RI
1	1 02~JAN~22	1	63	16	211721	6	783		47.98		41.72
2	2 02~JAN~22	1	111	3	265625	15	273136		-113.55		-95.42
3	3 02~JAN~22	1	94	38	265630	16	84181		479.62		393.13
4	4 02~JAN~22	2	170	1	265696	1	212226		409.63		362.5
5	5 02~JAN~22	2	115	58	265723	14	190923		-396.62		-330.52
6	6 03~JAN~22	1	13	34	307616	4	252000		295.81		235.14
7	7 03~JAN~22	1	1	57	130619	9	252011		653.81		531.55
8	8 01~JAN~22	1	185	23	259708	13	84070		1185.07		1039.53
9	9 04~JAN~22	1	138	56	295257	2	252090		1798.64		1591.71
10	10 05~JAN~22	2	150	58	25958	5	170240		175.58		146.32
11	11 06~JAN~22	1	86	1	191010	6	84916		-74.24		-65.7
12	12 06~JAN~22	2	78	12	156272	14	313		-157.24		-136.73
13	13 07~JAN~22	1	112	10	156322	10	85362		24.92		20.94

Code:

```
alter session set current_schema = DW_DATA;  
CREATE OR REPLACE PACKAGE body pkg_etl_dw_transaction
```

```

AS
PROCEDURE load_dw_transaction
AS
BEGIN
DECLARE
  TYPE CURSOR_VARCHAR IS TABLE OF varchar2(50);
  TYPE CURSOR_DECIMAL IS TABLE OF DECIMAL(30,2);
  TYPE CURSOR_DATE IS TABLE OF DATE;
  TYPE CURSOR_NUMBER IS TABLE OF number(10);

  TYPE BIG_CURSOR IS REF CURSOR;

  ALL_INF BIG_CURSOR;

  TIME_ID CURSOR_DATE;
  customer_ID CURSOR_NUMBER;
  employee_ID CURSOR_NUMBER;
  agency_ID CURSOR_NUMBER;
  gen_period_ID CURSOR_NUMBER;
  product_ID CURSOR_NUMBER;
  promotion_ID CURSOR_NUMBER;
  Business_Fact_ID CURSOR_NUMBER;
  gross_profit_dollar_amount CURSOR_DECIMAL;
  net_profit_dollar_amount CURSOR_DECIMAL;
  gross_revenue_dollar_amount CURSOR_DECIMAL;
  net_revenue_dollar_amount CURSOR_DECIMAL;
  gross_cost_dollar_amount CURSOR_DECIMAL;
  net_cost_dollar_amount CURSOR_DECIMAL;
  gross_salary_employee_dollar_amount CURSOR_DECIMAL;
  net_salary_employee_dollar_amount CURSOR_DECIMAL;
  gross_profit_margin_percent CURSOR_DECIMAL;

BEGIN
  OPEN ALL_INF FOR
    SELECT
      source_CL.TIME_ID,
      cust.customer_ID,
      emp.employee_ID,
      ag.agency_ID,
      gp.gen_period_ID,
      prod.product_ID,
      prom.promotion_ID,
      fct.Business_Fact_ID,
      source_CL.gross_profit_dollar_amount,
      source_CL.net_profit_dollar_amount,
      source_CL.gross_revenue_dollar_amount,
      source_CL.net_revenue_dollar_amount,
      source_CL.gross_cost_dollar_amount,
      source_CL.net_cost_dollar_amount,
      source_CL.gross_salary_employee_dollar_amount,
      source_CL.net_salary_employee_dollar_amount,
      source_CL.gross_profit_margin_percent
    FROM (SELECT DISTINCT * FROM DW_CL.cls_t_transaction) source_CL
      LEFT JOIN DW_DATA.DIM_customer cust
        ON (source_CL.customer_name = cust.customer_name)
      LEFT JOIN DW_DATA.DIM_employee emp
        ON (source_CL.employee_passport_ID = emp.employee_passport_ID AND source_CL.employee_position =
            emp.employee_position)
      LEFT JOIN DW_DATA.DIM_agency ag
        ON (source_CL.agency_address = ag.agency_address AND source_CL.department_name = ag.department_name)
      LEFT JOIN DW_DATA.DIM_gen_period gp
        ON (source_CL.promotion_name = gp.promotion_name AND source_CL.promotion_start = gp.promotion_start)
      LEFT JOIN DW_DATA.DIM_product prod

```

```

        ON (source_CL.brand_name = prod.brand_name AND source_CL.product_name = prod.product_name)
        LEFT JOIN DW_DATA.DIM_promotion prom
            ON (source_CL.time_id = prom.time_id AND source_CL.promotion_name = prom.promotion_name)
        LEFT JOIN DW_DATA.FCT_business fct
            ON (cust.customer_ID=fct.customer_ID
        AND emp.employee_id=fct.employee_id
        AND ag.agency_id=fct.agency_id
        AND gp.gen_period_id=fct.gen_period_id
        AND prod.product_id=fct.product_id
        AND prom.promotion_id=fct.promotion_id
        AND prom.time_id=fct.time_id
        AND source_CL.gross_profit_dollar_amount=fct.gross_profit_dollar_amount
        AND source_CL.net_profit_dollar_amount=fct.net_profit_dollar_amount
        AND source_CL.gross_revenue_dollar_amount=fct.gross_revenue_dollar_amount
        AND source_CL.net_revenue_dollar_amount=fct.net_revenue_dollar_amount
        AND source_CL.gross_cost_dollar_amount=fct.gross_cost_dollar_amount
        AND source_CL.net_cost_dollar_amount=fct.net_cost_dollar_amount
        AND source_CL.gross_salary_employee_dollar_amount=fct.gross_salary_employee_dollar_amount
        AND source_CL.net_salary_employee_dollar_amount=fct.net_salary_employee_dollar_amount
        AND source_CL.gross_profit_margin_percent=fct.gross_profit_margin_percent
    );
    FETCH ALL_INF
    BULK COLLECT INTO
        TIME_ID,
        customer_ID,
        employee_ID,
        agency_ID,
        gen_period_ID,
        product_ID,
        promotion_ID,
        Business_Fact_ID,
        gross_profit_dollar_amount,
        net_profit_dollar_amount,
        gross_revenue_dollar_amount,
        net_revenue_dollar_amount,
        gross_cost_dollar_amount,
        net_cost_dollar_amount,
        gross_salary_employee_dollar_amount,
        net_salary_employee_dollar_amount,
        gross_profit_margin_percent;
    CLOSE ALL_INF;

```

FOR i IN Business_Fact_ID.FIRST .. Business_Fact_ID.LAST LOOP

```

    IF ( Business_Fact_ID ( i ) IS NULL ) THEN
        INSERT INTO DW_DATA.FCT_business (
            Business_Fact_ID,
            TIME_ID,
            customer_ID,
            employee_ID,
            agency_ID,
            gen_period_ID,
            product_ID,
            promotion_ID,
            gross_profit_dollar_amount,
            net_profit_dollar_amount,
            gross_revenue_dollar_amount,
            net_revenue_dollar_amount,
            gross_cost_dollar_amount,
            net_cost_dollar_amount,
            gross_salary_employee_dollar_amount,
            net_salary_employee_dollar_amount,
            gross_profit_margin_percent)
        VALUES ( DW_DATA.SQ_FCT_business.NEXTVAL,

```

```

        TIME_ID(i),
        customer_ID(i),
        employee_ID(i),
        agency_ID(i),
        gen_period_ID(i),
        product_ID(i),
        promotion_ID(i),
        ROUND(gross_profit_dollar_amount(i),2),
        ROUND(net_profit_dollar_amount(i),2),
        ROUND(gross_revenue_dollar_amount(i),2),
        ROUND(net_revenue_dollar_amount(i),2),
        ROUND(gross_cost_dollar_amount(i),2),
        ROUND(net_cost_dollar_amount(i),2),
        ROUND(gross_salary_employee_dollar_amount(i),2),
        ROUND(net_salary_employee_dollar_amount(i),2),
        ROUND(gross_profit_margin_percent(i),2)
    );
    COMMIT;

END IF;

END LOOP;

END;
END load_dw_transaction;
END pkg_etl_dw_transaction;

```

Run all procedures at the DW level.

```

alter session set current_schema = DW_DATA;
alter user DW_DATA QUOTA UNLIMITED ON TS_DW_DATA

Session altered.

User DW_DATA altered.

```

```

alter session set current_schema = DW_DATA;
alter user DW_DATA QUOTA UNLIMITED ON TS_DW_DATA

BEGIN
    pkg_etl_dw_customer.load_dw_customer;
    pkg_etl_dw_employee.load_dw_employee;
    pkg_etl_dw_agency.load_dw_agency;
    pkg_etl_dw_gen_period.load_dw_gen_period;
    pkg_etl_dw_product.load_dw_product;
    pkg_etl_dw_promotion.load_dw_promotion;
    pkg_etl_dw_transaction.load_dw_transaction;
END;

Session altered.

User DW_DATA altered.

PL/SQL procedure successfully completed.

```

```

| EXEC pkg_etl_dw_customer.load_dw_customer;
| EXEC pkg_etl_dw_employee.load_dw_employee;
| EXEC pkg_etl_dw_agency.load_dw_agency;
| EXEC pkg_etl_dw_gen_period.load_dw_gen_period;
| EXEC pkg_etl_dw_product.load_dw_product;
| EXEC pkg_etl_dw_promotion.load_dw_promotion;
| EXEC pkg_etl_dw_transaction.load_dw_transaction;

-----
```

Script Output x | Task completed in 211.833 seconds

PL/SQL procedure successfully completed.

```

| SELECT * FROM DW_DATA.DIM_customer;
| SELECT * FROM DW_DATA.DIM_employee;
| SELECT * FROM DW_DATA.DIM_agency;
| SELECT * FROM DW_DATA.DIM_gen_period;
| SELECT * FROM DW_DATA.DIM_product;
| SELECT * FROM DW_DATA.DIM_promotion;
| SELECT * from DW_DATA.FCT_business;
```

Script Output x | Query Result x | Query Result 1 x | Query Result 2 x | Query Result 3 x | Query Result 4 x | Query Result 5 x | Query Result 6 x

SQL | Fetched 50 rows in 0.005 seconds

	BUSINESS_FACT_ID	TIME_ID	CUSTOMER_ID	EMPLOYEE_ID	AGENCY_ID	GEN_PERIOD_ID	PRODUCT_ID	PROMOTION_ID	GROSS_PROFIT_DOLLAR_AMOUNT	NET_PROFIT_DOLLAR_AMOUNT	GROSS_F
1	147736	16-JAN-22	1	144	40	297629	15	150365	-203.63	-161.87	
2	147739	02-JAN-22	1	60	55	56555	10	190898	284.05	263.74	
3	147748	04-JAN-22	1	63	6	34129	10	49064	536.43	439.7	
4	147753	06-JAN-22	1	76	27	307945	7	321252	225.64	188.03	
5	147757	09-FEB-22	1	142	50	193484	16	47464	307	253.72	
6	147771	12-FEB-22	1	85	50	251219	16	147895	1714.49	1416.93	
7	147773	13-FEB-22	1	177	34	173486	2	26712	-237.66	-188.92	
8	147777	13-FEB-22	2	48	40	46128	1	275672	-610	-484.9	
9	147785	16-FEB-22	1	89	11	255537	13	148292	682.96	598.56	