GitHub Portfolio Presentation

Oracle 19c | PL/SQL | Java

Oracle Database 19c Enterprise Edition Production v. 19.3.0.0.0
Eclipse Version 2020-12 (4.18.0)
Oracle SQL Developer 4.1.4.21
SQL * PLUS 12.2.0.1.0

Presented by

David Watson (a.k.a Freestyle7)

Table of Contents

Introduction

My path to programming began in 1991 as a sophomore in high school in Salinas, California. The first language I picked up was BASIC. After that, I was drawn to Red Hat Linux, where I spent time learning the operating system and the ins and outs of the command-line interface. Fast-forward to 2019, where I decided to transition from a successful sales and marketing Account Manager with 20+ years of experience to an Oracle developer. I decided to make this transition because programming and working as a technologist is where my real passion resides.

I am building my Oracle PL/SQL 19c portfolio on Github so that I can showcase my skill sets and experience. I intend to utilize this opportunity to build upon this platform as I progress and expand my knowledge and discoveries.

My primary objective is to create an opportunity that will result in landing a junior-level position as an Oracle developer. I intend to create that opportunity by accurately presenting my Oracle 19c PL/SQL and Java project where I have created several tables with fictitious data. I have designed and built queries and components that draw and execute data from those tables. The following is a list of queries and components that are presented and demonstrated within this project: stored procedures, functions, data encryption, DBMS tools, a package, and Java components.

Education

I will graduate from Mission College in Spring 2021 with a an Associate of Arts in Communication Studies and a concentration in programming and a respectable GPA. My coursework included Oracle 12c, 19c, PL/SQL, Microsoft T-SQL and Python. As a result, I earned the Computer Information Systems Certificate of Proficiency.

Since I attended both Mission College and West Valley College, I was invited to join each of their Honors programs. If my full-time work schedule had permitted, I would have accepted their invitations. I also made the Dean’s list.

I decided to continue my coursework and research by investing in the following programming literature: ‘Oracle PL/SQL Programming, 6th ed.’ by Steven Feuerstein, ‘Oracle Database 12c: The Complete Reference’ by Bob Bryla, ‘Oracle Database 12c: SQL’ by Jason Price, ‘Oracle PL/SQL by Example: 5th ed.’ by Benjamin Rosenzweig, ‘Java: A Beginner’s Guide: 8th ed.’, and ‘Java: The Complete Reference: 11th ed.’ by Herbert Schildt, each of which provides focused concentrations, emphasis, and extensive coverage on the components presented within this project.

Project Objectives

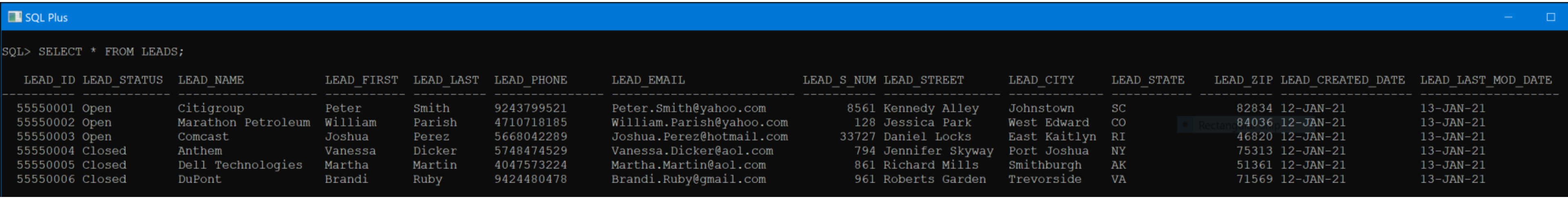
My objectives for this project are as follows:

1. Demonstrate my PL/SQL abilities within Oracle 19c, SQL Developer, SQL * Plus, Eclipse, and Java environments.
2. Create a framework that showcases my skill sets within a structured layout that includes tables, primary and foreign keys, a dynamic stored procedure, a function, AES 192 encryption, a DBMS_Scheduler, a package, and a statistical data snapshot with mean, median, and standard deviation data.
3. Create a professional portfolio on GitHub that will result in new Oracle development opportunities.
4. Build upon my professional portfolio so that others with similar interests and career aspirations may learn from my skill sets, endeavors, and success in the future.
5. Continue a career-long path of higher education and create a platform where I can share and exchange new discoveries, ideas, and technologies.

Entity Tables

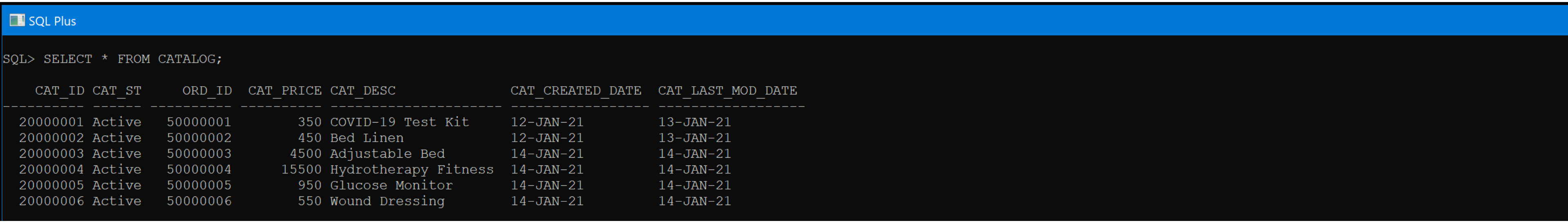
I. Leads
II. Catalog
III. Catalog_Class
IV. Inventory
V. Accounts
VI. Orders
VII. Dyn_Order_Upd
VIII. Java_PL_SQL_Ord
IX. Transactions
X. Payments
XI. Net_30
XII. Net_30_Info
XIII. Credit_Cards
XIV. Bank_Accounts
XV. Shipments
XVI. Invoices
XVII. Employees

Entity Tables | Leads



```
SQL> SELECT * FROM LEADS;

  LEAD_ID LEAD_STATUS LEAD_NAME            LEAD_FIRST LEAD_LAST  LEAD_PHONE      LEAD_EMAIL                  LEAD_S_NUM LEAD_STREET       LEAD_CITY     LEAD_STATE   LEAD_ZIP LEAD_CREATED_DATE  LEAD_LAST_MOD_DATE
---------- ----------- -------------------- ---------- ---------- --------------- --------------------------- ---------- ----------------- ------------- ---------- ---------- ------------------ ------------------
  55550001 Open        Citigroup            Peter      Smith      9243799521      Peter.Smith@yahoo.com             8561 Kennedy Alley     Johnstown     SC              82834 12-JAN-21          13-JAN-21
  55550002 Open        Marathon Petroleum   William    Parish     4710718185      William.Parish@yahoo.com           128 Jessica Park      West Edward   CO              84036 12-JAN-21          13-JAN-21
  55550003 Open        Comcast              Joshua     Perez      5668042289      Joshua.Perez@hotmail.com         33727 Daniel Locks      East Kaitlyn  RI              46820 12-JAN-21          13-JAN-21
  55550004 Closed      Anthem               Vanessa    Dicker     5748474529      Vanessa.Dicker@aol.com             794 Jennifer Skyway   Port Joshua   NY              75313 12-JAN-21          13-JAN-21
  55550005 Closed      Dell Technologies    Martha     Martin     4047573224      Martha.Martin@aol.com              861 Richard Mills     Smithburgh    AK              51361 12-JAN-21          13-JAN-21
  55550006 Closed      DuPont               Brandi     Ruby       9424480478      Brandi.Ruby@gmail.com              961 Roberts Garden    Trevorside    VA              71569 12-JAN-21          13-JAN-21
```

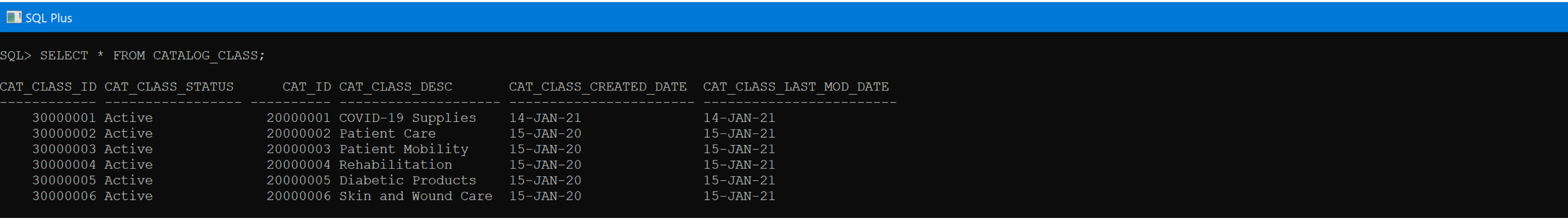
Entity Tables | Catalog



SQL Plus

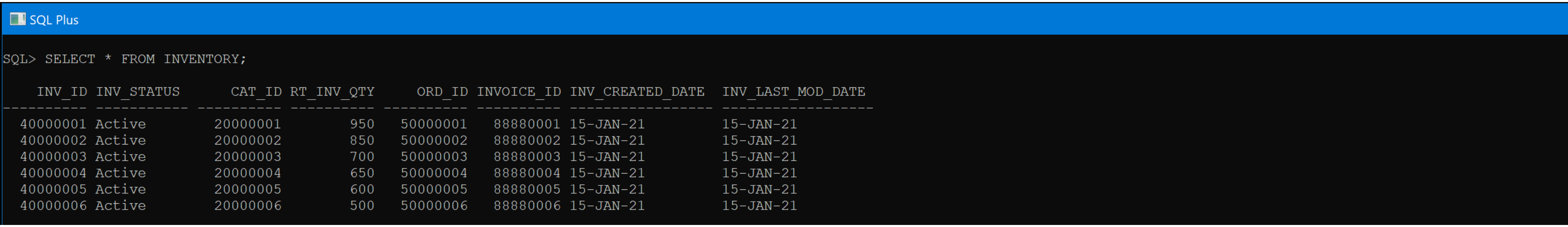
```
SQL> SELECT * FROM CATALOG;

    CAT_ID CAT_ST     ORD_ID  CAT_PRICE CAT_DESC             CAT_CREATED_DATE  CAT_LAST_MOD_DATE
---------- ------ ---------- ---------- -------------------- ----------------- ------------------
  20000001 Active   50000001        350 COVID-19 Test Kit    12-JAN-21         13-JAN-21
  20000002 Active   50000002        450 Bed Linen            12-JAN-21         13-JAN-21
  20000003 Active   50000003       4500 Adjustable Bed       14-JAN-21         14-JAN-21
  20000004 Active   50000004      15500 Hydrotherapy Fitness 14-JAN-21         14-JAN-21
  20000005 Active   50000005        950 Glucose Monitor      14-JAN-21         14-JAN-21
  20000006 Active   50000006        550 Wound Dressing       14-JAN-21         14-JAN-21
```

Entity Tables | Catalog_Class



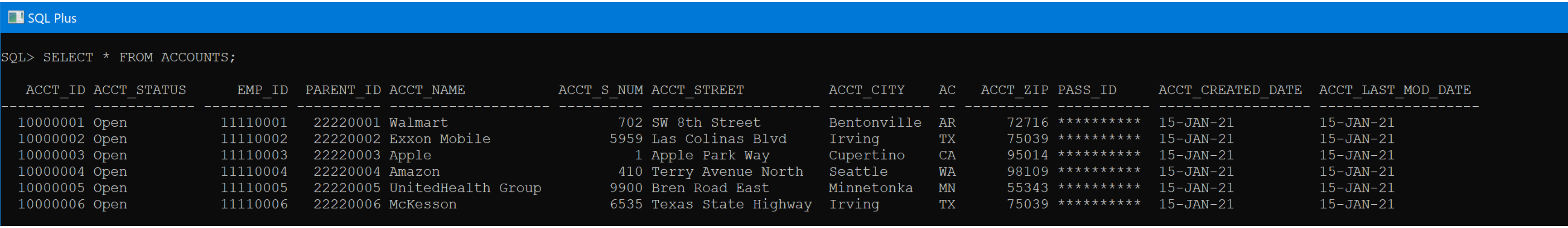
```
SQL> SELECT * FROM CATALOG_CLASS;

CAT_CLASS_ID CAT_CLASS_STATUS      CAT_ID CAT_CLASS_DESC       CAT_CLASS_CREATED_DATE  CAT_CLASS_LAST_MOD_DATE
------------ ----------------- ---------- -------------------- ----------------------- -----------------------
    30000001 Active              20000001 COVID-19 Supplies    14-JAN-21               14-JAN-21
    30000002 Active              20000002 Patient Care         15-JAN-20               15-JAN-21
    30000003 Active              20000003 Patient Mobility     15-JAN-20               15-JAN-21
    30000004 Active              20000004 Rehabilitation       15-JAN-20               15-JAN-21
    30000005 Active              20000005 Diabetic Products    15-JAN-20               15-JAN-21
    30000006 Active              20000006 Skin and Wound Care  15-JAN-20               15-JAN-21
```

Entity Tables | Inventory



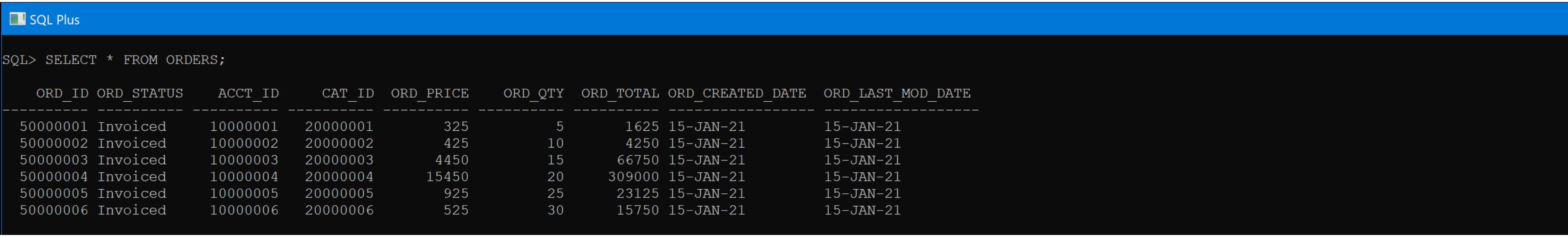
```
SQL> SELECT * FROM INVENTORY;

    INV_ID INV_STATUS      CAT_ID RT_INV_QTY     ORD_ID INVOICE_ID INV_CREATED_DATE  INV_LAST_MOD_DATE
---------- ----------- ---------- ---------- ---------- ---------- ----------------- ------------------
  40000001 Active        20000001        950   50000001   88880001 15-JAN-21         15-JAN-21
  40000002 Active        20000002        850   50000002   88880002 15-JAN-21         15-JAN-21
  40000003 Active        20000003        700   50000003   88880003 15-JAN-21         15-JAN-21
  40000004 Active        20000004        650   50000004   88880004 15-JAN-21         15-JAN-21
  40000005 Active        20000005        600   50000005   88880005 15-JAN-21         15-JAN-21
  40000006 Active        20000006        500   50000006   88880006 15-JAN-21         15-JAN-21
```

Entity Tables | Accounts



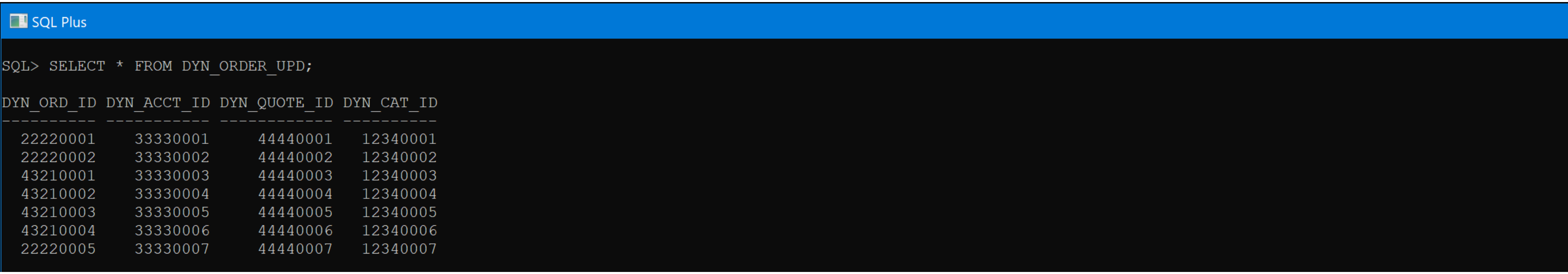
```
SQL> SELECT * FROM ACCOUNTS;

   ACCT_ID ACCT_STATUS       EMP_ID  PARENT_ID ACCT_NAME            ACCT_S_NUM ACCT_STREET           ACCT_CITY    AC   ACCT_ZIP PASS_ID     ACCT_CREATED_DATE   ACCT_LAST_MOD_DATE
---------- ------------ ---------- ---------- -------------------- ---------- -------------------- ------------ -- ---------- ----------- ------------------- -------------------
  10000001 Open           11110001   22220001 Walmart                     702 SW 8th Street        Bentonville  AR      72716 ********** 15-JAN-21           15-JAN-21
  10000002 Open           11110002   22220002 Exxon Mobile               5959 Las Colinas Blvd     Irving       TX      75039 ********** 15-JAN-21           15-JAN-21
  10000003 Open           11110003   22220003 Apple                         1 Apple Park Way       Cupertino    CA      95014 ********** 15-JAN-21           15-JAN-21
  10000004 Open           11110004   22220004 Amazon                      410 Terry Avenue North   Seattle      WA      98109 ********** 15-JAN-21           15-JAN-21
  10000005 Open           11110005   22220005 UnitedHealth Group         9900 Bren Road East       Minnetonka   MN      55343 ********** 15-JAN-21           15-JAN-21
  10000006 Open           11110006   22220006 McKesson                   6535 Texas State Highway  Irving       TX      75039 ********** 15-JAN-21           15-JAN-21
```

Entity Tables | Orders



```
SQL> SELECT * FROM ORDERS;

    ORD_ID ORD_STATUS    ACCT_ID     CAT_ID  ORD_PRICE    ORD_QTY  ORD_TOTAL ORD_CREATED_DATE  ORD_LAST_MOD_DATE
---------- ---------- ---------- ---------- ---------- ---------- ---------- ----------------- ------------------
  50000001 Invoiced     10000001   20000001        325          5       1625 15-JAN-21         15-JAN-21
  50000002 Invoiced     10000002   20000002        425         10       4250 15-JAN-21         15-JAN-21
  50000003 Invoiced     10000003   20000003       4450         15      66750 15-JAN-21         15-JAN-21
  50000004 Invoiced     10000004   20000004      15450         20     309000 15-JAN-21         15-JAN-21
  50000005 Invoiced     10000005   20000005        925         25      23125 15-JAN-21         15-JAN-21
  50000006 Invoiced     10000006   20000006        525         30      15750 15-JAN-21         15-JAN-21
```

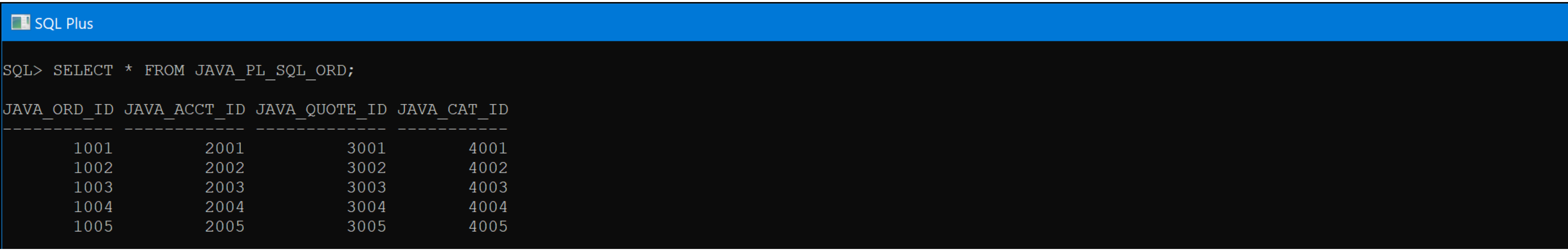
Entity Tables | Dyn_Order_Upd



SQL Plus

```
SQL> SELECT * FROM DYN_ORDER_UPD;

DYN_ORD_ID DYN_ACCT_ID DYN_QUOTE_ID DYN_CAT_ID
---------- ----------- ------------ ----------
  22220001    33330001     44440001   12340001
  22220002    33330002     44440002   12340002
  43210001    33330003     44440003   12340003
  43210002    33330004     44440004   12340004
  43210003    33330005     44440005   12340005
  43210004    33330006     44440006   12340006
  22220005    33330007     44440007   12340007
```

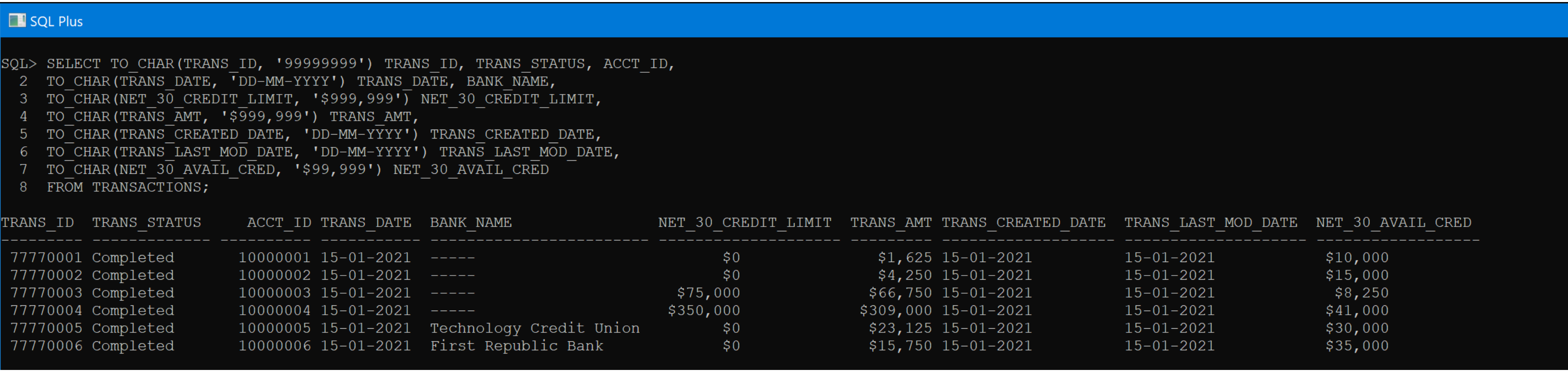
Entity Tables | Java_PL_SQL_Ord



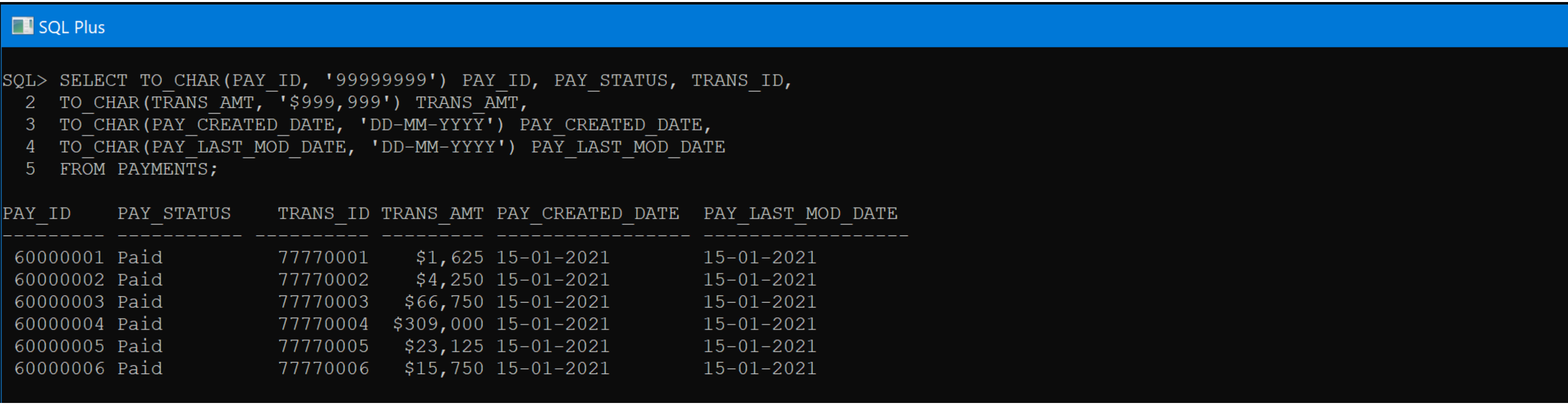
SQL Plus

```
SQL> SELECT * FROM JAVA_PL_SQL_ORD;

JAVA_ORD_ID JAVA_ACCT_ID JAVA_QUOTE_ID JAVA_CAT_ID
----------- ------------ ------------- -----------
       1001         2001          3001        4001
       1002         2002          3002        4002
       1003         2003          3003        4003
       1004         2004          3004        4004
       1005         2005          3005        4005
```

Entity Tables | Transactions



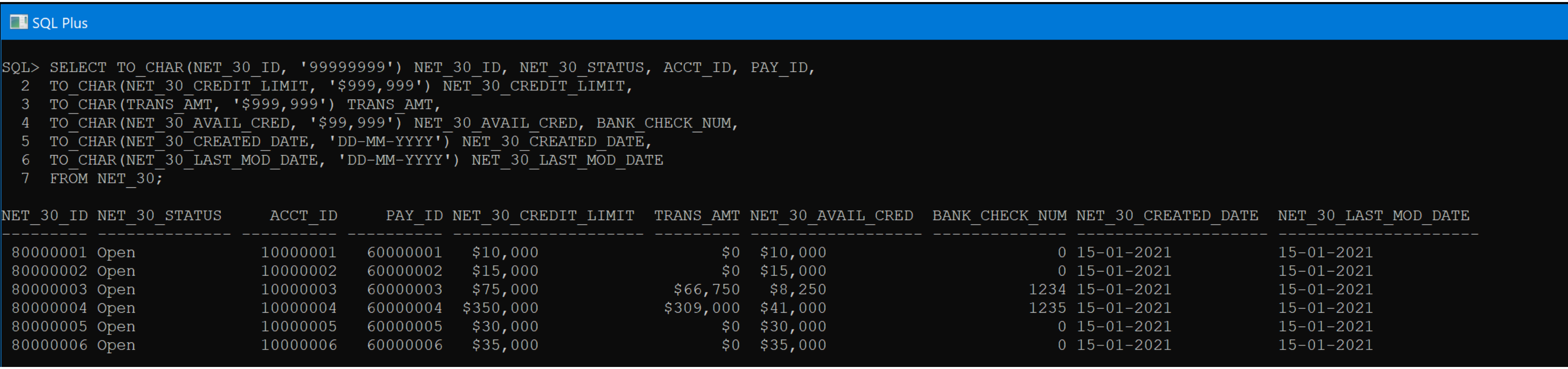
```
SQL> SELECT TO_CHAR(TRANS_ID, '99999999') TRANS_ID, TRANS_STATUS, ACCT_ID,
  2  TO_CHAR(TRANS_DATE, 'DD-MM-YYYY') TRANS_DATE, BANK_NAME,
  3  TO_CHAR(NET_30_CREDIT_LIMIT, '$999,999') NET_30_CREDIT_LIMIT,
  4  TO_CHAR(TRANS_AMT, '$999,999') TRANS_AMT,
  5  TO_CHAR(TRANS_CREATED_DATE, 'DD-MM-YYYY') TRANS_CREATED_DATE,
  6  TO_CHAR(TRANS_LAST_MOD_DATE, 'DD-MM-YYYY') TRANS_LAST_MOD_DATE,
  7  TO_CHAR(NET_30_AVAIL_CRED, '$99,999') NET_30_AVAIL_CRED
  8  FROM TRANSACTIONS;

TRANS_ID  TRANS_STATUS     ACCT_ID TRANS_DATE  BANK_NAME                 NET_30_CREDIT_LIMIT  TRANS_AMT TRANS_CREATED_DATE  TRANS_LAST_MOD_DATE  NET_30_AVAIL_CRED
--------- ------------ ---------- ----------  ------------------------- -------------------- --------- ------------------- -------------------- ------------------
 77770001 Completed      10000001 15-01-2021  -----                                      $0    $1,625 15-01-2021          15-01-2021              $10,000
 77770002 Completed      10000002 15-01-2021  -----                                      $0    $4,250 15-01-2021          15-01-2021              $15,000
 77770003 Completed      10000003 15-01-2021  -----                                 $75,000   $66,750 15-01-2021          15-01-2021               $8,250
 77770004 Completed      10000004 15-01-2021  -----                                $350,000  $309,000 15-01-2021          15-01-2021              $41,000
 77770005 Completed      10000005 15-01-2021  Technology Credit Union                    $0   $23,125 15-01-2021          15-01-2021              $30,000
 77770006 Completed      10000006 15-01-2021  First Republic Bank                        $0   $15,750 15-01-2021          15-01-2021              $35,000
```



SQL Plus

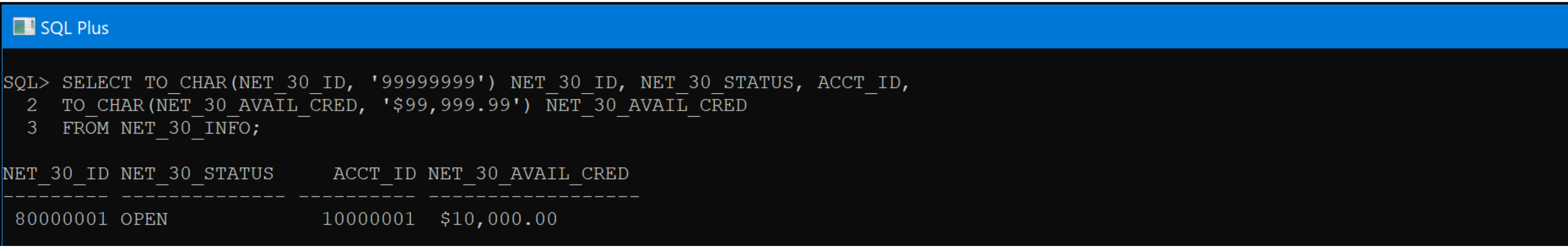
```
SQL> SELECT TO_CHAR(PAY_ID, '99999999') PAY_ID, PAY_STATUS, TRANS_ID,
  2  TO_CHAR(TRANS_AMT, '$999,999') TRANS_AMT,
  3  TO_CHAR(PAY_CREATED_DATE, 'DD-MM-YYYY') PAY_CREATED_DATE,
  4  TO_CHAR(PAY_LAST_MOD_DATE, 'DD-MM-YYYY') PAY_LAST_MOD_DATE
  5  FROM PAYMENTS;

PAY_ID    PAY_STATUS     TRANS_ID TRANS_AMT PAY_CREATED_DATE   PAY_LAST_MOD_DATE
--------- ------------ ---------- --------- ------------------ ------------------
 60000001 Paid           77770001    $1,625 15-01-2021         15-01-2021
 60000002 Paid           77770002    $4,250 15-01-2021         15-01-2021
 60000003 Paid           77770003   $66,750 15-01-2021         15-01-2021
 60000004 Paid           77770004  $309,000 15-01-2021         15-01-2021
 60000005 Paid           77770005   $23,125 15-01-2021         15-01-2021
 60000006 Paid           77770006   $15,750 15-01-2021         15-01-2021
```

Entity Tables | Net_30



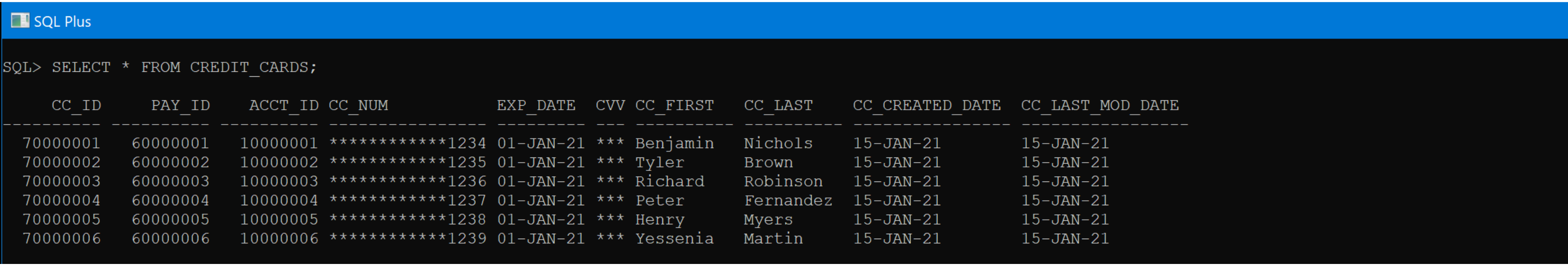
```
SQL> SELECT TO_CHAR(NET_30_ID, '99999999') NET_30_ID, NET_30_STATUS, ACCT_ID, PAY_ID,
     TO_CHAR(NET_30_CREDIT_LIMIT, '$999,999') NET_30_CREDIT_LIMIT,
     TO_CHAR(TRANS_AMT, '$999,999') TRANS_AMT,
     TO_CHAR(NET_30_AVAIL_CRED, '$99,999') NET_30_AVAIL_CRED, BANK_CHECK_NUM,
     TO_CHAR(NET_30_CREATED_DATE, 'DD-MM-YYYY') NET_30_CREATED_DATE,
     TO_CHAR(NET_30_LAST_MOD_DATE, 'DD-MM-YYYY') NET_30_LAST_MOD_DATE
     FROM NET_30;

NET_30_ID NET_30_STATUS     ACCT_ID     PAY_ID NET_30_CREDIT_LIMIT  TRANS_AMT NET_30_AVAIL_CRED  BANK_CHECK_NUM NET_30_CREATED_DATE  NET_30_LAST_MOD_DATE
--------- -------------- ---------- ---------- -------------------- --------- ------------------ -------------- -------------------- ---------------------
 80000001 Open             10000001   60000001   $10,000                   $0  $10,000                        0 15-01-2021           15-01-2021
 80000002 Open             10000002   60000002   $15,000                   $0  $15,000                        0 15-01-2021           15-01-2021
 80000003 Open             10000003   60000003   $75,000              $66,750   $8,250                     1234 15-01-2021           15-01-2021
 80000004 Open             10000004   60000004  $350,000             $309,000  $41,000                     1235 15-01-2021           15-01-2021
 80000005 Open             10000005   60000005   $30,000                   $0  $30,000                        0 15-01-2021           15-01-2021
 80000006 Open             10000006   60000006   $35,000                   $0  $35,000                        0 15-01-2021           15-01-2021
```

Entity Tables | Net_30_Info



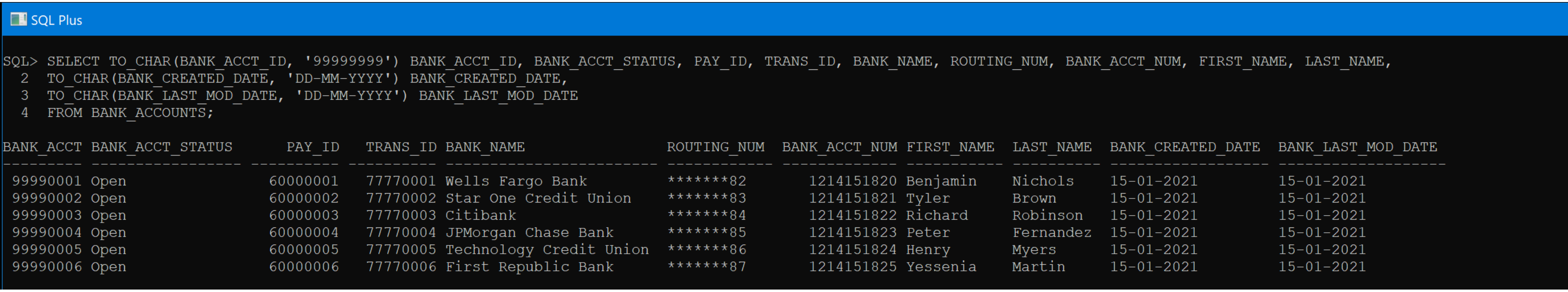
```
SQL> SELECT TO_CHAR(NET_30_ID, '99999999') NET_30_ID, NET_30_STATUS, ACCT_ID,
  2  TO_CHAR(NET_30_AVAIL_CRED, '$99,999.99') NET_30_AVAIL_CRED
  3  FROM NET_30_INFO;

NET_30_ID NET_30_STATUS     ACCT_ID NET_30_AVAIL_CRED
--------- -------------- ---------- ------------------
 80000001 OPEN             10000001  $10,000.00
```

Entity Tables | Credit_Cards



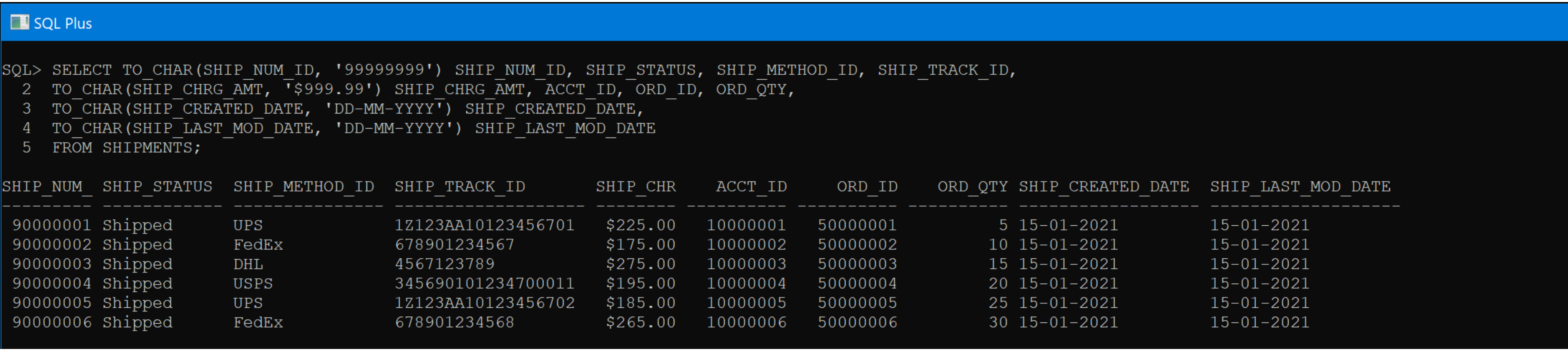
```
SQL> SELECT * FROM CREDIT_CARDS;

     CC_ID     PAY_ID    ACCT_ID CC_NUM           EXP_DATE  CVV CC_FIRST   CC_LAST    CC_CREATED_DATE  CC_LAST_MOD_DATE
---------- ---------- ---------- ---------------- --------- --- ---------- ---------- ---------------- ----------------
  70000001   60000001   10000001 ************1234 01-JAN-21 *** Benjamin   Nichols    15-JAN-21        15-JAN-21
  70000002   60000002   10000002 ************1235 01-JAN-21 *** Tyler      Brown      15-JAN-21        15-JAN-21
  70000003   60000003   10000003 ************1236 01-JAN-21 *** Richard    Robinson   15-JAN-21        15-JAN-21
  70000004   60000004   10000004 ************1237 01-JAN-21 *** Peter      Fernandez  15-JAN-21        15-JAN-21
  70000005   60000005   10000005 ************1238 01-JAN-21 *** Henry      Myers      15-JAN-21        15-JAN-21
  70000006   60000006   10000006 ************1239 01-JAN-21 *** Yessenia   Martin     15-JAN-21        15-JAN-21
```

Entity Tables | Bank_Accounts



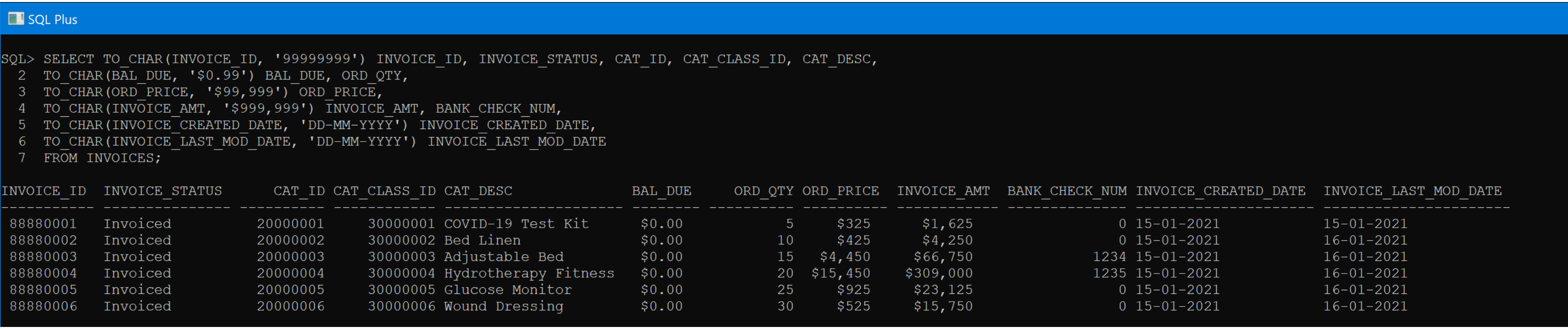
```
SQL> SELECT TO_CHAR(BANK_ACCT_ID, '99999999') BANK_ACCT_ID, BANK_ACCT_STATUS, PAY_ID, TRANS_ID, BANK_NAME, ROUTING_NUM, BANK_ACCT_NUM, FIRST_NAME, LAST_NAME,
  2  TO_CHAR(BANK_CREATED_DATE, 'DD-MM-YYYY') BANK_CREATED_DATE,
  3  TO_CHAR(BANK_LAST_MOD_DATE, 'DD-MM-YYYY') BANK_LAST_MOD_DATE
  4  FROM BANK_ACCOUNTS;

BANK_ACCT BANK_ACCT_STATUS       PAY_ID   TRANS_ID BANK_NAME                ROUTING_NUM  BANK_ACCT_NUM FIRST_NAME LAST_NAME  BANK_CREATED_DATE  BANK_LAST_MOD_DATE
--------- ---------------- ---------- ---------- ------------------------ ------------ ------------- ---------- ---------- ------------------ ------------------
 99990001 Open               60000001   77770001 Wells Fargo Bank         ********82      1214151820 Benjamin   Nichols    15-01-2021         15-01-2021
 99990002 Open               60000002   77770002 Star One Credit Union    ********83      1214151821 Tyler      Brown      15-01-2021         15-01-2021
 99990003 Open               60000003   77770003 Citibank                 ********84      1214151822 Richard    Robinson   15-01-2021         15-01-2021
 99990004 Open               60000004   77770004 JPMorgan Chase Bank      ********85      1214151823 Peter      Fernandez  15-01-2021         15-01-2021
 99990005 Open               60000005   77770005 Technology Credit Union  ********86      1214151824 Henry      Myers      15-01-2021         15-01-2021
 99990006 Open               60000006   77770006 First Republic Bank      ********87      1214151825 Yessenia   Martin     15-01-2021         15-01-2021
```

Entity Tables | Shipments



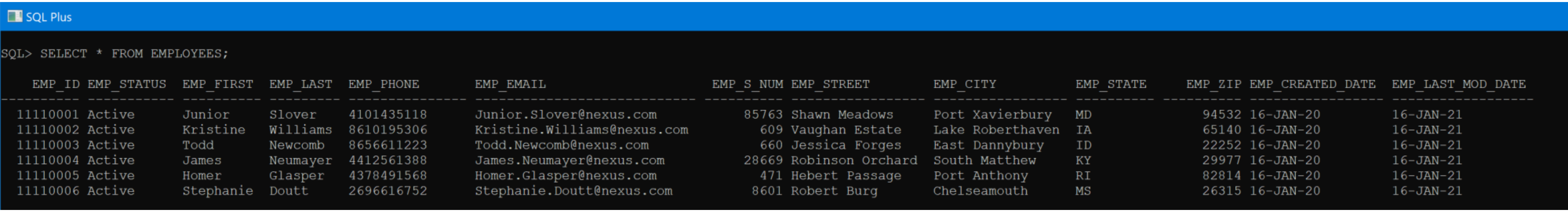
```
SQL> SELECT TO_CHAR(SHIP_NUM_ID, '99999999') SHIP_NUM_ID, SHIP_STATUS, SHIP_METHOD_ID, SHIP_TRACK_ID,
  2  TO_CHAR(SHIP_CHRG_AMT, '$999.99') SHIP_CHRG_AMT, ACCT_ID, ORD_ID, ORD_QTY,
  3  TO_CHAR(SHIP_CREATED_DATE, 'DD-MM-YYYY') SHIP_CREATED_DATE,
  4  TO_CHAR(SHIP_LAST_MOD_DATE, 'DD-MM-YYYY') SHIP_LAST_MOD_DATE
  5  FROM SHIPMENTS;

SHIP_NUM_ SHIP_STATUS  SHIP_METHOD_ID  SHIP_TRACK_ID        SHIP_CHR    ACCT_ID     ORD_ID    ORD_QTY SHIP_CREATED_DATE   SHIP_LAST_MOD_DATE
--------- ------------ --------------- -------------------- -------- ---------- ---------- ---------- ------------------- -------------------
 90000001 Shipped      UPS             1Z123AA10123456701    $225.00   10000001   50000001          5 15-01-2021          15-01-2021
 90000002 Shipped      FedEx           678901234567          $175.00   10000002   50000002         10 15-01-2021          15-01-2021
 90000003 Shipped      DHL             4567123789            $275.00   10000003   50000003         15 15-01-2021          15-01-2021
 90000004 Shipped      USPS            345690101234700011    $195.00   10000004   50000004         20 15-01-2021          15-01-2021
 90000005 Shipped      UPS             1Z123AA10123456702    $185.00   10000005   50000005         25 15-01-2021          15-01-2021
 90000006 Shipped      FedEx           678901234568          $265.00   10000006   50000006         30 15-01-2021          15-01-2021
```

Entity Tables | Invoices



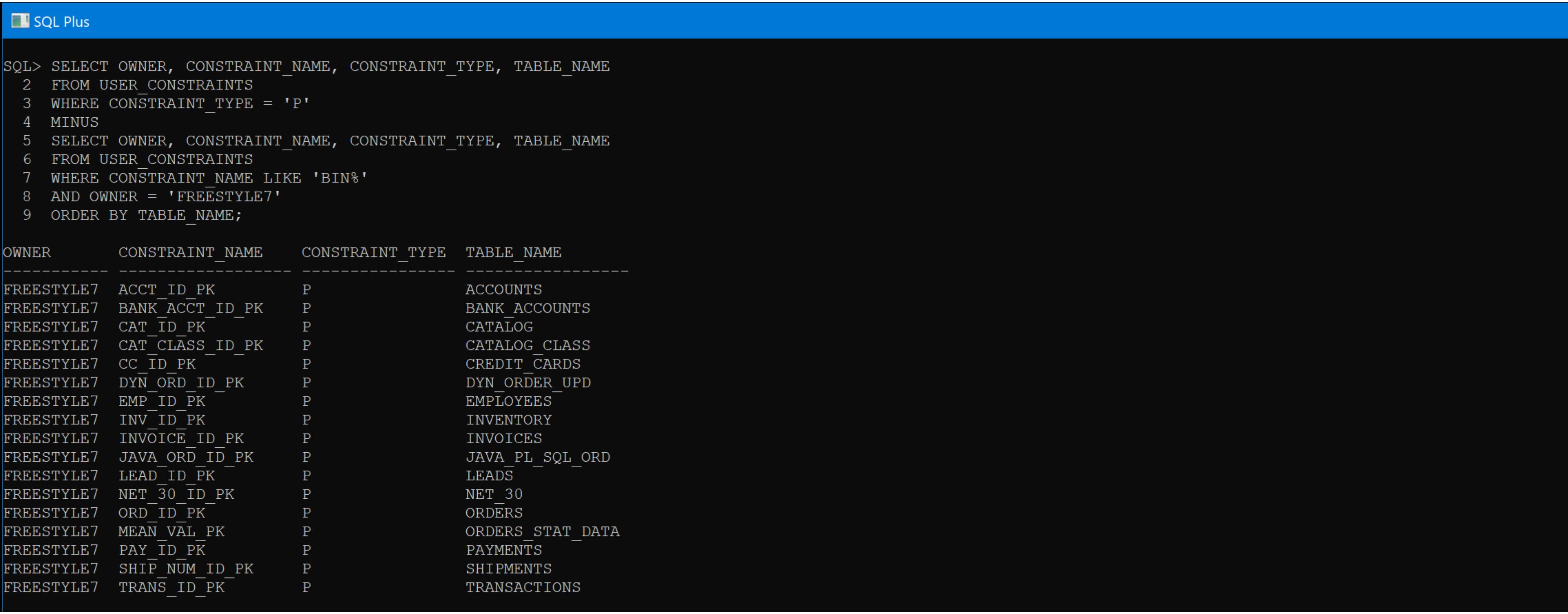
```
SQL> SELECT TO_CHAR(INVOICE_ID, '99999999') INVOICE_ID, INVOICE_STATUS, CAT_ID, CAT_CLASS_ID, CAT_DESC,
     TO_CHAR(BAL_DUE, '$0.99') BAL_DUE, ORD_QTY,
     TO_CHAR(ORD_PRICE, '$99,999') ORD_PRICE,
     TO_CHAR(INVOICE_AMT, '$999,999') INVOICE_AMT, BANK_CHECK_NUM,
     TO_CHAR(INVOICE_CREATED_DATE, 'DD-MM-YYYY') INVOICE_CREATED_DATE,
     TO_CHAR(INVOICE_LAST_MOD_DATE, 'DD-MM-YYYY') INVOICE_LAST_MOD_DATE
     FROM INVOICES;

INVOICE_ID  INVOICE_STATUS      CAT_ID CAT_CLASS_ID CAT_DESC                BAL_DUE     ORD_QTY ORD_PRICE  INVOICE_AMT  BANK_CHECK_NUM INVOICE_CREATED_DATE  INVOICE_LAST_MOD_DATE
----------- --------------- ---------- ------------ --------------------- -------- ---------- ---------- ------------ -------------- --------------------- ---------------------
 88880001   Invoiced          20000001     30000001 COVID-19 Test Kit       $0.00           5       $325       $1,625              0 15-01-2021            15-01-2021
 88880002   Invoiced          20000002     30000002 Bed Linen               $0.00          10       $425       $4,250              0 15-01-2021            16-01-2021
 88880003   Invoiced          20000003     30000003 Adjustable Bed          $0.00          15     $4,450      $66,750           1234 15-01-2021            16-01-2021
 88880004   Invoiced          20000004     30000004 Hydrotherapy Fitness    $0.00          20    $15,450     $309,000           1235 15-01-2021            16-01-2021
 88880005   Invoiced          20000005     30000005 Glucose Monitor         $0.00          25       $925      $23,125              0 15-01-2021            16-01-2021
 88880006   Invoiced          20000006     30000006 Wound Dressing          $0.00          30       $525      $15,750              0 15-01-2021            16-01-2021
```

Entity Tables | Employees



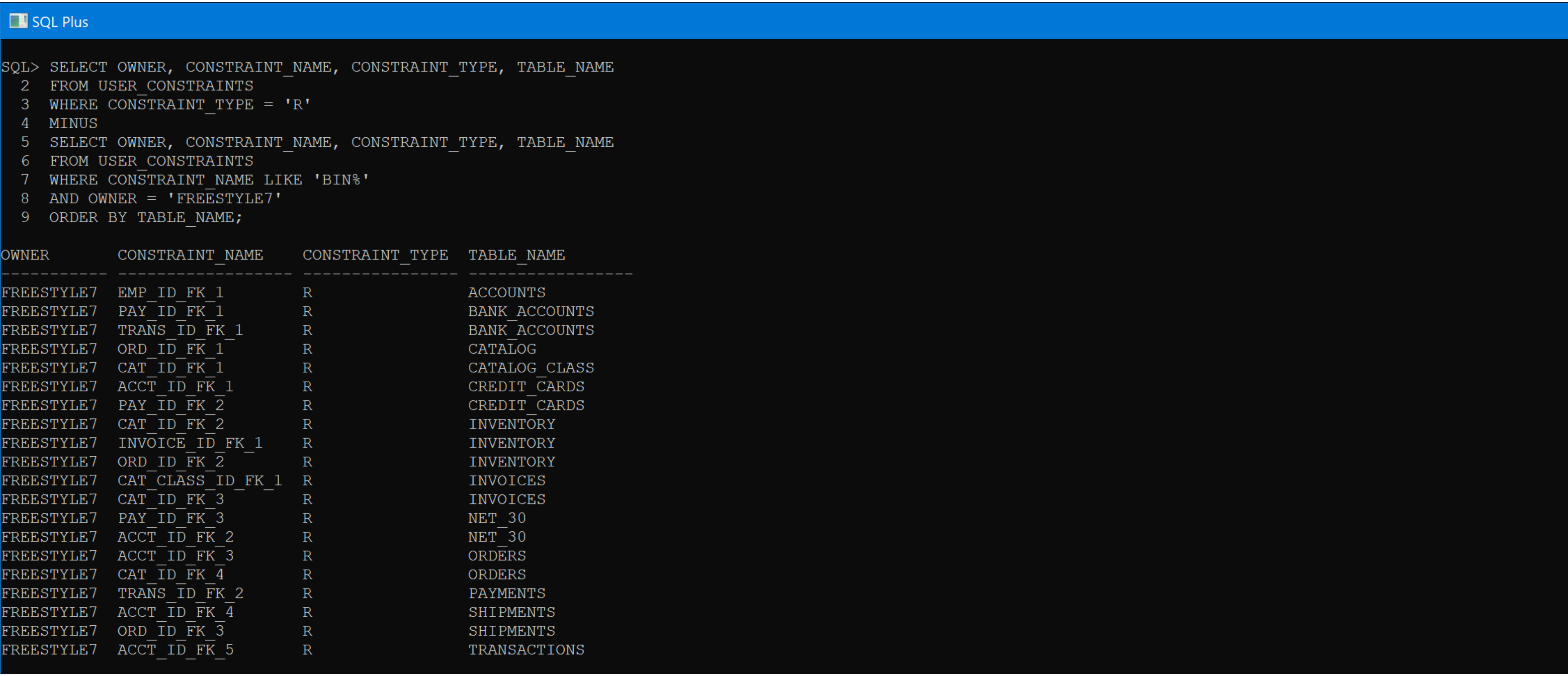
```
SQL> SELECT * FROM EMPLOYEES;

    EMP_ID EMP_STATUS  EMP_FIRST  EMP_LAST  EMP_PHONE       EMP_EMAIL                     EMP_S_NUM EMP_STREET         EMP_CITY           EMP_STATE     EMP_ZIP EMP_CREATED_DATE  EMP_LAST_MOD_DATE
---------- ----------- ---------- --------- --------------- ---------------------------- ---------- ------------------ ------------------ ---------- ---------- ----------------- ------------------
  11110001 Active      Junior     Slover    4101435118      Junior.Slover@nexus.com           85763 Shawn Meadows      Port Xavierbury    MD              94532 16-JAN-20         16-JAN-21
  11110002 Active      Kristine   Williams  8610195306      Kristine.Williams@nexus.com         609 Vaughan Estate     Lake Roberthaven   IA              65140 16-JAN-20         16-JAN-21
  11110003 Active      Todd       Newcomb   8656611223      Todd.Newcomb@nexus.com              660 Jessica Forges     East Dannybury     ID              22252 16-JAN-20         16-JAN-21
  11110004 Active      James      Neumayer  4412561388      James.Neumayer@nexus.com          28669 Robinson Orchard   South Matthew      KY              29977 16-JAN-20         16-JAN-21
  11110005 Active      Homer      Glasper   4378491568      Homer.Glasper@nexus.com             471 Hebert Passage     Port Anthony       RI              82814 16-JAN-20         16-JAN-21
  11110006 Active      Stephanie  Doutt     2696616752      Stephanie.Doutt@nexus.com          8601 Robert Burg        Chelseamouth       MS              26315 16-JAN-20         16-JAN-21
```

PL/SQL | Primary Keys (continued)



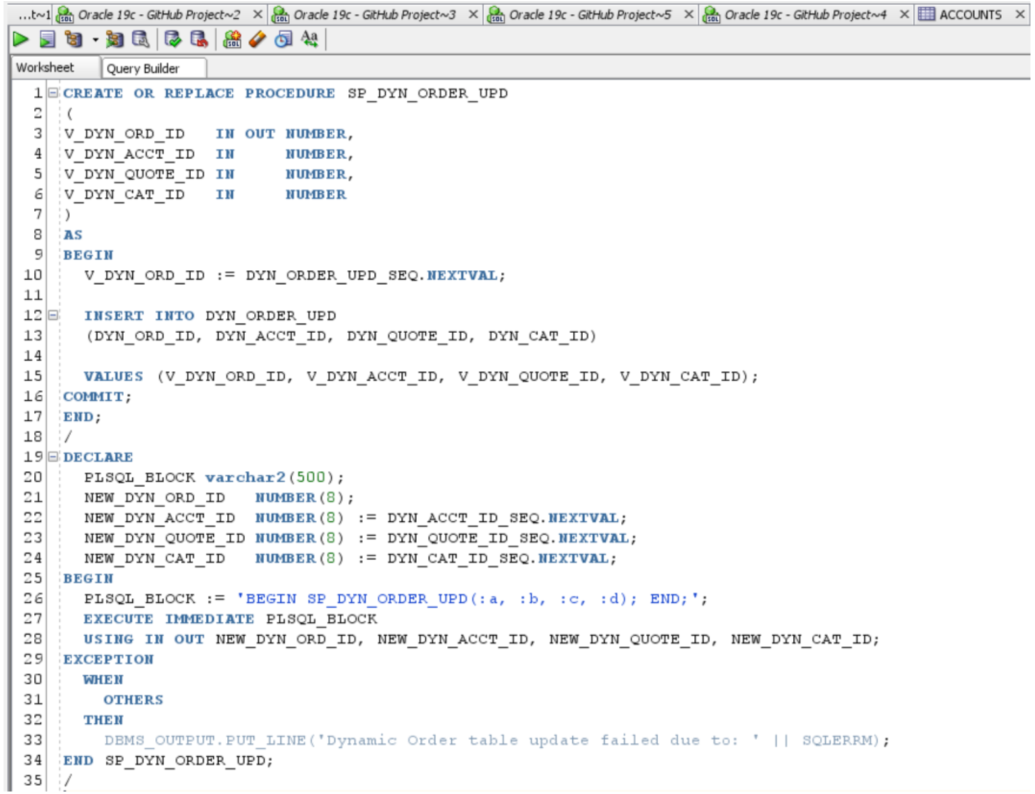
```
SQL> SELECT OWNER, CONSTRAINT_NAME, CONSTRAINT_TYPE, TABLE_NAME
  2  FROM USER_CONSTRAINTS
  3  WHERE CONSTRAINT_TYPE = 'P'
  4  MINUS
  5  SELECT OWNER, CONSTRAINT_NAME, CONSTRAINT_TYPE, TABLE_NAME
  6  FROM USER_CONSTRAINTS
  7  WHERE CONSTRAINT_NAME LIKE 'BIN%'
  8  AND OWNER = 'FREESTYLE7'
  9  ORDER BY TABLE_NAME;

OWNER       CONSTRAINT_NAME    CONSTRAINT_TYPE  TABLE_NAME
----------- ------------------ ---------------- -----------------
FREESTYLE7  ACCT_ID_PK         P                ACCOUNTS
FREESTYLE7  BANK_ACCT_ID_PK    P                BANK_ACCOUNTS
FREESTYLE7  CAT_ID_PK          P                CATALOG
FREESTYLE7  CAT_CLASS_ID_PK    P                CATALOG_CLASS
FREESTYLE7  CC_ID_PK           P                CREDIT_CARDS
FREESTYLE7  DYN_ORD_ID_PK      P                DYN_ORDER_UPD
FREESTYLE7  EMP_ID_PK          P                EMPLOYEES
FREESTYLE7  INV_ID_PK          P                INVENTORY
FREESTYLE7  INVOICE_ID_PK      P                INVOICES
FREESTYLE7  JAVA_ORD_ID_PK     P                JAVA_PL_SQL_ORD
FREESTYLE7  LEAD_ID_PK         P                LEADS
FREESTYLE7  NET_30_ID_PK       P                NET_30
FREESTYLE7  ORD_ID_PK          P                ORDERS
FREESTYLE7  MEAN_VAL_PK        P                ORDERS_STAT_DATA
FREESTYLE7  PAY_ID_PK          P                PAYMENTS
FREESTYLE7  SHIP_NUM_ID_PK     P                SHIPMENTS
FREESTYLE7  TRANS_ID_PK        P                TRANSACTIONS
```

PL/SQL | Foreign Keys



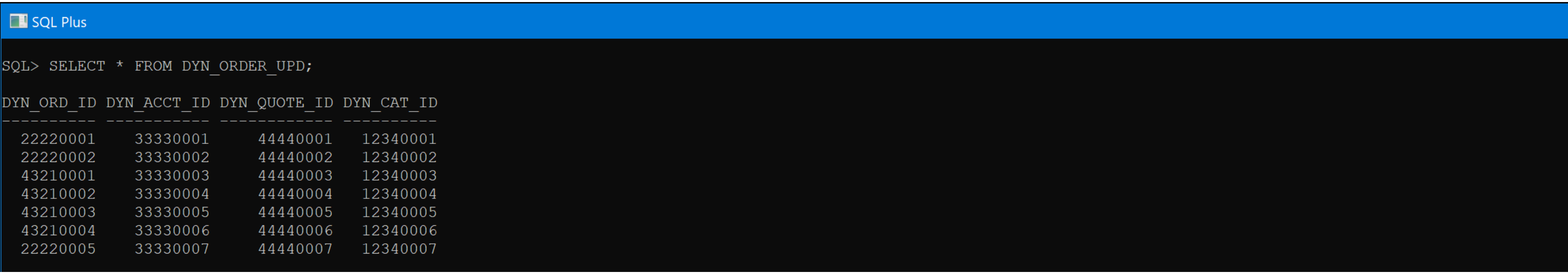
```
SQL> SELECT OWNER, CONSTRAINT_NAME, CONSTRAINT_TYPE, TABLE_NAME
  2  FROM USER_CONSTRAINTS
  3  WHERE CONSTRAINT_TYPE = 'R'
  4  MINUS
  5  SELECT OWNER, CONSTRAINT_NAME, CONSTRAINT_TYPE, TABLE_NAME
  6  FROM USER_CONSTRAINTS
  7  WHERE CONSTRAINT_NAME LIKE 'BIN%'
  8  AND OWNER = 'FREESTYLE7'
  9  ORDER BY TABLE_NAME;

OWNER       CONSTRAINT_NAME    CONSTRAINT_TYPE  TABLE_NAME
----------- ------------------ ---------------- -----------------
FREESTYLE7  EMP_ID_FK_1        R                ACCOUNTS
FREESTYLE7  PAY_ID_FK_1        R                BANK_ACCOUNTS
FREESTYLE7  TRANS_ID_FK_1      R                BANK_ACCOUNTS
FREESTYLE7  ORD_ID_FK_1        R                CATALOG
FREESTYLE7  CAT_ID_FK_1        R                CATALOG_CLASS
FREESTYLE7  ACCT_ID_FK_1       R                CREDIT_CARDS
FREESTYLE7  PAY_ID_FK_2        R                CREDIT_CARDS
FREESTYLE7  CAT_ID_FK_2        R                INVENTORY
FREESTYLE7  INVOICE_ID_FK_1    R                INVENTORY
FREESTYLE7  ORD_ID_FK_2        R                INVENTORY
FREESTYLE7  CAT_CLASS_ID_FK_1  R                INVOICES
FREESTYLE7  CAT_ID_FK_3        R                INVOICES
FREESTYLE7  PAY_ID_FK_3        R                NET_30
FREESTYLE7  ACCT_ID_FK_2       R                NET_30
FREESTYLE7  ACCT_ID_FK_3       R                ORDERS
FREESTYLE7  CAT_ID_FK_4        R                ORDERS
FREESTYLE7  TRANS_ID_FK_2      R                PAYMENTS
FREESTYLE7  ACCT_ID_FK_4       R                SHIPMENTS
FREESTYLE7  ORD_ID_FK_3        R                SHIPMENTS
FREESTYLE7  ACCT_ID_FK_5       R                TRANSACTIONS
```

PL/SQL | Dynamic Stored Procedure | Dynamic Order Update (continued)


...t~1
Oracle 19c - GitHub Project~2
Oracle 19c - GitHub Project~3
Oracle 19c - GitHub Project~5
Oracle 19c - GitHub Project~4
ACCOUNTS
Worksheet
Query Builder

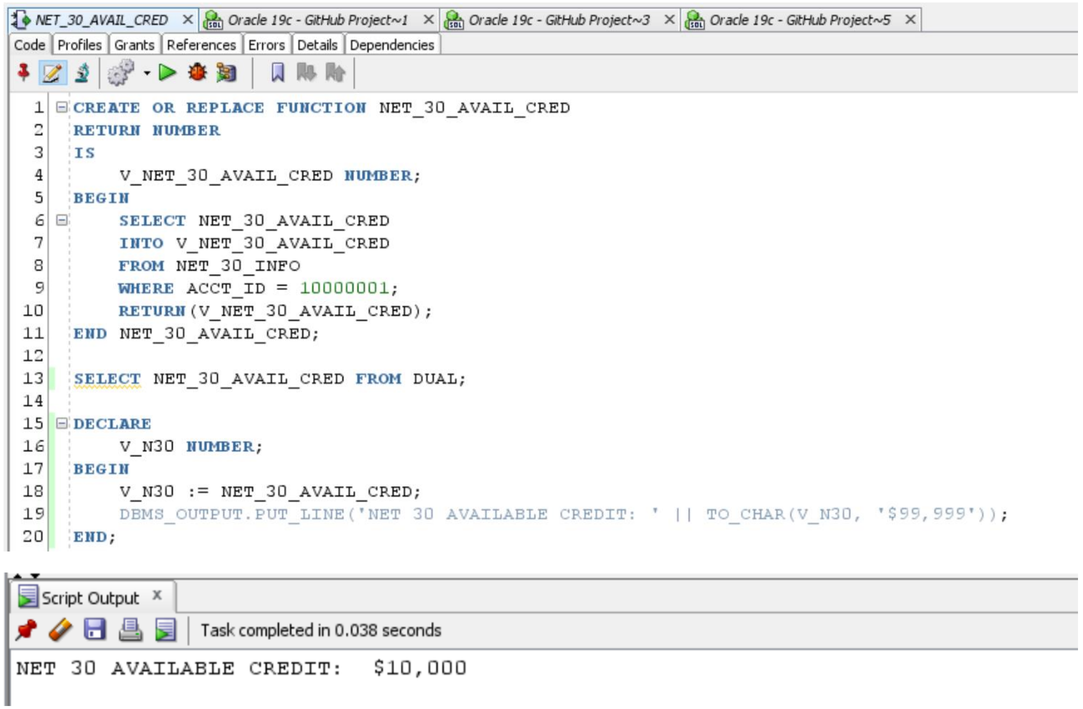
```
CREATE OR REPLACE PROCEDURE SP_DYN_ORDER_UPD
(
V_DYN_ORD_ID   IN OUT NUMBER,
V_DYN_ACCT_ID  IN     NUMBER,
V_DYN_QUOTE_ID IN     NUMBER,
V_DYN_CAT_ID   IN     NUMBER
)
AS
BEGIN
  V_DYN_ORD_ID := DYN_ORDER_UPD_SEQ.NEXTVAL;

  INSERT INTO DYN_ORDER_UPD
  (DYN_ORD_ID, DYN_ACCT_ID, DYN_QUOTE_ID, DYN_CAT_ID)

  VALUES (V_DYN_ORD_ID, V_DYN_ACCT_ID, V_DYN_QUOTE_ID, V_DYN_CAT_ID);
COMMIT;
END;
/
DECLARE
  PLSQL_BLOCK varchar2(500);
  NEW_DYN_ORD_ID   NUMBER(8);
  NEW_DYN_ACCT_ID  NUMBER(8) := DYN_ACCT_ID_SEQ.NEXTVAL;
  NEW_DYN_QUOTE_ID NUMBER(8) := DYN_QUOTE_ID_SEQ.NEXTVAL;
  NEW_DYN_CAT_ID   NUMBER(8) := DYN_CAT_ID_SEQ.NEXTVAL;
BEGIN
  PLSQL_BLOCK := 'BEGIN SP_DYN_ORDER_UPD(:a, :b, :c, :d); END;';
  EXECUTE IMMEDIATE PLSQL_BLOCK
  USING IN OUT NEW_DYN_ORD_ID, NEW_DYN_ACCT_ID, NEW_DYN_QUOTE_ID, NEW_DYN_CAT_ID;
EXCEPTION
  WHEN
    OTHERS
  THEN
    DBMS_OUTPUT.PUT_LINE('Dynamic Order table update failed due to: ' || SQLERRM);
END SP_DYN_ORDER_UPD;
/
```

PL/SQL | Dynamic Stored Procedure | Dynamic Order Update | Output



```
SQL> SELECT * FROM DYN_ORDER_UPD;

DYN_ORD_ID DYN_ACCT_ID DYN_QUOTE_ID DYN_CAT_ID
---------- ----------- ------------ ----------
  22220001    33330001     44440001   12340001
  22220002    33330002     44440002   12340002
  43210001    33330003     44440003   12340003
  43210002    33330004     44440004   12340004
  43210003    33330005     44440005   12340005
  43210004    33330006     44440006   12340006
  22220005    33330007     44440007   12340007
```

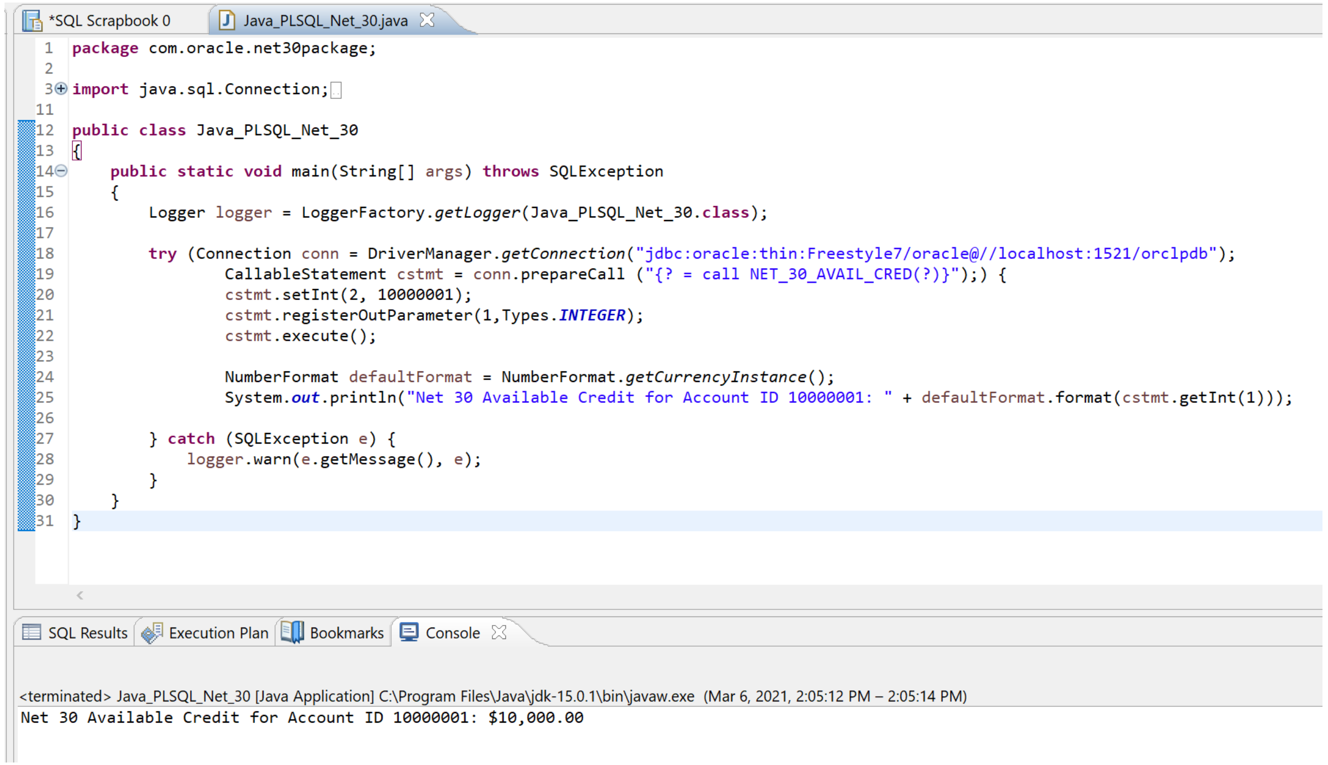
PL/SQL Function | Net 30 Available Credit (continued)


NET_30_AVAIL_CRED
Oracle 19c - GitHub Project~1
Oracle 19c - GitHub Project~3
Oracle 19c - GitHub Project~5
Code
Profiles
Grants
References
Errors
Details
Dependencies
Script Output
Task completed in 0.038 seconds

```
CREATE OR REPLACE FUNCTION NET_30_AVAIL_CRED
RETURN NUMBER
IS
    V_NET_30_AVAIL_CRED NUMBER;
BEGIN
    SELECT NET_30_AVAIL_CRED
    INTO V_NET_30_AVAIL_CRED
    FROM NET_30_INFO
    WHERE ACCT_ID = 10000001;
    RETURN(V_NET_30_AVAIL_CRED);
END NET_30_AVAIL_CRED;

SELECT NET_30_AVAIL_CRED FROM DUAL;

DECLARE
    V_N30 NUMBER;
BEGIN
    V_N30 := NET_30_AVAIL_CRED;
    DBMS_OUTPUT.PUT_LINE('NET 30 AVAILABLE CREDIT: ' || TO_CHAR(V_N30, '$99,999'));
END;
```

```
NET 30 AVAILABLE CREDIT:  $10,000
```

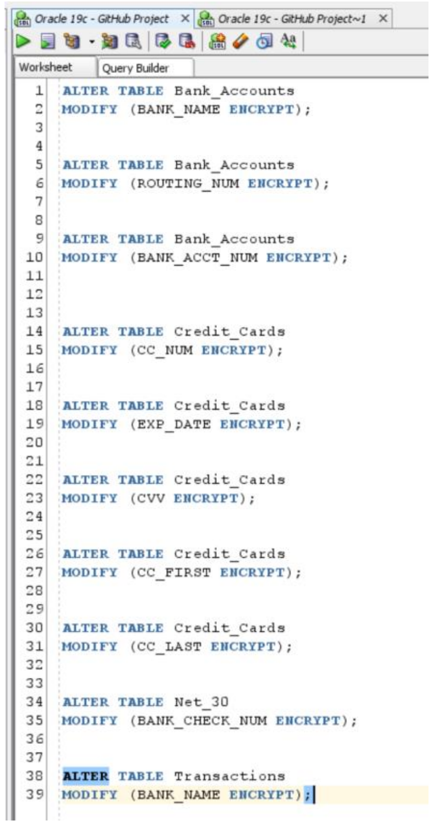
Java | Call PL/SQL Function | Net 30 Available Credit



```java
package com.oracle.net30package;

import java.sql.Connection;

public class Java_PLSQL_Net_30
{
    public static void main(String[] args) throws SQLException
    {
        Logger logger = LoggerFactory.getLogger(Java_PLSQL_Net_30.class);

        try (Connection conn = DriverManager.getConnection("jdbc:oracle:thin:Freestyle7/oracle@//localhost:1521/orclpdb");
                CallableStatement cstmt = conn.prepareCall ("{? = call NET_30_AVAIL_CRED(?)}");) {
                cstmt.setInt(2, 10000001);
                cstmt.registerOutParameter(1,Types.INTEGER);
                cstmt.execute();

                NumberFormat defaultFormat = NumberFormat.getCurrencyInstance();
                System.out.println("Net 30 Available Credit for Account ID 10000001: " + defaultFormat.format(cstmt.getInt(1)));

        } catch (SQLException e) {
            logger.warn(e.getMessage(), e);
        }
    }
}
```

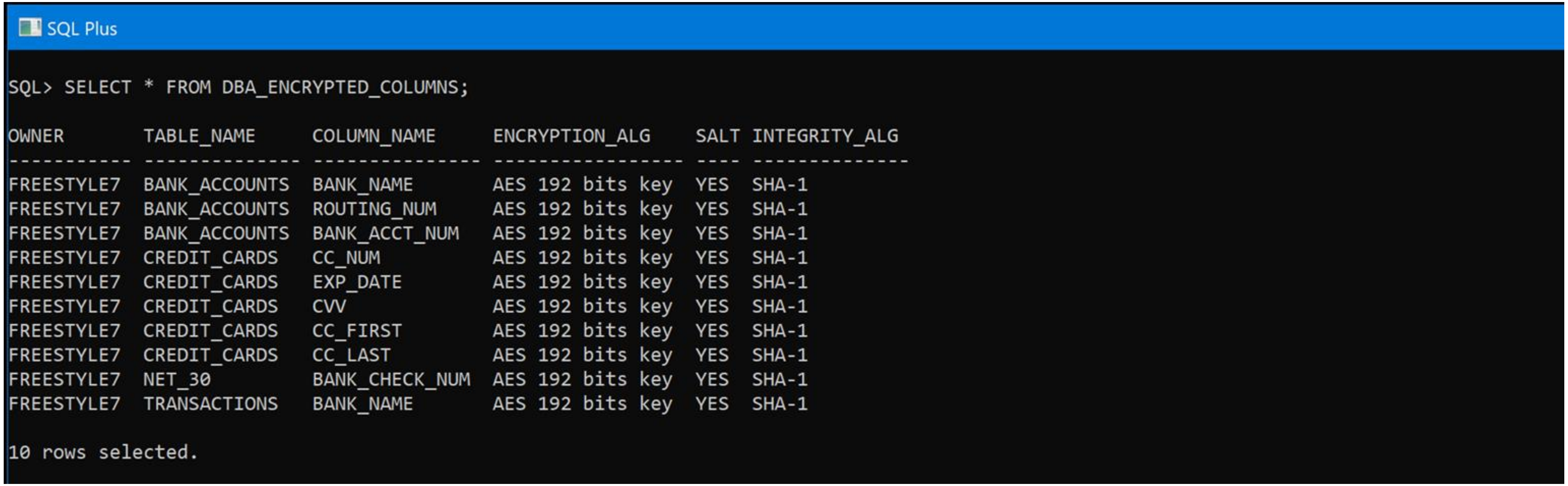
```
<terminated> Java_PLSQL_Net_30 [Java Application] C:\Program Files\Java\jdk-15.0.1\bin\javaw.exe  (Mar 6, 2021, 2:05:12 PM – 2:05:14 PM)
Net 30 Available Credit for Account ID 10000001: $10,000.00
```

PL/SQL | AES 192 Encryption (continued)



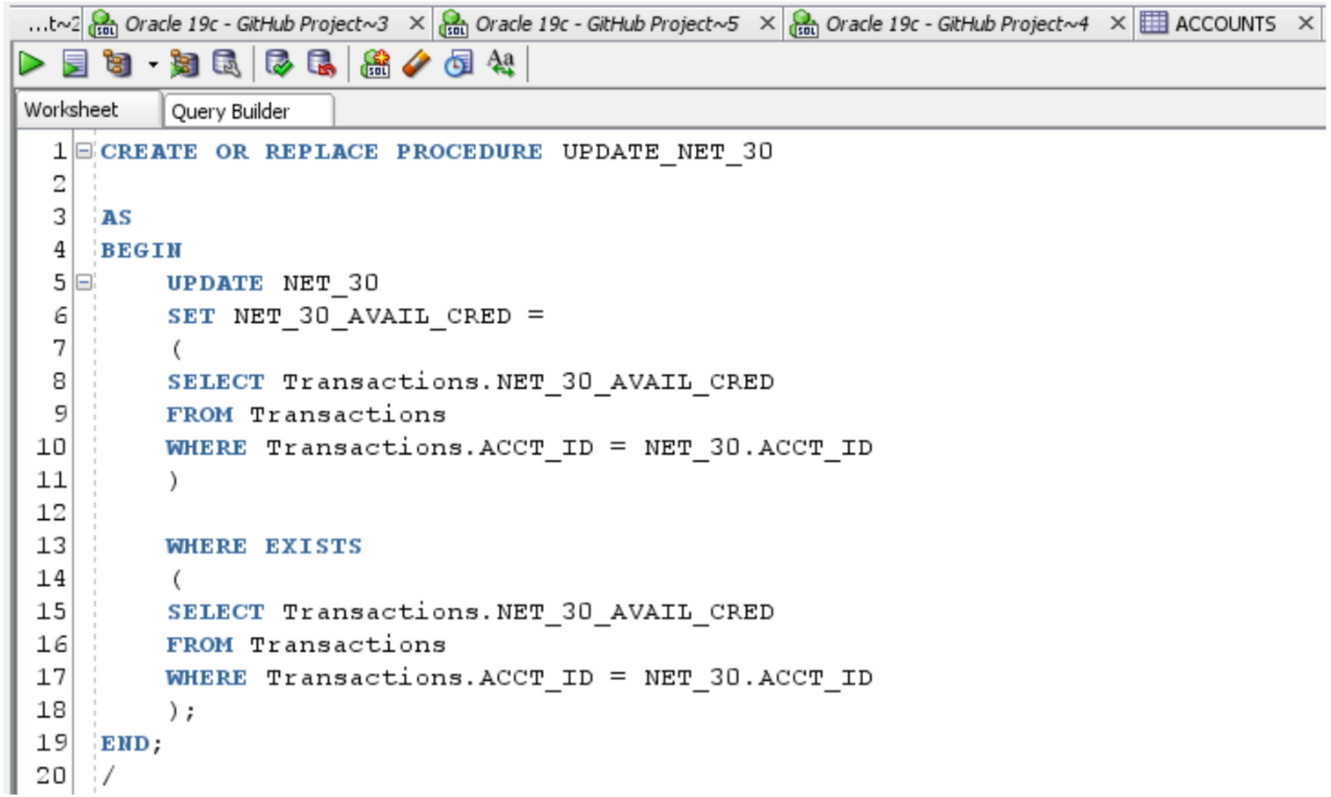
```
ALTER TABLE Bank_Accounts
MODIFY (BANK_NAME ENCRYPT);


ALTER TABLE Bank_Accounts
MODIFY (ROUTING_NUM ENCRYPT);


ALTER TABLE Bank_Accounts
MODIFY (BANK_ACCT_NUM ENCRYPT);



ALTER TABLE Credit_Cards
MODIFY (CC_NUM ENCRYPT);


ALTER TABLE Credit_Cards
MODIFY (EXP_DATE ENCRYPT);


ALTER TABLE Credit_Cards
MODIFY (CVV ENCRYPT);


ALTER TABLE Credit_Cards
MODIFY (CC_FIRST ENCRYPT);


ALTER TABLE Credit_Cards
MODIFY (CC_LAST ENCRYPT);


ALTER TABLE Net_30
MODIFY (BANK_CHECK_NUM ENCRYPT);


ALTER TABLE Transactions
MODIFY (BANK_NAME ENCRYPT);
```

PL/SQL AES 192 Encryption

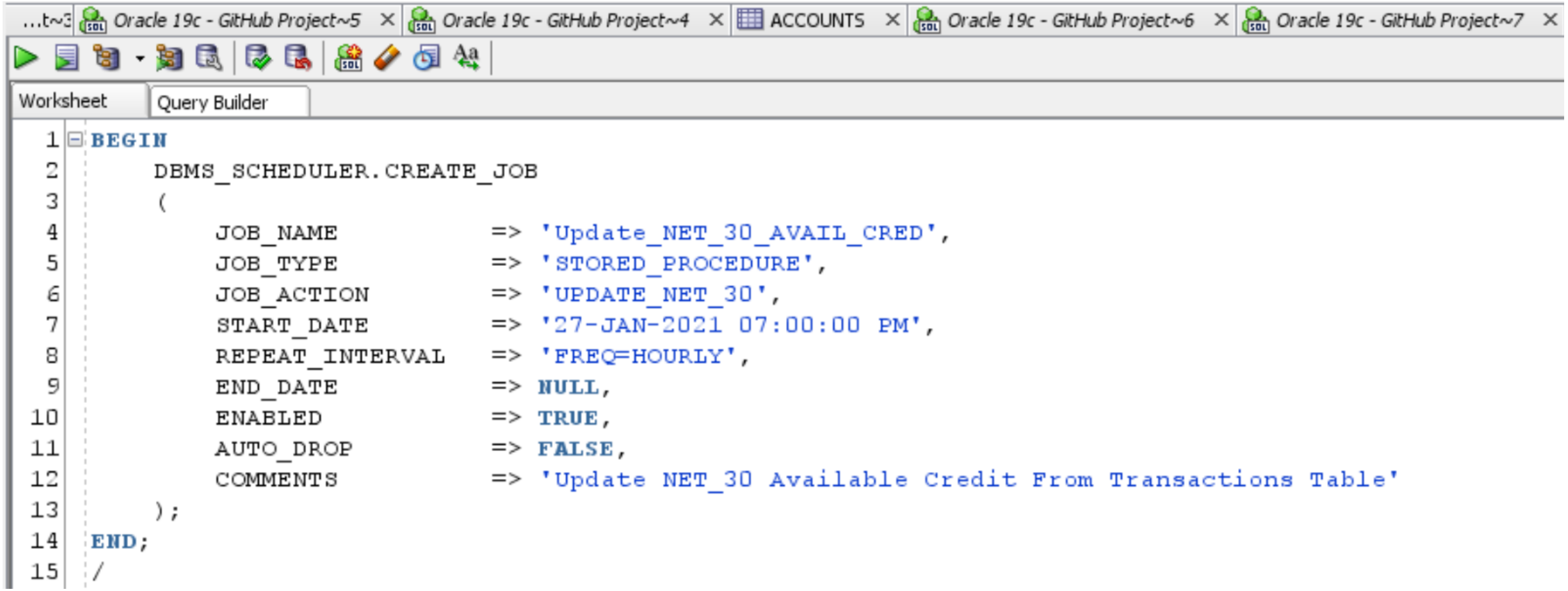


```
SQL> SELECT * FROM DBA_ENCRYPTED_COLUMNS;

OWNER       TABLE_NAME     COLUMN_NAME     ENCRYPTION_ALG    SALT INTEGRITY_ALG
----------- -------------- --------------- ----------------- ---- --------------
FREESTYLE7  BANK_ACCOUNTS  BANK_NAME       AES 192 bits key  YES  SHA-1
FREESTYLE7  BANK_ACCOUNTS  ROUTING_NUM     AES 192 bits key  YES  SHA-1
FREESTYLE7  BANK_ACCOUNTS  BANK_ACCT_NUM   AES 192 bits key  YES  SHA-1
FREESTYLE7  CREDIT_CARDS   CC_NUM          AES 192 bits key  YES  SHA-1
FREESTYLE7  CREDIT_CARDS   EXP_DATE        AES 192 bits key  YES  SHA-1
FREESTYLE7  CREDIT_CARDS   CVV             AES 192 bits key  YES  SHA-1
FREESTYLE7  CREDIT_CARDS   CC_FIRST        AES 192 bits key  YES  SHA-1
FREESTYLE7  CREDIT_CARDS   CC_LAST         AES 192 bits key  YES  SHA-1
FREESTYLE7  NET_30         BANK_CHECK_NUM  AES 192 bits key  YES  SHA-1
FREESTYLE7  TRANSACTIONS   BANK_NAME       AES 192 bits key  YES  SHA-1

10 rows selected.
```

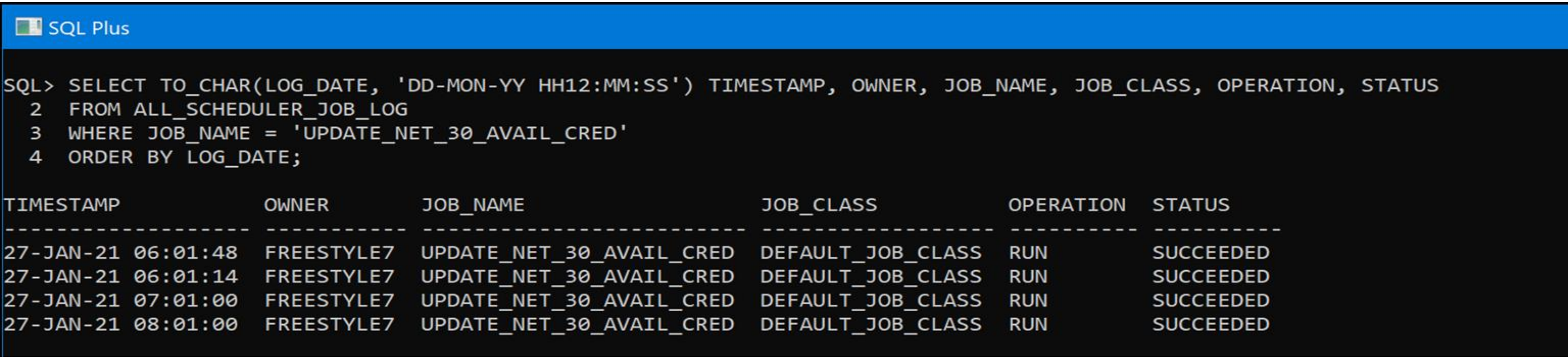
PL/SQL | DBMS_SCHEDULER | Stored Procedure (continued)


…t~2
Oracle 19c - GitHub Project~3
Oracle 19c - GitHub Project~5
Oracle 19c - GitHub Project~4
ACCOUNTS
Worksheet
Query Builder

```
CREATE OR REPLACE PROCEDURE UPDATE_NET_30

AS
BEGIN
    UPDATE NET_30
    SET NET_30_AVAIL_CRED =
    (
    SELECT Transactions.NET_30_AVAIL_CRED
    FROM Transactions
    WHERE Transactions.ACCT_ID = NET_30.ACCT_ID
    )

    WHERE EXISTS
    (
    SELECT Transactions.NET_30_AVAIL_CRED
    FROM Transactions
    WHERE Transactions.ACCT_ID = NET_30.ACCT_ID
    );
END;
/
```

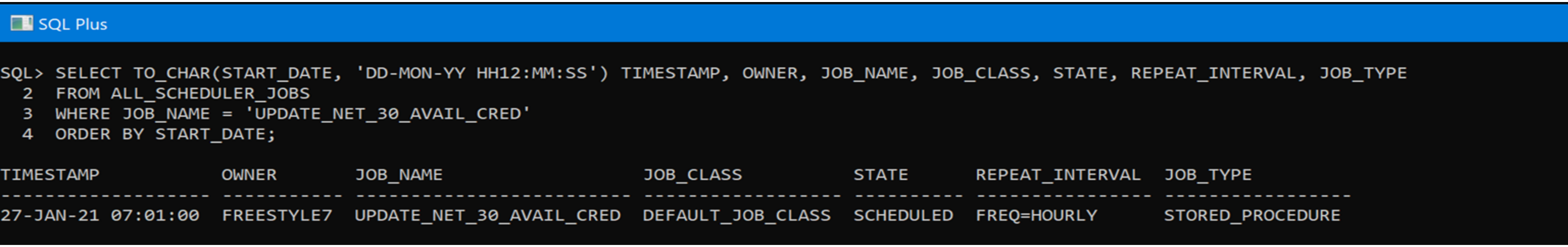

...t~3
Oracle 19c - GitHub Project~5
Oracle 19c - GitHub Project~4
ACCOUNTS
Oracle 19c - GitHub Project~6
Oracle 19c - GitHub Project~7
Worksheet
Query Builder

```
BEGIN
    DBMS_SCHEDULER.CREATE_JOB
    (
        JOB_NAME            => 'Update_NET_30_AVAIL_CRED',
        JOB_TYPE            => 'STORED_PROCEDURE',
        JOB_ACTION          => 'UPDATE_NET_30',
        START_DATE          => '27-JAN-2021 07:00:00 PM',
        REPEAT_INTERVAL     => 'FREQ=HOURLY',
        END_DATE            => NULL,
        ENABLED             => TRUE,
        AUTO_DROP           => FALSE,
        COMMENTS            => 'Update NET_30 Available Credit From Transactions Table'
    );
END;
/
```



SQL Plus

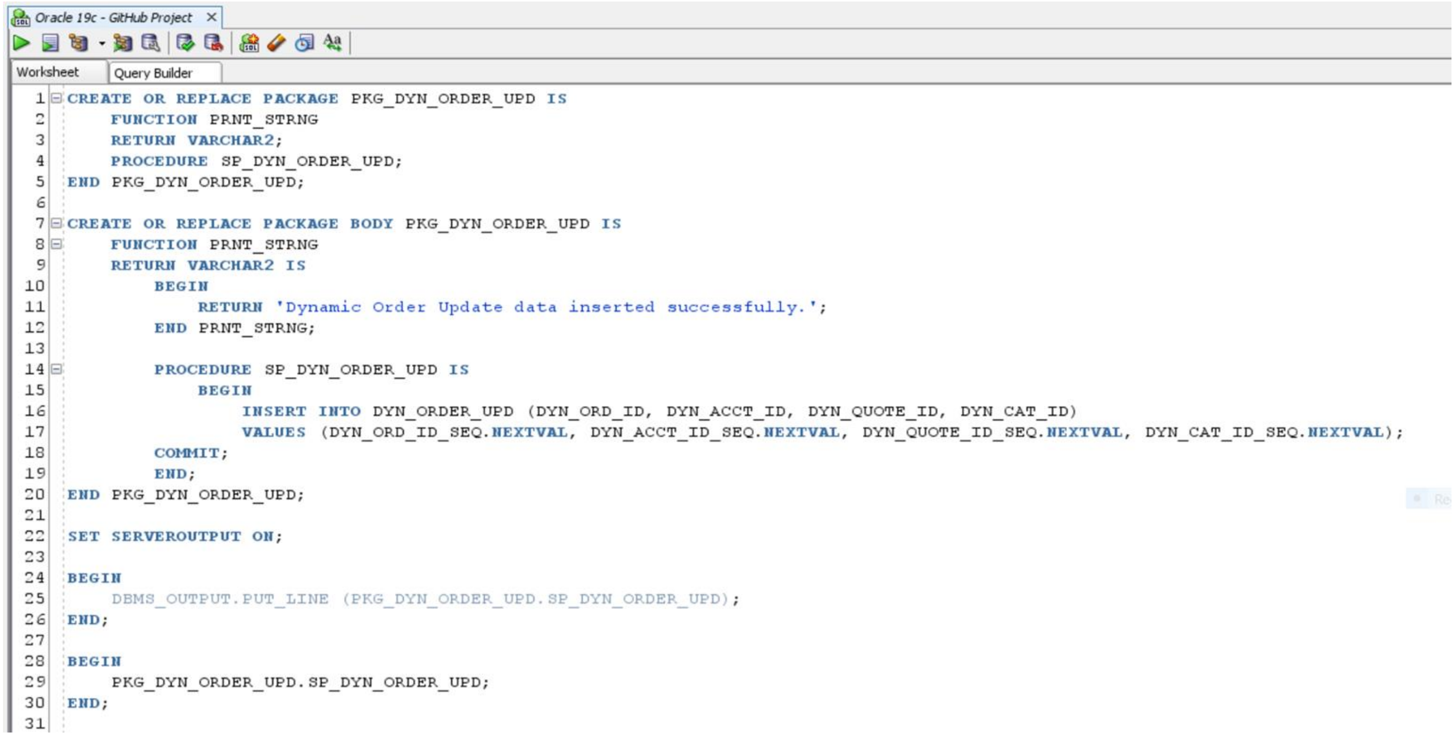
```
SQL> SELECT TO_CHAR(LOG_DATE, 'DD-MON-YY HH12:MM:SS') TIMESTAMP, OWNER, JOB_NAME, JOB_CLASS, OPERATION, STATUS
  2  FROM ALL_SCHEDULER_JOB_LOG
  3  WHERE JOB_NAME = 'UPDATE_NET_30_AVAIL_CRED'
  4  ORDER BY LOG_DATE;

TIMESTAMP          OWNER       JOB_NAME                  JOB_CLASS          OPERATION  STATUS
------------------ ----------- ------------------------- ------------------ ---------- ----------
27-JAN-21 06:01:48 FREESTYLE7  UPDATE_NET_30_AVAIL_CRED  DEFAULT_JOB_CLASS  RUN        SUCCEEDED
27-JAN-21 06:01:14 FREESTYLE7  UPDATE_NET_30_AVAIL_CRED  DEFAULT_JOB_CLASS  RUN        SUCCEEDED
27-JAN-21 07:01:00 FREESTYLE7  UPDATE_NET_30_AVAIL_CRED  DEFAULT_JOB_CLASS  RUN        SUCCEEDED
27-JAN-21 08:01:00 FREESTYLE7  UPDATE_NET_30_AVAIL_CRED  DEFAULT_JOB_CLASS  RUN        SUCCEEDED
```



SQL Plus

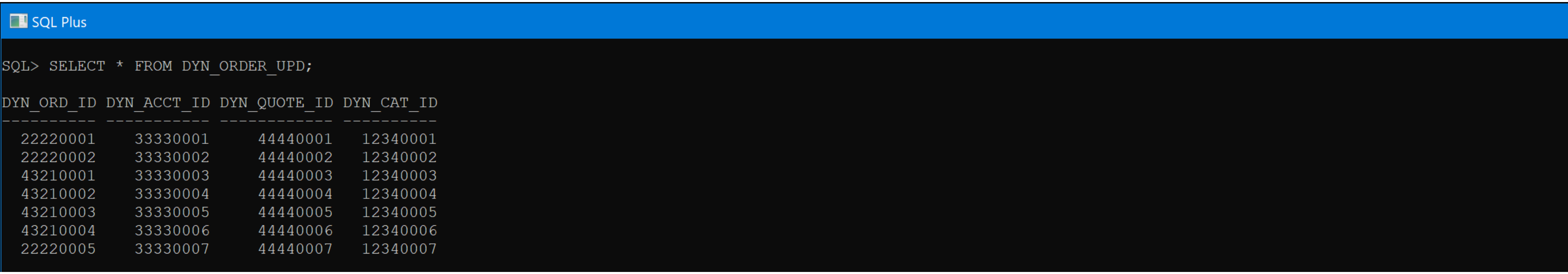
```
SQL> SELECT TO_CHAR(START_DATE, 'DD-MON-YY HH12:MM:SS') TIMESTAMP, OWNER, JOB_NAME, JOB_CLASS, STATE, REPEAT_INTERVAL, JOB_TYPE
  2  FROM ALL_SCHEDULER_JOBS
  3  WHERE JOB_NAME = 'UPDATE_NET_30_AVAIL_CRED'
  4  ORDER BY START_DATE;

TIMESTAMP          OWNER       JOB_NAME                  JOB_CLASS          STATE      REPEAT_INTERVAL  JOB_TYPE
------------------ ----------- ------------------------- ------------------ ---------- ---------------- -----------------
27-JAN-21 07:01:00 FREESTYLE7  UPDATE_NET_30_AVAIL_CRED  DEFAULT_JOB_CLASS  SCHEDULED  FREQ=HOURLY      STORED_PROCEDURE
```

PL/SQL | Package | DYN_ORDER_UPD (continued)



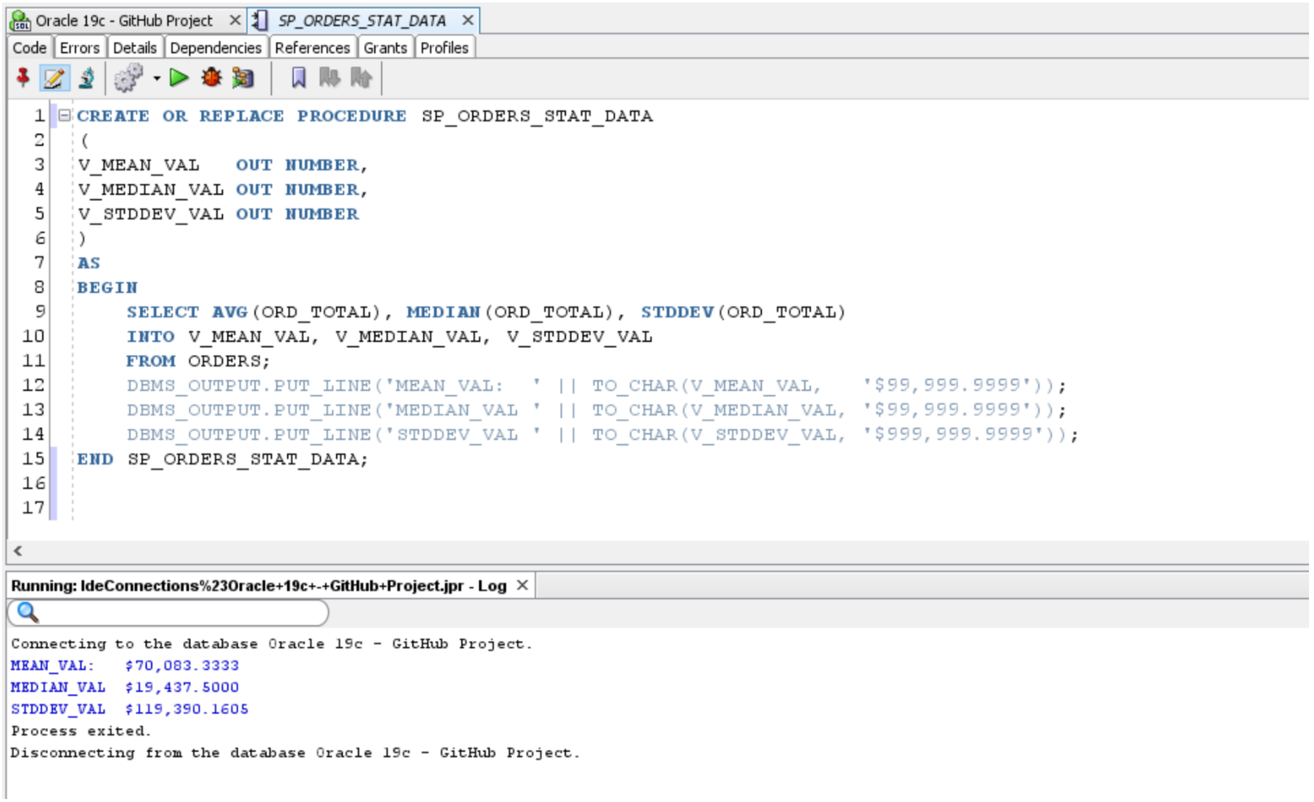
```
CREATE OR REPLACE PACKAGE PKG_DYN_ORDER_UPD IS
    FUNCTION PRNT_STRNG
    RETURN VARCHAR2;
    PROCEDURE SP_DYN_ORDER_UPD;
END PKG_DYN_ORDER_UPD;

CREATE OR REPLACE PACKAGE BODY PKG_DYN_ORDER_UPD IS
    FUNCTION PRNT_STRNG
    RETURN VARCHAR2 IS
        BEGIN
            RETURN 'Dynamic Order Update data inserted successfully.';
        END PRNT_STRNG;

        PROCEDURE SP_DYN_ORDER_UPD IS
            BEGIN
                INSERT INTO DYN_ORDER_UPD (DYN_ORD_ID, DYN_ACCT_ID, DYN_QUOTE_ID, DYN_CAT_ID)
                VALUES (DYN_ORD_ID_SEQ.NEXTVAL, DYN_ACCT_ID_SEQ.NEXTVAL, DYN_QUOTE_ID_SEQ.NEXTVAL, DYN_CAT_ID_SEQ.NEXTVAL);
        COMMIT;
        END;
END PKG_DYN_ORDER_UPD;

SET SERVEROUTPUT ON;

BEGIN
    DBMS_OUTPUT.PUT_LINE (PKG_DYN_ORDER_UPD.SP_DYN_ORDER_UPD);
END;

BEGIN
    PKG_DYN_ORDER_UPD.SP_DYN_ORDER_UPD;
END;
```

PL/SQL | Package | DYN_ORDER_UPD | Output



```
SQL> SELECT * FROM DYN_ORDER_UPD;

DYN_ORD_ID DYN_ACCT_ID DYN_QUOTE_ID DYN_CAT_ID
---------- ----------- ------------ ----------
  22220001    33330001     44440001   12340001
  22220002    33330002     44440002   12340002
  43210001    33330003     44440003   12340003
  43210002    33330004     44440004   12340004
  43210003    33330005     44440005   12340005
  43210004    33330006     44440006   12340006
  22220005    33330007     44440007   12340007
```

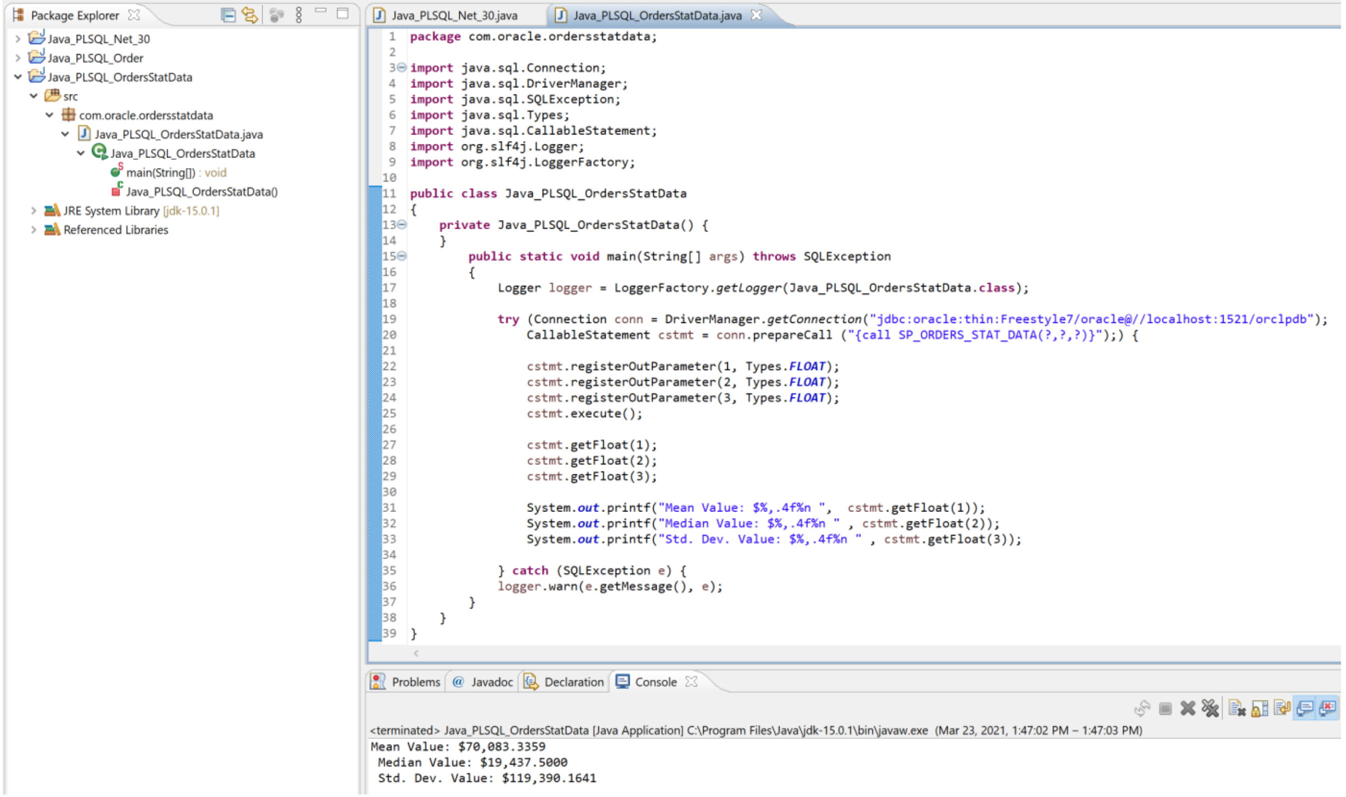
Statistical Data | Mean | Median | STDDEV (continued)


Oracle 19c - GitHub Project
SP_ORDERS_STAT_DATA
Code
Errors
Details
Dependencies
References
Grants
Profiles
Running: IdeConnections%23Oracle+19c+-+GitHub+Project.jpr - Log

```
CREATE OR REPLACE PROCEDURE SP_ORDERS_STAT_DATA
(
V_MEAN_VAL   OUT NUMBER,
V_MEDIAN_VAL OUT NUMBER,
V_STDDEV_VAL OUT NUMBER
)
AS
BEGIN
    SELECT AVG(ORD_TOTAL), MEDIAN(ORD_TOTAL), STDDEV(ORD_TOTAL)
    INTO V_MEAN_VAL, V_MEDIAN_VAL, V_STDDEV_VAL
    FROM ORDERS;
    DBMS_OUTPUT.PUT_LINE('MEAN_VAL:   ' || TO_CHAR(V_MEAN_VAL,   '$99,999.9999'));
    DBMS_OUTPUT.PUT_LINE('MEDIAN_VAL ' || TO_CHAR(V_MEDIAN_VAL, '$99,999.9999'));
    DBMS_OUTPUT.PUT_LINE('STDDEV_VAL ' || TO_CHAR(V_STDDEV_VAL, '$999,999.9999'));
END SP_ORDERS_STAT_DATA;
```

```
Connecting to the database Oracle 19c - GitHub Project.
MEAN_VAL:   $70,083.3333
MEDIAN_VAL  $19,437.5000
STDDEV_VAL  $119,390.1605
Process exited.
Disconnecting from the database Oracle 19c - GitHub Project.
```

Statistical Data | Mean | Median | STDDEV


Package Explorer
Java_PLSQL_Net_30
Java_PLSQL_Order
Java_PLSQL_OrdersStatData
src
com.oracle.ordersstatdata
Java_PLSQL_OrdersStatData.java
Java_PLSQL_OrdersStatData
main(String[]) : void
Java_PLSQL_OrdersStatData()
JRE System Library [jdk-15.0.1]
Referenced Libraries
Java_PLSQL_Net_30.java
Java_PLSQL_OrdersStatData.java
Problems
Javadoc
Declaration
Console

```java
package com.oracle.ordersstatdata;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Types;
import java.sql.CallableStatement;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;

public class Java_PLSQL_OrdersStatData
{
    private Java_PLSQL_OrdersStatData() {
    }
        public static void main(String[] args) throws SQLException
        {
            Logger logger = LoggerFactory.getLogger(Java_PLSQL_OrdersStatData.class);

            try (Connection conn = DriverManager.getConnection("jdbc:oracle:thin:Freestyle7/oracle@//localhost:1521/orclpdb");
                CallableStatement cstmt = conn.prepareCall ("{call SP_ORDERS_STAT_DATA(?,?,?)}");) {

                cstmt.registerOutParameter(1, Types.FLOAT);
                cstmt.registerOutParameter(2, Types.FLOAT);
                cstmt.registerOutParameter(3, Types.FLOAT);
                cstmt.execute();

                cstmt.getFloat(1);
                cstmt.getFloat(2);
                cstmt.getFloat(3);

                System.out.printf("Mean Value: $%,.4f%n ",  cstmt.getFloat(1));
                System.out.printf("Median Value: $%,.4f%n " , cstmt.getFloat(2));
                System.out.printf("Std. Dev. Value: $%,.4f%n " , cstmt.getFloat(3));

            } catch (SQLException e) {
            logger.warn(e.getMessage(), e);
        }
    }
}
```

```
<terminated> Java_PLSQL_OrdersStatData [Java Application] C:\Program Files\Java\jdk-15.0.1\bin\javaw.exe  (Mar 23, 2021, 1:47:02 PM – 1:47:03 PM)
Mean Value: $70,083.3359
 Median Value: $19,437.5000
 Std. Dev. Value: $119,390.1641
```