DATABASE ADMINISTRATION

Lab 8 – PL / SQL introduction

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Watch (DESC) the DBMS_OUTPUTpackage commands.
Set the SERVEROUTPUTvariableto display messages.

```
[oracle@localhost ~]$ sqlplus

SQL*Plus: Release 11.2.0.2.0 Production on Sun Dec 26 08:24:16 2021

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Enter user-name: sys as sysdba
Enter password:

Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.2.0 - Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL> DESC DBMS_OUTPUT;
PROCEDURE DISABLE
PROCEDURE ENABLE
 Argument Name                  Type                    In/Out Default?
 ------------------------------ ----------------------- ------ --------
 BUFFER_SIZE                    NUMBER(38)              IN     DEFAULT
PROCEDURE GET_LINE
 Argument Name                  Type                    In/Out Default?
 ------------------------------ ----------------------- ------ --------
 LINE                           VARCHAR2                OUT
 STATUS                         NUMBER(38)              OUT
PROCEDURE GET_LINES
 Argument Name                  Type                    In/Out Default?
 ------------------------------ ----------------------- ------ --------
 LINES                          TABLE OF VARCHAR2(32767) OUT
 NUMLINES                       NUMBER(38)              IN/OUT
PROCEDURE GET_LINES
 Argument Name                  Type                    In/Out Default?
 ------------------------------ ----------------------- ------ --------
 LINES                          DBMSOUTPUT_LINESARRAY   OUT
 NUMLINES                       NUMBER(38)              IN/OUT
PROCEDURE NEW_LINE
PROCEDURE PUT
 Argument Name                  Type                    In/Out Default?
 ------------------------------ ----------------------- ------ --------
 A                              VARCHAR2                IN
PROCEDURE PUT_LINE
 Argument Name                  Type                    In/Out Default?
 ------------------------------ ----------------------- ------ --------
 A                              VARCHAR2                IN

SQL> SET SERVEROUTPUT ON
SQL>
```

1. Create an anonymous block writing on the screen "Hello, it's me" (you can write a string, DATE and NUMBER, the others: TO_CHAR(.....)). Use the DBMS_OUTPUT package for this purpose.

```
SQL> BEGIN
  2  dbms_output.put_line('Hello, it is me');
  3  END;
  4  /
Hello, it is me

PL/SQL procedure successfully completed.

SQL>
```

2. Create an anonymous block that contains: declaring a numeric variable, assigning its value, writing it on the screen (VARIABLE = ...)

```
SQL> DECLARE
  2  variable NUMBER(5);
  3  BEGIN
  4  variable := 12;
  5  dbms_output.put_line('VARIABLE = ' || variable);
  6  END;
  7  /
VARIABLE = 12

PL/SQL procedure successfully completed.

SQL>
```

3. Create a simple anonymous block with a declared variable using the most complex form of conditional expression and writing the result on the screen.

```
SQL> DECLARE
  2  var1 NUMBER(5);
  3  var2 NUMBER(5);
  4  BEGIN
  5  var1 := 1;
  6  var2 := 2;
  7  IF (var1 > var2) THEN
  8  dbms_output.put_line(var1 || ' is greater than ' || var2);
  9  ELSIF (var1 = var2) THEN
 10  dbms_output.put_line('The variables are equal');
 11  ELSE
 12  dbms_output.put_line(var2 || ' is greater than ' || var1);
 13  END IF;
 14  END;
 15  /
2 is greater than 1

PL/SQL procedure successfully completed.

SQL>
```

4. Using the LOOP, FOR and WHILE loops, create an anonymous block that writes in the loop: variable has value 1 variable has value 2cher has value 3chant has value 4
Create a BRANCH table with two fields: NR_ODD (number (10)) and NAZWA_ODD (varchar(30)).
Enter the names of 4 departments into this table: accounting, sales, payroll and transport.

```
SQL> DECLARE
  2  var1 NUMBER(5);
  3  BEGIN
  4  var1 := 1;
  5  LOOP
  6  dbms_output.put_line('variable has value ' || var1);
  7  var1 := var1 + 1;
  8  EXIT WHEN var1 > 4;
  9  END LOOP;
 10  END;
 11  /
variable has value 1
variable has value 2
variable has value 3
variable has value 4

PL/SQL procedure successfully completed.

SQL>
```

```
SQL> DECLARE
  2  var1 NUMBER(5);
  3  BEGIN
  4  FOR var1 IN 1..4
  5  LOOP
  6  dbms_output.put_line('variable has value ' || var1);
  7  END LOOP;
  8  END;
  9  /
variable has value 1
variable has value 2
variable has value 3
variable has value 4

PL/SQL procedure successfully completed.

SQL>
```

```
SQL> DECLARE
  2  var1 NUMBER(5);
  3  BEGIN
  4  var1 := 1;
  5  WHILE var1 <= 4
  6  LOOP
  7  dbms_output.put_line('variable has value ' || var1);
  8  var1 := var1 + 1;
  9  END LOOP;
 10  END;
 11  /
variable has value 1
variable has value 2
variable has value 3
variable has value 4

PL/SQL procedure successfully completed.

SQL>
```

```
SQL> CREATE TABLE branch (nr_odd NUMBER(10), nazwa_odd VARCHAR(30));

Table created.

SQL> INSERT INTO branch VALUES (1, 'accounting');

1 row created.

SQL> INSERT INTO branch VALUES (2, 'sales');

1 row created.

SQL> INSERT INTO branch VALUES (3, 'payroll');

1 row created.

SQL> INSERT INTO branch VALUES (4, 'transport');

1 row created.

SQL>
```

5. Create an anonymous block writing on the screen the name of the selected branch (e.g. with the number 4 - KSIEGOWOSC) in the form: The name of the branch is: .....
To do this:
• declare the variable NAZWA_ODDZIALU (the same type as in the table) ,
• send the result of the SELECT query to this variable (SELECT ... INTO ... FROM ... WHERE ...),
• write out the line with the appropriate command.

```
SQL> DECLARE
  2  nazwa_oddzialu branch.nazwa_odd%TYPE;
  3  BEGIN
  4  SELECT nazwa_odd INTO nazwa_oddzialu FROM branch WHERE nr_odd = 1;
  5  dbms_output.put_line('The name of the branch is: ' || nazwa_oddzialu);
  6  END;
  7  /
The name of the branch is: accounting

PL/SQL procedure successfully completed.

SQL>
```

6. Using the attributes of the implicit cursor SQL%FOUND and SQL%ROWCOUNT create an anonymous block that removes from the BRANCH TABLE those records whose number is greater than two (assuming that the branches are numbered sequentially and there are more than 2 of them), and then if he deleted any branches, it writes their number (thenumber ofdeleted record is: ....)

```
SQL> BEGIN
  2  DELETE FROM branch WHERE nr_odd > 2;
  3  IF SQL%FOUND THEN
  4  dbms_output.put_line('thenumber ofdeleted record is: ' || SQL%ROWCOUNT);
  5  END IF;
  6  END;
  7  /
thenumber ofdeleted record is: 2

PL/SQL procedure successfully completed.

SQL>
```

7. Using the SQL%NOTFOUND implicit cursor attribute, create an anonymous block that renames branch number 3, and if such a number does not exist (you do not want !!!! to exist), it adds a new row to the table with this branch number and name.

```
SQL> BEGIN
  2  UPDATE branch SET nazwa_odd = 'rename' WHERE nr_odd = 3;
  3  IF SQL%NOTFOUND THEN
  4  INSERT INTO branch VALUES (3, 'payroll');
  5  END IF;
  6  END;
  7  /

PL/SQL procedure successfully completed.

SQL> SELECT * FROM branch WHERE nr_odd = 3;

    NR_ODD NAZWA_ODD
---------- ------------------------------
         3 payroll

SQL>
```

8. Define a sequence of liczba_seq (definition below) and table number with one field of type NUMBER(3), declare an anonymous block inserting 20 consecutive sequence values into table number.
CREATE SEQUENCE liczba_seqINCREMENT BY 5START WITH 100MINVALUE 0MAXVALUE 125

CYCLE;
Also useful: SELECT * FROM USER_SEQUENCES; SELECT liczba_seq.currval FROM DUAL; SELECT liczba_seq.nextval FROM DUAL;
Create a log table consisting of the following fields: table (fifteen-characters), date, l_wierszy (four-digit), message (three-hundred-characters).
CREATE TABLE log(table VARCHAR2(15),date DATE,l_wierszy NUMERIC(4),message VARCHAR2(300));

```
SQL> CREATE SEQUENCE liczba_seq INCREMENT BY 5 START WITH 100 MINVALUE 0 MAXVALUE 125 CYCLE;

Sequence created.

SQL> SELECT * FROM USER_SEQUENCES;

SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
APPLY$_DEST_OBJ_ID                      1 1.0000E+28          1 N N         0
         1

APPLY$_ERROR_HANDLER_SEQUENCE           1 1.0000E+28          1 N N        20
         1

APPLY$_SOURCE_OBJ_ID                    1 1.0000E+28          1 N N         0
         1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
AQ$_ALERT_QT_N                          1 1.0000E+28          1 N N        20
        61

AQ$_AQ$_MEM_MC_N                        1 1.0000E+28          1 N N        20
        21

AQ$_AQ_PROP_TABLE_N                     1 1.0000E+28          1 N N        20
         1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
AQ$_CHAINSEQ                            1 1.0000E+28          1 N N        20
         1

AQ$_IOTENQTXID                          1 1.0000E+28          1 N N      1000
         1

AQ$_KUPC$DATAPUMP_QUETAB_1_N            1 1.0000E+28          1 N N        20
        21


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
AQ$_KUPC$DATAPUMP_QUETAB_N              1 1.0000E+28          1 N N        20
         1
```

```
AQ$_NONDURSUB_SEQUENCE               1 1.0000E+28          1 N N        20
       1

AQ$_PROPAGATION_SEQUENCE             1 1.0000E+28          1 N N        20
       1


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
AQ$_PUBLISHER_SEQUENCE               1 1.0000E+28          1 N N      1000
       1

AQ$_RULE_SEQUENCE                    1 1.0000E+28          1 N N      1000
       1

AQ$_RULE_SET_SEQUENCE                1 1.0000E+28          1 N N      1000
       1


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
AQ$_SCHEDULER$_EVENT_QTAB_N          1 1.0000E+28          1 N N        20
       1

AQ$_SCHEDULER$_REMDB_JOBQTAB_N       1 1.0000E+28          1 N N        20
       1

AQ$_SCHEDULER_FILEWATCHER_QT_N       1 1.0000E+28          1 N N        20
       1


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
AQ$_SYS$SERVICE_METRICS_TAB_N        1 1.0000E+28          1 N N        20
      21

AQ$_TRANS_SEQUENCE                   1 1.0000E+28          1 N N        20
      61

AUDSES$                          1 2000000000          1 Y N     10000
  15751278


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
AWCREATE10G_S$                       1 1.0000E+28          1 N Y        0
       3

AWCREATE_S$                          1 1.0000E+28          1 N Y        0
       3

AWLOGSEQ$                            1 1.8447E+19          1 N N       10
       1
```

```
SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
AWMD_S$                                 1 1.0000E+28           1 N Y         0
         4

AWREPORT_S$                             1 1.0000E+28           1 N Y         0
         3

AWSEQ$                                  1 4294967295           1 N N         0
      1000


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
AWXML_S$                                1 1.0000E+28           1 N Y         0
         3

CACHE_STATS_SEQ_0                       1 1.0000E+28           1 N N        20
         1

CACHE_STATS_SEQ_1                       1 1.0000E+28           1 N N        20
         1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
CDC_RSID_SEQ$                           1 1.0000E+28           1 N Y     10000
         1

CDC_SUBSCRIBE_SEQ$                      1 1.0000E+28           1 N N        20
         1

CHNF$_CLAUSEID_SEQ                      1 1.0000E+28           1 N Y        20
         1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
CHNF$_QUERYID_SEQ                       1 1.0000E+28           1 N Y        20
        41

COMPARISON_SCAN_SEQ$                    1 4294967295           1 Y N        20
         1

COMPARISON_SEQ$                         1 1.0000E+28           1 N N         0
         1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
DAM_CLEANUP_SEQ$                        1 1.0000E+28           1 N N        20
         1
```

```
DBFS_HS$_ARCHIVEREFIDSEQ              1 1.0000E+28          1 N Y        2
       1

DBFS_HS$_BACKUPFILEIDSEQ              1 1.0000E+28          1 N Y        2
       1


SEQUENCE_NAME                 MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
DBFS_HS$_POLICYIDSEQ                  1 1.0000E+28          1 N Y        2
       1

DBFS_HS$_RSEQ                     1 1.0000E+28          1 N Y       20
       1

DBFS_HS$_STOREIDSEQ                   1 1.0000E+28          1 N Y        2
       1


SEQUENCE_NAME                 MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
DBFS_HS$_TARBALLSEQ                   1 1.0000E+28          1 N Y        2
       1

DBFS_SFS$_FSSEQ                   1 1.0000E+28          1 N N       20
       1

DBMS_CUBE_ADVICE_SEQ$                 1 1.0000E+23          1 Y N      100
       1


SEQUENCE_NAME                 MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
DBMS_LOCK_ID                      1 1999999999          1 N N       20
 1073742408

DBMS_PARALLEL_EXECUTE_SEQ$            1 1.0000E+28          1 N N       20
       1

DM$EXPIMP_ID_SEQ                  1 1.0000E+28          1 N N       20
       1


SEQUENCE_NAME                 MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
EXPRESS_S$                        1 1.0000E+28          1 N Y        0
       3

FGR$_NAMES_S                      1 1.0000E+28          1 N N        0
       1

GENERATOR$_S                      1 1.0000E+28          1 N N       20
       1
```

```
SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
GROUP_NUM_SEQ                           1 1.0000E+28           1 N N        20
        1

HS$_BASE_DD_S                           1 1.0000E+28           1 N N        20
      121

HS$_CLASS_CAPS_S                        1 1.0000E+28           1 N N        20
        1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
HS$_CLASS_DD_S                          1 1.0000E+28           1 N N        20
        1

HS$_CLASS_INIT_S                        1 1.0000E+28           1 N N        20
        1

HS$_FDS_CLASS_S                         1 1.0000E+28           1 N N        20
       21


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
HS$_FDS_INST_S                          1 1.0000E+28           1 N N        20
        1

HS$_INST_CAPS_S                         1 1.0000E+28           1 N N        20
        1

HS$_INST_DD_S                           1 1.0000E+28           1 N N        20
        1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
HS$_INST_INIT_S                         1 1.0000E+28           1 N N        20
        1

HS_BULK_SEQ                             1 1.0000E+28           1 N N        0
        1

IDGEN1$                                 1 1.0000E+28          50 N N      1000
  27215301


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
IDX_RB$JOBSEQ                           1  999999999           1 Y N        20
        1
```

```
INVALIDATION_REG_ID$                1 1.0000E+28          1 N Y       300
    15584

JAVA$POLICY$SEQUENCE$               1 1.0000E+28          1 N N       20
      171


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
JAVA$PREFS$SEQ$                     1 2147483647          1 Y Y       20
       21

JOBSEQ                           1  999999999          1 Y N       20
      143

JOBSEQLSBY                  1000000000 1999999999          1 Y N       20
 1000000000


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
LICZBA_SEQ                       0       125          5 Y N       20
      100

LOG$SEQUENCE                        0 1.0000E+28          1 N Y       10
        1

MV_RF$JOBSEQ                        1  999999999          1 Y N       20
        1


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
OBJECT_GRANT                        1 1.0000E+28          1 N Y       20
    65646

OLAPI_HISTORY_SEQ                   1 1.0000E+28          1 N N       20
        1

OLAP_ASSIGNMENTS_SEQ                1 1.0000E+28          1 N N       20
        1


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
OLAP_ATTRIBUTES_SEQ                 1 1.0000E+28          1 N N       20
        1

OLAP_CALCULATED_MEMBERS_SEQ         1 1.0000E+28          1 N N       20
        1

OLAP_DIMENSIONALITY_SEQ             1 1.0000E+28          1 N N       20
        1
```

```
SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
OLAP_DIM_LEVELS_SEQ                     1 1.0000E+28          1 N N        20
        1

OLAP_HIERARCHIES_SEQ                    1 1.0000E+28          1 N N        20
        1

OLAP_HIER_LEVELS_SEQ                    1 1.0000E+28          1 N N        20
        1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
OLAP_MAPPINGS_SEQ                       1 1.0000E+28          1 N N        20
        1

OLAP_MEASURES_SEQ                       1 1.0000E+28          1 N N        20
        1

OLAP_MODELS_SEQ                         1 1.0000E+28          1 N N        20
        1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
ORA_PLAN_ID_SEQ$                        1 4294967295          1 Y N        10
       81

ORA_TQ_BASE$                            1    4294967          1 Y N     10000
    60004

PARTITION_NAME$                         1 1.0000E+28          1 N N        20
       61


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
PROFNUM$                                0 1.0000E+28          1 N N         0
        4

PSINDEX_SEQ$                            1 1.8447E+19          1 N N      1000
     1630

REDEF_SEQ$                              1 1.0000E+28          1 N N        20
        1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
RGROUPSEQ                               1  999999999          1 Y N        20
        1
```

```
SCHEDULER$_EVTSEQ                1 1.0000E+28          1 N N        20
       1

SCHEDULER$_INSTANCE_S            1 1.0000E+28          1 N N        20
    51042


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
SCHEDULER$_JOBSUFFIX_S           1 1.0000E+28          1 N N        20
      302

SCHEDULER$_LWJOB_OID_SEQ         1 1.0000E+28          1 N N        0
      209

SCHEDULER$_RDB_SEQ               1 1.0000E+28          1 N N        20
       1


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
SNAPSHOT_ID$                     1 2147483647          1 N N        20
       41

SNAPSITE_ID$                     1 4294967295          1 N N        20
       1

SQLLOG$_SEQ                      1 1.0000E+20          1 Y N        20
       1


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
SQL_TK_CHK_ID                    1 1.0000E+28          1 N N        20
      161

SSCR_CAP_SEQ$                    0 1.0000E+28          1 N Y        10
       1

STREAMS$_APPLY_SPILL_TXNKEY_S    1 4294967295          1 Y N        0
       1


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
STREAMS$_CAPTURE_INST            1 4294967295          1 Y N        0
       1

STREAMS$_CAP_SUB_INST            1 4294967295          1 Y N        0
       1

STREAMS$_PROPAGATION_SEQNUM      1 1.0000E+28          1 N N        0
       1
```

```
SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
STREAMS$_RULE_NAME_S                    1 1.0000E+28          1 N N        0
         1

STREAMS$_SM_ID                          1 1.0000E+28          1 N N        0
         1

STREAMS$_STMT_HANDLER_SEQ               1 1.0000E+28          1 N N       20
         1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
SYNOPSIS_NUM_SEQ                        1 1.0000E+28          1 N N       20
         1

SYSTEM_GRANT                            1 1.0000E+28          1 N Y       20
      5420

TSM_MIG_SEQ$                            0 1.0000E+28          1 N Y       10
         1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
UGROUP_SEQUENCE                         0 1.0000E+28          1 N Y       10
         1

UTL_RECOMP_SEQ                          0 1.0000E+28          1 N Y        0
         0

WRI$_ADV_SEQ_DIR                        1 4294967295          1 N N       10
        11


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
WRI$_ADV_SEQ_DIR_INST                   1 4294967295          1 N N       10
         1

WRI$_ADV_SEQ_EXEC                       1 4294967295          1 N N       10
      9733

WRI$_ADV_SEQ_JOURNAL                    1 4294967295          1 N N       10
         1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
WRI$_ADV_SEQ_MSGGROUP                   1 4294967295          1 N N       10
     11798
```

```
WRI$_ADV_SEQ_SQLW_QUERY              1 4294967295          1 N N        10
       1

WRI$_ADV_SEQ_TASK                    1 4294967295          1 N N        10
    9763


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
---------------------------- ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
WRI$_ADV_SQLT_PLAN_SEQ               1 1.8447E+19          1 N N       100
       1

WRI$_ALERT_SEQUENCE                  1 1.0000E+28          1 N N        20
    7773

WRI$_ALERT_THRSLOG_SEQUENCE          1 1.0000E+28          1 N N        20
    3775


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
---------------------------- ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
WRI$_REPT_COMP_ID_SEQ                1 1.0000E+28          1 N N       100
     201

WRI$_REPT_FILE_ID_SEQ                1 1.0000E+28          1 N N       100
     201

WRI$_REPT_FORMAT_ID_SEQ              1 1.0000E+28          1 N N       100
     201


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
---------------------------- ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
WRI$_REPT_REPT_ID_SEQ                1 1.0000E+28          1 N N       100
     201

WRI$_SQLSET_ID_SEQ                   1 1.0000E+28          1 N N         0
       1

WRI$_SQLSET_REF_ID_SEQ               1 1.0000E+28          1 N N         0
       1


SEQUENCE_NAME                MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
---------------------------- ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
WRI$_SQLSET_STMT_ID_SEQ              1 1.0000E+28          1 N N       100
       1

WRI$_SQLSET_WORKSPACE_PLAN_SEQ       1 1.8447E+19          1 N N       100
       1

WRM$_DEEP_PURGE_EXTENT               1 4294967295          1 Y N         0
      21
```

```
SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
WRM$_DEEP_PURGE_INTERVAL              1 4294967295          1 Y N        0
       143

WRR$_CAPTURE_ID                       1 4294967295          1 N N       10
         1

WRR$_REPLAY_ID                        1 4294967295          1 N N       10
         1


SEQUENCE_NAME                  MIN_VALUE  MAX_VALUE INCREMENT_BY C O CACHE_SIZE
------------------------------ ---------- ---------- ------------ - - ----------
LAST_NUMBER
-----------
XSPARAM_REG_SEQUENCE$                 1 1.0000E+28          1 N Y       20
         1


136 rows selected.

SQL> SELECT liczba_seq.currval FROM DUAL;
SELECT liczba_seq.currval FROM DUAL
       *
ERROR at line 1:
ORA-08002: sequence LICZBA_SEQ.CURRVAL is not yet defined in this session


SQL> SELECT liczba_seq.nextval FROM DUAL;

   NEXTVAL
----------
       100

SQL> CREATE TABLE log(table VARCHAR2(15),date DATE,l_wierszy NUMERIC(4),message
VARCHAR2(300) );
  2  CREATE TABLE log(table VARCHAR2(15),date DATE,l_wierszy NUMERIC(4),message
             *
ERROR at line 1:
ORA-00904: : invalid identifier


SQL> CREATE TABLE log1 (table1 VARCHAR2(15), date1 DATE, l_wierszy1 NUMERIC(4), message1
VARCHAR2(300) );
  2
Table created.

SQL>
```

9. Declare an anonymous block updating the EMPLOYEES table by adding a bonus to the heads of departments, the value of which is stored in a variable. Then count how many rows have been changed and insert the appropriate comment into the log table.

```
SQL> DECLARE
  2  bonus hr.employees.salary%TYPE := 100;
  3  row_count NUMERIC(5);
  4  BEGIN
  5  UPDATE hr.employees
  6  SET salary = salary + bonus
  7  WHERE employee_id IN (
  8  SELECT DISTINCT manager_id FROM hr.departments );
  9  IF SQL%FOUND THEN
 10  row_count := SQL%ROWCOUNT;
 11  INSERT INTO log1 VALUES ('hr.employees', (
 12  SELECT current_date FROM dual),
 13  row_count, 'Managers got ' || bonus || ' of bonus.');
 14  END IF;
 15  END;
 16  /

PL/SQL procedure successfully completed.

SQL> SELECT * FROM log1;

TABLE1          DATE1     L_WIERSZY1
--------------- --------- ----------
MESSAGE1
------------------------------------------------------------
hr.employees    26-DEC-21         11
Managers got 100 of bonus.


SQL>
```

10. Use the existing BRANCHES table or create again. Write an anonymous block that through the cursor will allow you to write in a loop:
THE BRANCH NUMBER IS: ....., THE NAME OF THE BRANCH IS: ..... THE BRANCH NUMBER IS: ....., THE NAME OF THE BRANCH IS: .....
If the table is empty, you must also write a message.

```
SQL> DECLARE
  2  CURSOR cur1 IS
  3  SELECT nr_odd, nazwa_odd FROM branch;
  4  name branch.nazwa_odd%TYPE;
  5  num branch.nr_odd%TYPE;
  6  BEGIN
  7  OPEN cur1;
  8  LOOP
  9  FETCH cur1 INTO num, name;
 10  IF cur1%NOTFOUND THEN
 11  IF cur1%ROWCOUNT = 0 THEN
 12  dbms_output.put_line('Table is empty');
 13  END IF;
 14  EXIT;
 15  END IF;
 16  dbms_output.put_line('THE BRANCH NUMBER IS: ' || num || ', THE NAME OF THE BRANCH IS: ' || name);
 17  END LOOP;
 18  CLOSE cur1;
 19  END;
 20  /
THE BRANCH NUMBER IS: 1, THE NAME OF THE BRANCH IS: accounting
THE BRANCH NUMBER IS: 2, THE NAME OF THE BRANCH IS: sales
THE BRANCH NUMBER IS: 3, THE NAME OF THE BRANCH IS: payroll

PL/SQL procedure successfully completed.

SQL>
```

11. Create an anonymous block with a cursor that takes as a parameter the branch number from which to start writing branch names. You want the value of the parameter to be specified explicitly in the code when you open it.

```
SQL> DECLARE
  2  CURSOR cur2 (start_num NUMBER) IS
  3  SELECT nr_odd, nazwa_odd FROM branch WHERE nr_odd >= start_num;
  4  name branch.nazwa_odd%TYPE;
  5  num branch.nr_odd%TYPE;
  6  BEGIN
  7  OPEN cur2(2);
  8  LOOP
  9  FETCH cur2 INTO num, name;
 10  IF cur2%NOTFOUND THEN
 11  IF cur2%ROWCOUNT = 0 THEN
 12  dbms_output.put_line('Table is empty');
 13  END IF;
 14  EXIT;
 15  END IF;
 16  dbms_output.put_line('THE BRANCH NUMBER IS: ' || num || ', NAME OF THE BRANCH IS: ' || name);
 17  END LOOP;
 18  CLOSE cur2;
 19  END;
 20  /
THE BRANCH NUMBER IS: 2, NAME OF THE BRANCH IS: sales
THE BRANCH NUMBER IS: 3, NAME OF THE BRANCH IS: payroll

PL/SQL procedure successfully completed.

SQL>
```