

## **5Laboratory 05**

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IC4301 – Databases I

Teacher: Msc. Adriana Álvarez Figueroa.

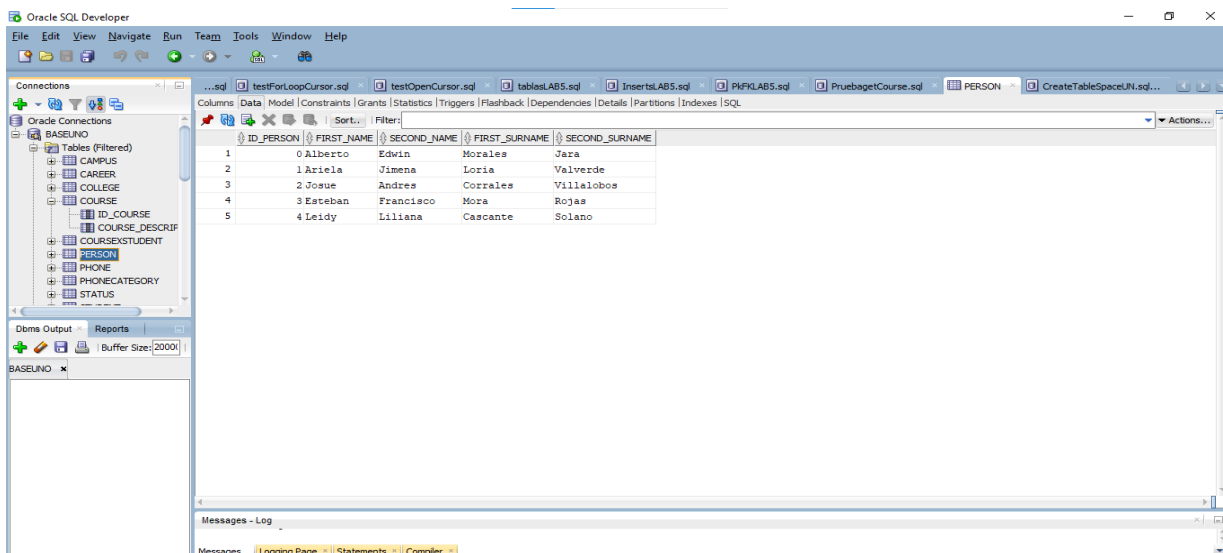
September 30th 2022.

In this document are the evidence of laboratory 05 where you can see the objects created, data inserted, modified, among others.

Evidence:

1. Create a procedure (using OPEN of the cursor) that returns all the phone numbers of a person. The person number must be sent as parameter as well as the phone type and the latter can be null, in which In this case, all the telephones of the person must be displayed. 15pts

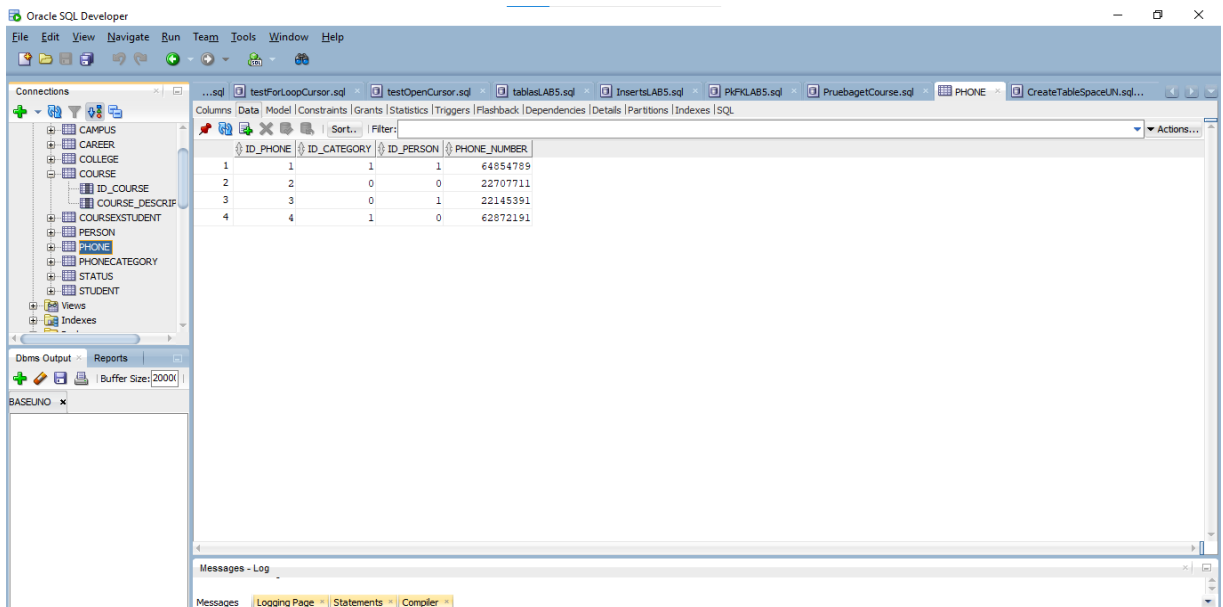
## TABLE PERSON



The screenshot shows the Oracle SQL Developer interface. The 'Connections' pane on the left shows the 'BASELINO' connection. The 'Tables (Filtered)' pane shows the 'PERSON' table selected. The main window displays the data of the 'PERSON' table with the following columns: ID\_PERSON, FIRST\_NAME, SECOND\_NAME, FIRST\_SURNAME, and SECOND\_SURNAME. The data is as follows:

ID_PERSON	FIRST_NAME	SECOND_NAME	FIRST_SURNAME	SECOND_SURNAME
0	Alberto	Edwin	Morales	Jara
1	Ariela	Jimena	Loria	Valverde
2	Josue	Andres	Corrales	Villalobos
3	Esteban	Francisco	Mora	Rojas
4	Leidy	Liliana	Casante	Solano

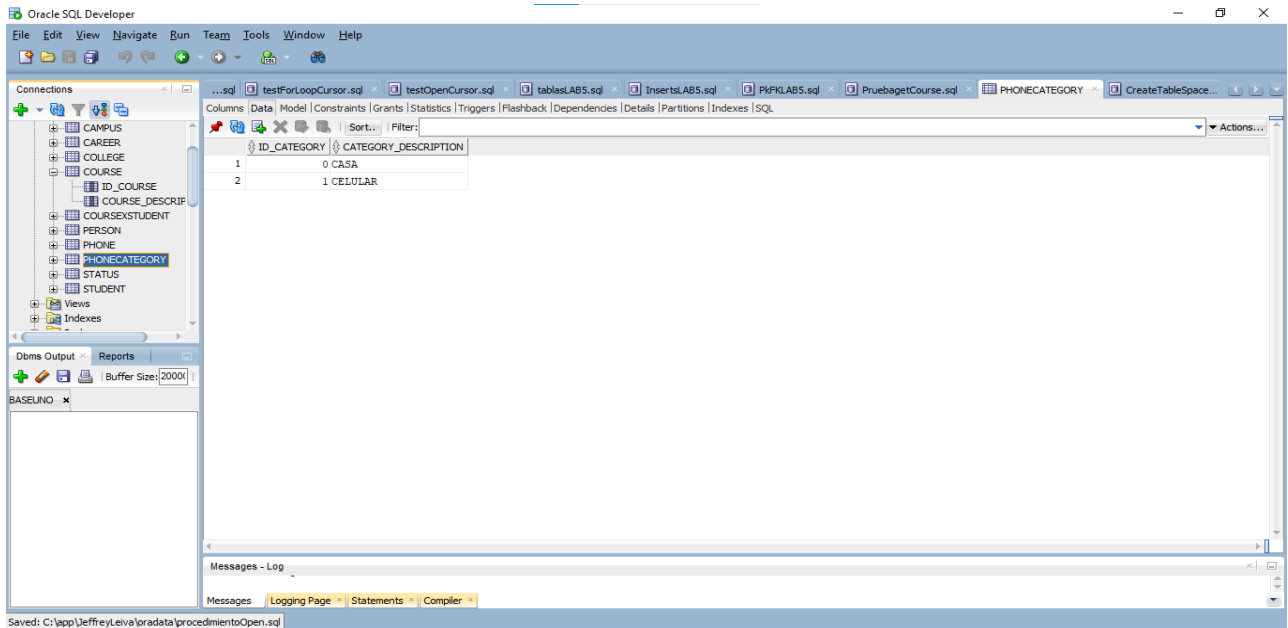
## TABLE PHONE



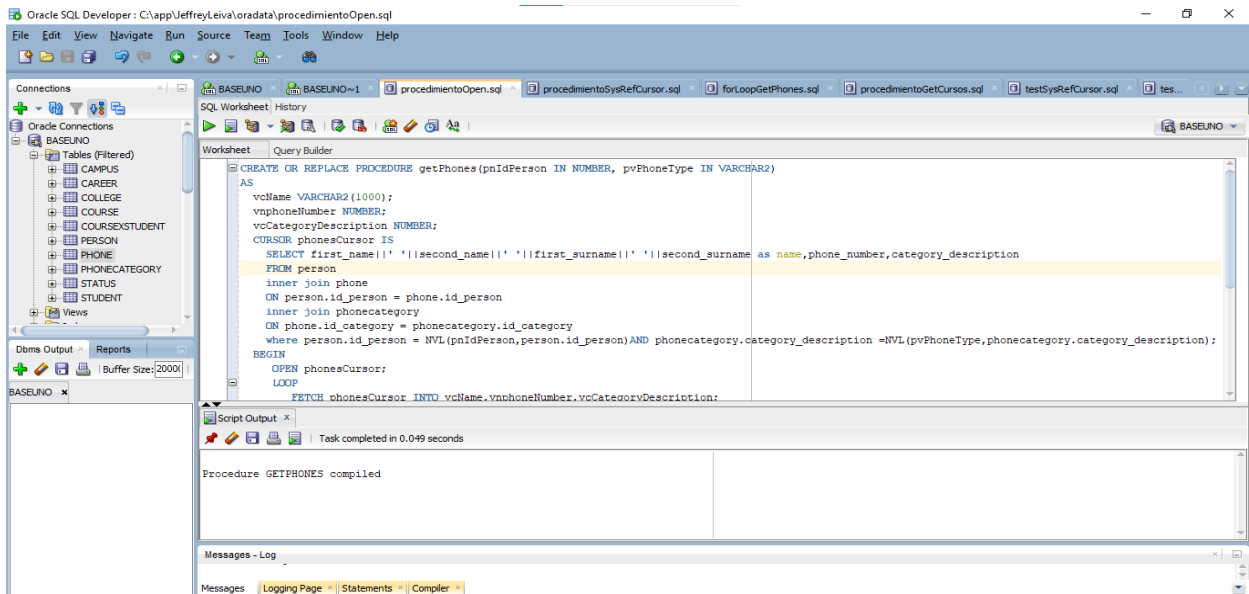
The screenshot shows the Oracle SQL Developer interface. The 'Connections' pane on the left shows the 'BASELINO' connection. The 'Tables (Filtered)' pane shows the 'PHONE' table selected. The main window displays the data of the 'PHONE' table with the following columns: ID\_PHONE, ID\_CATEGORY, ID\_PERSON, and PHONE\_NUMBER. The data is as follows:

ID_PHONE	ID_CATEGORY	ID_PERSON	PHONE_NUMBER
1	1	1	64854789
2	2	0	22707711
3	3	0	22145391
4	4	1	62872191

## TABLE PHONECATEGORY

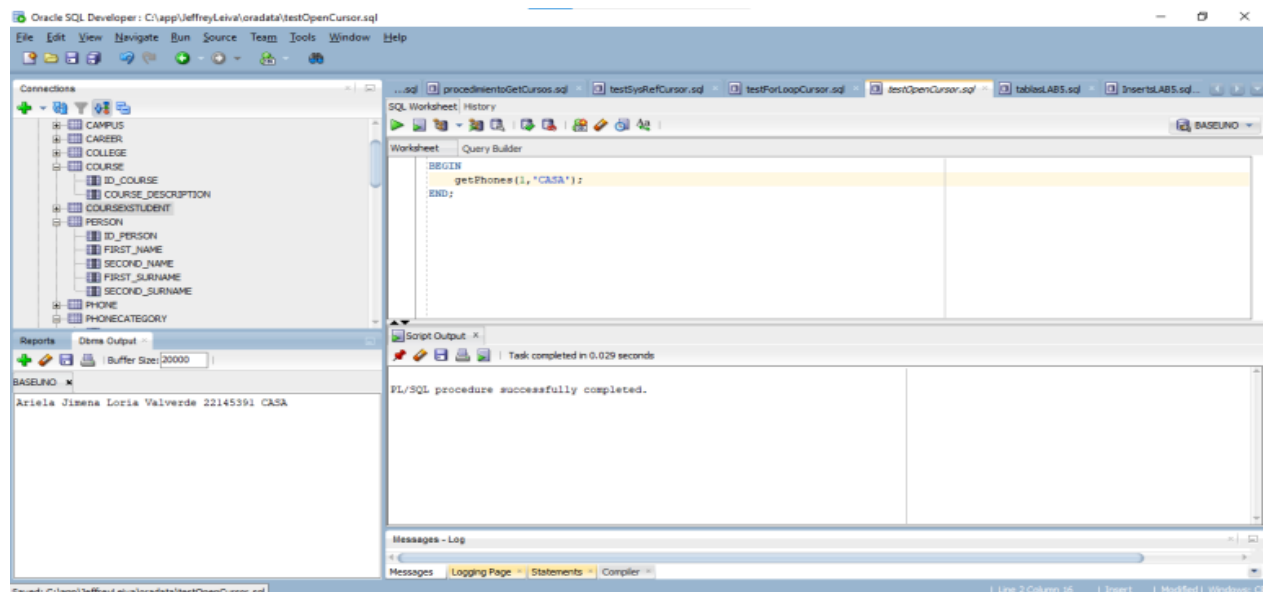
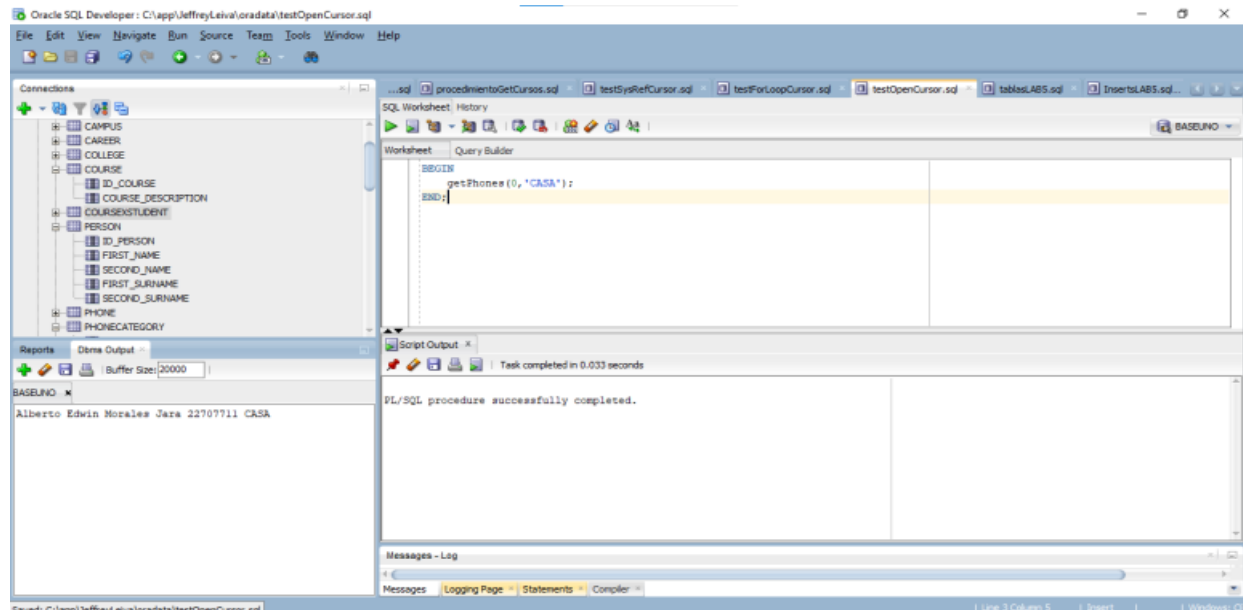


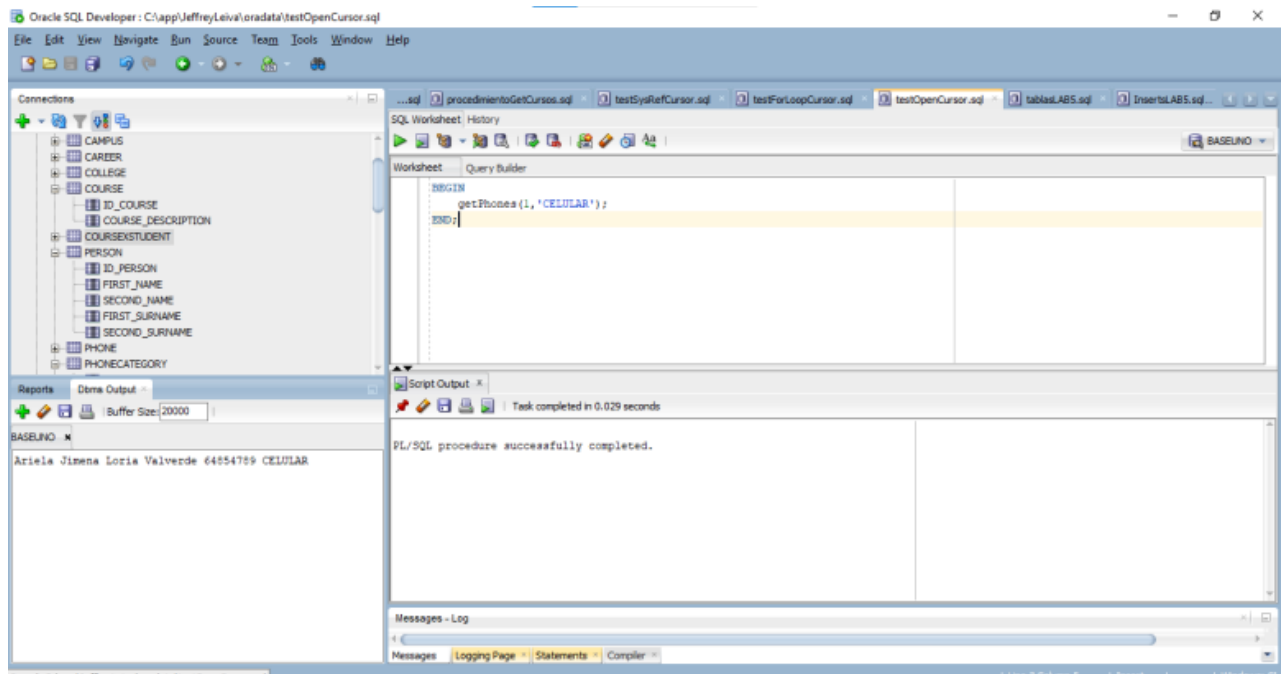
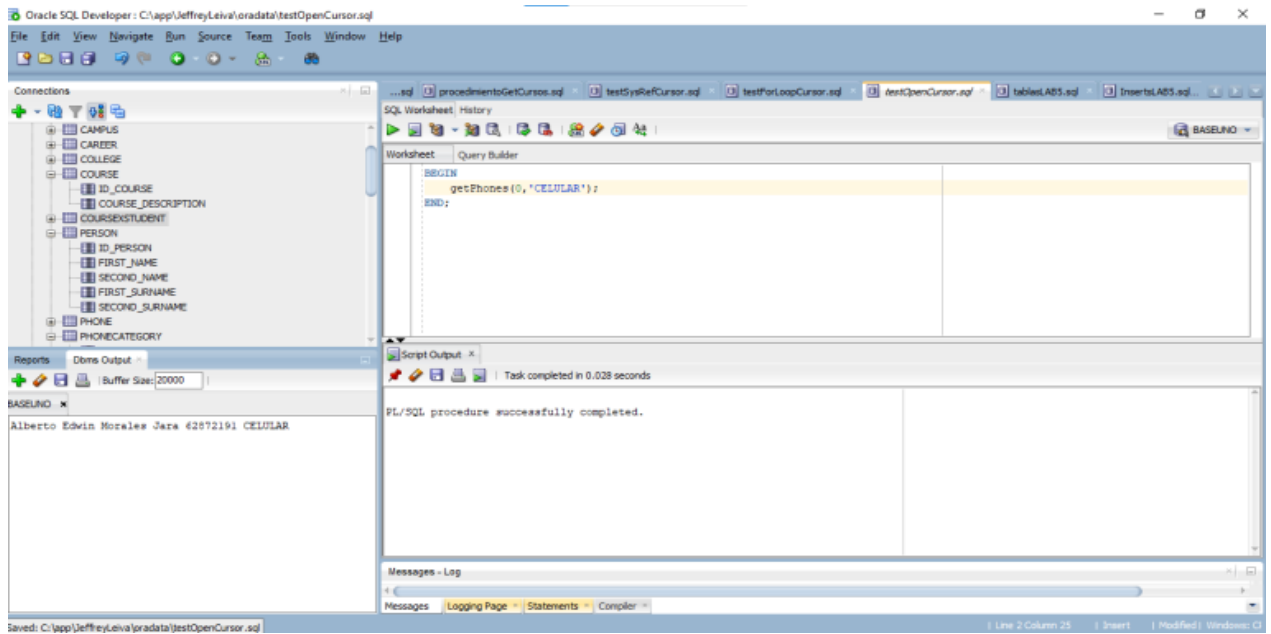
## Compilation of getPhones procedure using Open:



2. Create a test to test the procedure using cursors. 20pts

Next there are the test cases for the previous procedure:





Oracle SQL Developer: C:\app\JeffreyLeiva\oradata\testOpenCursor.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSESTUDENT
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

Reports Data Output

Buffer Size: 20000

BASELINO

Alberto Edwin Morales Jara	22707711	CASA
Alberto Edwin Morales Jara	62872191	CELULAR

Script Output

Task completed in 0.024 seconds

PL/SQL procedure successfully completed.

Messages - Log

Messages Logging Page Statements Compiler

Oracle SQL Developer: C:\app\JeffreyLeiva\oradata\testOpenCursor.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSESTUDENT
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

Reports Data Output

Buffer Size: 20000

BASELINO

Ariela Jimena Loria Valverde	64854789	CELULAR
Ariela Jimena Loria Valverde	22145391	CASA

Script Output

Task completed in 0.028 seconds

PL/SQL procedure successfully completed.

Messages - Log

Messages Logging Page Statements Compiler

3. What happens when more fields are added in the test fetch? 10pts

The database throws an exception saying that there is a wrong number of values in the INTO list of Fetch Statement.

4. What happens when the fetch of the test failed to obtain fields? 10pts

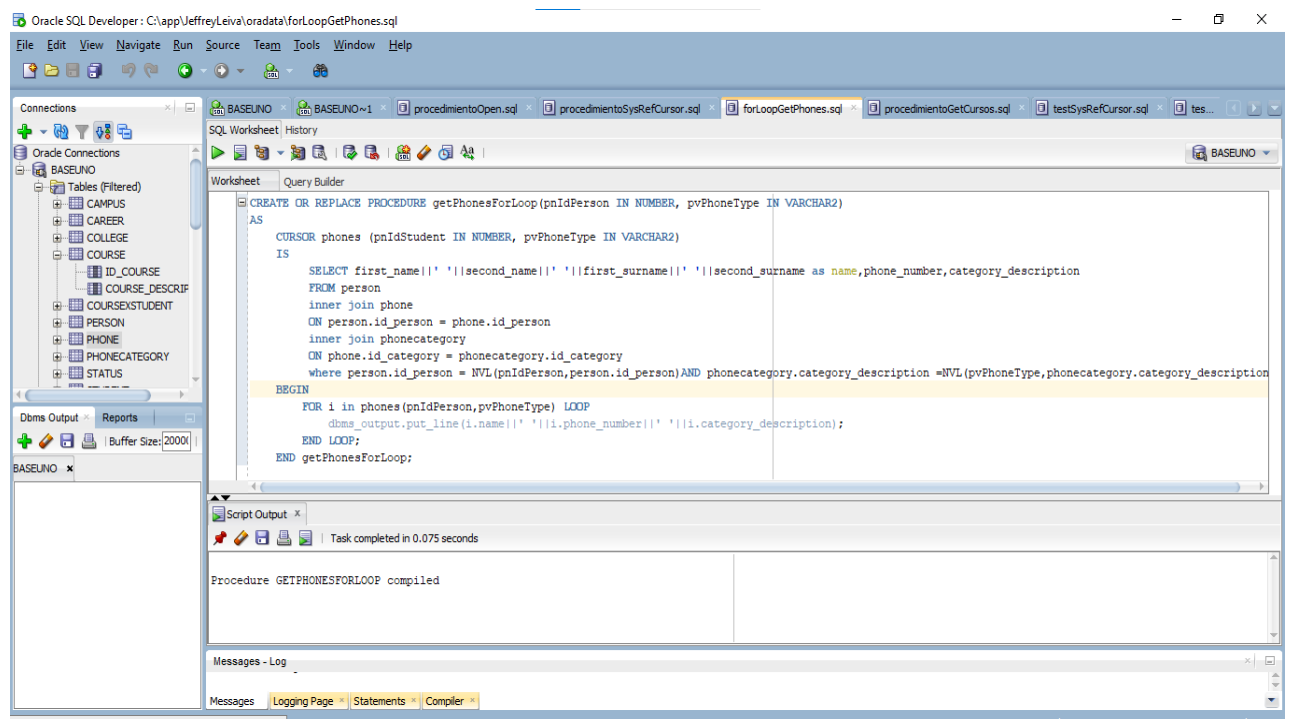
The database throws an exception saying that there is a wrong number of values in the INTO list of Fetch Statement.

5. What happens when in the test fetch the fields have a different domain from the what is getting the cursor? 10pts

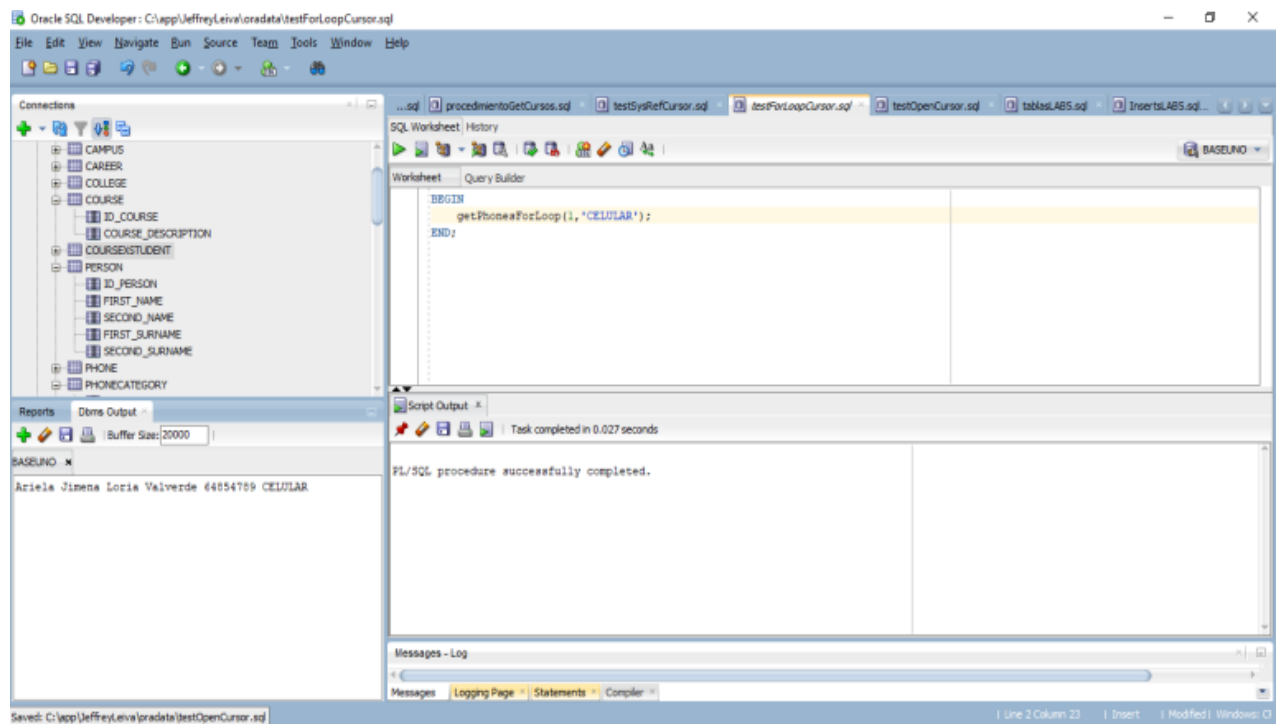
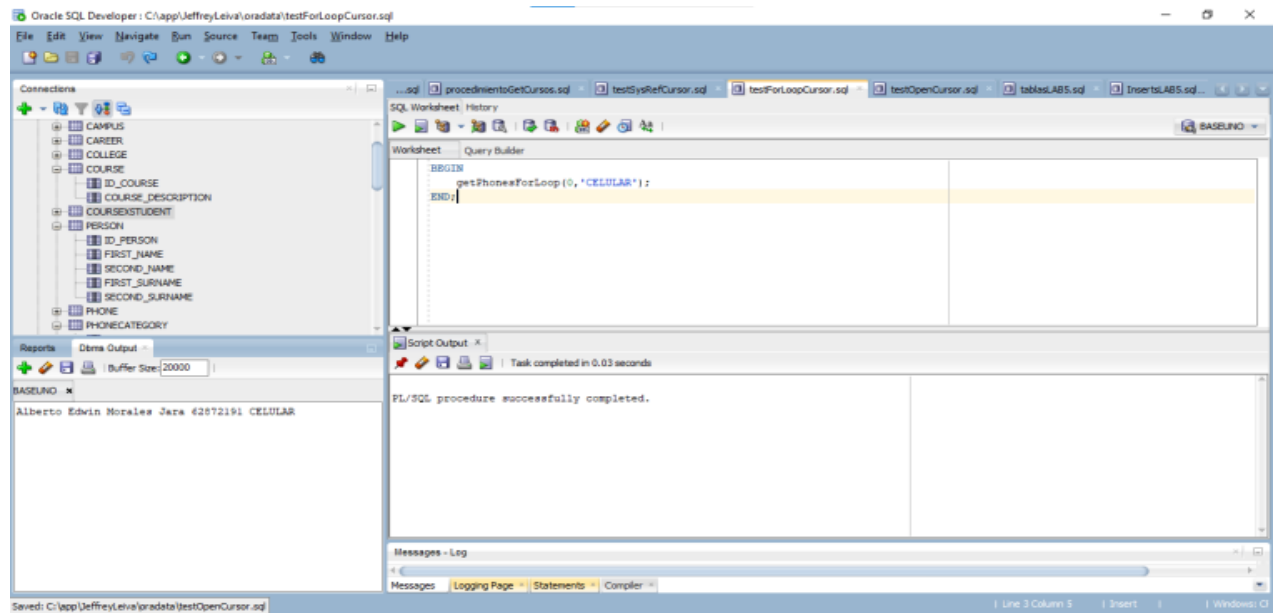
The procedure compiles and does not throw any exceptions but when you call it from the test query it throws an exception that says there are numeric or value errors.

6. Modify the cursor to use the code with LOOP. 10pts

Compilation of the getPhones Procedure using for loop:



Next there are various test cases for this point.



Oracle SQL Developer: C:\app\JeffreyLeiva\oradata\testForLoopCursor.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSESTUDENT
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

Reports Data Output Buffer Size: 20000

BASELINO

Alberto Edwin Morales Jara 22707711 CASA

Script Output Task completed in 0.025 seconds

PL/SQL procedure successfully completed.

Messages - Log

Messages Logging Page Statements Compiler

Oracle SQL Developer: C:\app\JeffreyLeiva\oradata\testForLoopCursor.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSESTUDENT
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

Reports Data Output Buffer Size: 20000

BASELINO

Ariela Jimena Loria Valverde 22145391 CASA

Script Output Task completed in 0.023 seconds

PL/SQL procedure successfully completed.

Messages - Log

Messages Logging Page Statements Compiler

Oracle SQL Developer: C:\app\JeffreyLeiva\oradata\testForLoopCursor.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSEXSTUDENT
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

Reports Data Output

Buffer Size: 20000

BASLINO

Alberto Edwin Morales Jara	22707711	CASA
Alberto Edwin Morales Jara	62872191	CELULAR

Script Output

Task completed in 0.023 seconds

PL/SQL procedure successfully completed.

Messages - Log

Messages Logging Page Statements Compiler

Oracle SQL Developer: C:\app\JeffreyLeiva\oradata\testForLoopCursor.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSEXSTUDENT
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

Reports Data Output

Buffer Size: 20000

BASLINO

Ariela Jimena Loria Valverde	64854789	CELULAR
Ariela Jimena Loria Valverde	32145391	CASA

Script Output

Task completed in 0.025 seconds

PL/SQL procedure successfully completed.

Messages - Log

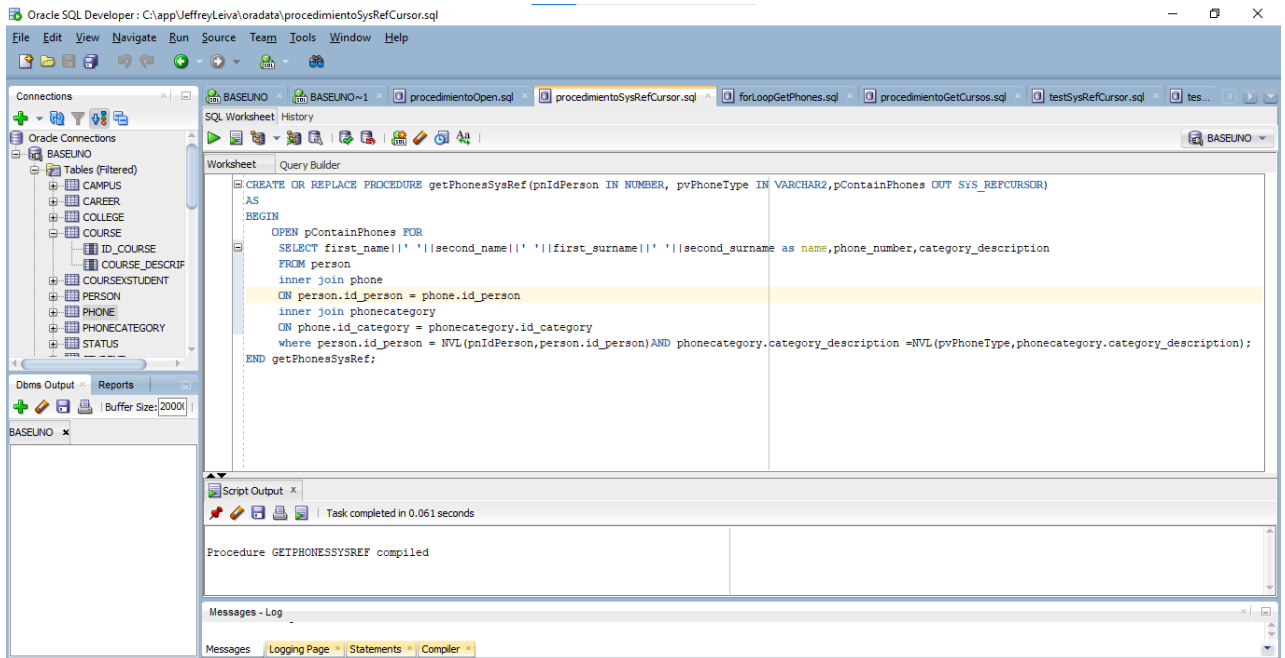
Messages Logging Page Statements Compiler

Saved: C:\app\JeffreyLeiva\oradata\testForLoopCursor.sql

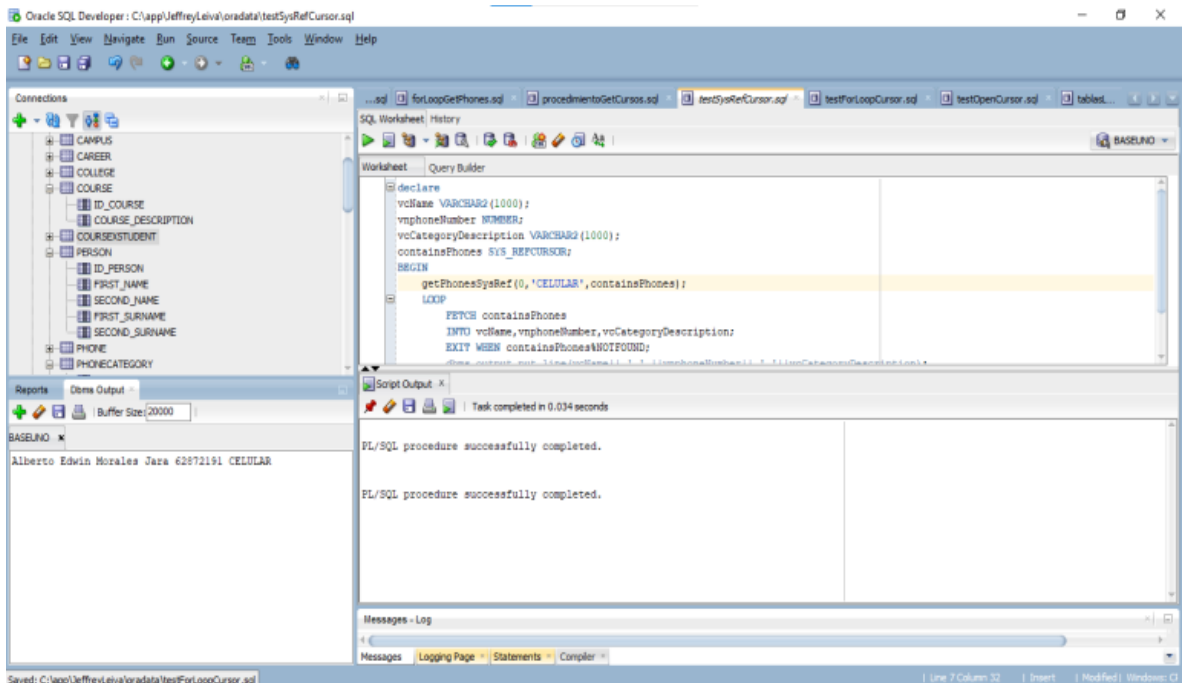
Line 2 Column 28 Insert Windows: 0

## 7. Modify the cursor to use the code from SYS\_REFCURSOR.10pts

Compilation for the getPhones procedure using sys\_refcursor:



Next there are some test cases





Oracle SQL Developer: C:\app\Jeffrey.Leiva\oradata\testSysRefCursor.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSESTUDENT
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

SQL Worksheet: History

Worksheet Query Builder

```

declare
  vcName VARCHAR2(1000);
  vnphoneNumber NUMBER;
  vcCategoryDescription VARCHAR2(1000);
  containsPhones SYS_REFCURSOR;
BEGIN
  getPhonesSysRef(1, 'CASA', containsPhones);
  LOOP
    FETCH containsPhones
    INTO vcName, vnphoneNumber, vcCategoryDescription;
    EXIT WHEN containsPhones%NOTFOUND;
  
```

Script Output

Task completed in 0.024 seconds

PL/SQL procedure successfully completed.

Messages - Log

Messages | Logging Page | Statements | Compiler

Reports | Dims Output

Buffer Size: 20000

BASELINE

Ariela Jimena Loria Valverde 20145391 CASA

Oracle SQL Developer: C:\app\Jeffrey.Leiva\oradata\testSysRefCursor.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSESTUDENT
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

SQL Worksheet: History

Worksheet Query Builder

```

declare
  vcName VARCHAR2(1000);
  vnphoneNumber NUMBER;
  vcCategoryDescription VARCHAR2(1000);
  containsPhones SYS_REFCURSOR;
BEGIN
  getPhonesSysRef(0, NULL, containsPhones);
  LOOP
    FETCH containsPhones
    INTO vcName, vnphoneNumber, vcCategoryDescription;
    EXIT WHEN containsPhones%NOTFOUND;
  
```

Script Output

Task completed in 0.034 seconds

PL/SQL procedure successfully completed.

PL/SQL procedure successfully completed.

Messages - Log

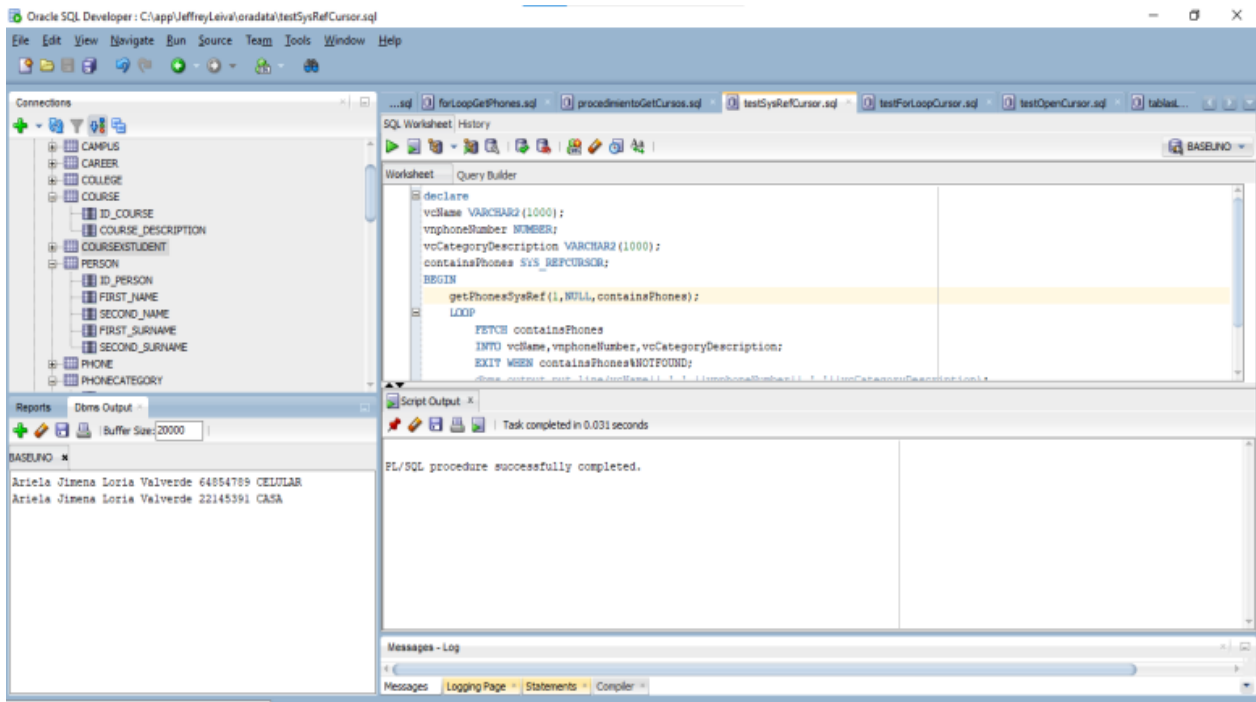
Messages | Logging Page | Statements | Compiler

Reports | Dims Output

Buffer Size: 20000

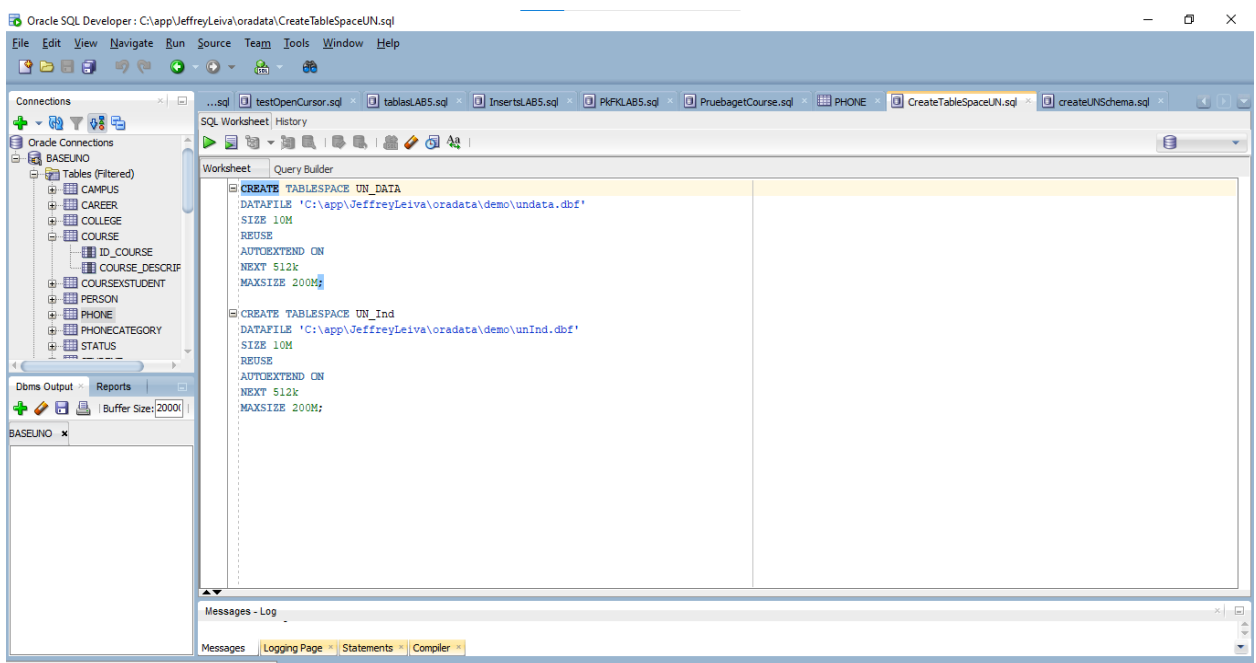
BASELINE

Alberto Edwin Morales Jara 22707711 CASA  
Alberto Edwin Morales Jara 62872191 CELULAR

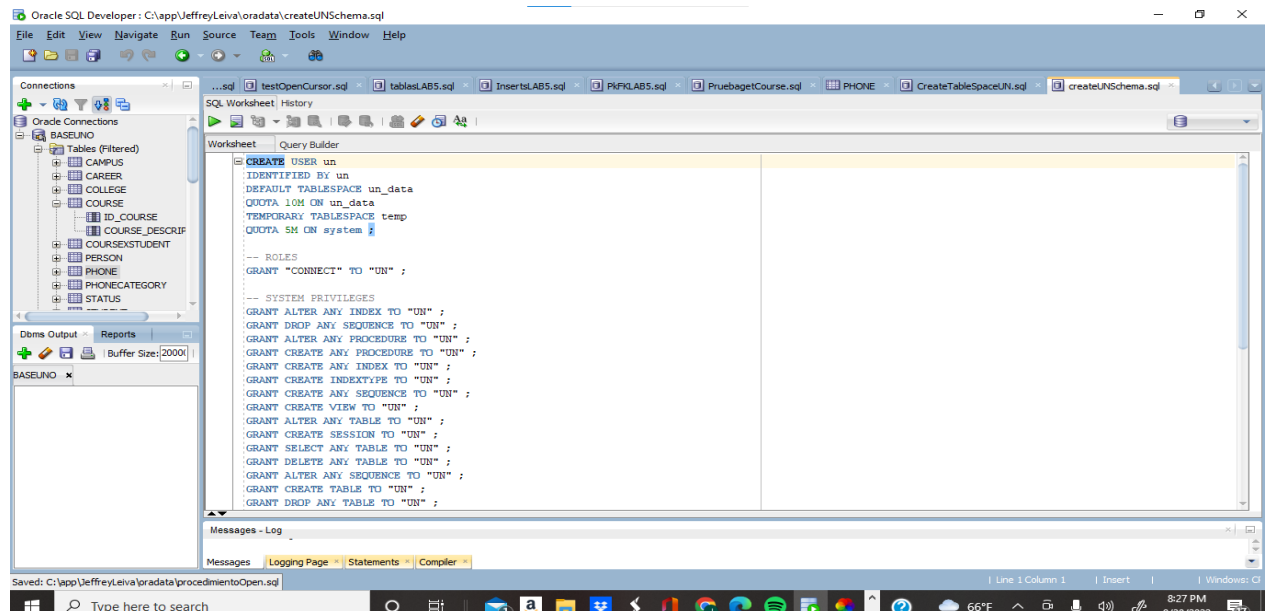


8. Create the UN schema and create the student, courses and their associations tables. Create a cursor getCursos that returns the courses of a student from the student\_id and the status of the course (either approved, failed, pending) where this last parameter can be null in which case it must return all the student's courses and the status of it. 15pt

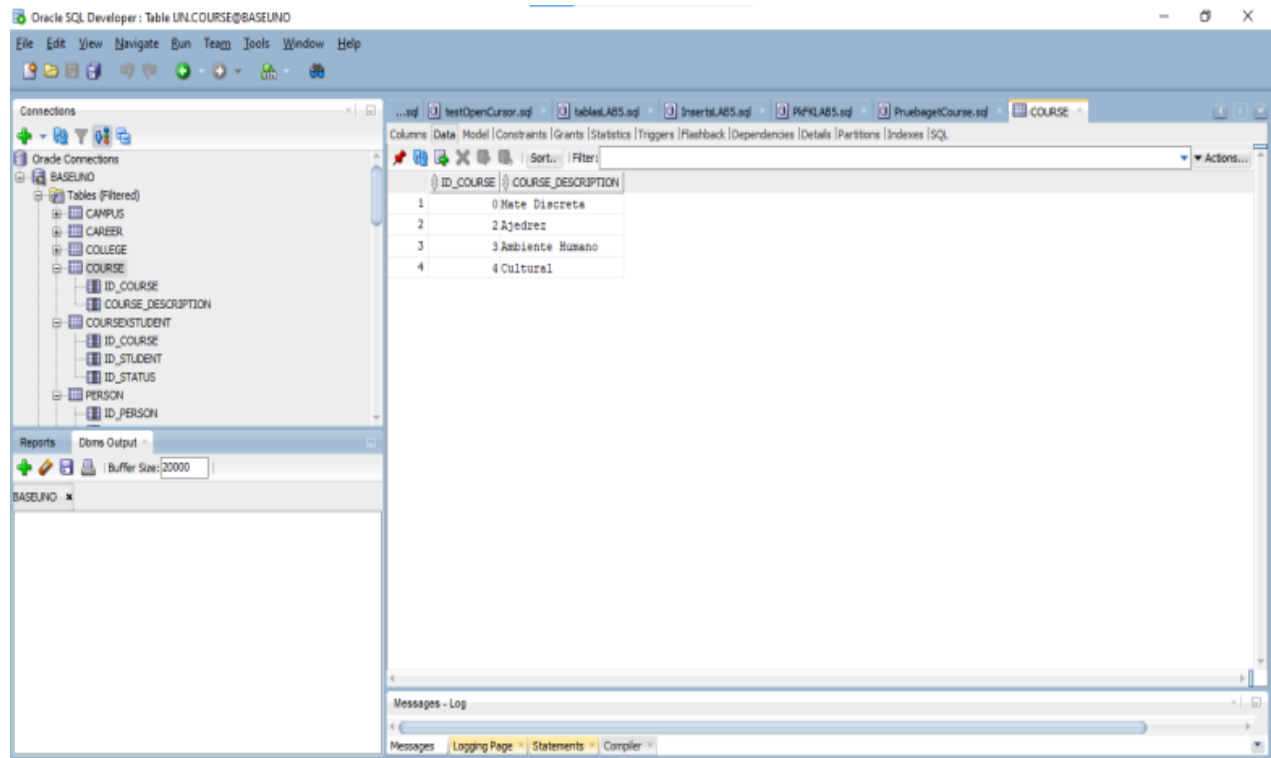
Creation of UN tablespace:



## Creation of UN schema



## TABLE COURSE



## TABLE COURSEXSTUDENT

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane shows the 'BASELINO' connection. The 'Tables (Filtered)' list includes 'COURSESTUDENT'. The main window displays a query result for the 'COURSESTUDENT' table. The query is: `SELECT ID_COURSE, ID_STUDENT, ID_STATUS FROM COURSESTUDENT`. The result shows 4 rows of data.

ID_COURSE	ID_STUDENT	ID_STATUS
1	0	0
2	2	0
3	3	1
4	4	1

The bottom pane shows the 'Messages - Log' window, which is currently empty.

## TABLE STUDENT

The screenshot shows the Oracle SQL Developer interface. The top menu bar includes File, Edit, View, Navigate, Run, Team, Tools, Window, and Help. The main window displays the 'STUDENT' table structure in the left pane, with columns: FIRST\_NAME, SECOND\_NAME, FIRST\_SURNAME, SECOND\_SURNAME, PHONE, PHONECATEGORY, ID\_CATEGORY, CATEGORY\_DESCRIPTION, STATUS, ID\_STATUS, STATUS\_DESCRIPTION, ID\_STUDENT, STUDENT\_CARD, and FIRST\_NAME. The right pane shows the table data in a grid view. The bottom pane shows the 'Messages - Log' window.

ID_STUDENT	STUDENT_CARD	FIRST_NAME	SECOND_NAME	FIRST_SURNAME	SECOND_SURNAME
1	0	20210167 Jeffrey	Daniel	Leiva	Cascante
2	1	20210921 Tamara	Nicole	Rodriguez	Luna

## TABLE STATUS

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane displays a tree view of the database schema, with the 'STATUS' table selected. The 'Data' tab is active, showing the table's structure and data. The table has two columns: 'ID\_STATUS' and 'STATUS\_DESCRIPTION'. The data is as follows:

ID_STATUS	STATUS_DESCRIPTION
1	0 APROBADO
2	1 REPROBADO
3	2 PENDIENTE

## PROCEDURE GETCOURSE

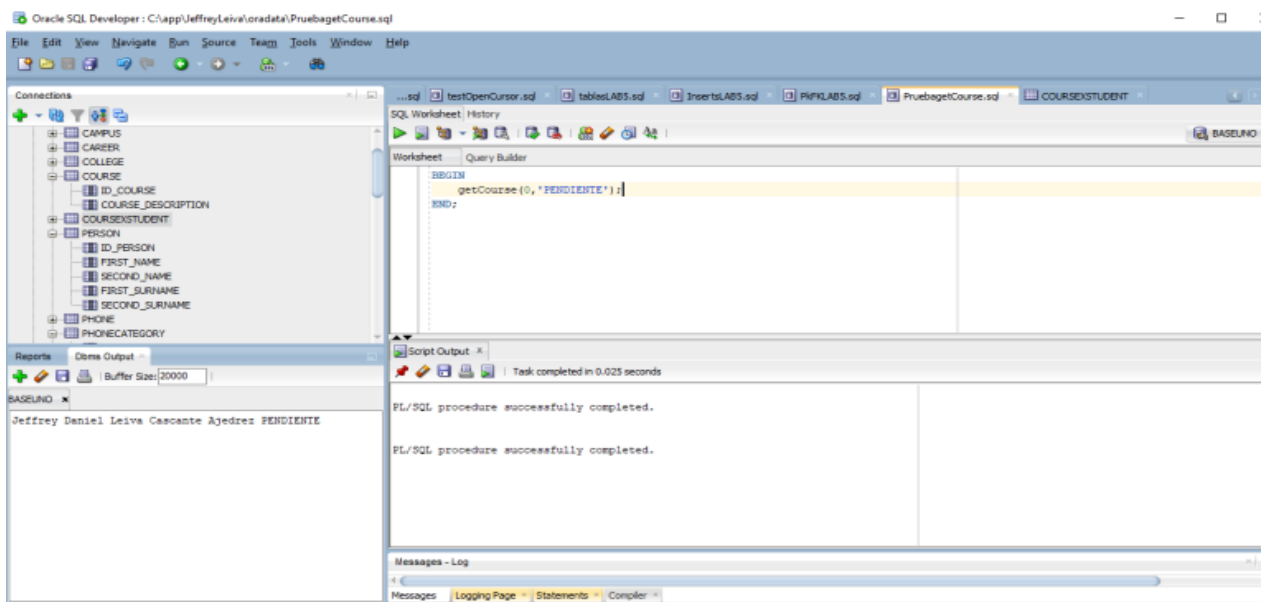
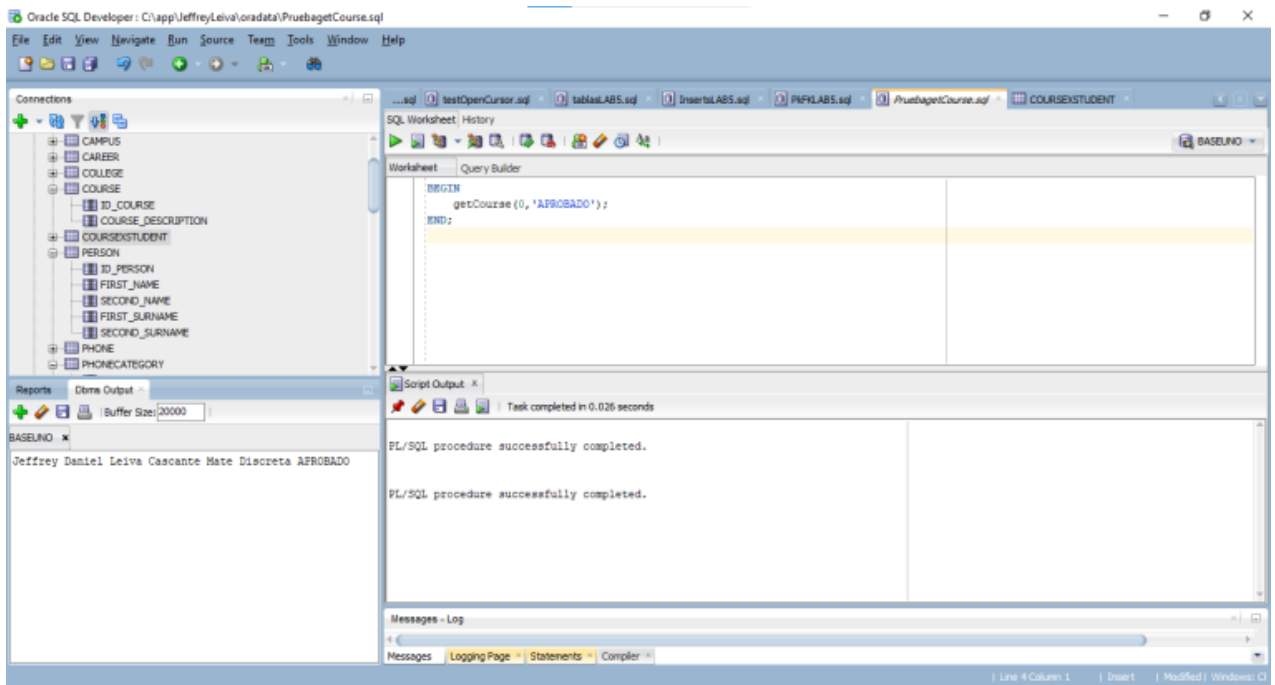
The screenshot shows the Oracle SQL Developer interface with the 'PROCEDIMIENTO GETCursos.sql' file open. The 'Worksheet' tab displays the SQL code for the 'getCourse' procedure. The 'Script Output' pane shows the execution results, indicating that the procedure was compiled successfully.

```
CREATE OR REPLACE PROCEDURE getCourse(pnIdStudent IN NUMBER, pcStateCourse IN VARCHAR2)
AS
    vcStateCourse VARCHAR2(1000);
    vcCourseName VARCHAR2(1000);
    vcName VARCHAR2(1000);
    CURSOR coursesCursor IS
        SELECT first_name||' '||second_name||' '||first_surname||' '||second_surname as name, course.course_description, status.status_description
        FROM student
        inner join coursexstudent
        ON student.id_student = coursexstudent.id_student
        inner join course
        ON course.id_course = coursexstudent.id_course
        inner join status
        ON coursexstudent.id_status = status.id_status
        where student.id_student = NVL(pnIdStudent, student.id_student) AND status.status_description = NVL(pcStateCourse, status.status_description);
BEGIN
    OPEN coursesCursor;
    LOOP
        FETCH coursesCursor INTO vcName, vcCourseName, vcStateCourse;
```

Script Output: Task completed in 0.076 seconds

Procedure GETCOURSE compiled

Next there are some test cases for the procedure.



Oracle SQL Developer: C:\app\JeffreyLeiva\oradata\PruebagetCourse.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSESTUDENT
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

Reports

Buffer Size: 20000

BASELINO

Tanara Nicole Rodriguez Luna Ambiente Humano REPROBADO

Worksheet

```
BEGIN
getCourse(1, 'REPROBADO');
END;
```

Script Output

Task completed in 0.026 seconds

PL/SQL procedure successfully completed.

Messages - Log

Messages Logging Page Statements Compiler

Oracle SQL Developer: C:\app\JeffreyLeiva\oradata\PruebagetCourse.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSESTUDENT
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

Reports

Buffer Size: 20000

BASELINO

Jeffrey Daniel Leiva Casante Mate Discreta APROBADO  
Jeffrey Daniel Leiva Casante Ajedrez PENDIENTE

Worksheet

```
BEGIN
getCourse(0, NULL);
END;
```

Script Output

Task completed in 0.028 seconds

PL/SQL procedure successfully completed.

Messages - Log

Messages Logging Page Statements Compiler

Oracle SQL Developer: C:\app\JeffreyLeiva\oradata\PruebagetCourse.sql

File Edit View Navigate Run Source Text Tools Window Help

Connections

- CAMPUS
- CAREER
- COLLEGE
- COURSE
  - ID\_COURSE
  - COURSE\_DESCRIPTION
- COURSESTUDENT
- PERSON
  - ID\_PERSON
  - FIRST\_NAME
  - SECOND\_NAME
  - FIRST\_SURNAME
  - SECOND\_SURNAME
- PHONE
- PHONECATEGORY

Reports Data Output

Buffer Size: 20000

BASELINO

Tamara Nicole Rodriguez Luna Ambiente Humano REPROBADO  
Tamara Nicole Rodriguez Luna Cultural APROBADO

SQL Worksheet History

testOpenCursor.sql tablesLAB5.sql InsertsLAB5.sql RMPPLAB5.sql PruebagetCourse.sql COURSESTUDENT

Worksheet Query Builder

```
BEGIN  
getCourse (1, NULL);  
END;
```

Script Output

Task completed in 0.025 seconds

PL/SQL procedure successfully completed.

Messages - Log

Messages Logging Page Statements Compiler