

Laboratory 02

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IC4301 – Databases I

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In this document are the evidence of laboratory 02 where you can see the objects created, data inserted, modified, among others.

Evidences:

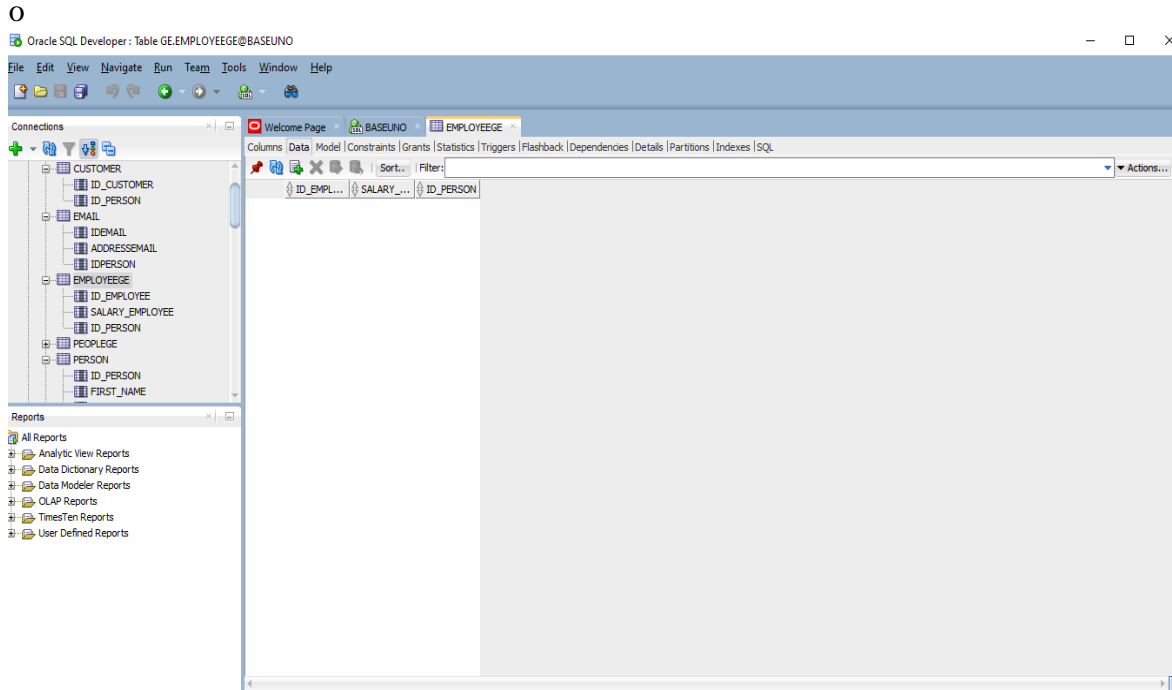
1. Register 20 people with legible and consistent data that includes salary data, names and surnames, date of birth, among other basics. Make sure there are 10 people who have the highest salaries and that 5 of those salaries are repeated.
 - In this image you can see the table Person in the Database empty:

ID_EMPLOYEE	SALARY_EMPLOYEE	ID_PERSON	BIRTHDAY_EMPLOYEE
1	20	235000	20 27-MAY-03
2	0	300000	0 28-MAY-03
3	1	700000	1 15-APR-98
4	2	805000	2 25-MAY-86
5	3	700000	3 13-SEP-07
6	4	700000	4 13-FEB-98
7	5	700000	5 11-NOV-05
8	6	747500	6 19-FEB-70
9	7	680000	7 17-AUG-99
10	8	500000	8 27-OCT-07
11	9	640000	9 16-DEC-02
12	11	250000	11 21-MAR-03
13	12	320000	12 22-APR-00
14	13	414000	13 31-DEC-87
15	14	410000	14 12-JAN-99
16	15	310500	15 09-SEP-89
17	16	310000	16 07-JUL-98
18	17	385000	17 01-SEP-00
19	18	290000	18 03-DEC-96
20	19	340000	19 10-MAR-98

- In this image you can see the table Person in the Database with 20 people registered but without the salary, because for our ER we need to insert that later:

	ID_PERSON	FIRST_NAME	IDENTITYCARD	SECOND_NAME	FIRST_SURNAME	SECOND_SURNAME	BIRTHDATE
1	0	Tamara	118750560	Nicole	Rodríguez	Luna	28-MAY-03
2	1	Melissa	119560234	Laura	Zarate	López	15-APR-98
3	2	Catalina	202678512	Maria	Santana	Hernández	25-MAY-86
4	3	Alejandro	705689412	Sebastian	Fernández	Ortiz	13-SEP-07
5	4	Paula	306872354	Liliana	Perez	López	13-FEB-98
6	5	Ariana	603154786	Vanessa	Gonzalez	Molina	11-NOV-05
7	6	Isabel	452618723	Rosaura	Torres	Benavides	19-FEB-70
8	7	Kenneth	514896458	Ricardo	Ibarra	Vargas	17-AUG-99
9	8	Jezabel	789630412	Hillary	Morales	Barrera	27-OCT-07
10	9	Luis	402569871	Roberto	Rivera	Moaraga	16-DEC-02
11	11	Jeffrey	118670120	Daniel	Leiva	Cascante	21-MAR-03
12	12	Esteban	119872619	Alfredo	Perez	Caceres	22-APR-00
13	13	Andres	290871627	Eduardo	Villalobos	Sandi	31-DEC-87
14	14	Francisco	390812345	Franco	Sanchez	Ruben	12-JAN-99
15	15	Hilda	568909876	Heriberta	Robles	Torres	09-SEP-89
16	16	Carlos	435678901	Humberto	Flores	Valerio	07-JUL-98
17	17	James	189098762	Kevin	Valverde	Alpizar	01-SEP-00
18	18	Pedro	198098765	Pablo	Matarrita	Smith	03-DEC-96
19	19	Rachell	345987654	Maria	Bermudez	Salazar	10-MAR-98
20	20	Mariana	478985748	Steffany	Orozco	Campos	27-MAY-03

- In this image you can see the table employeee in the Database empty:



- In this image you can see the table employeee in the Database with 20 employees registered but with the salary:

ID_EMPLOYEE	SALARY_EMPLOYEE	ID_PERSON
1	0	300000
2	1	700000
3	2	700000
4	3	700000
5	4	700000
6	5	700000
7	6	650000
8	7	680000
9	8	500000
10	9	640000
11	11	250000
12	12	320000
13	13	360000
14	14	410000
15	15	270000
16	16	310000
17	17	385000
18	18	290000
19	19	340000
20	20	235000

2. Delete one person.

- In these images you can see the table Person in the Database before the delete:

	ID_PERSON	FIRST_NAME	IDENTITYCARD	SECOND_NAME	FIRST_SURNAME	SECOND_SURNAME	BIRTHDATE
1	0	Tamara	118750560	Nicole	Rodríguez	Luna	28-MAY-03
2	1	Melissa	119560234	Laura	Zarate	López	15-APR-98
3	2	Catalina	202678512	María	Santana	Hernández	25-MAY-86
4	3	Alejandro	705689412	Sebastian	Fernández	Ortiz	13-SEP-07
5	4	Paula	306872354	Liliana	Perez	López	13-FEB-98
6	5	Ariana	603154786	Vanessa	Gonzalez	Molina	11-NOV-05
7	6	Isabel	452618723	Rosaura	Torres	Benavides	19-FEB-70
8	7	Kenneth	514896458	Ricardo	Ibarra	Vargas	17-AUG-99
9	8	Jezabel	789630412	Hillary	Morales	Barrera	27-OCT-07
10	9	Luis	402569871	Roberto	Rivera	Moaraga	16-DEC-02
11	11	Jeffrey	118670120	Daniel	Leiva	Cascante	21-MAR-03
12	12	Esteban	119872619	Alfredo	Perez	Caceres	22-APR-00
13	13	Andres	290871627	Eduardo	Villalobos	Sandi	31-DEC-87
14	14	Francisco	390812345	Franco	Sanchez	Ruben	12-JAN-99
15	15	Hilda	568909876	Heriberta	Robles	Torres	09-SEP-89
16	16	Carlos	435678901	Humberto	Flores	Valerio	07-JUL-98
17	17	James	189098762	Kevin	Valverde	Alpizar	01-SEP-00
18	18	Pedro	198098765	Pablo	Matarrita	Smith	03-DEC-96
19	19	Rachell	345987654	Maria	Bermudez	Salazar	10-MAR-98
20	20	Mariana	478985748	Steffany	Orozco	Campos	27-MAY-03
21	30	Johanny	112345678	David	Morales	Vega	11-JUL-82
22	31	Jeffry	119845679	Alexander	Avilés	Figueroa	14-JUN-89
23	32	Luciana	112345671	Yancy	Alfaro	Bonilla	09-JAN-01
24	33	Anabel	112398672	Elizabeth	Dario	Cisneros	23-JUL-04
25	34	Daniel	112345673	Armando	Castro	Jarquin	24-DEC-96
26	35	Jeannette	112345984	Sandra	Mora	Zamora	23-AUG-72
27	36	Kevin	112398675	Richard	Iglesias	Cerratti	12-SEP-85
28	37	Josette	112345676	Laurenth	Oreamuno	Jara	29-MAR-01
29	38	Fernando	198345677	Andres	Rojas	Loria	18-JUL-02
30	39	Katherine	119845681	Patricia	Carcamo	Helo	15-APR-62
31	40	Paula	112345682	Digna	Jarquín	Altamirano	14-FEB-63
32	41	Iris	112398683	Tatiana	Chavarria	Montero	04-DEC-01
33	42	Loana	112345684	Emilia	Chavez	Alvarado	09-MAY-96
34	43	Fabricio	112345685	Mauro	Alvarado	Flores	04-APR-58
35	44	Luisa	112345686	Raquel	Romero	Cascante	12-APR-02
36	45	Hermione	198345687	Jean	Granger	Weasley	03-FEB-62

- In this image you can see the table Person in the Database after the delete:

ID_PERSON	FIRST_NAME	IDENTITYCARD	SECOND_NAME	FIRST_SURNAME	SECOND_SURNAME	BIRTHDATE
11	Luis	402569871	Roberto	Rivera	Moaraga	16-DEC-02
12	Jeffrey	118670120	Daniel	Leiva	Cascante	21-MAR-03
13	Esteban	119872619	Alfredo	Perez	Caceres	22-APR-00
14	Andres	290871627	Eduardo	Villalobos	Sandi	31-DEC-87
15	Francisco	390812345	Franco	Sanchez	Rubena	12-JAN-99
16	Hilda	568909876	Heriberta	Robles	Torres	09-SEP-89
17	Carlos	435678901	Humberto	Flores	Valerio	07-JUL-98
18	James	189098762	Kevin	Valverde	Alpiar	01-SEP-00
19	Pedro	198098765	Pablo	Matarrita	Smith	03-DEC-96
20	Rachel	345987654	Maria	Bermudez	Salazar	10-MAR-98
21	Johanny	112345678	David	Morales	Vega	11-JUL-82
22	Jeffrey	119845679	Alexander	Aviles	Figueroa	14-JUN-89
23	Luciana	112345671	Yancy	Alfaro	Bonilla	09-JAN-01
24	Anabel	112398672	Elizabeth	Dario	Cisneros	23-JUL-04
25	Daniel	112345673	Armando	Castro	Jarquín	24-DEC-96
26	Jeannette	112345984	Sandra	Mora	Zamora	23-AUG-72
27	Kevin	112398675	Richard	Iglesias	Cerratti	12-SEP-85
28	Joette	112345676	Laurenth	Oreamuno	Jara	29-MAR-01
29	Fernando	198345677	Andres	Rojas	Loria	18-JUL-02
30	Katherine	119845681	Patricia	Carcamo	Helo	15-APR-62
31	Paula	112345682	Digna	Jarquín	Altamirano	14-FEB-63
32	Iris	112398683	Tatiana	Chavarria	Montero	04-DEC-01
33	Loana	112345684	Emilia	Chavez	Alvarado	09-MAY-96
34	Fabrizio	112345685	Muro	Alvarado	Flores	04-APR-58
35	Luisa	112345686	Raquel	Romero	Cascante	12-APR-02

3. Register 8 phones with phone type including 'Casa', 'Celular', 'Oficina' and model so that more phone types can be included.

- In this image you can see the table phone in the Database empty:

ID_PHONE	NUMBER_PHONE	PHONECATEGORY	IDPERSON
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- In this image you can see the table phone in the Database with 8 registers:

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane displays a tree view of the database schema, including tables like CUSTOMER, EMPLOYEE, and PERSON. The main window displays the 'PHONEL2' table with 8 records. The table has four columns: ID_PHONE, NUMBER_PHONE, PHONECATEGORY, and IDPERSON. The data is as follows:

ID_PHONE	NUMBER_PHONE	PHONECATEGORY	IDPERSON
1	0	22509878 casa	0
2	1	64854789 casa	1
3	2	22707711 casa	2
4	3	71602741 celular	3
5	4	88906576 celular	4
6	5	22145391 oficina	5
7	6	22144536 oficina	6
8	7	88375692 celular	7

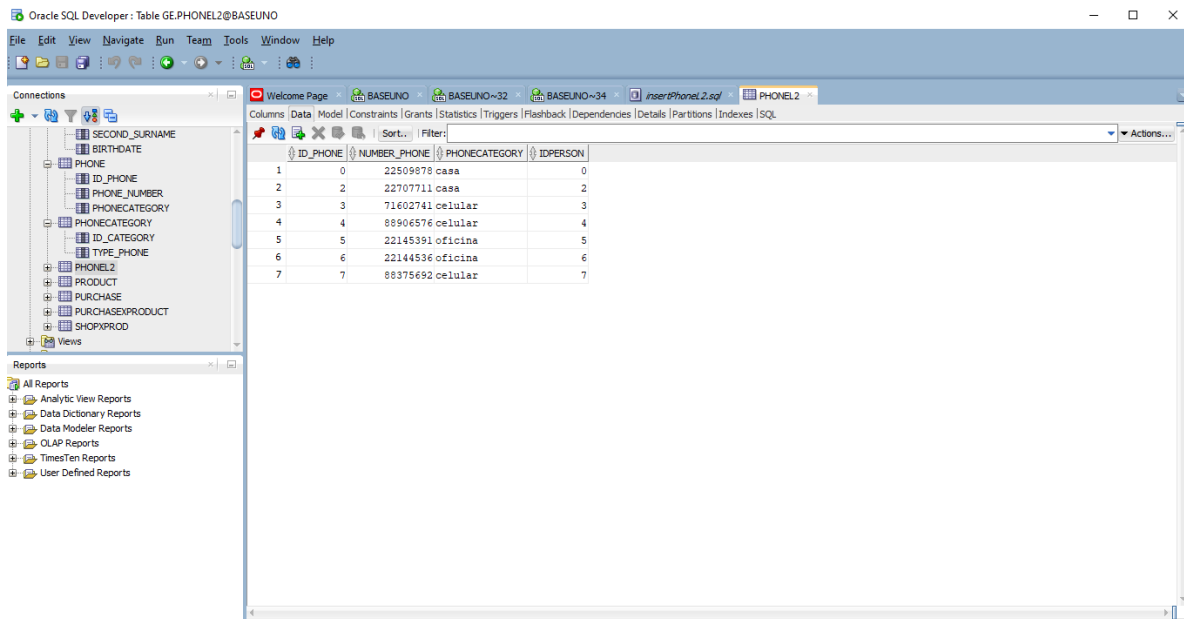
4. Delete one phone:

- In this image you can see the table phone in the Database before the delete:

This screenshot is identical to the one above, showing the Oracle SQL Developer interface with the 'PHONEL2' table containing 8 records. The table structure and data are the same as in the previous image.

ID_PHONE	NUMBER_PHONE	PHONECATEGORY	IDPERSON
1	0	22509878 casa	0
2	1	64854789 casa	1
3	2	22707711 casa	2
4	3	71602741 celular	3
5	4	88906576 celular	4
6	5	22145391 oficina	5
7	6	22144536 oficina	6
8	7	88375692 celular	7

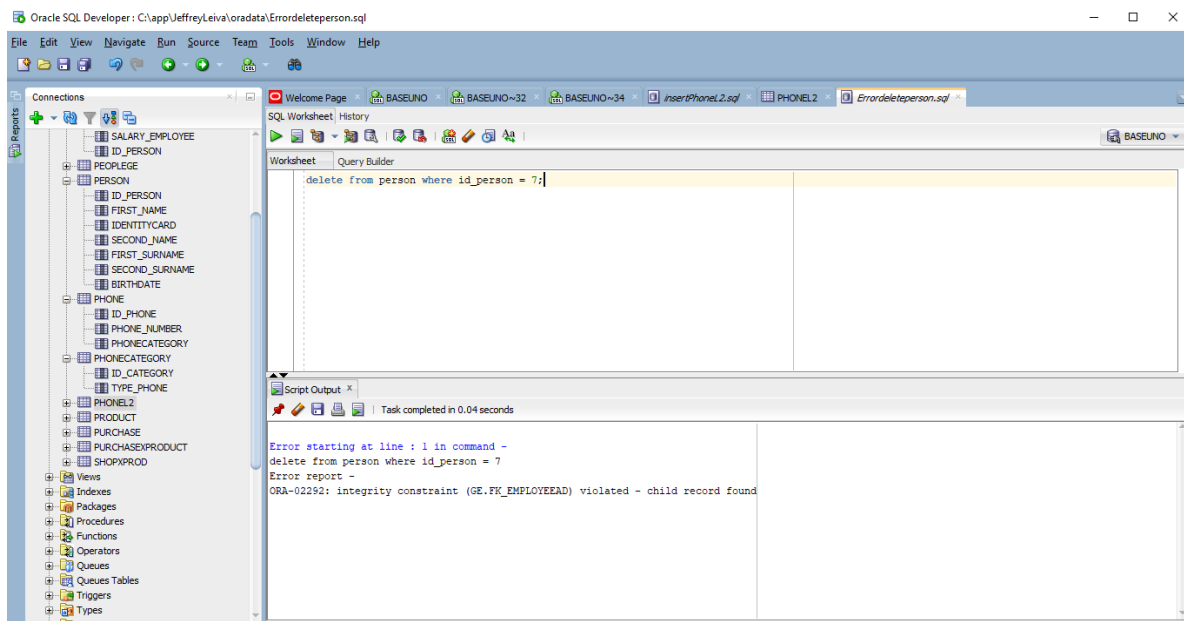
- In this image you can see the table phone in the Database after the delete:



ID_PHONE	NUMBER_PHONE	PHONECATEGORY	IDPERSON
1	0	22509878 casa	0
2	2	22707711 casa	2
3	3	71602741 celular	3
4	4	88906576 celular	4
5	5	22145391 oficina	5
6	6	22144536 oficina	6
7	7	88375692 celular	7

5. Delete a person who has associated phones. What's going on? Justify your response.

- In this image you can see the error that occurred while when we were trying to eliminate a person with associated telephones, because if the database gives us the possibility to do so, the telephone will be left loose without having a person to whom it belongs and would be to have 'data floating' in our system.



SQL Worksheet: History

Worksheet

```
delete from person where id_person = 7;
```

Script Output

Task completed in 0.04 seconds

Error starting at line : 1 in command -
delete from person where id_person = 7
Error report -
ORA-02292: integrity constraint (GE_FK_EMPLOYEEAD) violated - child record found

6. Update a person to change her name to 'Marcela'.

- In this image you can see the table person in the Database before the change:

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane shows the 'PERSON' table selected under the 'BASELINO' schema. The main window displays the 'PERSON' table data. The table has columns: ID_PERSON, FIRST_NAME, IDENTITYCARD, SECOND_NAME, FIRST_SURNAME, SECOND_SURNAME, and BIRTHDATE. The data is as follows:

ID_PERSON	FIRST_NAME	IDENTITYCARD	SECOND_NAME	FIRST_SURNAME	SECOND_SURNAME	BIRTHDATE	
1	0	Tamara	118750560	Nicole	Rodriguez	Luna	28-MAY-03
2	1	Melissa	119560234	Laura	Zarate	López	15-APR-98
3	2	Catalina	202678512	Maria	Santana	Hernández	25-MAY-86
4	3	Alejandro	705689412	Sebastian	Fernández	Ortiz	13-SEP-07
5	4	Paula	306872354	Liliana	Perez	López	13-FEB-98
6	5	Ariana	603154786	Vanessa	Gonzalez	Molina	11-NOV-05
7	6	Isabel	452618723	Rosaura	Torres	Benavides	19-FEB-70
8	7	Kenneth	514896458	Ricardo	Ibarra	Vargas	17-AUG-99
9	8	Jezabel	789630412	Hillary	Morales	Barrera	27-OCT-07
10	9	Luis	402569871	Roberto	Rivera	Moaraga	16-DEC-02
11	11	Jeffrey	118670120	Daniel	Leiva	Casante	21-MAR-03
12	12	Esteban	119872619	Alfredo	Perez	Caceres	22-APR-00
13	13	Andres	290871627	Eduardo	Villalobos	Sandi	31-DEC-87
14	14	Francisco	390812345	Franco	Sanchez	Ruben	12-JAN-99
15	15	Hilda	568909876	Heriberto	Robles	Torres	09-SEP-89
16	16	Carlos	435678901	Humberto	Flores	Valerio	07-JUL-98
17	17	James	189098762	Kevin	Valverde	Alpizar	01-SEP-00
18	18	Pedro	198098765	Pablo	Matarrita	Smith	03-DEC-96
19	19	Rachell	345987654	Maria	Bermudez	Salazar	10-MAR-98
20	30	Johanny	112345678	David	Morales	Vega	11-JUL-82
21	31	Jeffry	119845679	Alexander	Avilés	Figuerola	14-JUN-89
22	32	Luciana	112345671	Yancy	Alfaro	Bonilla	09-JAN-01
23	33	Anabel	112398672	Elizabeth	Dario	Cisneros	23-JUL-04
24	34	Daniel	112345673	Armando	Castro	Jarquín	24-DEC-96
25	35	Jeannette	112345984	Sandra	Mora	Zamora	23-AUG-72

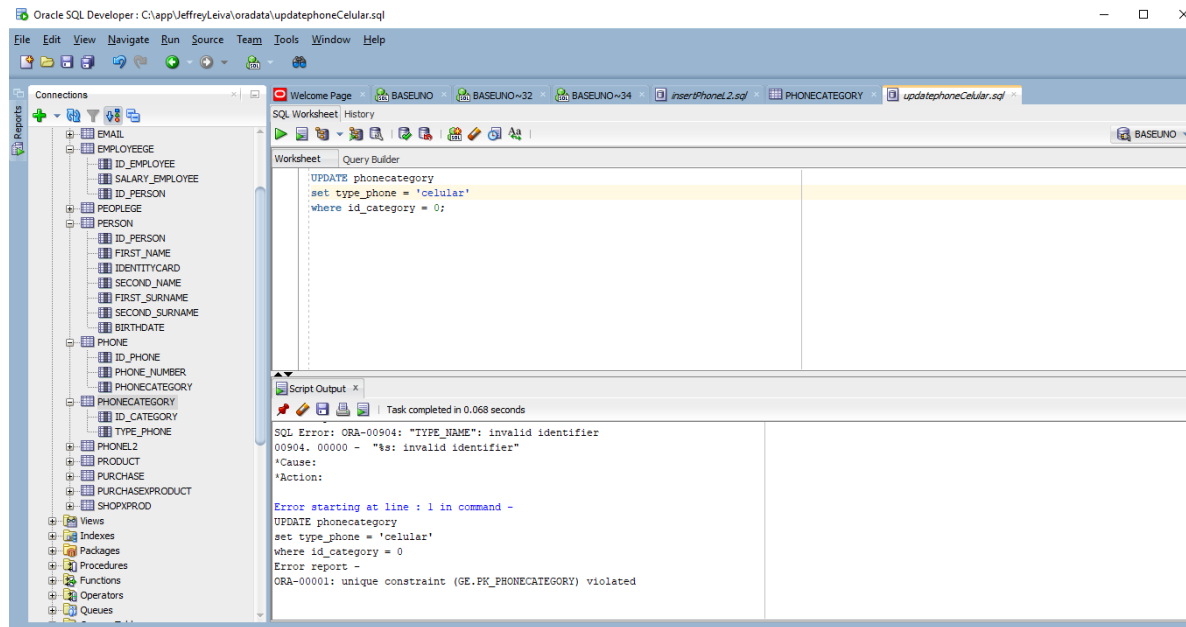
- In this image you can see the table person in the Database after the change:

The screenshot shows the Oracle SQL Developer interface. The 'PERSON' table is selected in the 'Tables (Filtered)' pane on the left. The main window displays the table's data in a grid view. The columns are: ID_PERSON, FIRST_NAME, IDENTITYCARD, SECOND_NAME, FIRST_SURNAME, SECOND_SURNAME, and BIRTHDATE. The data is sorted by ID_PERSON in ascending order.

ID_PERSON	FIRST_NAME	IDENTITYCARD	SECOND_NAME	FIRST_SURNAME	SECOND_SURNAME	BIRTHDATE
1	0	Tamara	118750560	Nicole	Rodriguez	Luna
2	1	Melissa	119560234	Laura	Zarate	López
3	2	Marcela	202678512	Maria	Santana	Hernández
4	3	Alejandro	705689412	Sebastian	Fernández	Ortiz
5	4	Paula	306872354	Liliana	Perez	López
6	5	Ariana	603154786	Vanessa	Gonzalez	Molina
7	6	Isabel	452618723	Rosaura	Torres	Benavides
8	7	Kenneth	514896458	Ricardo	Ibarra	Vargas
9	8	Jezabel	789630412	Hillary	Morales	Barrera
10	9	Luis	402569871	Roberto	Rivera	Moaraga
11	11	Jeffrey	118670120	Daniel	Leiva	Casante
12	12	Esteban	119872619	Alfredo	Perez	Caceres
13	13	Andres	290871627	Eduardo	Villalobos	Sandi
14	14	Francisco	390812345	Franco	Sanchez	Ruben
15	15	Hilda	568909876	Heriberto	Robles	Torres
16	16	Carlos	435678901	Humberto	Flores	Valerio
17	17	James	189098762	Kevin	Valverde	Alpizar
18	18	Pedro	198098765	Pablo	Matarrita	Smith
19	19	Rachell	345987654	Maria	Bermudez	Salazar
20	30	Johanny	112345678	David	Morales	Vega
21	31	Jeffry	119845679	Alexander	Avilés	Figuerola
22	32	Luciana	112345671	Yancy	Alfaro	Bonilla
23	33	Anabel	112398672	Elizabeth	Dario	Cisneros
24	34	Daniel	112345673	Armando	Castro	Jarquín
25	35	Jeannette	112345984	Sandra	Mora	Zamora
26	36	Wendy	112306675	Richard	Telefonos	Comunicat

7. Update a phone type to rename it to 'Celular'.

- In this image you can see the error that occurred while we tried to update a type of phone and rename it to cell phone, because if the database gives us the possibility to do so, the already existing category called cell phone would be overwritten and would have a problem of data integrity since when called the same we would not know what type we are referring to. It would cause many problems when making queries and for the people who manage the data, they will not know what type to enter the data, also allowing repeated data.



8. Increase the salary by 15% to people who are over 30 years old.

- In this image you can see the table employeee in the Database with 20 employees registered but without the increase in the salary 15% to people who are over 30 years old:

ID_EMPLOYEE	SALARY_EMPLOYEE	ID_PERSON
1	0	300000
2	1	700000
3	2	700000
4	3	700000
5	4	700000
6	5	700000
7	6	650000
8	7	680000
9	8	500000
10	9	640000
11	11	250000
12	12	320000
13	13	360000
14	14	410000
15	15	270000
16	16	310000
17	17	385000
18	18	290000
19	19	340000
20	20	235000

- In this image you can see the table employeee in the Database with 20 employees registered but with the increase in the salary 15% to people who are over 30 years old:

ID_EMPLOYEE	SALARY_EMPLOYEE	ID_PERSON	BIRTHDAY_EMPLOYEE
1	20	235000	20 27-MAY-03
2	0	300000	0 28-MAY-03
3	1	700000	1 15-APR-98
4	2	805000	2 25-MAY-86
5	3	700000	3 13-SEP-07
6	4	700000	4 13-FEB-98
7	5	700000	5 11-NOV-05
8	6	747500	6 19-FEB-70
9	7	680000	7 17-AUG-99
10	8	500000	8 27-OCT-07
11	9	640000	9 16-DEC-02
12	11	250000	11 21-MAR-03
13	12	320000	12 22-APR-00
14	13	414000	13 31-DEC-87
15	14	410000	14 12-JAN-99
16	15	310500	15 09-SEP-99
17	16	310000	16 07-JUL-98
18	17	385000	17 01-SEP-00
19	18	290000	18 03-DEC-96
20	19	340000	19 10-MAR-98

9. Assign 15 people to be customers.

- In this image you can see the table customer in the Database empty:

ID_CUST...	ID_PERSON
------------	-----------

- In this image you can see the table customer in the Database with 15 customer registered:

The screenshot shows the Oracle SQL Developer interface with the CUSTOMER table selected. The table contains 15 rows of data, with columns ID_CUSTOMER and ID_PERSON visible. The data is as follows:

ID_CUSTOMER	ID_PERSON
1	0
2	1
3	2
4	3
5	4
6	5
7	6
8	7
9	8
10	9
11	10
12	11
13	12
14	13
15	14

10. Create 15 products.

- In this image you can see the table product in the Database empty:

The screenshot shows the Oracle SQL Developer interface with the PRODUCT table selected. The table is empty, and the columns IDPRODUCT, NAMEPRODUCT, and PRICEPRODUCT are visible in the column list.

- In this image you can see the table customer in the Database with 15 products created:

Oracle SQL Developer: Table GE.PRODUCT@BASEUNO

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

IDPRODUCT	NAMEPRODUCT	PRICEPRODUCT
1	0 Suavitel	2000
2	1 Axiom	1000
3	2 Cuaderno	2000
4	3 Lapicero	200
5	4 Borrador	500
6	5 Tajador	400
7	6 Corrector	600
8	7 Folder	1500
9	8 Salchicha	500
10	9 Mortadela	1600
11	10 Salchichon	1200
12	11 Queso	4000
13	12 Aceitunas	5000
14	13 Papas	700
15	14 Picasitas	600
16	15 Paleta	200

11. Create purchases for 7 customers. At least 5 of them must have more than 2 purchases and more than 1 product per purchase.

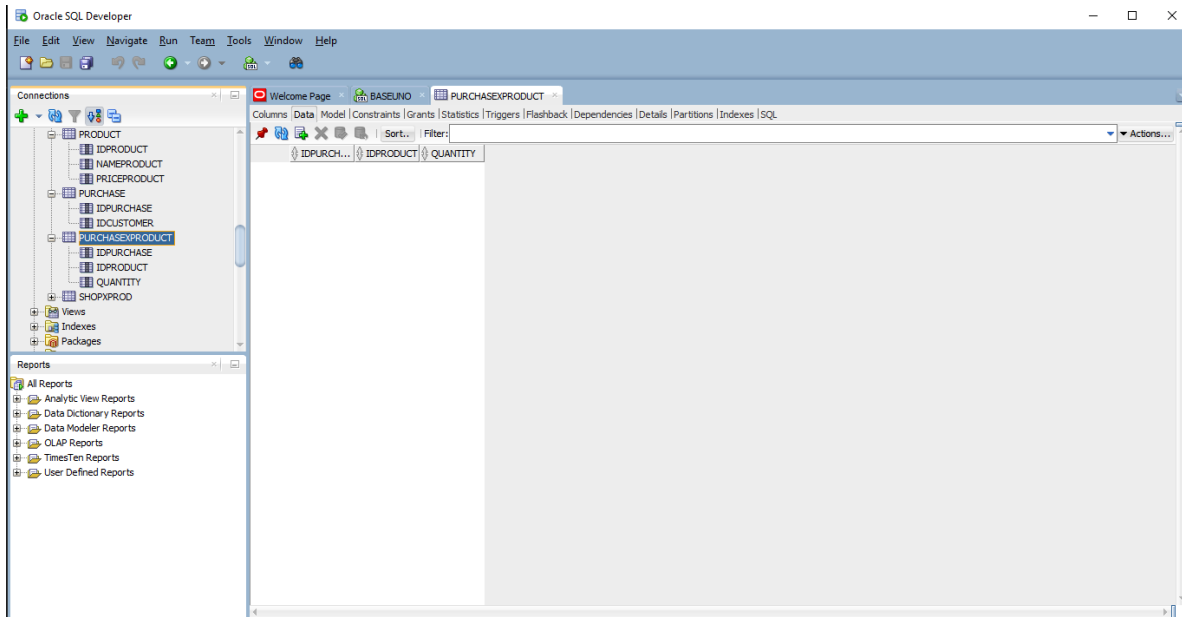
- In these images you can see the tables purchase and purchaseproduct in the Database empty:

Oracle SQL Developer

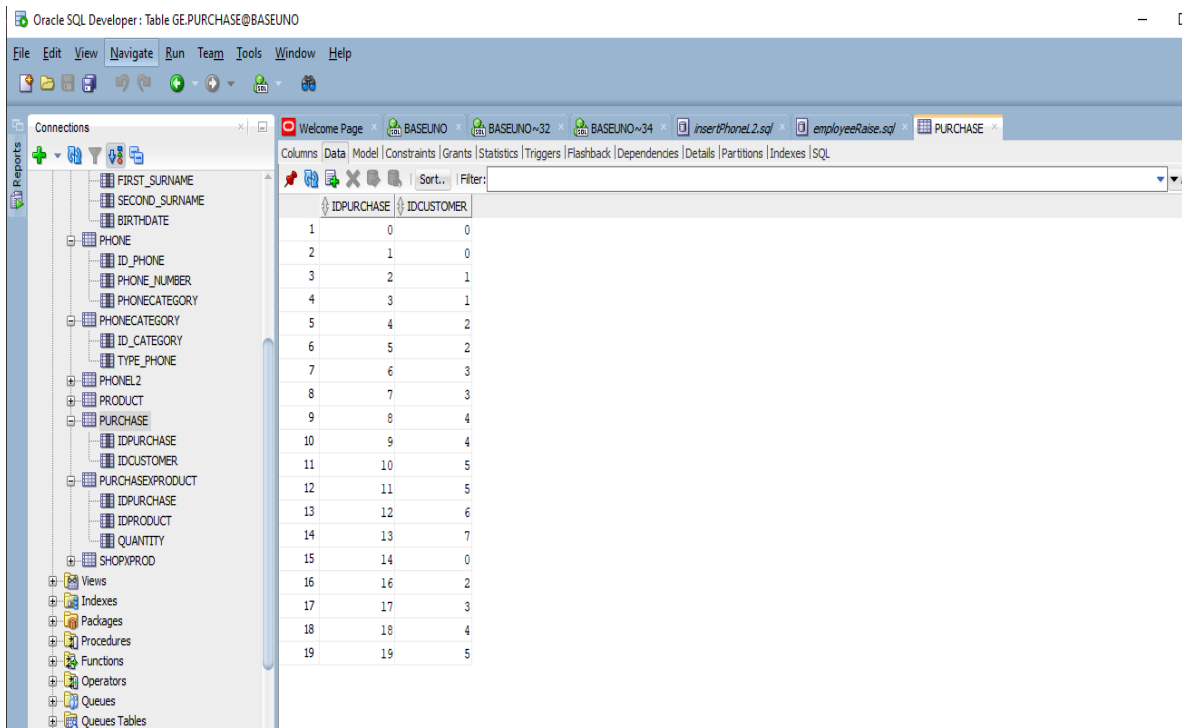
Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

IDPURCH...	IDCUSTO...
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The screenshot shows the 'PURCHASE' table structure in the 'Connections' pane. The table is currently empty. The 'Columns' pane shows the table structure with columns IDPURCH... and IDCUSTO....



- In these images you can see the tables with the changes:



Oracle SQL Developer

Columns: Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

IDPURCHASE	IDPRODUCT	QUANTITY
1	0	0
2	1	1
3	2	1
4	3	2
5	4	3
6	5	4
7	6	5
8	7	6
9	8	7
10	9	8
11	10	9
12	11	10
13	12	5
14	13	15
15	14	15
16	16	13
17	17	12
18	18	11
19	19	2

12. Change the datatype of a column that already has data. What's going on?

- In this image you can see the error that occurred while we tried modified a column with data. For this change the column must be empty, it must not contain stored data. In this case we wanted to go from the data type of numbers to text strings and it prevented us, to maintain the integrity of the data already stored and that there is no data out of the ordinary in a column.

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

SQL Worksheet | History

```

ALTER TABLE phoneL2
MODIFY number_phone VARCHAR2(25)

```

Script Output

Task completed in 0.056 seconds

```

00905. 00000 - "missing keyword"
*Cause:
*Action:

Error starting at line : 1 in command -
ALTER TABLE phoneL2
MODIFY number_phone VARCHAR2(25)
Error report -
ORA-01439: column to be modified must be empty to change datatype
01439. 00000 - "column to be modified must be empty to change datatype"
*Cause:
*Action:

```