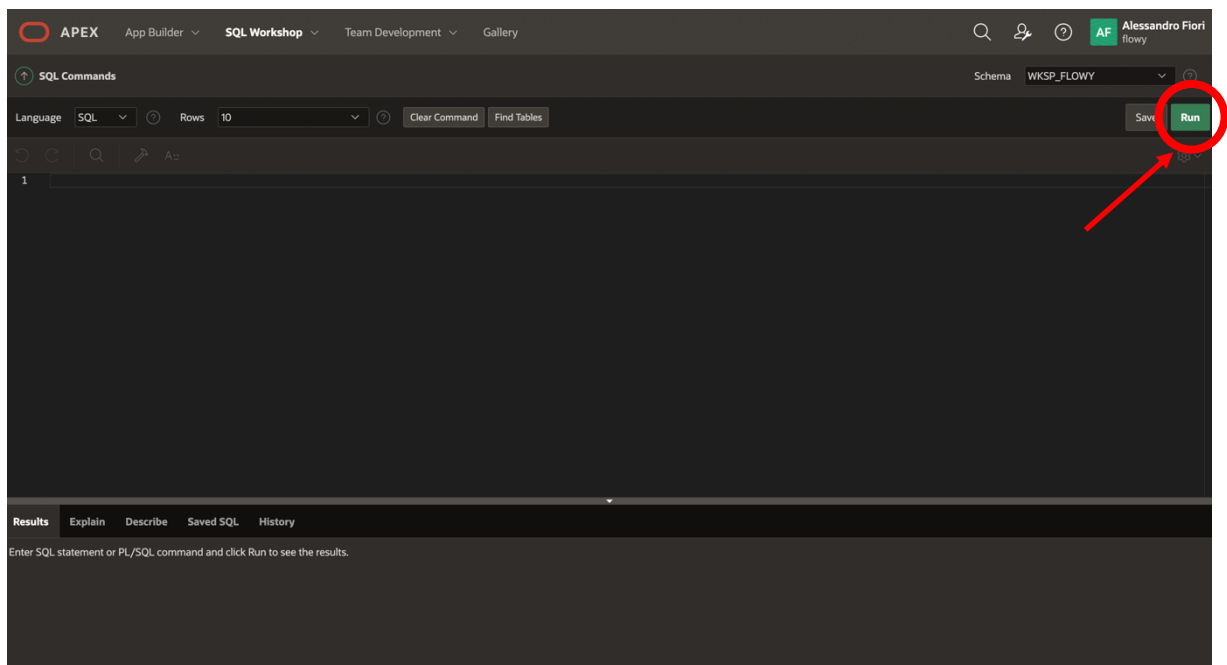


Introduction to Databases

Oracle SQLPLUS - Practice n. 2

The objective of this practice is to write some SQL queries and execute them on an Oracle database.

Write and execute SQL queries: Write the SQL query in the SQL Command interface under SQL Workshop tab and execute it by clicking on the Run button (see figure).



1 Description of the *Delivery* database

The *Delivery* database gathers information about the activities of a firm delivering and collecting goods for various customer companies.

The DELIVERERS table contains the personal data for the deliverers working at the firm. For each deliverer, the following information is available: identification code (DELIVERERID), last name, first name initials, year of birth, sex, year when she/he began working for the firm, street, house number, city, residence postal code, cellular phone number, and office phone number.

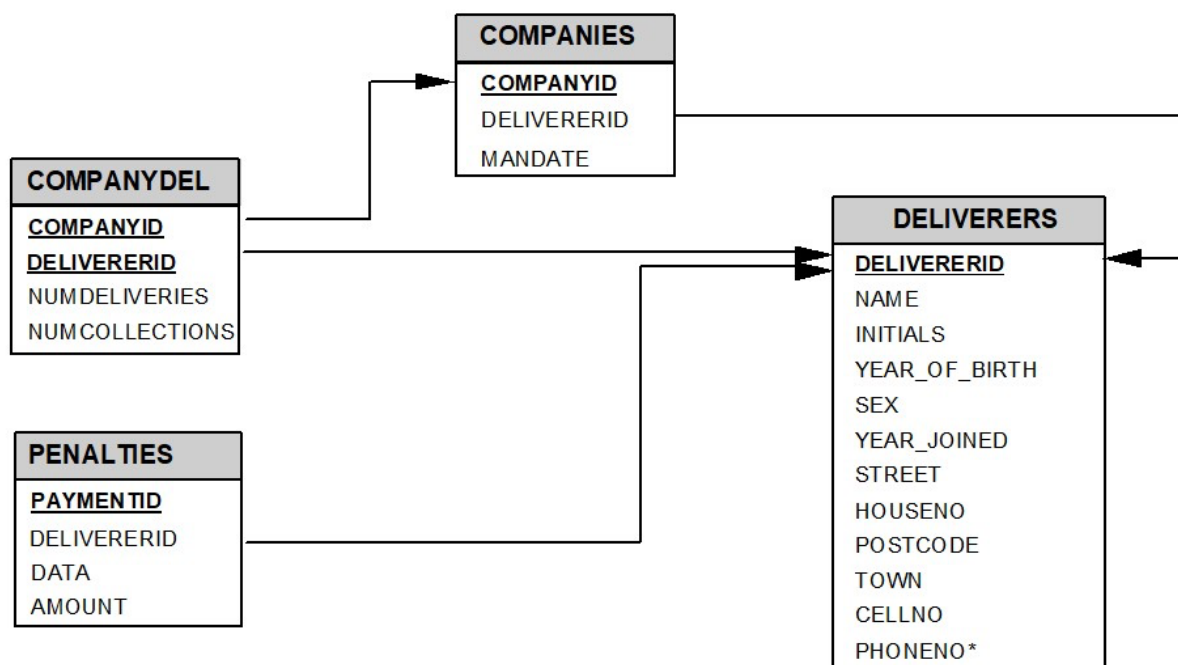
The COMPANIES table reports, for each customer company, the company identification code

(COMPANYID) and the identification code of the deliverer who is the company's current reference person. In addition, it reports the number of times (MANDATE) the deliverer held this position.

The COMPANYDEL table reports the total number of deliveries (NUMDELIVERIES) and collections (NUMCOLLECTIONS) made by each deliverer for each customer company. Note that the table only reports the deliverer-company pairs such that the deliverer performed at least one delivery or collection for the company.

The PENALTIES table reports the fines received by each deliverer. For each fine, the fine code (PENALTYID), the deliverer code, the fine date, and amount to be paid are stored.

The database schema is shown in the subsequent figure. Section 2 reports the details of every table instance.



2 Table instances for the *Delivery* database

Primary key is underlined. Optional attributes are denoted with *.

DELIVERERS table

<u>DELIVERERID</u>	NAME	INITIALS	YEAR_OF_BIRTH	SEX	YEAR JOINED	STREET	HOUSENO	POSTCODE	TOWN	CELLNO	PHONENO*
2	Everett	R	1948	M	1975	Stoney Road	43	3575NH	Stratford	070-237893	2411
6	Parmenter	R	1964	M	1977	Haseltine Lane	80	1234KK	Stratford	070-476537	8467
7	Wise	GWS	1963	M	1981	Edgecombe Way	39	9758VB	Stratford	070-347689	NULL
8	Newcastle	B	1962	F	1980	Station Road	4	6584WO	Inglewood	070-476573	2983
27	Collins	DD	1964	F	1983	Long Drive	804	8457DK	Eltham	079-234857	2513
28	Collins	C	1963	F	1983	Old main Road	10	1294QK	Midhurst	010-659599	NULL
39	Bishop	D	1956	M	1980	Eaton Square	78	9629CD	Stratford	070-393435	NULL
44	Baker	E	1963	M	1980	Lewis Street	23	4444LJ	Inglewood	070-368753	1124
57	Brown	M	1971	M	1985	Edgecombe Way	16	4377CB	Stratford	070-473458	6409
83	Hope	PK	1956	M	1982	Magdalene Road	16a	1812UP	Stratford	070-353548	1608
95	Miller	P	1934	M	1972	High Street	33a	5746OP	Douglas	070-867564	NULL
100	Parmenter	P	1963	M	1979	Haseltine Lane	80	1234KK	Stratford	070-476537	6524
104	Moorman	D	1970	F	1984	Stout Street	65	9437AO	Eltham	079-987571	7060
112	Bailey	IP	1963	F	1984	Vixen Road	8	6392LK	Plymouth	010-54874	1319

COMPANYDEL table

<u>COMPANYID</u>	<u>DELIVERERID</u>	NUMDELIVERIES	NUMCOLLECTIONS
1	2	4	8
1	6	9	1
1	8	0	1
1	44	7	5
1	57	5	0
1	83	3	3
2	8	4	4
2	27	11	2
2	104	8	4
2	112	4	8

PENALTIES table

<u>PAYMENTID</u>	DELIVERERID	DATA	AMOUNT
1	6	12/08/80	100
2	44	05/05/81	75
3	27	10/09/83	100
4	104	08/12/84	50
5	44	08/12/80	25
6	8	08/12/80	25
7	44	30/12/82	30
8	27	12/11/84	75

COMPANIES table

<u>COMPANYID</u>	DELIVERERID	MANDATE
1	6	first
2	27	second

3 SQL Queries

Select: join, group by, having, in, not in

1. For each deliverer that has received at least two fines, find the identification code (of the deliverer), the date of the first fine and the date of the last fine.
2. Find the identification codes, the names and the initials (attribute INITIALS) of the deliverers that have never been fined.
3. Find the identification codes of all deliverers that have received at least one 25 Euro fine and at least one 30 Euro fine.
4. Find the identification codes of the deliverers that have serviced requests from *all* of the firms in table COMPANIES (N.B. A deliverer has serviced a request from a firm if he/she has delivered/collected parcels to/from the firm at least once).

Insert, delete, update

5. Increase by 15 the amount of all fines received by all deliverers
6. Increase by 10 the amount of all fines received by the deliverer with delivererid 44
7. Reduce by 20 the amount of all fines received by the deliverer with delivererid 27
8. Remove all fines with amount > 40 received by the deliverer with delivererid 44
9. Remove all fines received by the deliverer with delivererid 27
10. Remove all fines available in table PENALTIES
11. Insert the following new record into the PENALTIES table:

PAYMENTID =10
DELIVERID = 44
DATA = 8/12/84
AMOUNT = 30

4 Solutions

1. For each deliverer that has received at least two fines, find the identification code (of the deliverer), the date of the first fine and the date of the last fine.

```
SELECT DELIVERERID, MIN(DATA), MAX(DATA)
FROM PENALTIES
GROUP BY DELIVERERID
HAVING COUNT(*) >= 2;
```

2. Find the identification codes, the names and the initials (attribute INITIALS) of the deliverers that have never been fined.

```
SELECT DELIVERERID, NAME, INITIALS
FROM DELIVERERS
WHERE DELIVERERID NOT IN
  (SELECT DELIVERERID
   FROM PENALTIES);
```

DELIVERERID	NAME	INITIALS
57	Brown	M
7	Wise	GWS
2	Everett	R
112	Bailey	IP
28	Collins	C
83	Hope	PK
95	Miller	P
39	Bishop	D
100	Parmenter	P

3. Find the identification codes of all deliverers that have received at least one 25-Euro fine and at least one 30-Euro fine.

```
SELECT DISTINCT DELIVERERID
FROM PENALTIES
WHERE AMOUNT = 25
AND DELIVERERID IN
  (SELECT DELIVERERID FROM PENALTIES WHERE
   AMOUNT=30);
```

or

```

SELECT DELIVERERID
FROM DELIVERERS
WHERE DELIVERERID IN
  (SELECT DELIVERERID
   FROM PENALTIES
   WHERE AMOUNT = 25)
AND DELIVERERID IN
  (SELECT DELIVERERID FROM
   PENALTIES
   WHERE AMOUNT = 30);

```

DELIVERERID
44

4. Find the identification codes of the deliverers that have serviced requests from *all* of the firms in table COMPANIES (N.B. A deliverer has serviced a request from a firm if he/she has delivered/collected parcels to/from the firm at least once).

```

SELECT DELIVERERID
FROM COMPANYDEL
GROUP BY DELIVERERID
HAVING COUNT(*) = (SELECT COUNT(*) FROM COMPANIES);

```

DELIVERERID
8

5. Increase by 15 the amount of all fines received by all deliverers

```

UPDATE PENALTIES
SET AMOUNT = AMOUNT +15;

```

6. Increase by 10 the amount of all fines received by the deliverer with delivererid 44

```

UPDATE PENALTIES
SET AMOUNT = AMOUNT +10
WHERE DELIVERERID = 44;

```

7. Reduce by 20 the amount of all fines received by the deliverer with delivererid 27

```

UPDATE PENALTIES
SET AMOUNT = AMOUNT - 20
WHERE DELIVERERID = 27;

```

8. Remove all fines with amount > 40 received by the deliverer with delivererid 44

```

DELETE PENALTIES
WHERE AMOUNT > 40 AND DELIVERERID = 44;

```

9. Remove all fines received by the deliverer with delivererid 27

```
DELETE PENALTIES  
WHERE DELIVERERID = 27;
```

10. Remove all fines available in table PENALTIES

```
DELETE PENALTIES;
```

11. Insert the following new record into the PENALTIES table:

PAYMENTID = 10
DELIVERID = 44
DATA = 8/12/84
AMOUNT = 30

```
INSERT INTO PENALTIES (PAYMENTID, DELIVERID, DATA, AMOUNT) VALUES (10, 44, '08/12/1984', 30);
```