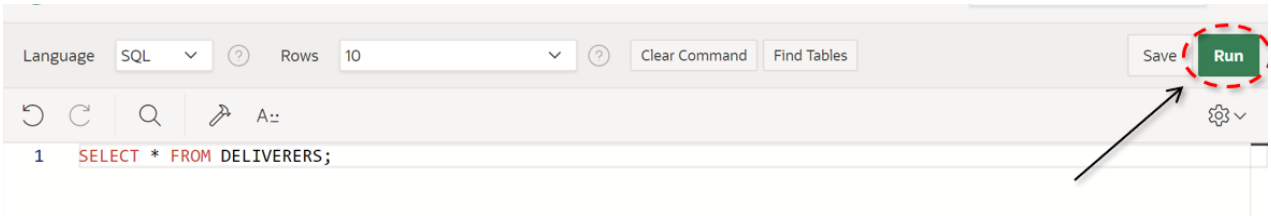
Laboratory 3
Write and execute SQL queries

Goal

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

To write the SQL query on Oracle Apex, go to *SQLWorkshop* and then *SQL Commands*. 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 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 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.

2 Basic SQL Queries

1. Show all information about all deliverers.
2. Show the identification codes of all the companies for which deliverers either delivered or collected goods.
3. For each deliverer whose last name (attribute NAME) starts with the letter 'B', show the deliverer name and the identification code.
4. For each deliverer whose office phone number (attribute PHONENO) is either different from 8467 or not available, show the deliverer name, sex, and identification code.
5. Show the name and city of residence of the deliverers who received at least one fine.
6. Show the last name (attribute NAME) of the deliverers living either in Inglewood or in Stratford who either delivered or collected goods for at least 2 customer companies.
7. For each deliverer living in Inglewood who received at least two fines, show the deliverer identification code and the total amount (attribute AMOUNT) of the received fines.
8. Find the identification code, name and the first name initials (attribute INITIALS) of all the deliverers which never received a fine.
9. Find the identification code of all the deliverers which received at least one fine of 25€ and at least one of 30€.

3 Advanced SQL Queries

1. Find the maximum number of fines received by a deliverer on the same date.
2. Calculate the total cost of fines received by each deliverer. Then, calculate the average of the total costs of the deliverer.
3. For each company, find the identifier of the deliverer who has carried out the most deliveries.
4. Select the identifier and name of the deliverer and the total amount of fines received by all deliverers for which the total amount of fines received is greater than the average number of fines received.
5. Find the identification code of the deliverers who have visited all companies listed in the table COMPANIES (note: the deliverers who have "visited" a company are those who have made at least one delivery or pickup at the respective company).
6. For each company, find the identifier of the male deliverer and the ID of the female deliverer who have made the most deliveries (if present).

4 Additional study material

1. For each company reference person who has received at least one fine after 31/12/2000, show the last name and the first name initials (attribute INITIALS). Sort the result in increasing alphabetical order with respect to the last name.
2. For each deliverer living in Stratford, find all companies where the deliverer has made at least two collections and one delivery, showing the results as pairs (deliverer identification code, company identification code).
3. Show the identification codes for the deliverers born after 1982 who have made at least one delivery or collection to a company whose reference person has been appointed for the first time (attribute MANDATE='first'). Sort the result in descending order of identification codes.
4. For each deliverer who received between 2 and 4 fines (i.e., at least 2 but no more than 4 fines), show the last name and the amount of the smallest fine received.
5. Considering the deliverers not living in Stratford and whose last name (attribute NAME) begins with the letter 'B', show the total number of deliveries and the total number of collections.
6. Find the identification code of the deliverers who have made deliveries (or pickups) to at least one company where deliverer 57 has made deliveries (or pickups).
7. For each deliverer who 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 they received.
8. Select the identifier, date, and cost of the fines, and the average cost of fines in the year extracted from the date, for all fines where the average cost is greater than the average cost of the year in which the fine was received. To extract the year from a date in Apex, you can use the following function: EXTRACT(YEAR FROM PENALTIES.DATA)
9. Find the total number of deliveries made by each deliverer. Then, calculate the average total number of deliveries for all deliverers and the average number of deliveries made by deliverers for each city. Finally, select the cities for which the average deliveries made by deliverers in that city is lower than the average total number of deliveries for all deliverers.
10. Find the total number of collections made by each deliverer. Then, identify the birth year of the deliverers with the highest average number of collections made.
11. Identify the gender and number of fines for the category of deliverers with the highest number of fines in the database.
12. Find the gender and number of deliveries of the gender that has made the highest number of deliveries