The company has a database containing the necessary business data. The following is presented an excerpt from the table structure of this database, used in further tasks. As an analyst of this company, solve several tasks based on the tables and columns shown in the figure.

A screenshot of a computer

Description automatically generated

**Task 1.1** - Write a command that displays the names of three customers who brought the company the highest net sales value in 2022. In addition to the names, the result should show the total value of net sales in 2022 of each of these customers - rounded up to a whole number integer, as well as the name of the region from which each of these customers comes.

Select TOP 3

k.nazwa as Nazwa\_Klienta,

round(sum(f.wartosc\_netto), 0) as Laczna\_Wartosc\_Sprzedazy,

s.nazwa as Nazwa\_Regionu

From faktury f

JOIN transkacje t ON t.faktura\_id = f.id

JOIN kontrahenci k ON k.id = t.kontrahent\_id

JOIN slownik s ON s.id = k.region\_id

WHERE YEAR(f.data\_sprzedazy) = 2022

GROUP BY k.nazwa, s.nazwa

ORDER BY Laczna\_Wartosc\_Sprzedazy DESC;

**Task 1.2** - Write a command that will display the data of suppliers: with the third smallest total value of products delivered and with the third largest sum of the value of products delivered. The result is to contain two columns ("Supplier," containing the supplier's NIP, and "Value," containing the sum of the net value of products delivered) and two rows.

WITH Dostawcy\_Ranking AS(

SELECT

k.nip as Dostawca,

SUM(f.wartosc\_netto) as Wartosc

FROM kontrahenci k

JOIN transakcje t ON t.kontrahent\_id = k.id

JOIN faktury f ON f.id = t.faktura\_id

GROUP BY k.nip)

SELECT \* FROM (

SELECT

Dostawca,

Wartosc,

ROW\_NUMBER() OVER (ORDER BY Wartosc) as Ranking\_Rosnaco,

ROW\_NUMBER() OVER (ORDER BY Wartosc DESC) as Ranking\_Malejaco

FROM Dostawcy\_Ranking) AS Ranking

WHERE

Ranking\_Rosnaco = 3 OR Ranking\_Malejaco = 3;

**Task 1.3.** - Write a command that will display a list of the names of customers in the 'transport' industry who have purchased products with a total value of no more than ten times the smallest total purchase value for a single customer in that industry.

WITH Najmniejsza\_Suma\_Zakupu AS(

SELECT

k.nazwa as Nazwa\_Klienta,

MIN(SUM(f.wartość\_netto)) as Min\_Suma\_Wartosci\_Sprzedazy

FROM

kontrahenci k

JOIN transakcje t ON t.kontrahent\_id = k.id

JOIN faktury f ON f.id = t.faktura\_id

JOIN slownik s ON s.id = k.sektor\_id

WHERE s.nazwa = ‘transport’

GROUP BY k.nazwa)

SELECT

k.nazwa as Nazwa\_Klienta

FROM

kontrahenci k

JOIN transakcje t ON t.kontrahent\_id = k.id

JOIN faktury f ON f.id = t.faktura\_id

JOIN Najmniejsza\_Suma\_Zakupu nsz ON nsz.Nazwa\_Klienta = k.nazwa

GROUP BY k.nazwa, nsz. Min\_Suma\_Wartosci\_Sprzedazy

HAVING SUM(f.wartosc\_netto) <= (10 \* nsz. Min\_Suma\_Wartosci\_Sprzedazy);

**Task 1.4** - Write a command that will display the NIPs and names of all contractors whose names contain the string 'bud'. The list should contain only contractors representing the "construction" sector. Call the column with NIPs "NIP-bud" and call the column with names of contractors "Name-bud".

SELECT

k.nip as NIP-bud

k.nazwa as Nazwa-bud

FROM

kontrahenci k

JOIN slownik s ON s.id = k.sektor\_id

WHERE s.nazwa = ‘budownictwo’ AND k.nazwa LIKE ‘%bud%’;

**Task 1.5** - Write a command that will calculate the sum of net sales of all products in each month of the year 2022. The result should include the following columns:

- "Product name",

- "Month of sales". - the data in this column should indicate only the month (in words),

- "Sales" - the total value of net sales in a given month, rounded to one decimal place.

The result should be ranked by month (starting in January), and within months starting with the product that brought the highest sales value in the month.

WITH Suma\_Sprzedazy AS (

SELECT

s.nazwa as Nazwa\_Produktu,

DATEPART(MONTH, f.data\_sprzedazy) as Miesiac\_Sprzedazy,

ROUND(SUM(f.wartosc\_netto)) as Sprzedaz\_Netto

FROM

faktury f

JOIN transkacje t ON t.faktura\_id = f.id

JOIN slownik s ON s.id = t.produkt\_id

WHERE YEAR(f.data\_sprzedazy) = 2022

GROUP BY s.nazwa, DATEPART(MONTH, f.data\_sprzedazy)

),

Ranking\_Produktow AS (

SELECT

Nazwa\_Produktu,

Miesiac\_Sprzedazy,

Sprzedaz\_Netto,

ROW\_NUMBER() OVER (PARTITION BY Miesiac\_Sprzedazy ORDER BY Sprzedaz\_Netto DESC) AS Ranking

FROM

Suma\_Sprzedazy

)

SELECT

Nazwa\_Produktu,

DATENAME(MONTH, DATEADD(MONTH, Miesiac\_Sprzedazy – 1, ‘19000101’)) as Miesiac\_Sprzedazy,

Sprzedaz\_Netto

FROM

Ranking\_Produktow

WHERE Ranking = 1

ORDER BY Miesiac\_Sprzedazy, Sprzedaz\_Netto DESC;

import pandas as pd

import matplotlib.pyplot as plt

dane = pd.read\_csv('ŚCIEŻKA', ";")