**Potraviny dle kvartalu**

create or replace view potraviny\_dle\_kvartalu as

select cpc.name potravina,

cp.value cena,

cpc.price\_value mnozstvi,

cpc.price\_unit jednotka,

cr.name lokalita,

cr.code kod\_lokality,

cp.date\_from datum\_od,

cp.date\_to datum\_do,

YEAR(cp.date\_from) AS year,

CASE

WHEN MONTH(cp.date\_from) BETWEEN 1 AND 3 THEN 1

WHEN MONTH(cp.date\_from) BETWEEN 4 AND 6 THEN 2

WHEN MONTH(date\_from) BETWEEN 7 AND 9 THEN 3

WHEN MONTH(date\_from) BETWEEN 10 AND 12 THEN 4

END AS quarter

from czechia\_price cp

left join czechia\_price\_category cpc

on cp.category\_code = cpc.code

left join czechia\_region cr

on cp.region\_code = cr.code;

**Potraviny dle let**

create or replace view potraviny\_dle\_let as

select potravina,

avg(cena) prumerna\_cena\_za\_rok,

mnozstvi,

jednotka,

lokalita,

year

from potraviny\_dle\_kvartalu p

group by potravina, year, lokalita

order by potravina, year, lokalita;

select \* from potraviny\_dle\_let;

**Prumerna mza**

CREATE OR REPLACE VIEW prumerna\_mzda\_quartal as

select cpib.name obor,

cp.value prumerna\_mzda,

cpu.name Kc,

cp.payroll\_year year,

cp.payroll\_quarter kvartal

from czechia\_payroll cp

join czechia\_payroll\_calculation cpc

on cp.calculation\_code = cpc.code

left join czechia\_payroll\_industry\_branch cpib

on cp.industry\_branch\_code = cpib.code

left join czechia\_payroll\_value\_type cpvt

on cp.value\_type\_code = cpvt.code

left join czechia\_payroll\_unit cpu

on cp.unit\_code = cpu.code

where cp.value\_type\_code = 5958 and cp.value is not null;

-- Prumerna mzda za dostupe roky

create or replace view prumerna\_mzda\_roky as

SELECT obor,

AVG(prumerna\_mzda) AS prumerna\_mzda,

year

FROM prumerna\_mzda\_quartal

GROUP BY obor, year;

**Tvorba prvni tabulky**

create or replace table t\_karel\_minarcik\_project\_SQL\_primary\_final

select obor,

prumerna\_mzda,

pmr.year rok,

potravina,

prumerna\_cena\_za\_rok,

mnozstvi,

jednotka,

lokalita

from potraviny\_dle\_let pdl

left join prumerna\_mzda\_roky pmr

on pmr.`year` = pdl.`year` ;

**Tvorba druhe tabulky**

create or replace table t\_karel\_minarcik\_project\_sql\_secondary\_final (

WITH all\_economies AS (

SELECT country,

year,

GDP,

population,

gini

FROM economies e

WHERE year BETWEEN 2006 AND 2018

),

europian\_region AS (

SELECT country,

region

FROM religions

WHERE region = 'Europe'

)

SELECT ae.country,

ae.year,

ae.GDP,

ae.population,

ae.gini

FROM all\_economies ae

right JOIN europian\_region er

ON er.country = ae.country

WHERE er.region IS NOT null

group by ae.year, er.country

order by er.country, ae.year

);

**Výzkumné otázky**

1. Rostou v průběhu let mzdy ve všech odvětvích, nebo v některých klesají?
2. Kolik je možné si koupit litrů mléka a kilogramů chleba za první a poslední srovnatelné období v dostupných datech cen a mezd?
3. Která kategorie potravin zdražuje nejpomaleji (je u ní nejnižší percentuální meziroční nárůst)?
4. Existuje rok, ve kterém byl meziroční nárůst cen potravin výrazně vyšší než růst mezd (větší než 10 %)?
5. Má výška HDP vliv na změny ve mzdách a cenách potravin? Neboli, pokud HDP vzroste výrazněji v jednom roce, projeví se to na cenách potravin či mzdách ve stejném nebo násdujícím roce výraznějším růstem?
6. **Rostou v průběhu let mzdy ve všech odvětvích, nebo v některých klesají?**

create or replace view salary\_grow as

SELECT obor,

rok,

prumerna\_mzda posledni\_rok\_mzda,

LAG(prumerna\_mzda, 12) OVER (PARTITION BY obor ORDER BY rok) AS prvni\_rok\_mzda,

(prumerna\_mzda - LAG(prumerna\_mzda, 12) OVER (PARTITION BY obor ORDER BY rok)) AS difference

FROM t\_karel\_minarcik\_project\_sql\_primary\_final

where obor is not null

group by prumerna\_mzda

ORDER BY obor, rok;

select \* from salary\_grow

where difference is not null;

**Vysledek**: ano, mzdy ve vsech odvetvich rostou v prubehu analyzovanych let.

1. **Kolik je možné si koupit litrů mléka a kilogramů chleba za první a poslední srovnatelné období v dostupných datech cen a mezd?**

select rok,

prumerna\_mzda,

potravina,

prumerna\_cena\_za\_rok,

round(prumerna\_mzda/prumerna\_cena\_za\_rok) as pocet\_produktu\_za\_mzdu

from t\_karel\_minarcik\_project\_sql\_primary\_final tkmpspf

where lokalita is null

and rok in (2006, 2018)

and (potravina = "mléko polotučné pasterované" or potravina = "chléb konzumní kmínový")

and obor is null

group by potravina, prumerna\_mzda;

**Vysledek:**

2006 19218.8750 Chléb konzumní kmínový 16.1234 1192.0

2018 31520.5000 Chléb konzumní kmínový 24.238333333333333 1300.0

2006 19218.8750 Mléko polotučné pasterované 14.437999999999999 1331.0

2018 31520.5000 Mléko polotučné pasterované 19.819166666666664 1590.0

1. **Která kategorie potravin zdražuje nejpomaleji (je u ní nejnižší percentuální meziroční nárůst)?**

WITH price\_changes AS (

SELECT potravina,

rok,

prumerna\_cena\_za\_rok,

LAG(prumerna\_cena\_za\_rok, 1) OVER (PARTITION BY potravina ORDER BY rok) AS previous\_year\_price,

ROUND((prumerna\_cena\_za\_rok - LAG(prumerna\_cena\_za\_rok, 1) OVER (PARTITION BY potravina ORDER BY rok))

/ LAG(prumerna\_cena\_za\_rok, 1) OVER (PARTITION BY potravina ORDER BY rok) \* 100, 2) AS percentage\_change

FROM t\_karel\_minarcik\_project\_sql\_primary\_final tkmpspf

)

, average\_price\_growth AS (

SELECT potravina,

AVG(percentage\_change) AS avg\_percentage\_growth

FROM price\_changes

WHERE percentage\_change IS NOT NULL -- Exclude rows where there is no previous year

GROUP BY potravina

)

SELECT potravina, avg\_percentage\_growth

FROM average\_price\_growth

ORDER BY avg\_percentage\_growth ASC

LIMIT 1;

**Vysledek:** Cukr krystalový 0.000772

1. **Existuje rok, ve kterém byl meziroční nárůst cen potravin výrazně vyšší než růst mezd (větší než 10 %)?**

with food\_percentage\_change AS(

SELECT potravina,

rok,

prumerna\_cena\_za\_rok,

lokalita,

LAG(prumerna\_cena\_za\_rok, 1) OVER (PARTITION BY potravina ORDER BY rok) AS previous\_year\_price,

ROUND((prumerna\_cena\_za\_rok - LAG(prumerna\_cena\_za\_rok, 1) OVER (PARTITION BY potravina ORDER BY rok))

/ LAG(prumerna\_cena\_za\_rok, 1) OVER (PARTITION BY potravina ORDER BY rok) \* 100, 2) AS percentage\_change

FROM t\_karel\_minarcik\_project\_sql\_primary\_final tkmpspf

),

food\_avg\_change AS (

SELECT rok,

AVG(percentage\_change) AS avg\_percentage\_change\_per\_year

FROM food\_percentage\_change

WHERE lokalita IS NULL

AND percentage\_change IS NOT NULL

AND percentage\_change <> 0

GROUP BY rok

),

payroll\_percentage\_change AS (

SELECT year AS rok,

prumerna\_mzda,

LAG(prumerna\_mzda, 1) OVER (ORDER BY year) AS previous\_year\_salary,

ROUND((prumerna\_mzda - LAG(prumerna\_mzda, 1) OVER (ORDER BY year))

/ LAG(prumerna\_mzda, 1) OVER (ORDER BY year) \* 100, 2) AS payroll\_percentage\_change

FROM prumerna\_mzda\_roky

WHERE obor IS NULL

)

SELECT fac.rok,

fac.avg\_percentage\_change\_per\_year AS food\_percentage\_change,

ppc.payroll\_percentage\_change,

abs(fac.avg\_percentage\_change\_per\_year - ppc.payroll\_percentage\_change) as difference\_food\_vs\_payroll

FROM food\_avg\_change fac

LEFT JOIN payroll\_percentage\_change ppc

ON fac.rok = ppc.rok

ORDER BY fac.rok;

**Vysledek:** ne

1. **Má výška HDP vliv na změny ve mzdách a cenách potravin? Neboli, pokud HDP vzroste výrazněji v jednom roce, projeví se to na cenách potravin či mzdách ve stejném nebo násdujícím roce výraznějším růstem?**

create or replace view correl as

with food\_percentage\_change AS(

SELECT potravina,

rok,

prumerna\_cena\_za\_rok,

lokalita,

LAG(prumerna\_cena\_za\_rok, 1) OVER (PARTITION BY potravina ORDER BY rok) AS previous\_year\_price,

ROUND((prumerna\_cena\_za\_rok - LAG(prumerna\_cena\_za\_rok, 1) OVER (PARTITION BY potravina ORDER BY rok))

/ LAG(prumerna\_cena\_za\_rok, 1) OVER (PARTITION BY potravina ORDER BY rok) \* 100, 2) AS percentage\_change

FROM t\_karel\_minarcik\_project\_sql\_primary\_final tkmpspf

),

food\_avg\_change AS (

SELECT rok,

AVG(percentage\_change) AS avg\_percentage\_change\_per\_year

FROM food\_percentage\_change

WHERE lokalita IS NULL

AND percentage\_change IS NOT NULL

AND percentage\_change <> 0

GROUP BY rok

),

payroll\_percentage\_change AS (

SELECT year AS rok,

prumerna\_mzda,

LAG(prumerna\_mzda, 1) OVER (ORDER BY year) AS previous\_year\_salary,

ROUND((prumerna\_mzda - LAG(prumerna\_mzda, 1) OVER (ORDER BY year))

/ LAG(prumerna\_mzda, 1) OVER (ORDER BY year) \* 100, 2) AS payroll\_percentage\_change

FROM prumerna\_mzda\_roky

WHERE obor IS NULL

),

gdp\_change as (

select year,

GDP,

LAG(GDP, 1) OVER (ORDER BY year) AS previous\_GDP,

ROUND((GDP - LAG(GDP, 1) OVER (ORDER BY year))

/ LAG(GDP, 1) OVER (ORDER BY year) \* 100, 2) AS GDP\_percentage\_change

FROM t\_karel\_minarcik\_project\_sql\_secondary\_final

where country = "Czech Republic"

)

SELECT fac.rok as rok,

fac.avg\_percentage\_change\_per\_year AS food\_percentage\_change,

ppc.payroll\_percentage\_change,

gc.GDP\_percentage\_change

FROM food\_avg\_change fac

LEFT JOIN payroll\_percentage\_change ppc

ON fac.rok = ppc.rok

left join gdp\_change gc

on fac.rok = gc.year

ORDER BY fac.rok

;

**korelace payroll**

with correL\_data\_prepared as (

SELECT

rok,

payroll\_percentage\_change,

avg\_payroll,

payroll\_percentage\_change - avg\_payroll AS avg\_payroll\_diff,

GDP\_percentage\_change,

avg\_gdp,

GDP\_percentage\_change - avg\_gdp AS avg\_gdp\_diff

FROM

correl,

(SELECT

AVG(payroll\_percentage\_change) AS avg\_payroll,

AVG(GDP\_percentage\_change) AS avg\_gdp

FROM

correl) AS avg\_values

)

select

SUM(avg\_payroll\_diff \* avg\_gdp\_diff) /

SQRT(SUM(POWER(avg\_gdp\_diff, 2)) \* SUM(POWER(avg\_payroll\_diff, 2)))

from correL\_data\_prepared;

**korelace food**

with correL\_food\_data\_prepared as (

SELECT

rok,

food\_percentage\_change,

avg\_food,

food\_percentage\_change - avg\_food AS avg\_food\_diff,

GDP\_percentage\_change,

avg\_gdp,

GDP\_percentage\_change - avg\_gdp AS avg\_gdp\_diff

FROM

correl,

(SELECT

AVG(food\_percentage\_change) AS avg\_food,

AVG(GDP\_percentage\_change) AS avg\_gdp

FROM

correl) AS avg\_values

)

select

SUM(avg\_food\_diff \* avg\_gdp\_diff) /

SQRT(SUM(POWER(avg\_gdp\_diff, 2)) \* SUM(POWER(avg\_food\_diff, 2)))

from correL\_food\_data\_prepared

;

**Vysledek:** ve stejnem roce je korelace HDP vs. Potraviny 0.34, GDP vs. platy 0.48

Korelační koeficient 0.34 naznačuje, že mezi dvěma proměnnými existuje mírná pozitivní korelace. To znamená, že když jedna proměnná roste, druhá má tendenci růst také, ale tento vztah není příliš silný.

Hodnota korelačního koeficientu 0.48 naznačuje středně silnou pozitivní korelaci mezi dvěma proměnnými. To znamená, že když jedna proměnná roste, druhá má tendenci růst také, a tento vztah je o něco silnější než v případě 0.34, ale stále není zcela silný.

Z vyse uvedeneho vyplyva, ze zde nelze jednoznacne potvrdit ze by rust HDP ovlivnoval rust platu ve stejnem roce.