Nutritional Data Insights

A Comprehensive SQL Analysis of Food Attributes

SQL PROJECT

Project Overview

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This project involves analyzing a nutritional dataset of 870 food items using MySQL. It includes database creation and 10 SQL queries ranging from basic to advanced levels, exploring calories, macronutrients, vitamins, and more. Advanced techniques like ranking and subqueries are employed to uncover key insights, showcasing proficiency in SQL and providing valuable data for nutritional analysis and diet planning.

Creating Database and Table

```sql
create database nutrition;
use nutrition;

create table nutrition
( food VARCHAR(255),
    caloric_value INT,
    fat FLOAT,
    saturated_fats FLOAT,
    monounsaturated_fats FLOAT,
    polyunsaturated_fats FLOAT,
    carbohydrates FLOAT,
    sugars FLOAT,
    protein FLOAT,
    dietary_fiber FLOAT,
    cholesterol FLOAT,
    sodium FLOAT,
    water FLOAT,
    vitamin_a FLOAT,
```

Creating Database and Table

```sql
vitamin_b1 FLOAT,
vitamin_b11 FLOAT,
vitamin_b12 FLOAT,
vitamin_b2 FLOAT,
vitamin_b3 FLOAT,
vitamin_b5 FLOAT,
vitamin_b6 FLOAT,
vitamin_c FLOAT,
vitamin_d FLOAT,
vitamin_e FLOAT,
vitamin_k FLOAT,
calcium FLOAT,
copper FLOAT,
iron FLOAT,
magnesium FLOAT,
manganese FLOAT,
phosphorus FLOAT,
potassium FLOAT,
selenium FLOAT,
zinc FLOAT,
nutrition_density FLOAT );
```

Q1. Find the Top 10 Foods with the Highest Caloric Value

input

```sql
select food,
max(caloric_value) as caloric
from nutrition
group by food
order by caloric
desc limit 10;
```

output

food	caloric
banana cream pie	3190
weetabix weetabix	2078
vanilla frosting	1931
general tsos chicken	1578
lemon chicken	1440
double whopper with cheese burger king	1061
gjetost cheese	1058
almond paste	1040
double hamburger	942
double whopper burger king	942

Q2. Identify top 10 Foods with More than 10g of Protein and Less than 5g of Fat

```sql
select food,protein,fat
from nutrition
where protein > 10 and fat < 5
orderby protein desc limit 10;
```

food	protein	fat
skipjack tuna cooked	86.9	4
northern pike cooked	76.5	2.7
northern pike raw	76.3	2.7
pollock cooked	75.3	3.8
pollock raw	75	3.8
cod canned	71	2.7
lingcod cooked	68.4	4.1
pout raw	58.6	3.2
pout cooked	58.4	3.2
grouper cooked	50.2	2.6

Q3. Calculate the top 10 Highest Average Sodium Content in Foods with Saturated Fats Above 5g

```sql
select food,round(avg(sodium),2)
as avg_sodium from nutrition
where saturated_fats > 5
group by food order by avg_sodium
desc limit 10;
```

food	avg_sodium
salt mackerel	6.1
banana cream pie	2.8
kung pao chicken	2.4
general tsos chicken	2.3
sandwich with cold cuts	2.2
pimento cheese	2
salmon canned	1.8
chicken mushroom chowder soup	1.8
queso seco cheese	1.8
cheese soup	1.7

Q4. List those foods which fiber is greater than 18 but sugars is lessthan 4

```sql
select food,dietary_fiber,
sugars from nutrition
where dietary_fiber > 18
and sugars < 4;
```

food	dietary_fiber	sugars
triticale flour	19	0
rice bran	24.8	1.1
wheat bran	24.8	0.2
white wheat	23.4	0.8
rye	25.5	1.7

Q5. List the Top 5 Foods by Vitamin C Content

```sql
select food,
max(vitamin_c) as vitamin_c
from nutrition group by food
order by vitamin_c desc limit 5;
```

food	vitamin_c
clif bar	60
kung pao chicken	42.9
skittles wild berry mars	41.6
skittles tropical mars	41.6
cheese lasagna	41.6

Q6. Identify Foods with the Highest and Lowest Potassium to Sodium Ratio

```sql
select food, round(potassium/sodium, 2) as
Highest_Potassium_to_Sodium_Ratio
from nutrition order by
Highest_Potassium_to_Sodium_Ratio
desc limit 1;

select food, round(potassium/sodium, 2) as
Lowest_Potassium_to_Sodium_Ratio
from nutrition order by
lowest_Potassium_to_Sodium_Ratio
asc limit 1;
```

output

food	Highest_Potassium_to_Sodium_Ratio
american shad raw	706599.94

food	lowest_Potassium_to_Sodium_Ratio
jellyfish dried	0.3

Q7. Identify the Top 3 Foods Rich in Vitamin A and Vitamin C

```sql
select food,
vitamin_a, vitamin_c,
(vitamin_a + vitamin_c) as
rich_food
from nutrition
order by rich_food
desc limit 3;
```

output

food	vitamin_a	vitamin_c	rich_food
dessert wine dry	362.7	0	362.70001220703125
muller thurgau white wine	129.2	0	129.1999969482422
gamay red wine	128.6	0	128.60000610351562

Q8. Find Top 10 Foods with Above-Average Nutrition Density

```sql
select food,
nutrition_density from nutrition
where nutrition_density
> (select avg(nutrition_density)
from nutrition)order by nutrition_density
desc limit 10;
```

food	nutrition_density
banana cream pie	1533.5
mexican cheese	1337
mozzarella cheese fat free	1128.2
gjetost cheese	1095.7
provolone cheese	1070.6
salmon canned	1020.88
chum salmon canned	1020.8
muenster cheese	1019.4
pink salmon canned	987.651
anejo cheese	972.205

Q9. List Foods with a Vitamin K Content Greater Than 50% of Their Total Vitamin Content

```sql
select food , vitamin_k ,
(vitamin_a + vitamin_b1
+ vitamin_b11 + vitamin_b12
+ vitamin_b2 + vitamin_b3
+ vitamin_b5 + vitamin_b6
+ vitamin_c + vitamin_d
+ vitamin_e + vitamin_k )
as total_vitamin
from nutrition
where vitamin_k > 0.5*
(vitamin_a + vitamin_b1
+ vitamin_b11 + vitamin_b12
+ vitamin_b2 + vitamin_b3
+ vitamin_b5 + vitamin_b6
+ vitamin_c + vitamin_d
+ vitamin_e + vitamin_k );
```

Q9. List Foods with a Vitamin K Content Greater Than 50% of Their Total Vitamin Content

output

food	vitamin_k	total_vitamin
nachos with cheese	3.3	6.145999911241233
english muffin mcdonalds	166.4	170.23999398155138
fish sticks	1.9	2.8569999961182475

Q10. Find Foods with an Unusual Combination of Protein greter than 80 and Sodium less than 80

```sql
select food,protein,
sodium from nutrition
where protein > 80
and sodium < 80;
```

food	protein	sodium
skipjack tuna cooked	86.9	0.1
sockeye salmon cooked	82.1	0.3
salmon raw	80.9	0.2
yellowtail cooked	86.6	0.1
yellowtail raw	86.5	0.1
sockeye salmon raw	84.4	0.4
pink salmon canned	80.9	1.7

Thank You