3-Month Fitness Tracker: SQL Analysis & Power BI Dashboard

**INTRODUCTION:**

This project focuses on analyzing fitness tracking data over a period of three months using SQL for querying and Power BI for visualization. The primary objective is to understand the relationship between gym attendance, calorie intake/burn, sleep patterns, and their effect on weight loss. The insights aim to help build a sustainable, data-driven fitness plan.

**SQL QUERIES AND THEIR INSIGHTS**

1. **Average Calories Burned by Workout**

SELECT workout ,

round(avg(calories\_burned) , 2) as avg\_burned

from fitness\_tracking where attended\_gym = 'TRUE'

GROUP BY workout ORDER by avg\_burned desc;

**Result :**

**Workout avg\_burned**

"Cardio" "425.67"

"Legs" "337.69"

"Shoulder" "250.27"

"Biceps & Triceps" "240.85"

"Abs" "200.58"

"None" "0"

Insight: Cardio workout burns more calories.

2. **Comparing calorie intake vs burn by month**

SELECT STRFTIME('%Y-%m' , date) AS month,

ROUND(SUM(calorie\_intake), 0) as total\_intake,

ROUND(SUM(calories\_burned), 0) as total\_burned from fitness\_tracking GROUP by month;

**Result:**

**month total\_intake total\_burned**

"2025-02" "44206" "6097"

"2025-03" "48355" "5959"

"2025-04" "48021" "5733"

Insight: Total calorie intake and total calories burned according to months is shown.

**3. High Calorie Intake + No Gym = Likely Weight Gain Days**

SELECT

date,

calorie\_intake,

calories\_burned,

attended\_gym, weight\_kg

FROM fitness\_tracking

WHERE attended\_gym = 'FALSE' AND calorie\_intake > 1600

ORDER BY calorie\_intake DESC;

**Result:**

**Date Calorie\_Intake Calories\_Burned Attended\_Gym Weight\_kg**

"2025-02-25" "1977" "0" "FALSE" "54.3"

"2025-04-23" "1970" "0" "FALSE" "52.9"

"2025-04-29" "1911" "0" "FALSE" "53.2"

"2025-04-04" "1869" "0" "FALSE" "53.3"

"2025-04-03" "1862" "0" "FALSE" "53.4"

"2025-03-28" "1861" "0" "FALSE" "53.7"

"2025-04-22" "1813" "0" "FALSE" "53.4"

"2025-02-24" "1810" "0" "FALSE" "54.5"

"2025-03-15" "1807" "0" "FALSE" "54.1"

"2025-04-12" "1770" "0" "FALSE" "53.7"

Insight: Shown on which days high calorie intake and gym not attended days that lead to put on weight.

**4. Weekly Consistency and Impact on Weight**

SELECT

STRFTIME('%Y-%W', date) AS week,

COUNT(CASE WHEN attended\_gym THEN 1 END) AS gym\_days,

ROUND(AVG(weight\_kg), 2) AS avg\_weight

FROM fitness\_tracking

GROUP BY week

ORDER BY week;

**Result :**

**week gym\_days avg\_weight**

"2025-04" "0" "55.2"

"2025-05" "0" "54.81"

"2025-06" "0" "54.79"

"2025-07" "0" "54.67"

"2025-08" "0" "54.39"

"2025-09" "0" "54.3"

"2025-10" "0" "54.17"

"2025-11" "0" "53.99"

"2025-12" "0" "53.79"

"2025-13" "0" "53.53"

Insight: Monitors consistency and weight trends weekly and observed decrease in weight.

**5. Cumulative Weight Loss Trend Over Time**

WITH base AS (

SELECT

date,

weight\_kg,

FIRST\_VALUE(weight\_kg) OVER (ORDER BY date) AS start\_weight

FROM fitness\_tracking

)

SELECT

date,

weight\_kg,

ROUND(start\_weight - weight\_kg, 2) AS cumulative\_weight\_loss

FROM base

ORDER BY date;

**Result:**

**date weight\_kg cumulative\_weight\_loss**

"2025-02-01" "55.2" "0"

"2025-02-02" "55.2" "0"

"2025-02-03" "54.7" "0.5"

"2025-02-04" "54.7" "0.5"

"2025-02-05" "54.9" "0.3"

"2025-02-06" "54.7" "0.5"

"2025-02-07" "54.9" "0.3"

"2025-02-08" "54.8" "0.4"

"2025-02-09" "55" "0.2"

"2025-02-10" "55.1" "0.1"

Insight: Shows there is weight loss .

**POWER BI DASHBOARD COMPONENTS**

## Title Banner:

Text: "3-Month Fitness Progress"

## Top KPI Cards:

- Total Gym Days: COUNT(attended\_gym = TRUE)

- Sum of Calories Burned: AVG(calories\_burned)

- Sum of Sleep Hours: AVG(sleep\_hours)

- Weight Change: MAX(weight\_kg) - MIN(weight\_kg)

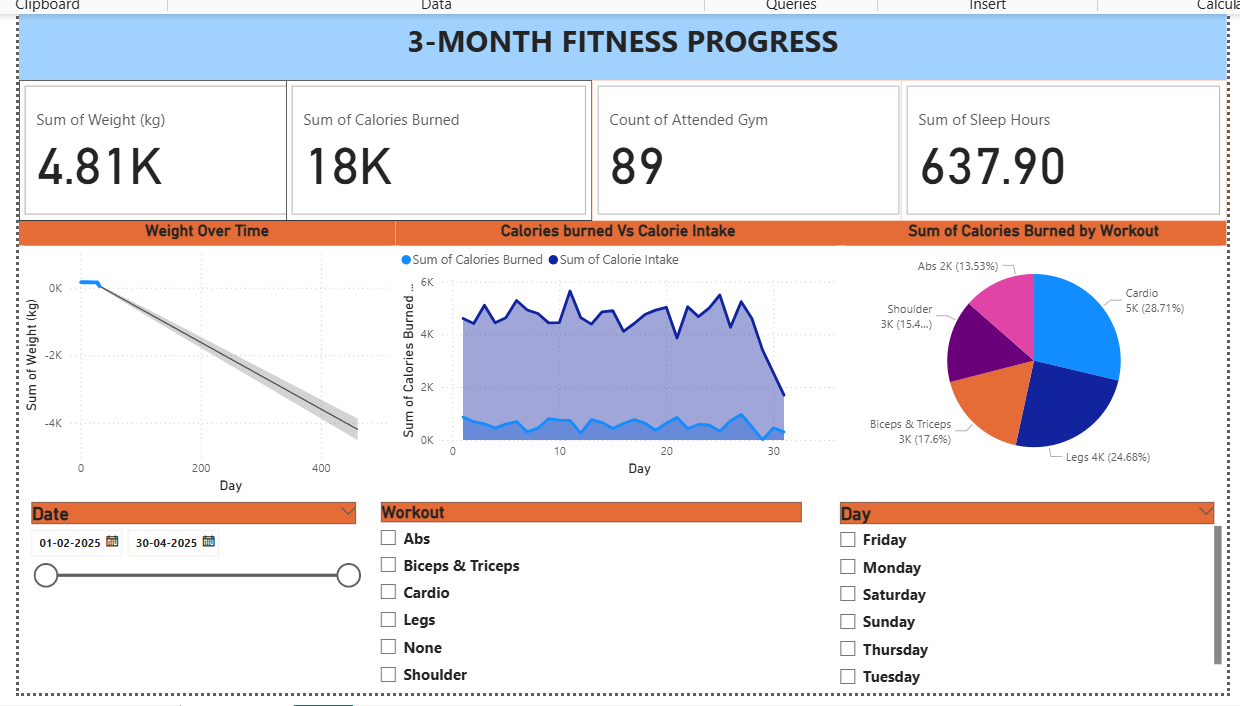
## Charts and Graphs:

- Line Chart: Daily Weight vs. Date

- Area line Chart: Calories Burned Vs Calorie Intake on day wise

- Pie Chart: Calories Burned by Workout Type

- Slicers: Date Range, Workout Type, Day



**Conclusion**

The analysis highlights how workout consistency, dietary control, and adequate sleep collectively contribute to effective weight management. SQL helps extract actionable insights from raw data, while Power BI provides visual clarity and also forecast how many days are needed to decrease weight. This approach enables informed fitness decisions for sustainable health outcomes.