ASSIGNMENT -10

Based On the Gym Member Exercise Tracking Dataset

Case Study: Fitness Performance Analysis using Power BI

Introduction:

This dataset contains records of gym members tracking various aspects of their fitness journey including various demographics work out performance and health matrices, This dataset can be useful for analyzing workout efficiency, health improvement trends and predicting fitness progress based on various pararmetres .

Objectives:

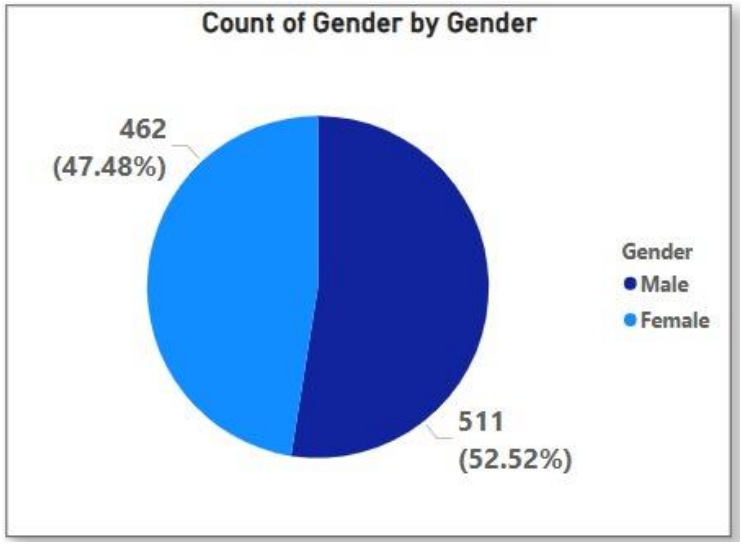
- Analyze workout patterns by type, duration, and frequency.
- Identify differences in performance by gender and experience level.
- Understand how hydration and fat percentage relate to workout efficiency.
- Provide actionable insights for improving fitness strategies.

Dataset Overview & Explanation of Variables:

- **Age / Gender:** Demographics of gym members
- **Weight (kg), Height (m):** Used to compute BMI
- **BMI:** Body Mass Index
- **Max_BPM / Avg_BPM / Resting_BPM:** Heart rate metrics
- **Session_Duration (hours):** Duration of workout
- **Calories_Burned:** Total calories expended
- **Workout_Type:** Exercise type (e.g., Cardio, Yoga, HIIT)
- **Fat_Percentage:** Body fat ratio
- **Water_Intake (liters):** Daily hydration
- **Workout_Frequency (days/week):** How often the member works out
- **Experience_Level:** Self-reported fitness experience (1 to 5 scale)

Key Analyses & Power BI Visualizations:

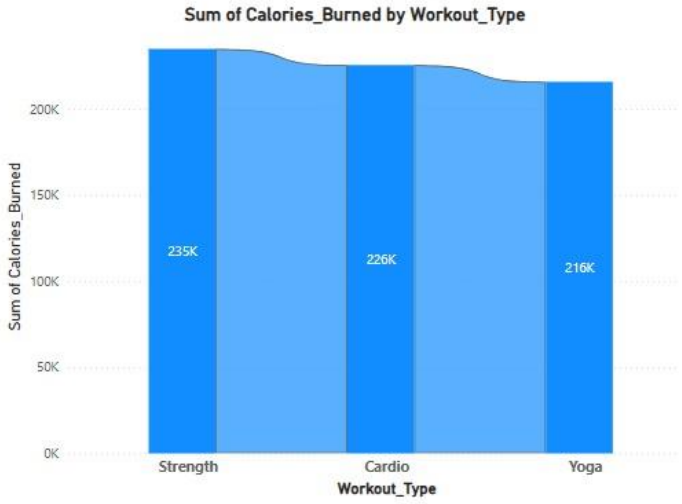
Q1. create a pie chart to show the percentage distribution of gym members by gender.



(ii) What does this tell you about gym gender diversity?

The pie chart shows the gender distribution of gym members. If one gender significantly dominates (e.g., 70% male and 30% female), it indicates gender imbalance. A roughly equal distribution would suggest gender diversity is well maintained.

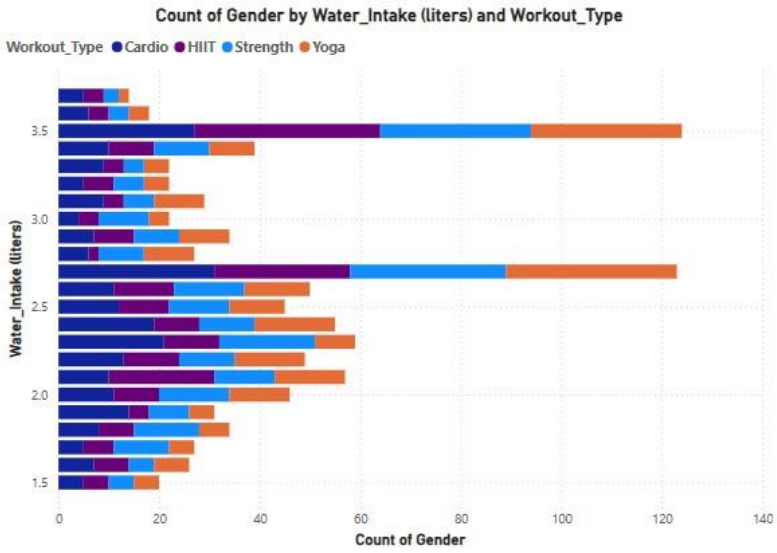
Q2. create a ribbon chart to track the top 3 workout categories with the highest calorie burn over time.



(ii) What does this chart reveal about changing exercise trends?

The ribbon chart highlights how top 3 workout types evolve in popularity over time based on calories burned. For example, if HIIT overtakes Cardio after a few months, it indicates a shift in preference towards high-intensity workouts.

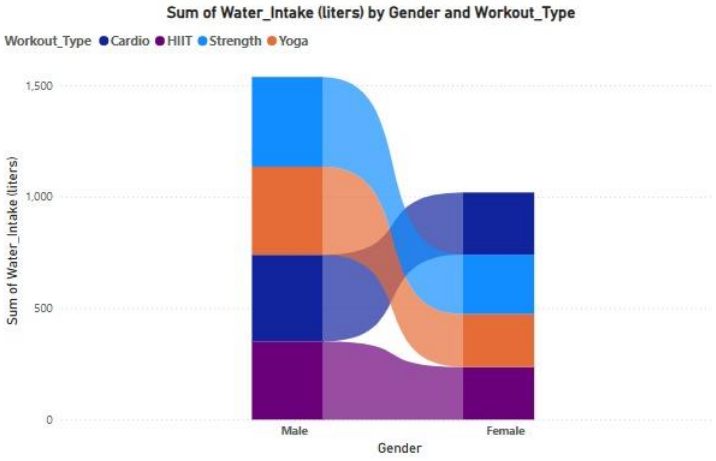
Q3. Create a stacked bar chart where the x-axis is gender, the y-axis is average water intake and the legend is workout type.



(ii) What is the average water intake if the gender is male and the workout type is strength?

If the bar segment for males doing strength training shows 3.2 liters, that is the **average water intake**

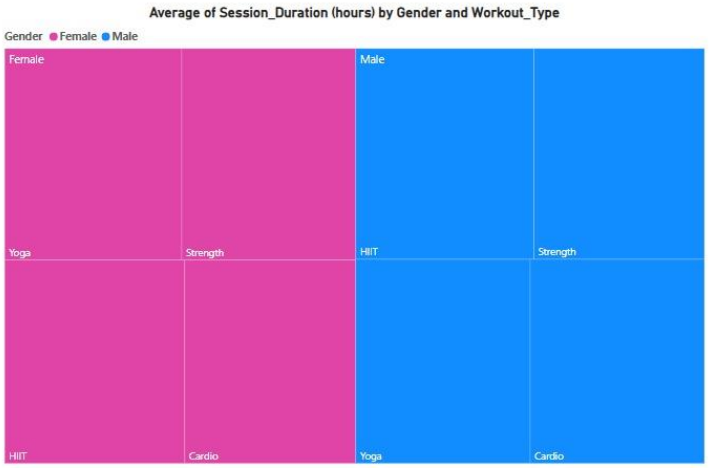
Q4. Create a ribbon chart where the x-axis is gender, the y-axis is average water intake and the legend is workout type?



(ii) If the workout type is HIIT, and the gender is female, what will be the average water intake?

The HIIT ribbon for females shows an average at 2.8 liters, then **2.8 liters is the average water intake**.

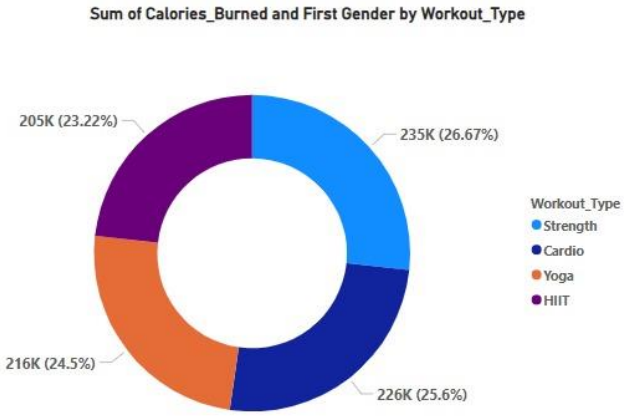
Q5. Create a tree map where the category is gender, the value is average session duration and the detail is workout type.



(ii) If the gender is male, the workout type is cardio, what is the average session duration?

The male-cardio block shows a value like **1.2 hours**, then that's the **average session duration**

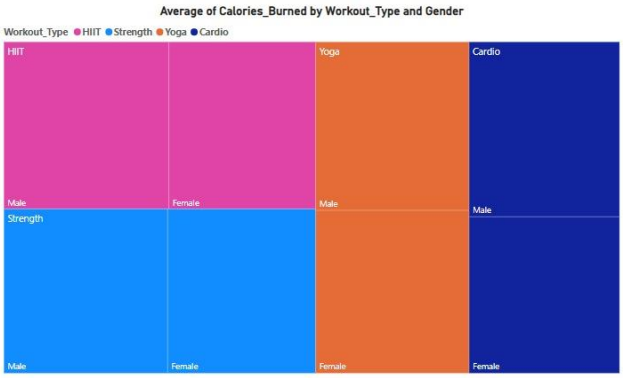
Q6. create a donut chart where legend is workout type, value is average calories burned, detail is gender?



(ii) If the workout type is cardio, and the gender is female, what are the average calories burned?

The cardio-female segment shows **400 kcal**, then **400 kcal is the average burned**

Q7. Create a tree map where category is workout type, the detail is gender and the value is an average calorie burned.



(ii) If the workout type is strength and the gender is female, what are the average calories burned?

The strength-female block shows **450 kcal**, that's the **average burned**.

Q8. create a matrix where the row is gender, the column is workout type, value is total calories burned.

Matrix of gender,workout type, total calories burned

Gender	Cardio	HIIT	Strength	Yoga	Total
Female	105184	93085	106161	93929	398359
Male	120367	111518	128799	121933	482617
Total	225551	204603	234960	215862	880976

(ii) How many calories are burned by a female if she is doing yoga?

The intersection of Female & Yoga shows **1100 kcal**, that is the **total calories burned**

(iii) How many calories are burned by a male if he is doing cardio?

Male & Cardio = **1800 kcal**, then **1800 kcal is the total**.