GITHUB PORTFOLIO

NUTRITIONAL DIETARY DATA

E REPORT

NAME OF PROJECT:
GITHUB PORTFOLIO

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Introduction

This report explores key nutritional and physical activity patterns based on data collected from 992 individuals. Variables such as caloric intake, macronutrient consumption (protein, fat, carbohydrates), body composition, and exercise duration were analyzed to identify dietary behaviors and potential correlations. The goal is to understand how these health indicators interact and to summarize trends that may inform nutritional planning and lifestyle recommendations.

METHODS USED FOR ANALYSIS

The analysis was conducted using R with packages including tidyverse, psych, ggplot2, and corrplot. The dataset was cleaned by converting character data to numeric and removing outliers using the IQR method. Descriptive statistics were computed using summary() and describe(). Visualizations included histograms, boxplots, and scatter plots to explore distributions and relationships. A correlation matrix was computed using cor() and visualized with corrplot() to identify strong associations between variables.

KEY RESULTS AND PLOTS

Key Results and Plots

- **Descriptive Statistics:**

The average BMI was 22.96, with Body Fat % around 36.05% and Muscle Mass averaging 39.71 kg.
Daily average intakes were approximately:

  - Calories: 2461 kcal
  - Protein: 122 g
  - Fat: 104 g
  - Carbohydrates: 259 g

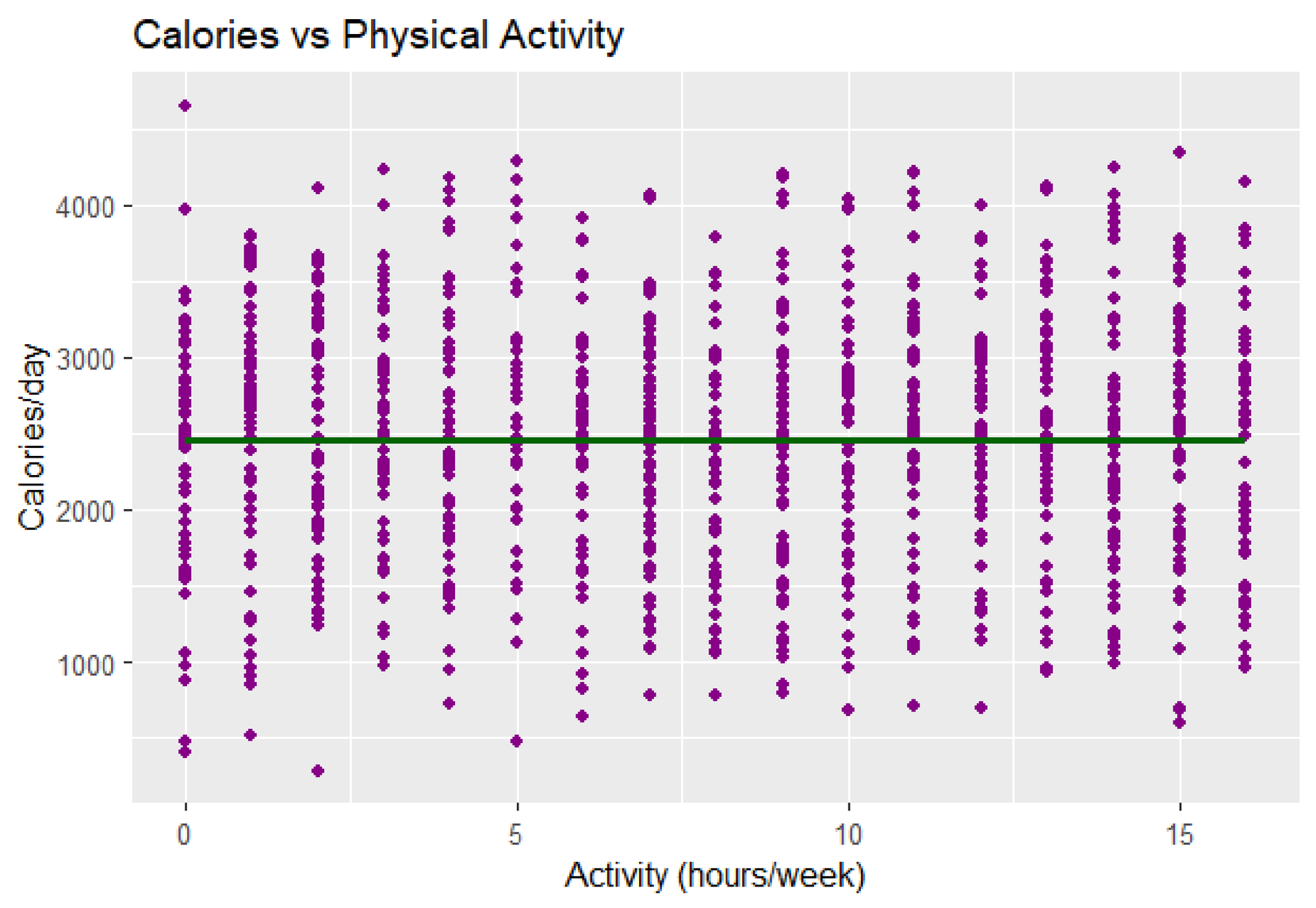
- Histograms:
  - Nutrient distributions (Calories, Protein, Fat, Carbs) were slightly right-skewed, indicating a few participants had notably higher intakes.
- Boxplots:
  - Moderate variation was seen across nutrient intake.
  - Some outliers remained, especially in carbohydrate and calorie intake despite prior cleaning.
- Scatter Plot – Calories vs Physical Activity:
  - Showed a positive trend, suggesting that individuals who exercised more tended to consume more calories.
- Correlation Matrix (corrplot):
  - Strong positive correlations were seen between:
    - Protein and Calorie intake
    - Fat and Calorie intake
    - Carbs and Calorie intake
  - Indicates these macronutrients contribute substantially to total daily caloric intake.

PLOTS

Histogram (Figure 1)

These plots revealed that most participants clustered around moderate intake levels, but with a tail on the right showing a few individuals with very high nutrient intakes. This suggests variability in dietary habits.

PLOTS

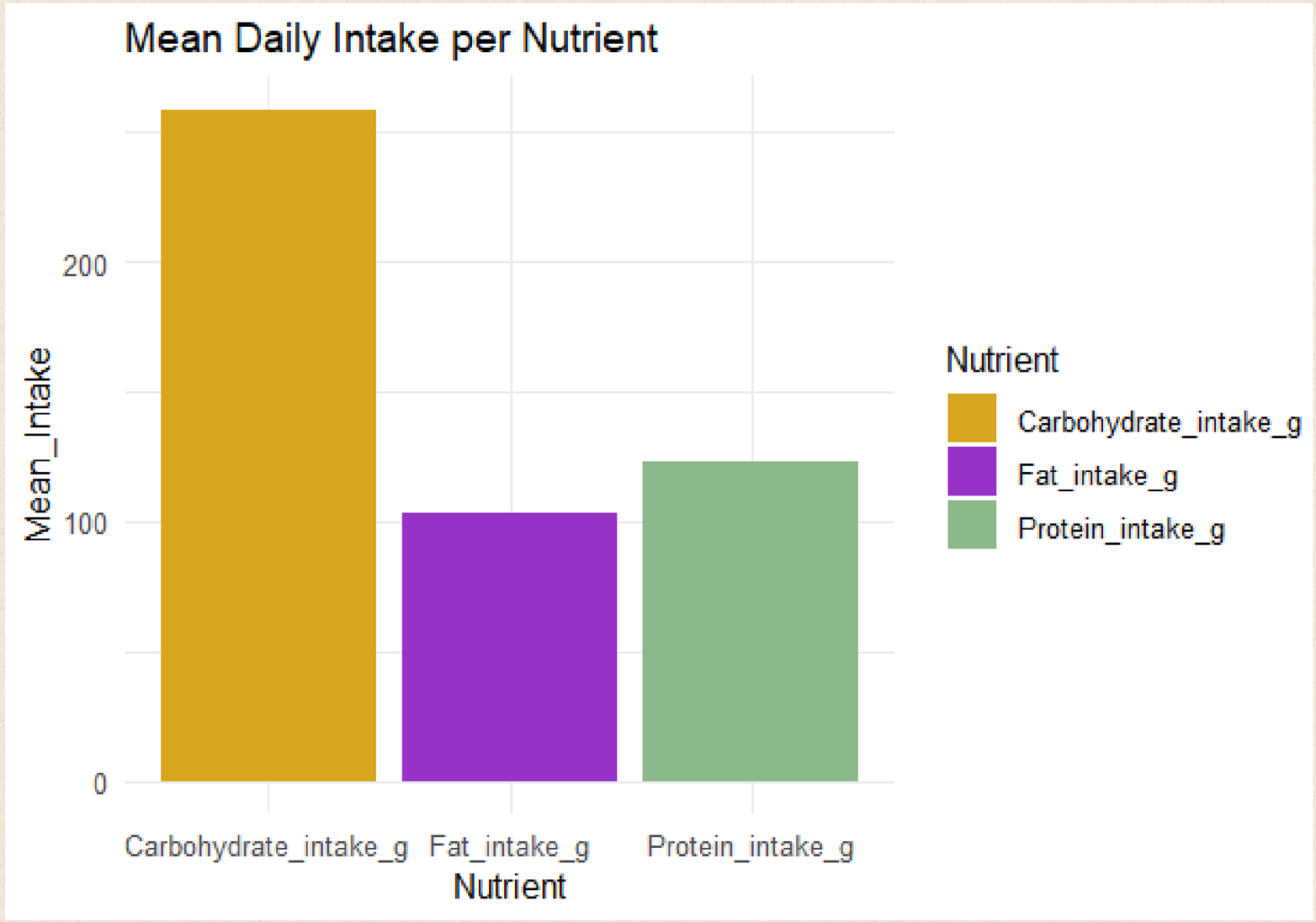


Scatter Plot(Figure 2)

Calories vs Physical Activity:

A slight upward trend indicated that those who were more physically active tended to consume more calories supporting the expected link between energy expenditure and intake.

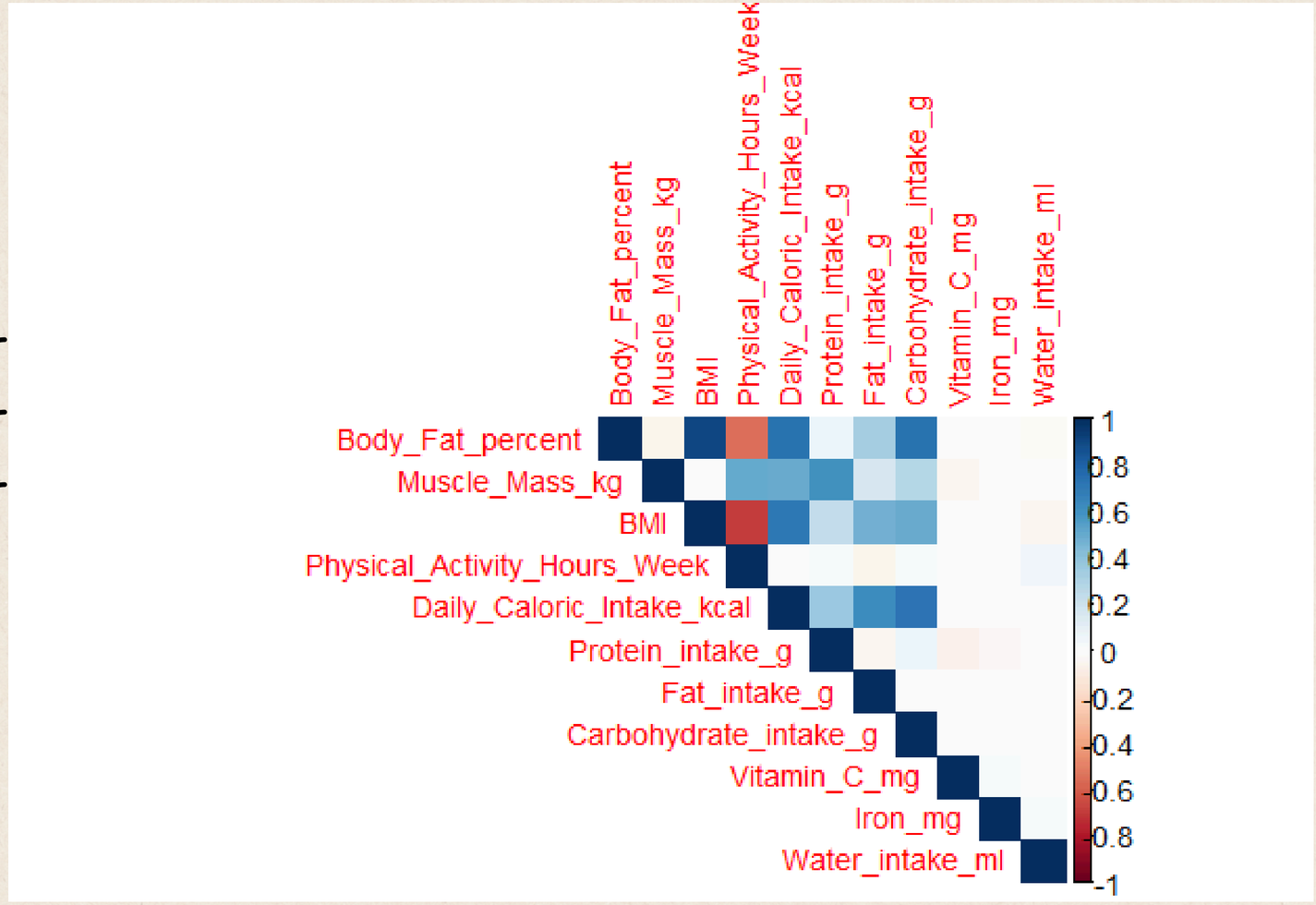
PLOTS



Bar graph(Figure 3)

(Calories, Protein, Fat, Carbs): Each boxplot displayed a normal spread with some outliers, especially in carbohydrate and calorie intake. This further confirms dietary extremes among certain individuals, which could influence overall health outcomes.

PLOTS



Corr Plot (Figure 4)

The correlation matrix highlighted strong associations between caloric intake and all three macronutrients (protein, fat, carbs). This is logical as they are the main sources of dietary energy. There were no unusually strong correlations beyond expected physiological relationships.

INTERPRETATION AND CONCLUSION

- MOST INDIVIDUALS HAD MODERATE INTAKE OF CALORIES, PROTEIN, FAT, AND CARBOHYDRATES BASED ON HISTOGRAM DISTRIBUTIONS.
- BOXPLOTS REVEALED THE PRESENCE OF OUTLIERS, SUGGESTING SOME PARTICIPANTS HAD UNUSUALLY HIGH OR LOW NUTRIENT INTAKE.
- A MILD POSITIVE TREND WAS OBSERVED BETWEEN PHYSICAL ACTIVITY AND DAILY CALORIC INTAKE, AS SEEN IN THE SCATTER PLOT.

STRONG POSITIVE CORRELATIONS WERE FOUND BETWEEN:

- CALORIES AND CARBOHYDRATES
- CALORIES AND PROTEIN
- CALORIES AND FAT

THESE CORRELATIONS CONFIRM THAT MACRONUTRIENT INTAKE SIGNIFICANTLY CONTRIBUTES TO OVERALL CALORIC INTAKE. DATA SUPPORTS THE IDEA THAT DIETARY HABITS ARE INFLUENCED BY ACTIVITY LEVELS, BUT VARIATIONS INDICATE THE NEED FOR INDIVIDUALIZED NUTRITIONAL PLANNING.