Living with Obesity!!

By: Omnia Gamal

Agenda

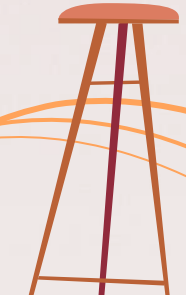
01 Problem Statement

02 Project Objective

03 Data Set

04 Visuals & Insights

05 Classification Results



01

Problem Statement

Problem Statement

- The Daily Struggle

Obesity turns daily tasks into physical and emotional challenges.

Widespread Reality

Over 48% of participants are overweight or obese.

Fast Food Effect

65%+ frequently consume high-calorie fast food.

Genetics

High genetic risk further increases vulnerability.

Lack of Movement

1 in 3 engage in low physical activity; screen time is high.

Calories & Consequences

Higher calorie intake strongly correlates with obesity levels.

Hope in Healthy Habits

30% maintain healthy weight through lifestyle awareness.

Obesity More Than Weight

Obesity affects freedom, energy, health, and quality of life.

Project Objectives

Analyze Key Factors Influencing Obesity

Classify Obesity Levels Using ML Models

Promote Awareness and Prevention Strategies

Data Set

https://www.kaggle.com/datasets/fatemehmehrparvar/obesity-levels

Dataset Overview

- Dataset: ObesityDataSet.csv

- Number of Rows : 7110

- Columns: 20

- Target: NObeyesdad (Classify Obesity Level Category)

Features Description

Column	Description
Gender	Sex of the individual (Male/Female)
Age	Age in years
Height	Height in meters
Weight	Weight in kilograms
family_history_with_overweight	Family history of overweight
FAVC	Frequent consumption of high-calorie food
FCVC	Frequency of vegetable consumption

Features Description

Column	Description
NCP	Number of main meals
CAEC	Consumption of food between meals
SMOKE	Smoking habit
CH2O	Daily Carb intake
SCC	Monitoring of calorie consumption
FAF	Physical activity frequency
TUE	Time using technology devices

Features Description

Column	Description
CALC	Alcohol consumption frequency
MTRANS	Main transportation method
Daily_Calorie_Intake	Calculated average daily calorie intake
Physical_Activity_Level	Level of physical activity
Genetic_Obesity_Risk	Genetic predisposition score
NObeyesdad	Obesity level (Target column)

Data Cleaning

Missing Value Imputation using mean,mode

Outlier Handling

Feature Scaling

Encoding Categorical Variables

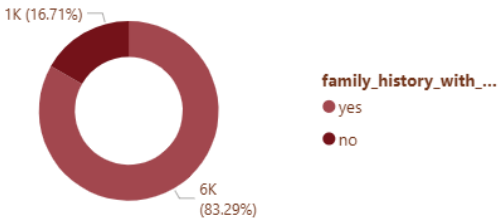
Visuals & Insights

Demographics

Gender
- Female
- Male

Age
All

Count_By_Obesity by family_history_with_overweight

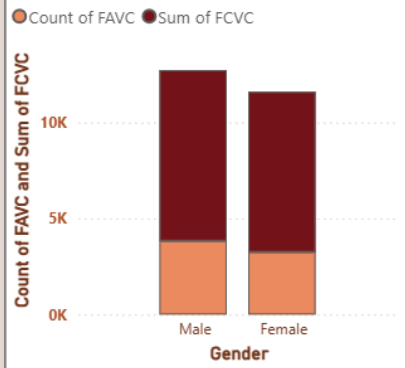


4.46K
Genetic_Obesity

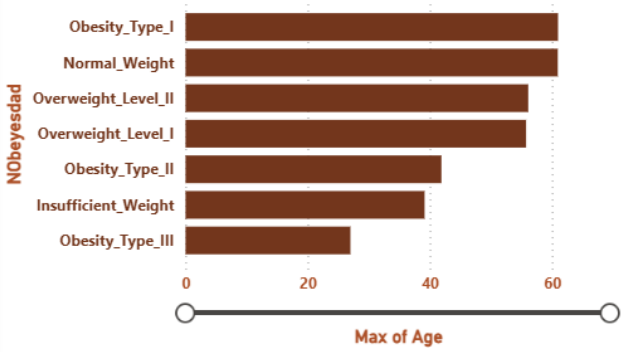
7,090
Family_history_with_overweight

24.38
Average of Age

Count of FAVC and Sum of FCVC by Gender



Max of Age by NObeyesdad



Count of NObeyesdad by Gender

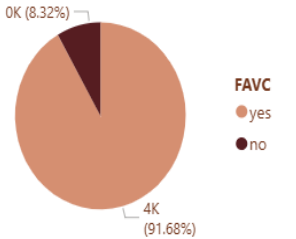
Visuals & Insights

Effect of Daily Habits

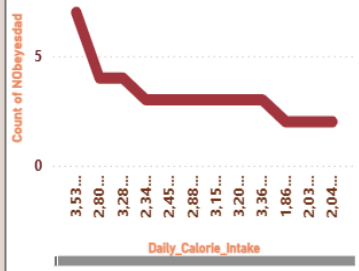
Age: All

Gender: Female, Male

Count_By_Obesity by FAVC

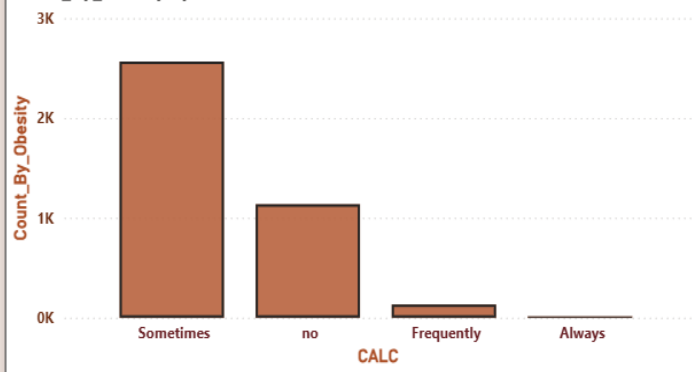


Count of NObeyesdad by Daily_Calorie_Intake

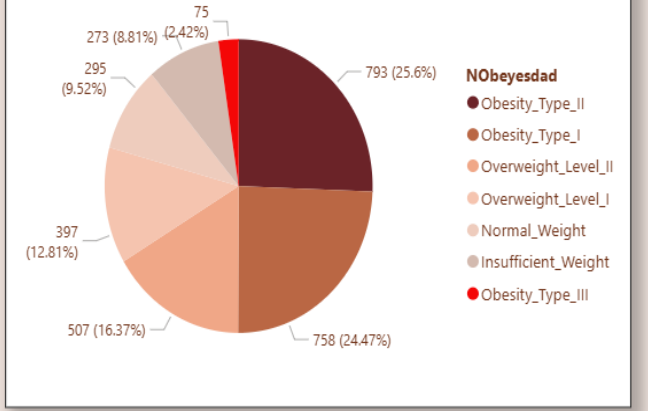


4	3836	1334
Count of CAEC	Count of SMOKE	Low_Carb_Intake

Count_By_Obesity by CALC



Count of TUE by NObeyesdad



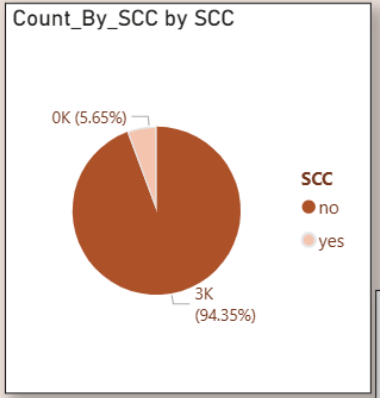
Visuals & Insights

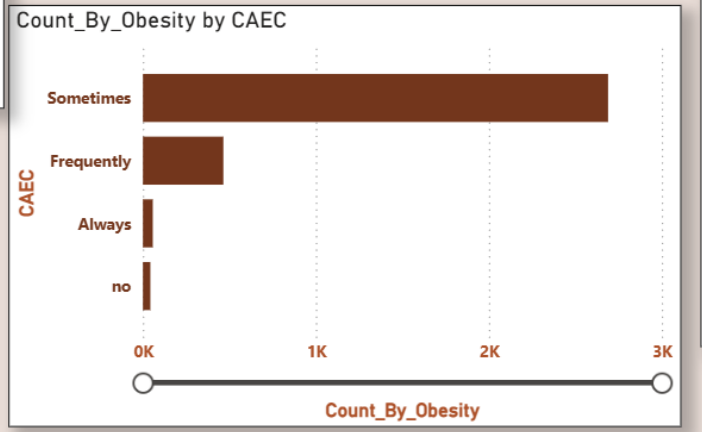
Eating Habits &Obesity

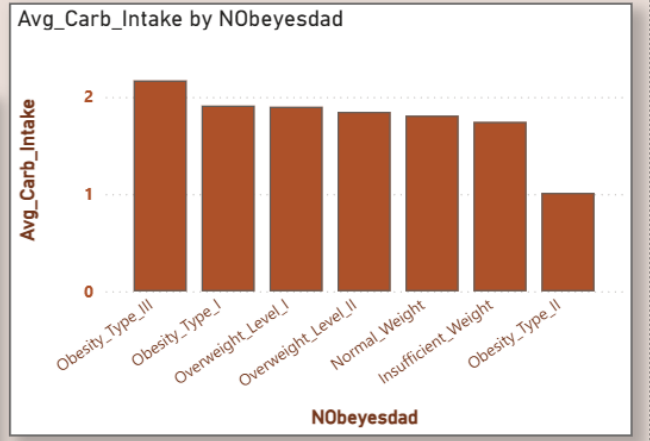
Gender
- Female
- Male

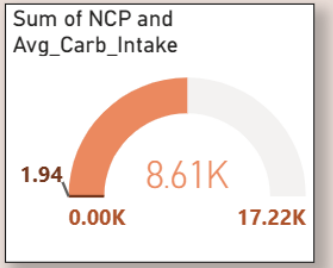
Age: All

3254	1.94	2.65	3254
Count_By_SCC	Avg_Carb_Intake	Avg_Meals	Count_By_CAEC

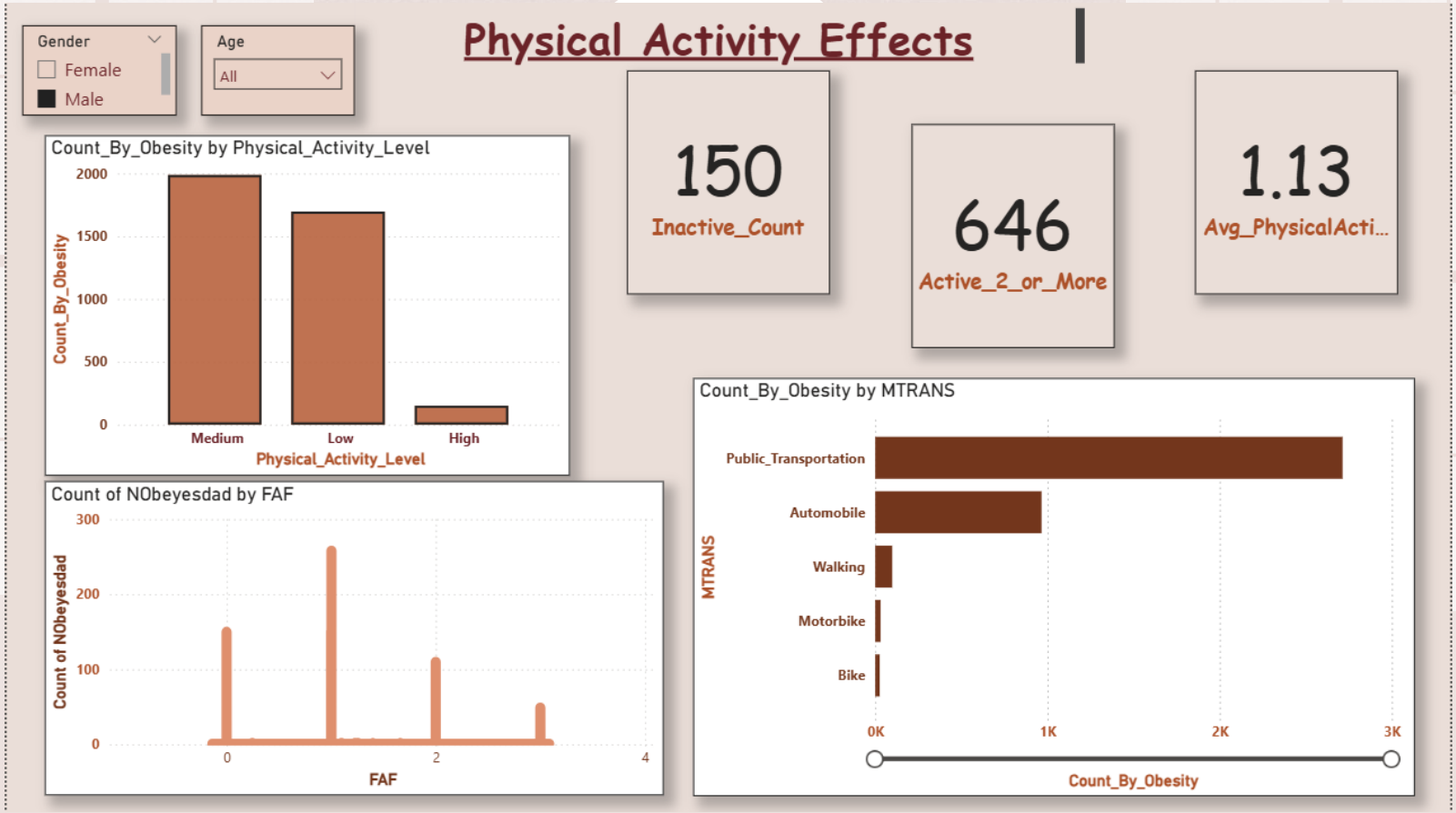








Visuals & Insights



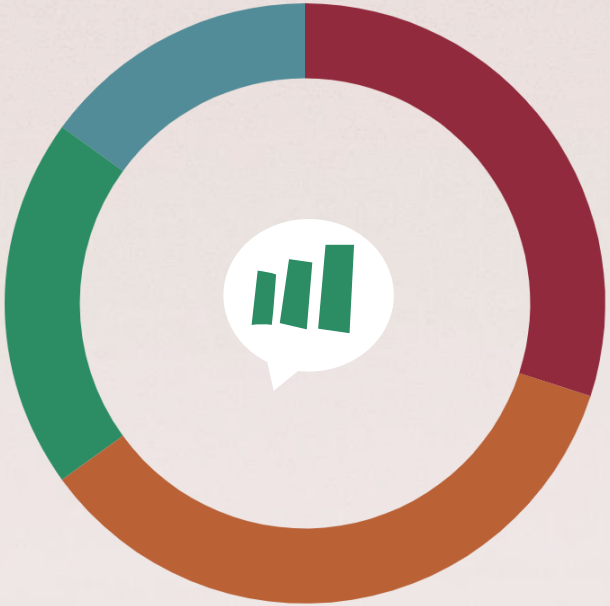
Classification Models

Logistic Regression

73%

Random Forest

91%

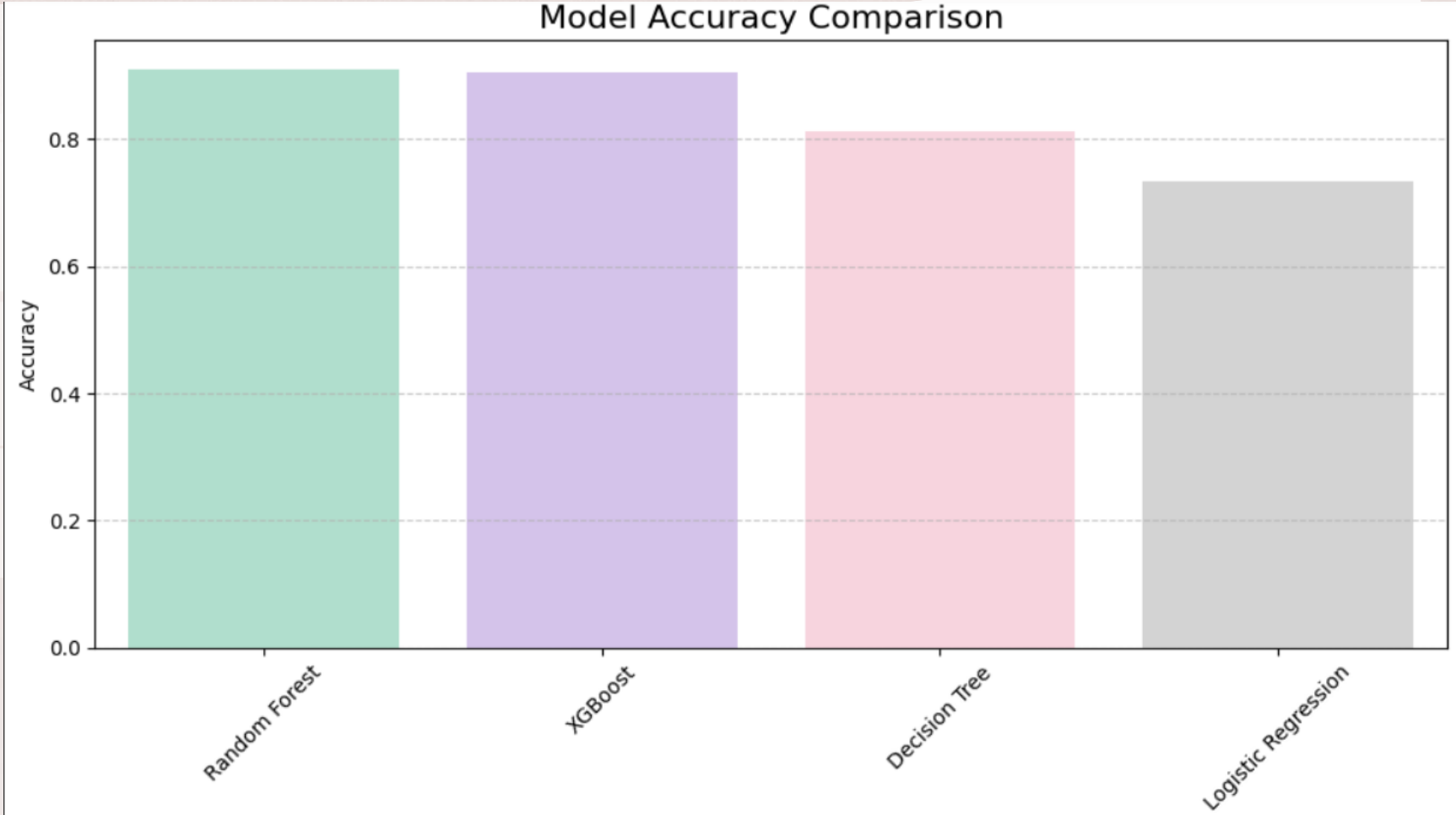


Decision Tree

81%

XGBoost

90%


Model Accuracy Comparison
Accuracy
0.0
0.2
0.4
0.6
0.8
Random Forest
XGBoost
Decision Tree
Logistic Regression

THANKS