The Relationship Between Hobbies and Well-Being

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DASC 5301-001 • Dr. Marnim Galib • 05 Dec 2025

Abstract

- Study explores relationships between hobbies, GPA, lifestyle factors, and personality.
- Methods: Linear Regression, Multiple Linear Regression, K-Means Clustering, Logistic Regression.
- Findings: Weak or non-significant relationships across most variables.

Introduction

- Dataset includes 68 variables on students' lifestyle, habits, and preferences.
- Goal: identify relationships, correlations, and trends.
- Process: Data cleaning → Exploratory Data Analysis → Model application.

Problem Statement

- Analyze dataset using statistical models.
- Interpret outputs to support decisions for stakeholders.

Methodology

- 1. Linear Regression
- 2. Multiple Linear Regression
- 3. K-Means Clustering
- 4. Logistic Regression Classification

Linear Regression Results

- Positive but statistically insignificant relationship between active hobbies and GPA.
- Students with hobbies show slightly higher GPAs but effect not reliable.
- No strong evidence linking hobbies to academic performance.

Multiple Linear Regression Results

- Variables: study hours, hobbies, personality types.
- None significantly predict GPA.
- Model explains little of the GPA variance.

K-Means Clustering Results

- High GPA (~3.65) associated with balanced sleep and study habits.
- Excessive studying (~81.7 hrs/week) does not improve GPA.
- Low performers have similar habits, indicating influence of non-lifestyle factors.

Logistic Regression Results

- No significant relationship between number of hobbies and extroversion.
- Ambiverts appear to have the highest number of hobbies.
- Hobby count not a strong predictor of personality type.

Bibliography

- Ramsay Health BMI Formula
- Scikit-Learn: Supervised Learning & Clustering Documentation