**Gökşin Değirmenci 29188**

**DSA210 Final Project**

**1. Introduction**

This report details the findings from the analysis of personal smartphone usage data collected between October and November 2024. The data includes key metrics such as notification counts, phone unlocks, screen time goals, and app usage patterns. By leveraging Python-based tools, the study provides actionable insights into smartphone usage behaviors and their implications.

**2. Objective**

The aim is to analyze smartphone usage data to identify:

Trends in notification patterns.

Correlations between screen time goals and actual usage.

Most active periods and frequently used applications.

Weekly usage trends and screen time management strategies.

**3. Methodology**

The dataset, containing 60 records, was analyzed using Python libraries such as pandas for data manipulation, matplotlib for visualization, and numpy for numerical computations. Each analytical step is described below.

**4. Analytical Process and Results**

**4.1 Dataset Overview**

Objective: Understand the structure and content of the data.

Steps Taken: The dataset was loaded using pandas, and the shape (60 rows, 9 columns) and the first five rows were examined.

Findings: The dataset includes daily records with attributes such as notifications, screen time goals, and active hours. This provided a foundation for further analysis.

**4.2 Daily Notification Trends**

Objective: Identify trends in daily notifications over the two-month period.

Steps Taken: A time-series line plot was created using matplotlib. Notifications were plotted against the dates.

Findings: Notifications showed consistent levels, ranging from 530 to 540 per day, with slight day-to-day variations.

**4.3 Correlation Between Notifications and Screen Time Goals**

Objective: Determine whether frequent notifications contribute to exceeding screen time goals.

Steps Taken: A correlation coefficient was calculated between notifications and the time spent beyond screen time goals.

Findings: A moderate positive correlation was observed, suggesting that higher notifications may lead to greater screen time.

**4.4 Application Usage Analysis**

Objective: Examine which applications were used most frequently.

Steps Taken: The value\_counts method in pandas was used to count occurrences of each app in the "Most Used Application" column. A bar chart was generated to visualize the results.

Findings: Entertainment apps such as YouTube, Spotify, and Instagram dominated daily usage.

**4.5 Active Hours Analysis**

Objective: Calculate the average daily active hours and identify weekly trends.

Steps Taken:

Daily Active Hours: The mean active hours per day were calculated using numpy.

Weekly Trends: Dates were converted to ISO weeks, and average weekly active hours were computed and visualized with a line plot.

Findings:

Average daily active hours: 6.8 hours.

Weekly active hours peaked during weekends, indicating leisure-focused phone usage.

**4.6 Screen Time Goals and Exceedance**

Objective: Analyze adherence to daily screen time goals.

Steps Taken: The dataset’s "Screen Time Goal Exceedance" column was analyzed to determine how often goals were surpassed.

Findings: Screen time goals were exceeded by an average of 1.5 hours per day, primarily during weekends and evenings.

**4.7 Time Period Analysis**

Objective: Identify the most active time of the day.

Steps Taken: The "Most Active Time Period" column was grouped and analyzed for frequency.

Findings: Morning and evening were the most active periods, with significant usage during leisure hours.

**5. Key Visualizations**

The following visualizations supported the analysis:

Daily Notification Trends: Showed consistent notification patterns.

Bar Chart of App Usage: Highlighted the dominance of entertainment apps.

Weekly Active Hours: Revealed variations in screen time by week.

Correlation Analysis Plot: Illustrated the relationship between notifications and screen time exceedance.

**6. Recommendations**

Screen Time Management:

Limit non-essential notifications to reduce screen time.

Prioritize productivity-focused apps during work hours.

Goal Setting:

Adjust screen time goals based on historical usage trends.

Set stricter limits for weekends to encourage offline activities.

Behavioral Changes:

Monitor and minimize usage during peak periods, such as evenings.

**7. Conclusion**

This analysis highlights the influence of notifications and app preferences on smartphone usage. By addressing the identified trends, users can achieve better digital well-being and productivity. The project successfully demonstrates the utility of data science tools in uncovering actionable insights from personal usage data.