

Data Exploration Mobile Device Usage and User Behavior Analysis

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Dataset Overview

Dataset: Mobile Device Usage and User Behavior Dataset (Kaggle)

Source: Kaggle - "valakhorasani/mobile-device-usage-and-user-behavior-dataset"

Size: 700 users, 10 features

Original Column	Data Type	Description
User ID	Integer	Unique identifier
Device Model	Categorical	Phone model
Operating System	Categorical	iOS or Android
App Usage Time (min/day)	Integer	Daily app usage
Screen On Time (hours/day)	Float	Daily screen time
Battery Drain (mAh/day)	Integer	Daily battery consumption
Number of Apps Installed	Integer	Total apps on device
Data Usage (MB/day)	Integer	Daily mobile data
Age	Integer	User age (18-59)
Gender	Categorical	Male or Female



Problem Definition

Objective: Analyze user patterns to improve device performance and digital well-being.

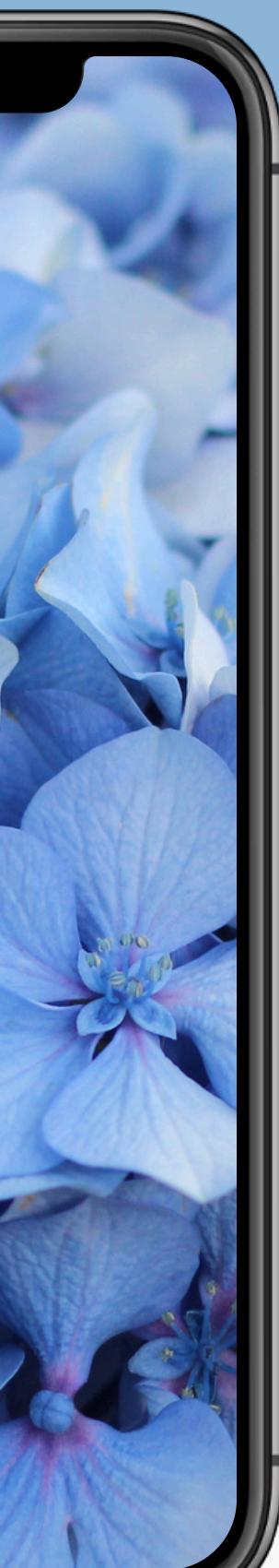
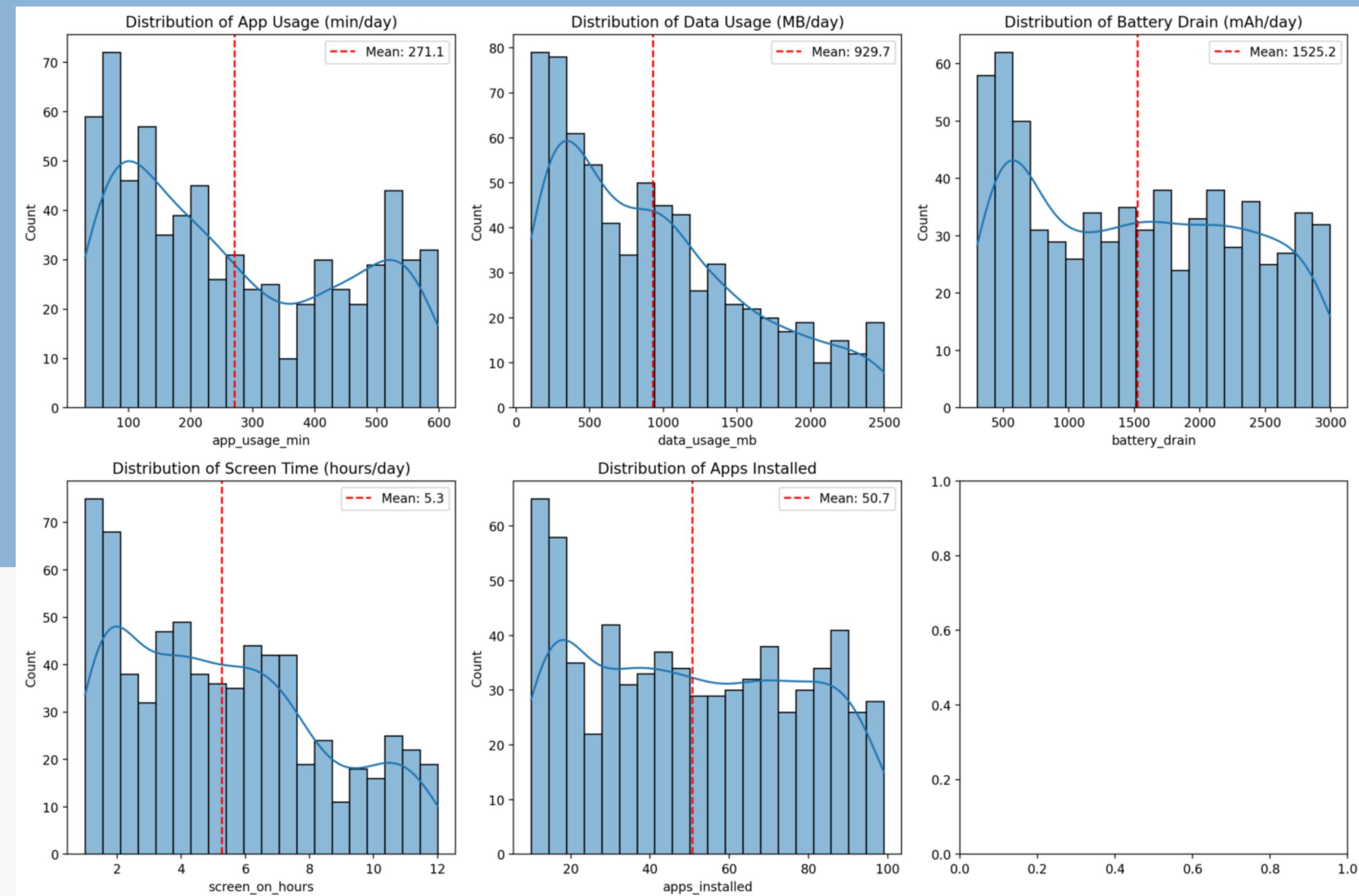
Key Questions:

- How do the average usage metrics (App Time, Data Usage, Battery Drain)?
- What is the relationship between app usage time and screen engagement?
- How do mobile usage patterns differ between genders?
- Does age significantly affect app installation behavior?
- How can users be segmented based on their mobile behavior?



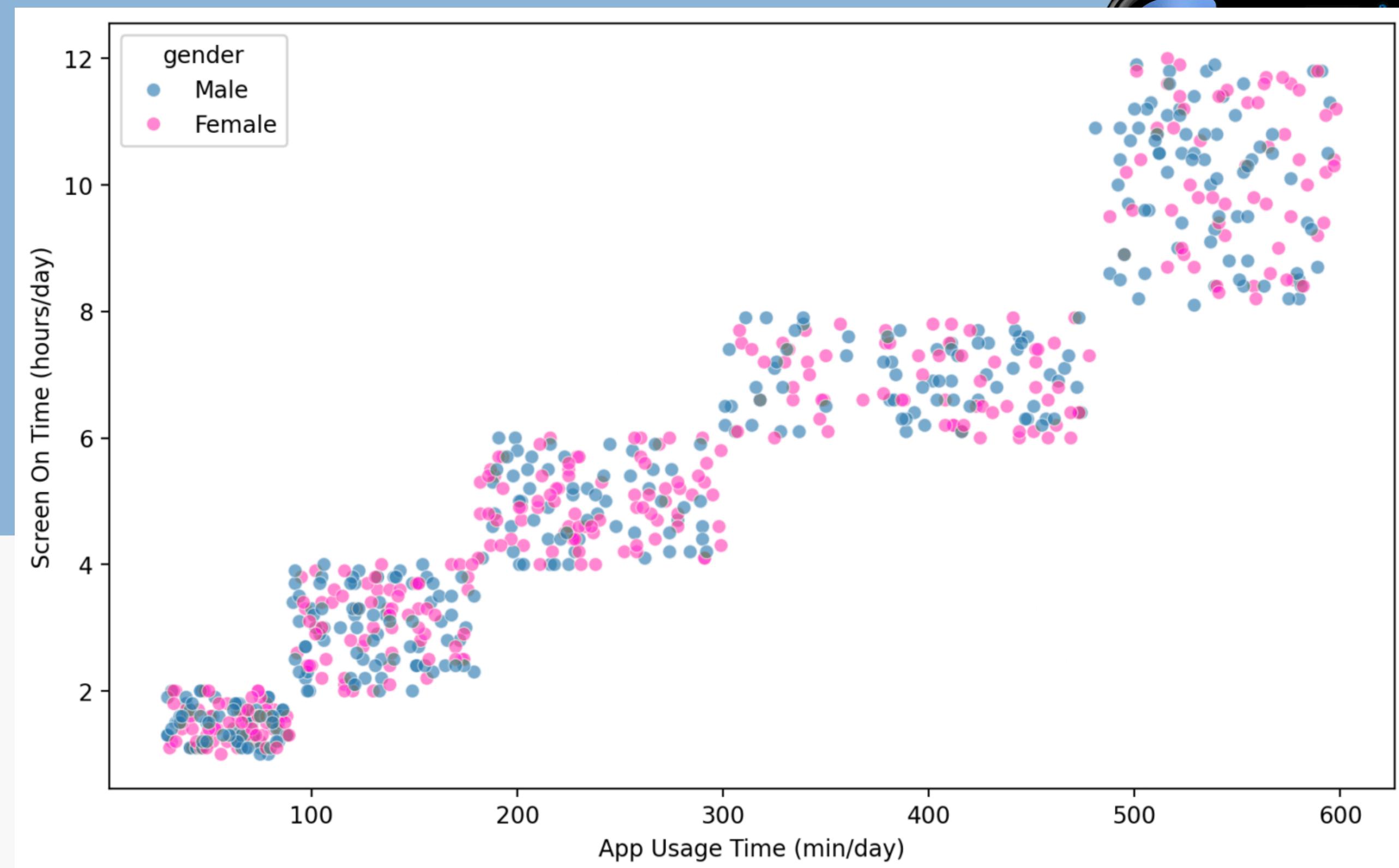
EDA RESULTS

How do the average usage metrics (App Time, Data Usage, Battery Drain)?



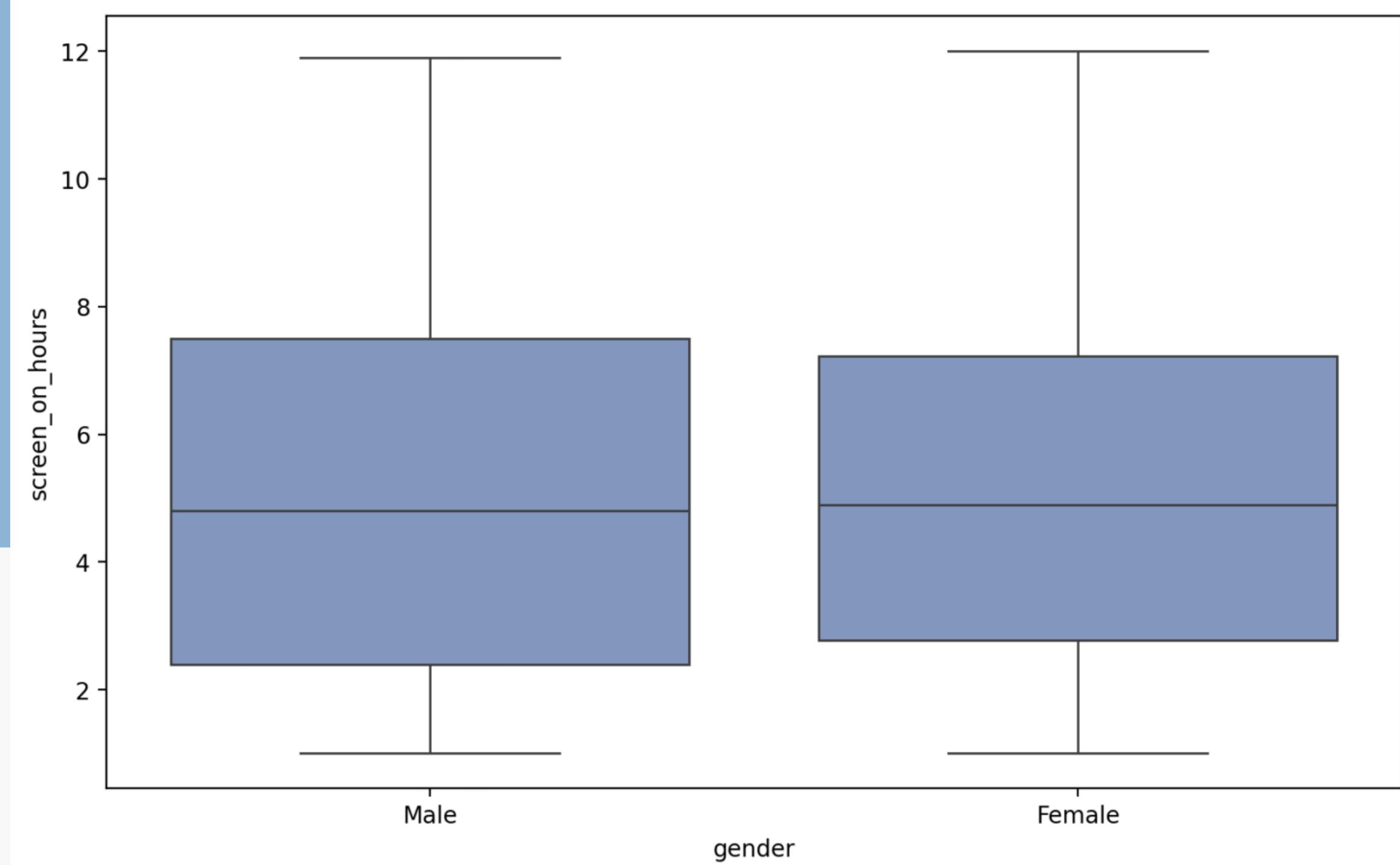
EDA RESULTS

What is the relationship between app usage time and screen engagement?



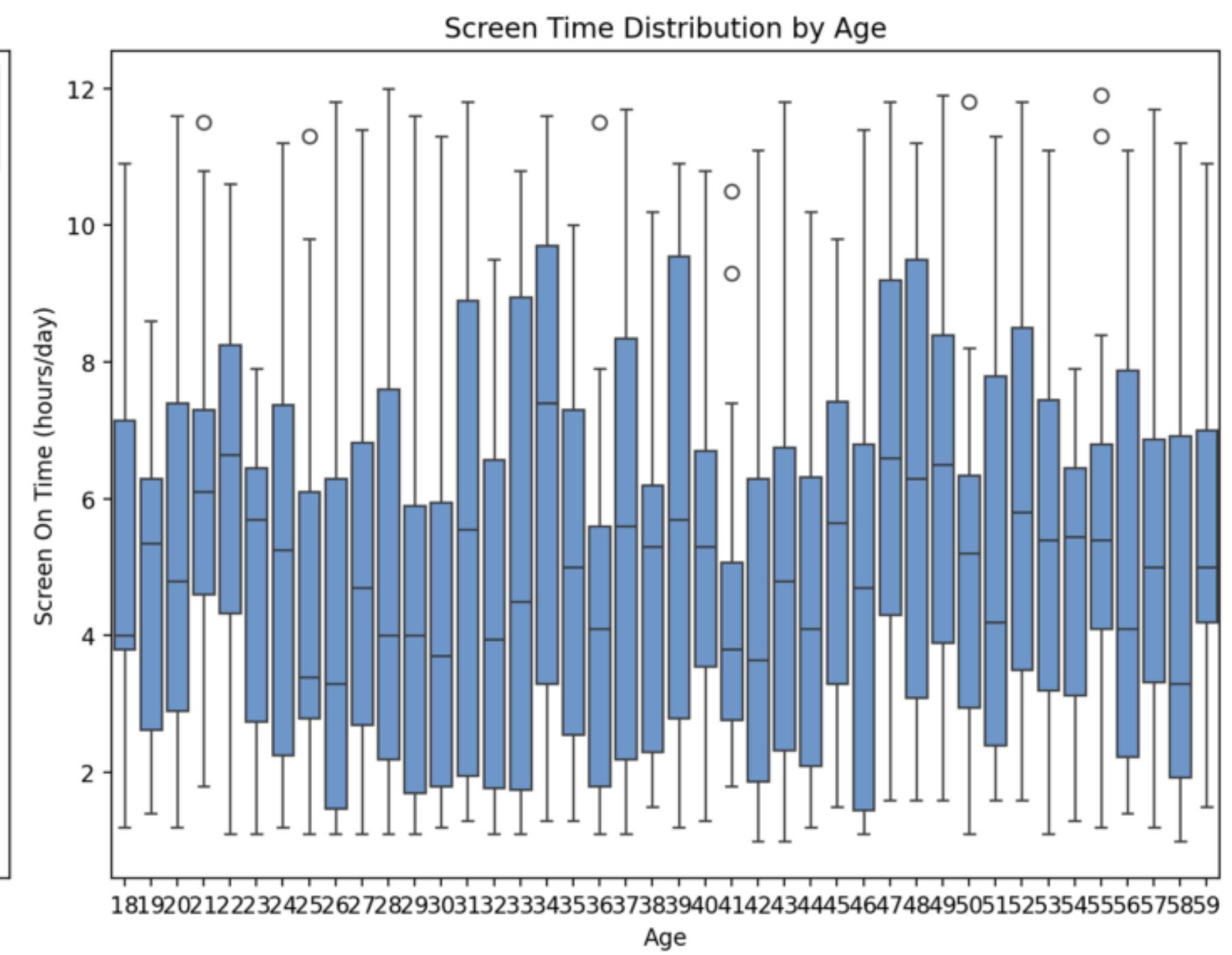
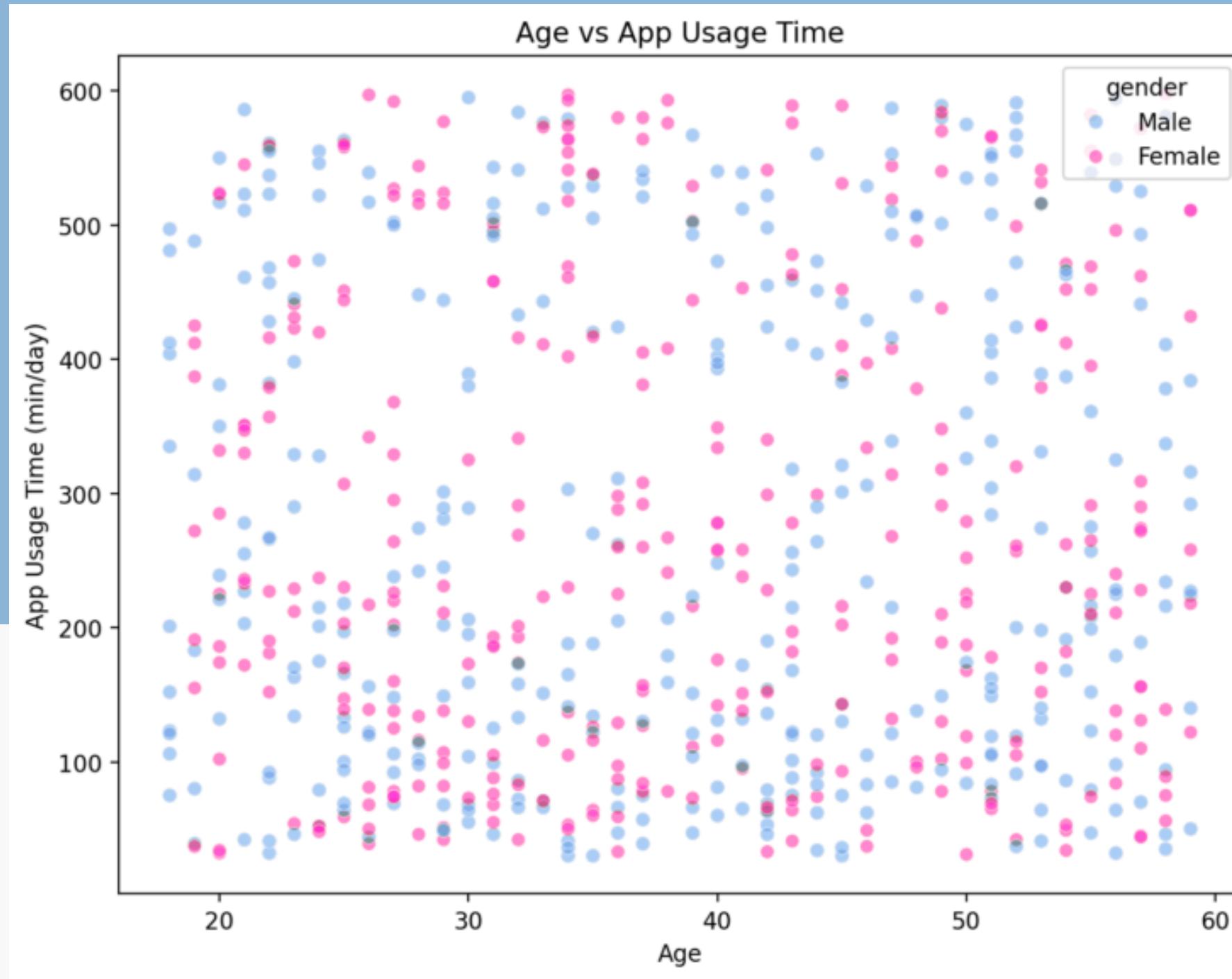
EDA RESULTS

How do mobile usage patterns differ between genders?



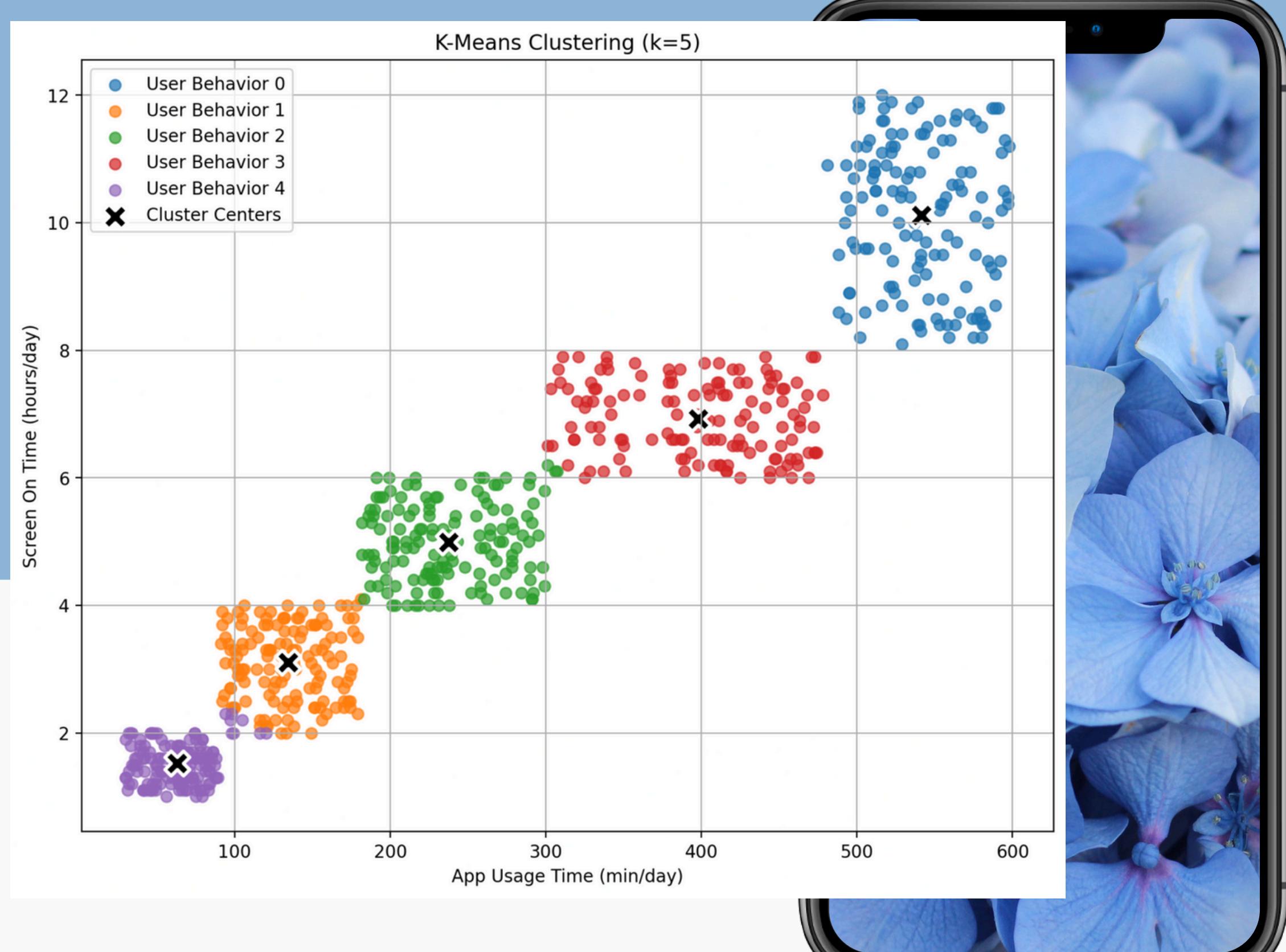
EDA RESULTS

Does age significantly affect app installation behavior?



EDA RESULTS

How can users be segmented based on their mobile behavior?



Dashboard Demo



Final Insights



Average Usage Differences

- Usage metrics vary clearly across users.

App Time vs. Screen Engagement

- Strong positive correlation ($\rho \approx 0.95$).
- More app time = longer screen-on time.

Gender Differences

- Minimal differences in usage behavior between genders.

Age & App Installation

- Weak correlation ($r \approx 0$).
- Age is not a strong predictor.

Behavioral Segmentation

- K-Means identified 5 clear user segments.

CONCLUSION

Strong Inter-Metric Correlation:

- We found a strong positive correlation ($\rho \approx 0.95$) between app usage time and total screen-on time, confirming that higher app engagement directly translates to longer screen-on duration. This indicates that screen-time management strategies should focus primarily on app-specific usage.

Minimal Demographic Impact:

- The analysis revealed minimal differences in usage behavior across genders. Additionally, age showed a very weak correlation ($r \approx 0$) with the number of installed apps, suggesting that age is not a strong predictor of installation habits in this dataset.

Behavioral Segmentation:

- Using K-Means clustering ($k=5$), we successfully segmented users into five distinct behavioral groups ranging from "Light Users" to "Heavy Users." This segmentation is crucial for designing targeted engagement or intervention strategies.





Thank you