


Unsupervised Discovery of Mobile User Personas for UX Strategy

**I'm a Director of User Experience at Google,
and an aspiring student of Artificial
Intelligence at University of Colorado
Boulder. I wanted to connect these two world
and work on a problem related to User
Experience Design.**

I found on Kaggle a fascinating data set - Mobile Device Usage and User Behavior

The dataset consists of: 700 records of individual user interaction patterns, including key features relevant to mobile behavior:

- *App Usage Time (min/day): Total daily minutes spent actively using applications.*
- *Screen On Time (hours/day): Total daily time the screen is active.*
- *Battery Drain (mAh/day): Daily battery consumption.*
- *Data Usage (MB/day): Daily mobile data consumption.*
- *Age and Gender: Demographic features used to profile the final clusters.*

 VALA KHORRAMANI · UPDATED A YEAR AGO

Mobile Device Usage and User Behavior Data

Analyzing Mobile Usage Patterns and User Behavior Classification Across Devices

[Data Card](#) [Code \(140\)](#) [Discussion \(1\)](#) [Suggestions \(0\)](#)

About Dataset

This dataset provides a comprehensive analysis of mobile device usage patterns and user behavior classification. It includes user data, including metrics such as app usage time, screen-on time, battery drain, and data consumption. Each record represents one of five user behavior classes, ranging from light to extreme usage, allowing for insightful analysis and modeling.

Key Features:

- User ID: Unique identifier for each user.
- Device Model: Model of the user's smartphone.
- Operating System: The OS of the device (iOS or Android).
- App Usage Time: Daily time spent on mobile applications, measured in minutes.
- Screen On Time: Average hours per day the screen is active.
- Battery Drain: Daily battery consumption in mAh.
- Number of Apps Installed: Total apps available on the device.
- Data Usage: Daily mobile data consumption in megabytes.
- Age: Age of the user.
- Gender: Gender of the user (Male or Female).
- User Behavior Class: Classification of user behavior based on usage patterns (1 to 5).

[View more](#)

user_behavior_dataset.csv (38.88 kB)

[Detail](#) [Compact](#) [Column](#)

About this file

Usage Instructions:
This dataset can be used for:

- Analyzing mobile user behavior patterns
- Identifying user behavior clusters
- Predicting user behavior

The problem

While personas are often based on demographics, unsupervised learning can help us find them based on user behavior. This help mitigate biases and find actionable clusters of users.

I'm going to use unsupervised learning to find behavioral clusters!

Goal

Build an unsupervised model capable of finding personas based on user behavior.

Research Plan

1. **EAD.** After loading the data set I'm going to thoroughly evaluate it. Checking data distribution and correlations between features.
2. **Data processing.** I'll have to standardize features and run a PCA analysis.
3. **K-means training and optimization.**
4. **Hierarchical clustering training and optimization.**
5. **Summary of results.**