

Group 8 Project - 1

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Mobile Device Usage

Smart Phones, we all have them!



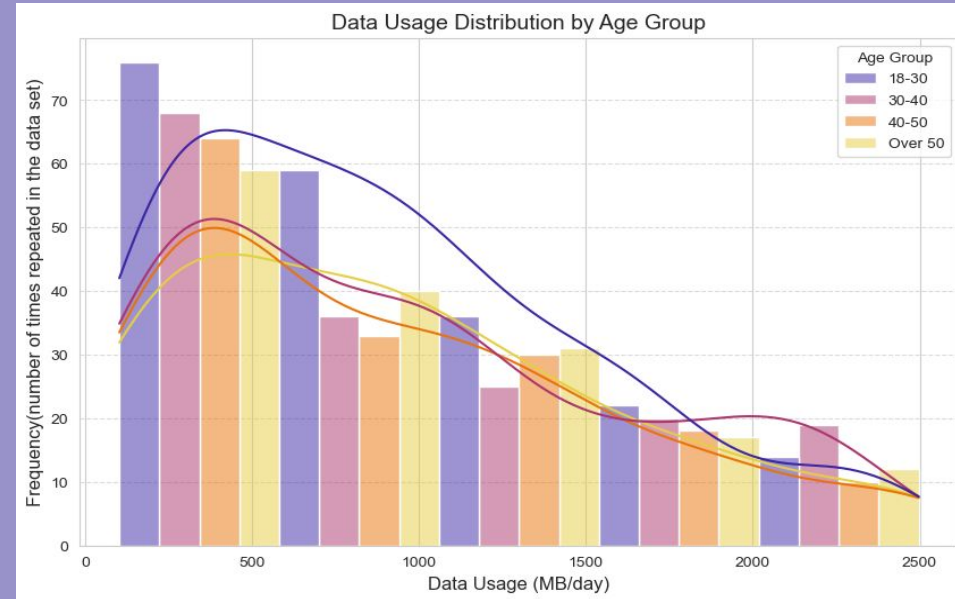
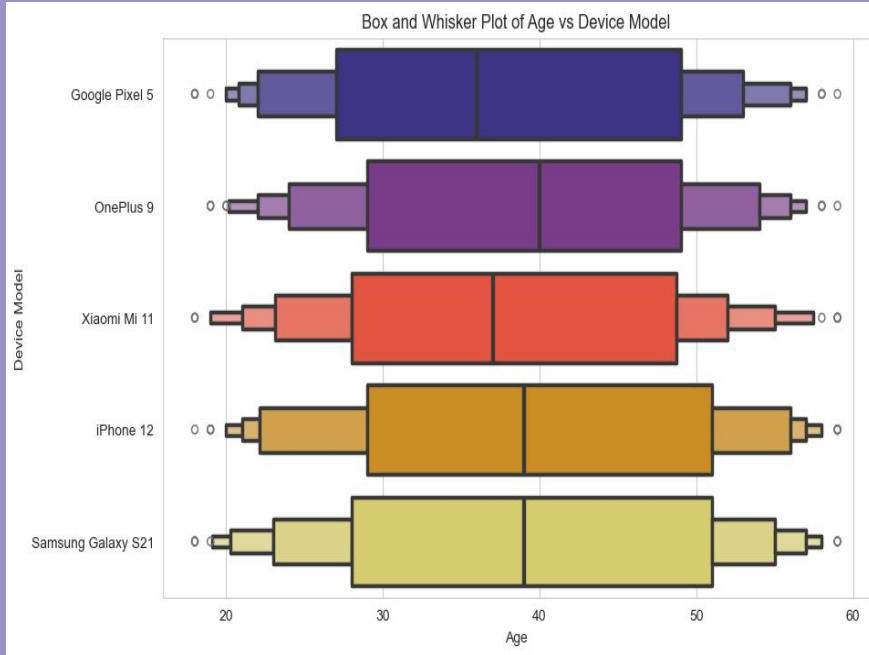


Any Data Engineering?

- Data Set Overview
 - Overall our data set was relatively clean. Full rows, no null values.
- Dropped
 - User Behavior - due to its nature and how it was described we saw it as inconclusive based on the information that was given.

Question 1: Age vs phone models, Data usage

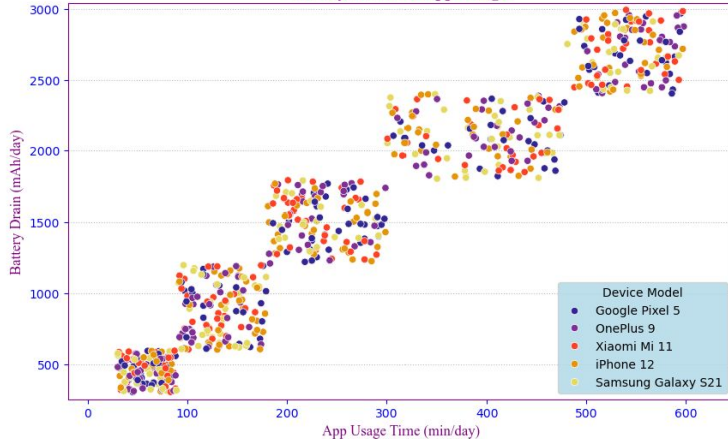
- From those surveyed, which age preferred what phone model based on age?
- How does Data usage compare when grouped by Age when sorted into groups ?



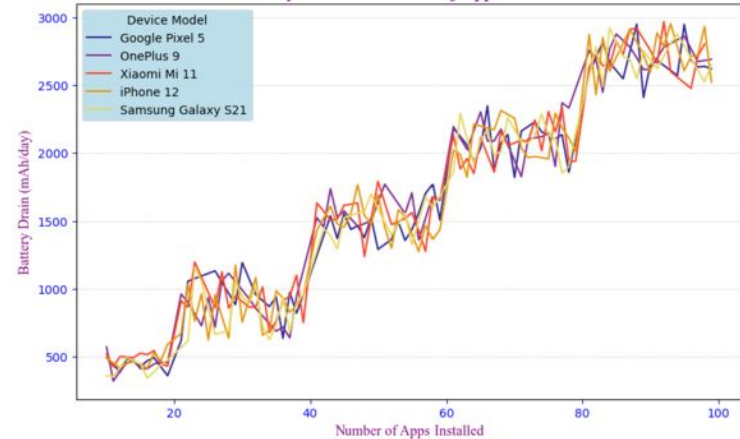
Question 2: Battery Drain vs App Usage, Apps Installed

- Is there any correlation with the amount of app usage measured in min/day and battery drain?
- Does having more apps installed affect battery drain?

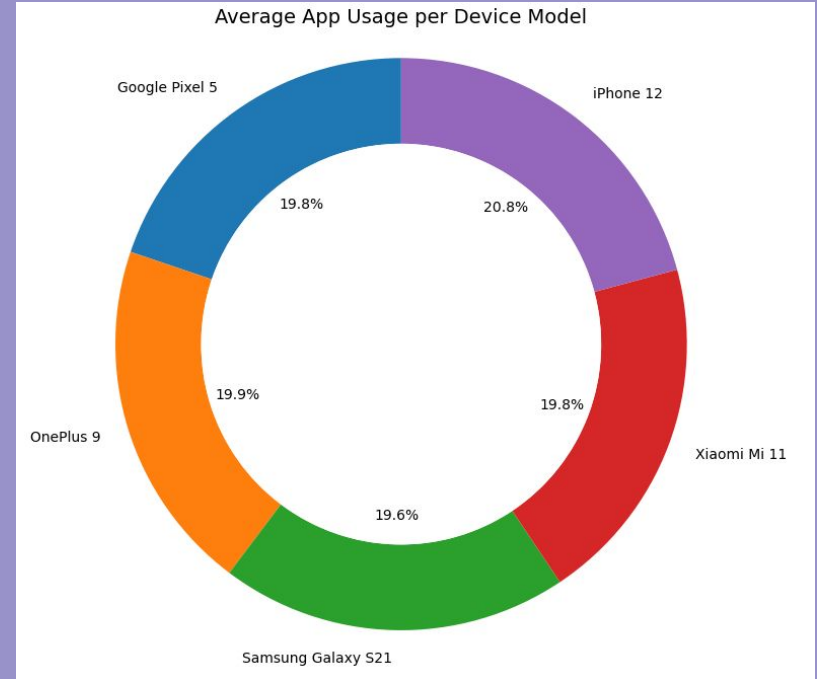
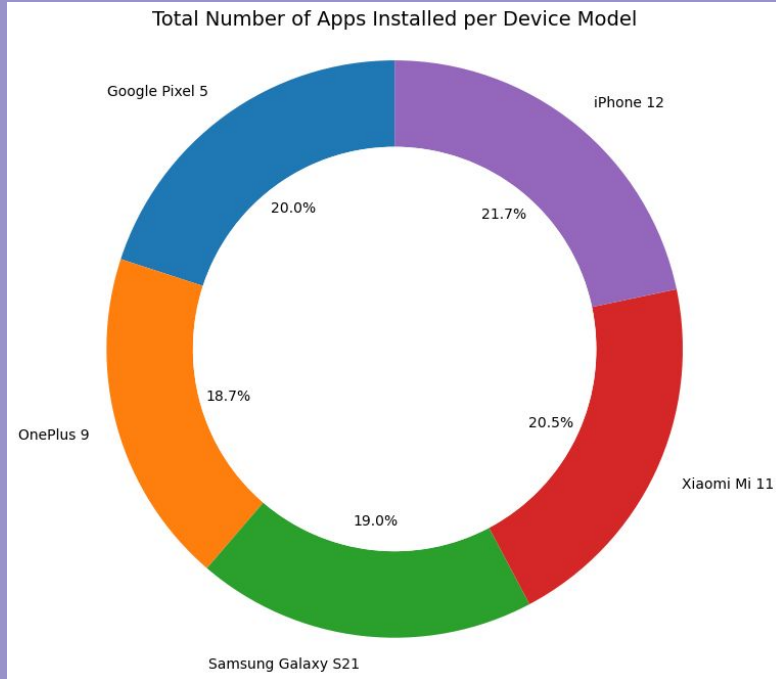
Battery Drain vs App Usage



Battery Drain vs Number of Apps Installed



Apps and App Usage on Each Device Model



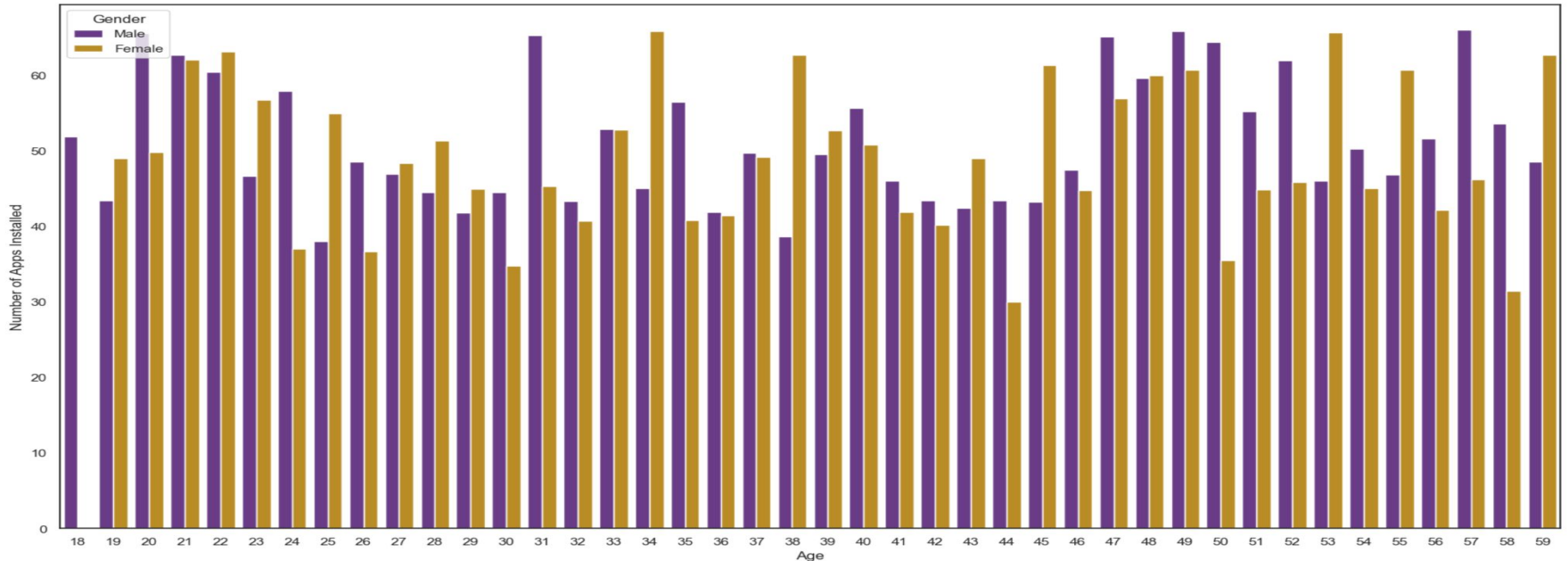


Overall Means for Device Models

	Rank	Device Model	App Usage Time (min/day)	Screen On Time (hours/day)	Battery Drain (mAh/day)	Number of Apps Installed	Data Usage (MB/day)	Age
0	1	Samsung Galaxy S21	266.4	5.3	1504.57	51.0	931.87	39.0
1	2	Google Pixel 5	267.8	5.1	1475.68	50.0	897.70	38.0
2	3	Xiaomi Mi 11	268.5	5.3	1528.88	50.0	940.16	38.0
3	4	OnePlus 9	270.4	5.2	1523.85	50.0	911.12	39.0
4	5	iPhone 12	282.0	5.4	1589.51	53.0	965.51	39.0

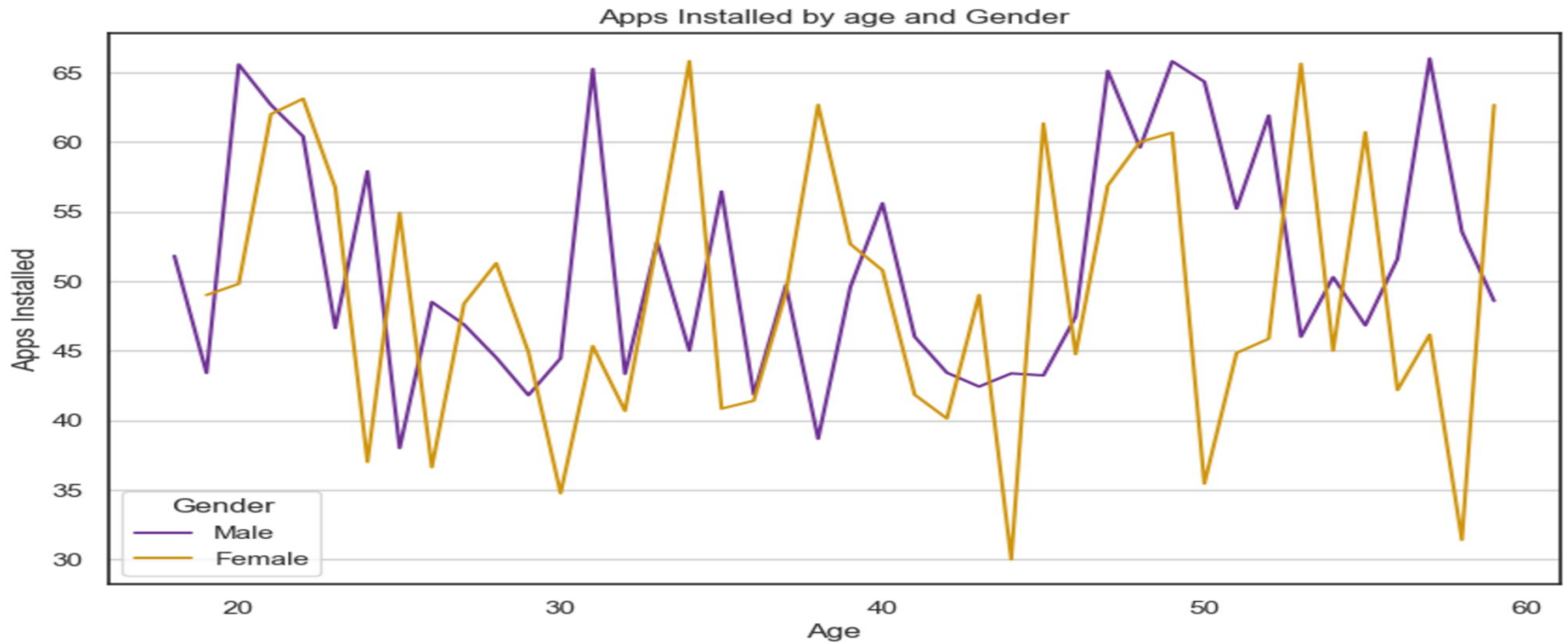
Question 3 : Number of Apps Installed vs Age and Gender

Is there a correlation between Number of installed apps and either age and/or gender



3A: Is there any correlation between number of installed apps and gender

Hypothesis: There is a significant correlation between # of apps installed and Gender, with one gender having more installed apps on average then the other.



3A: Is there any correlation between number of installed apps by gender

Mean of Installed apps
by Males:

51.10164835164835

Percentage difference
between Mean of Male
and Female Installed
apps is:
1.73%

	Number of Apps Installed	Age	Gender
381	99	39	Male
504	99	47	Male
434	99	58	Male
378	99	57	Male
125	99	50	Male
...
167	10	58	Male
213	10	22	Male
563	10	31	Male
289	10	50	Male
263	10	57	Male

364 rows × 3 columns

Mean of Installed
apps by Females:

50.226190476190474

Total Apps installed
by Gender

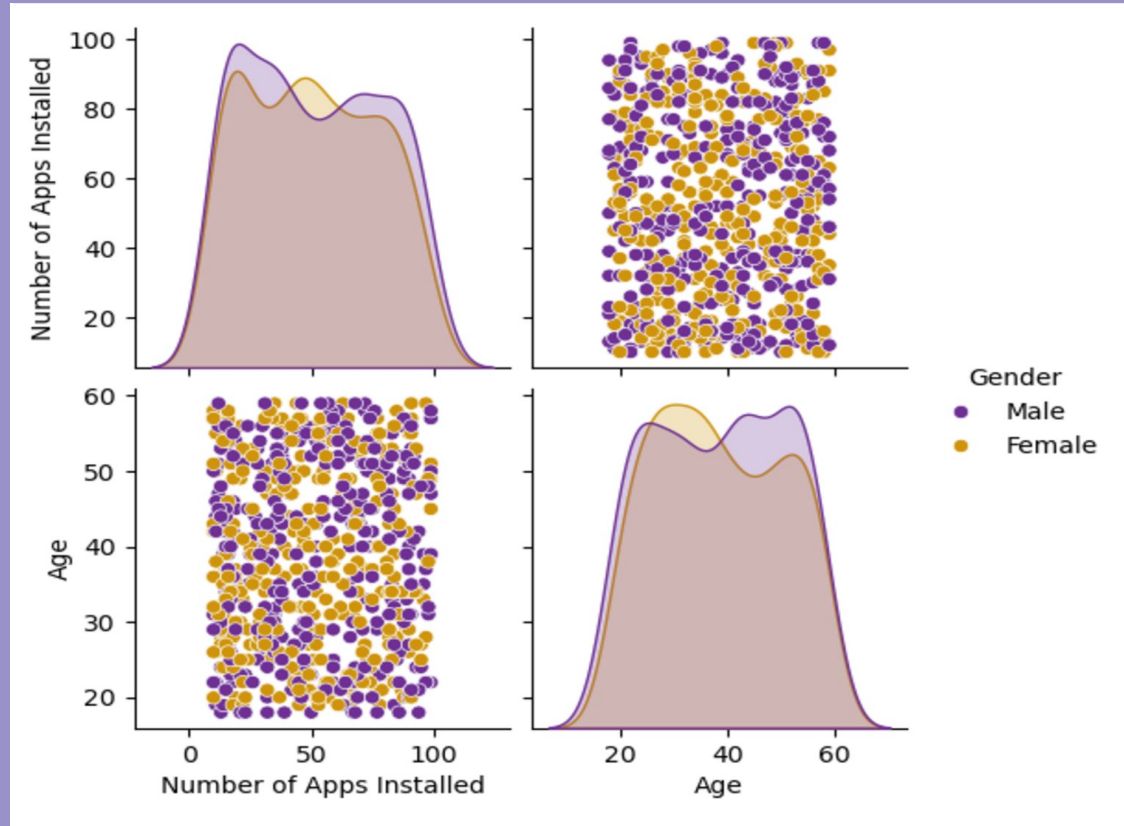
Female 16876
Male 18601

	Number of Apps Installed	Age	Gender
335	99	45	Female
122	99	49	Female
80	99	51	Female
538	98	38	Female
165	98	49	Female
...
637	10	32	Female
458	10	58	Female
464	10	26	Female
583	10	43	Female
56	10	42	Female

336 rows × 3 columns

3B: Is there correlation between number of apps installed and age

3B: Is there a correlation between number of installed apps and age.
Hypothesis: there is a difference in Number of installed apps and age.





Question 3B : Number of Apps Installed vs Age

Max number of installed apps is 99 with ages ranging from 22 to 57 and Minimum installed apps is 10 for ages ranging from 26 to 57.

Calculated R value of R = 0.00403404171257536

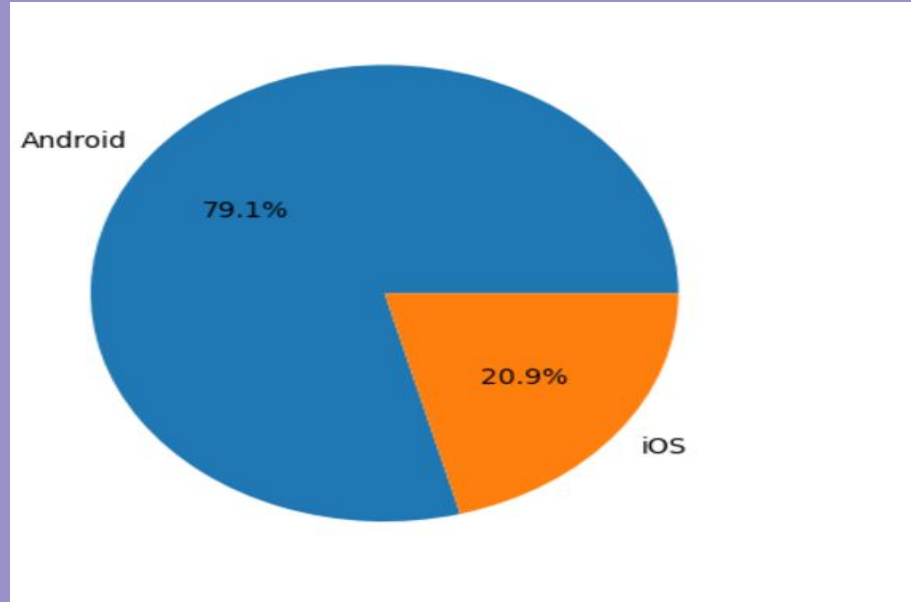
The r-value corresponds to 0.00% variance.

Number of Apps Installed		Age
80	99	51
335	99	45
504	99	47
252	99	22
378	99	57
...
289	10	50
292	10	36
527	10	57
464	10	26
637	10	32



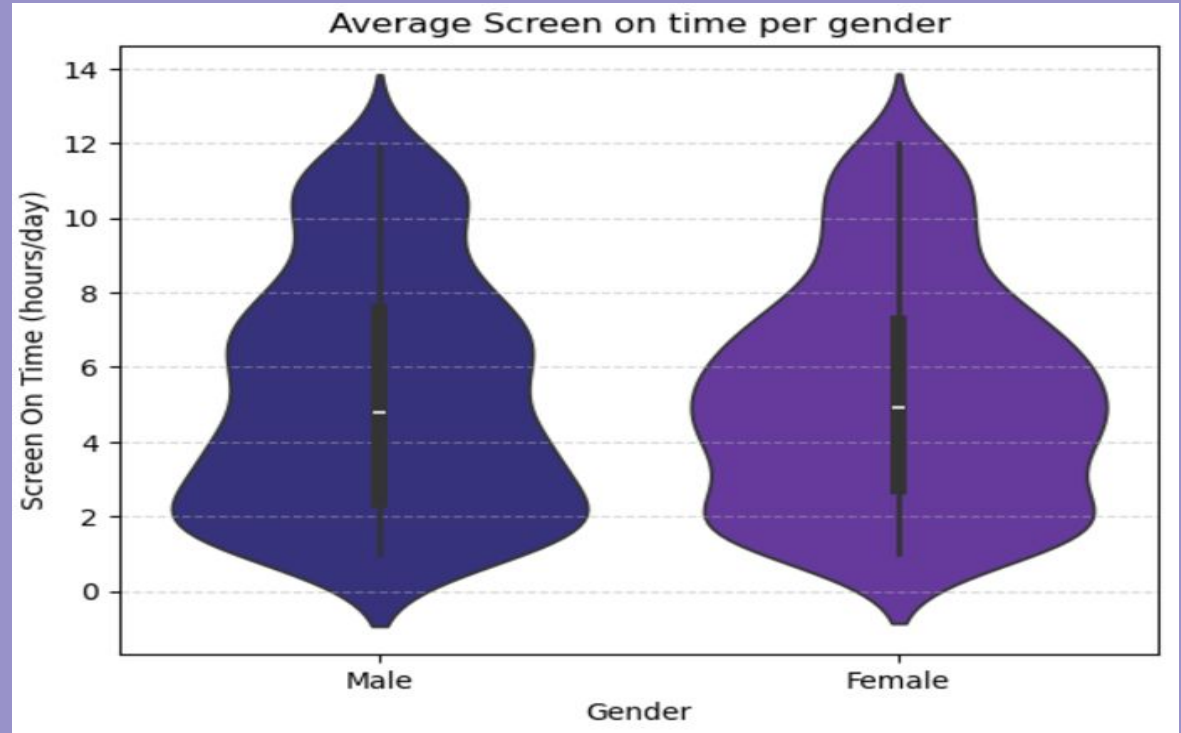
Count of Operating systems

This pie chart was designed to highlight the dominance of what users prefer. While simultaneously providing insight into OS platform-specific preferences or behaviors.

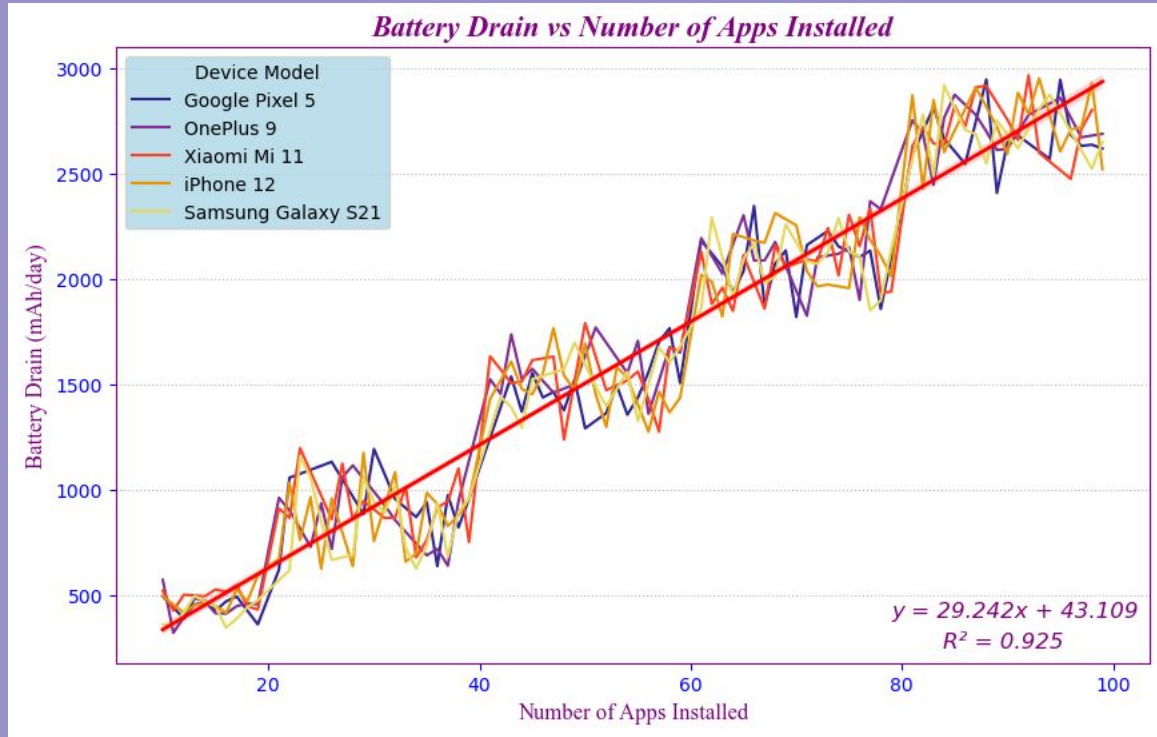


Average Screen Time Per Gender

This plot gives a visualization of distribution, central tendencies and how the screen on time can vary between males and females.



Regression



Possible Future Research



- Track data usage trends as new phone models with updated OS software become more efficient.
- Get data on what the common apps are installed
- Using larger sample size and maybe from different regions
- The capacity of the batteries would've helped with more In depth detail when comparing battery drain.



Bias and limitations

- Limitations.
 - 700 phone users is just a microscopic drop in the ocean.
 - This dataset was created by using simulated data based on average mobile use pattern. Simulated data based on trends/pattern trends obtained from industry reports from firms such as Statista and Pew Research Data.
- Bias
 - 4 Android based phones comparing to 1 iOS phone.





Sources

- "Changes to Cell Phone Usage Rates Since 1991." *Remitter*, Remitter, <https://remitter.com/blog/changes-to-cell-phone-usage-rates-since-1991/>. Accessed 4 Dec. 2024.
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Questions or Comments?