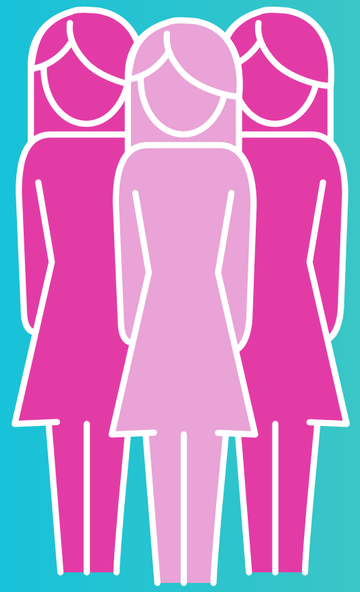
DO YOU LOVE ME, MARY JANE?

Image 1

Interesting FACTS ABOUT MARIJUANA



ONLY

FEMALE CANNABIS

GETS YOU

HIGH

INDICA DOMINANT STRAIN

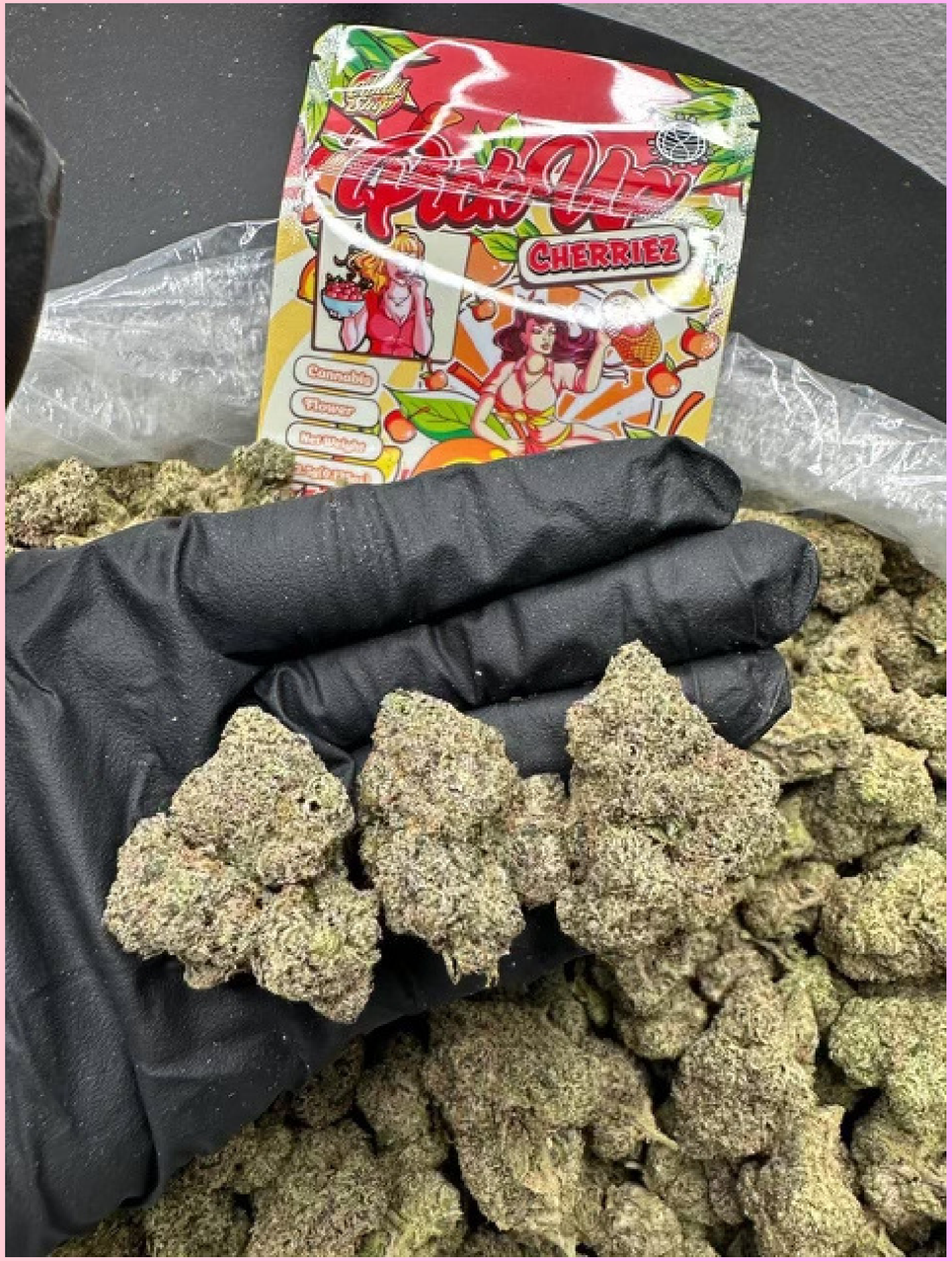


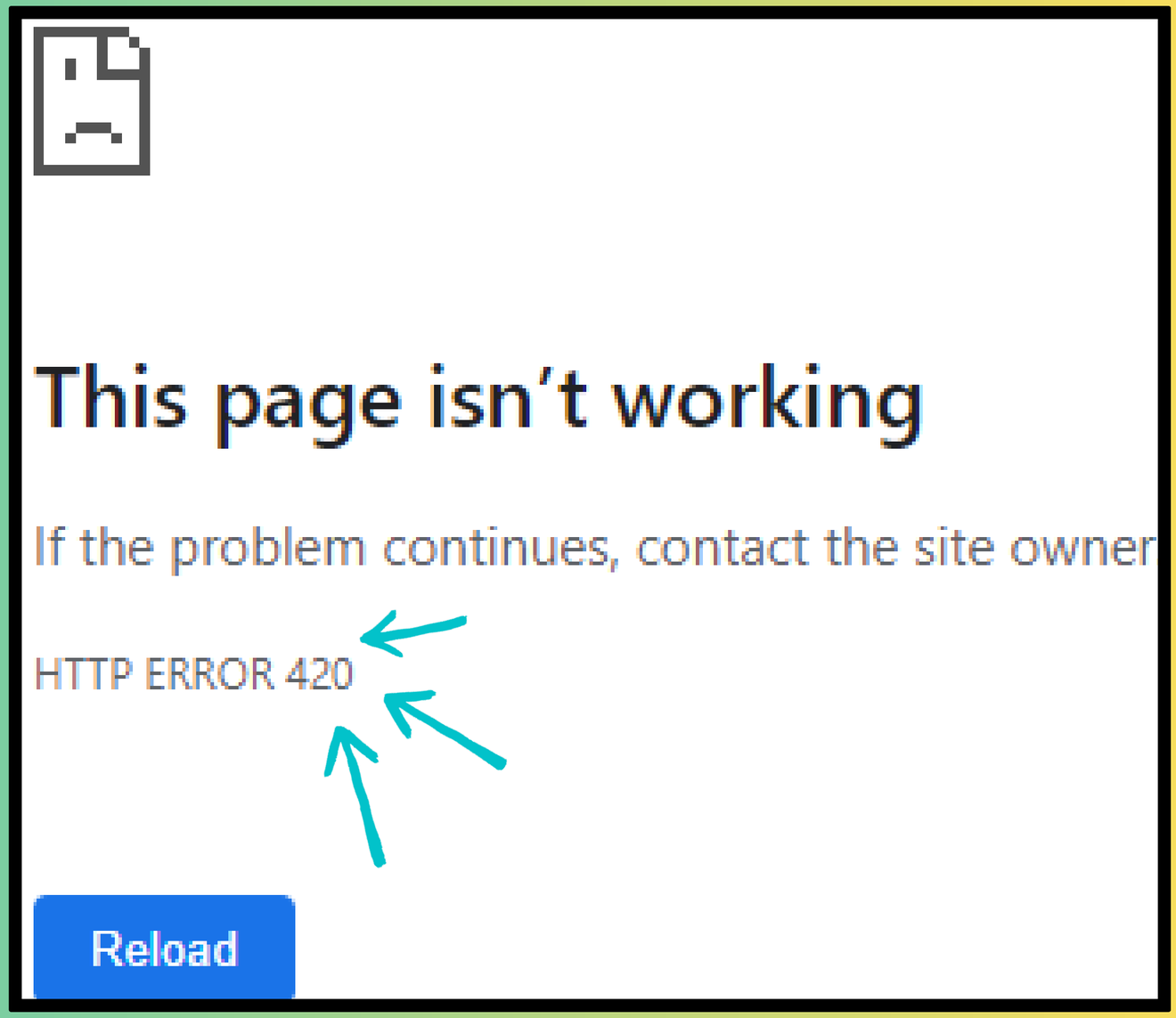
Image 2

The US is not the largest
producer of marijuana

...It's
MOROCCO

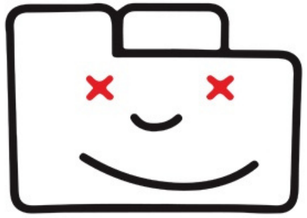
420

IS NOT AN OFFICIAL HTTP STATUS CODE...



420

IS AN OFFICIAL
CANNABIS CODE



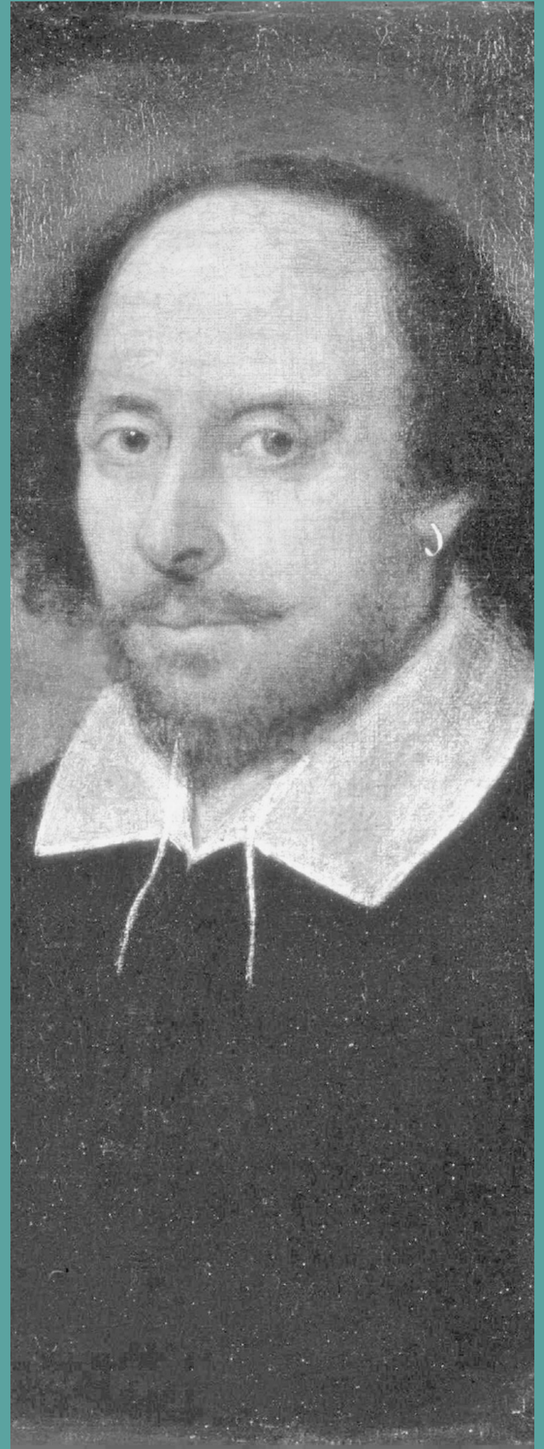
Aw, Snap!

The client is too stoned to respond.

George Washington had green fingers for more than just cherry trees! He was a bit of a hemp whisperer, growing it like a pro!

POTUS

EST.1789



TRACES OF CANNABIS WAS DISCOVERED IN THIS GUY'S HUMBLE ABODE.

WHO KNEW THE MASTER OF LANGUAGE WAS A FAN OF THE KUSH?

50/50 HYBRID STRAIN

Image 3

CANNABIS IS APPROXIMATELY

2500 YEARS OLD

WITH ORIGINS TIED
TO THE MOUNTANOUS REGIONS
OF ASIA

MEET THE TEAM:

K. CHILDERS

L. ESCOBAR

M. BORUNDA

T. ROBBINS

S. HAWKINS

INSIGHTS UNCOVERED FROM PATTERNS AND TRENDS FOUND WITHIN THE WORLD OF LEGAL CANNABIS

PRESENTATION AGENDA

TOPIC INTRODUCTION

- MARIJUANA FACTS
- PRESENTATION TEAM & TITLE
- TOPIC INSPIRATION
- THESIS STATEMENT
- DATA SET TERMINOLOGY

HYPOTHESIS & DATA VISUALS

- HYPOTHESIS #1 - M. BORUNDA
- HYPOTHESIS #2 - K. CHILDERS
- HYPOTHESIS #3 - L. ESCOBAR
- HYPOTHESIS #4 - T. ROBBINS

CONCLUSION & QUESTIONS

- LIMITATIONS OF DATASET
- FUTURE IMPLICATIONS
- REFERENCES & QUESTIONS

Legalization of Marijuana in the USA

- MEDICAL: 17 STATES
- REC & MED: 25 STATES
- ILLEGAL: 11 STATES

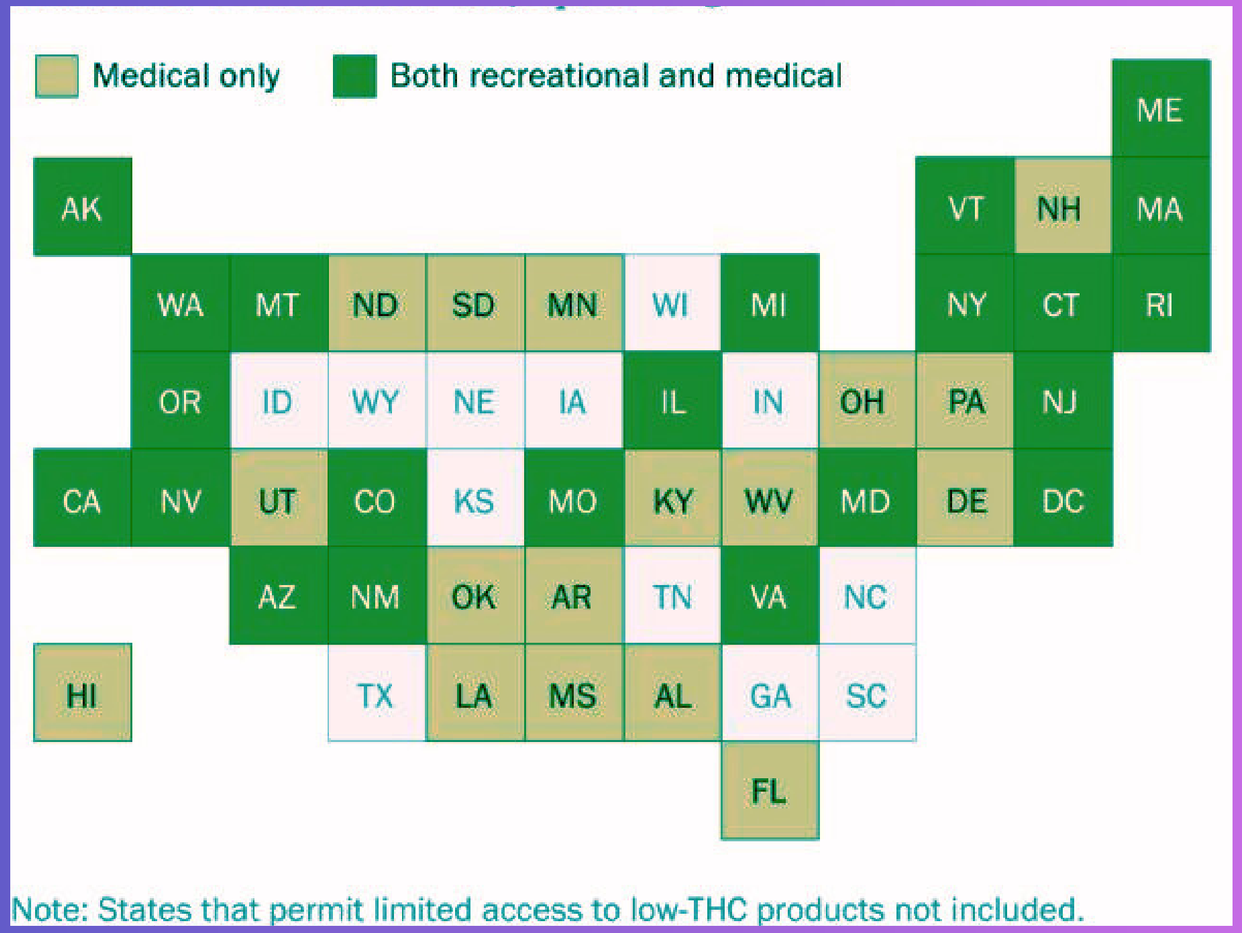


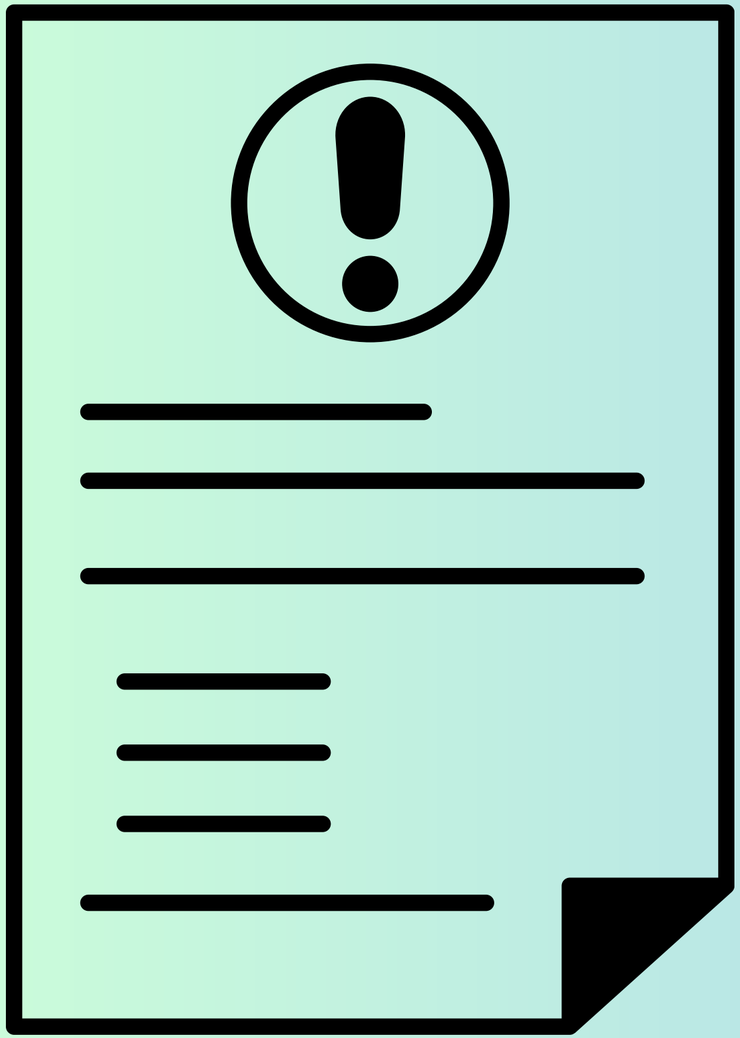
Image 4

Research Questions

What societal, economic, or health implications are at play when states decide to resist the legalization of cannabis?

How does the dynamic between breeders and their consumers change or evolve in states where cannabis is completely legal vs. states where it is currently up for debate?

PROJECT THESIS



Our project aim is to analyze a cannabis-related dataset, which includes information on various factors such as type, flavors, mood, effects, and user ratings to gain comparative insights related to the production and consumption of cannabis

3 POPULAR TYPES OF CANNABIS

INDICA

Often used to calm the body and mind

SATIVA

Often used to for cerebral effects, like creativity and focus

HYBRID

Blends Indica & Sativa. Experiences can vary from relaxed to energized

DATA SET TERMINOLOGY

- <u>EFFECTS</u> - Feeling or mood during consumption

- <u>FLAVORS</u> - Added taste enhancements range from usual to unusual

- <u>RATINGS</u> - Scale of 1 - 5

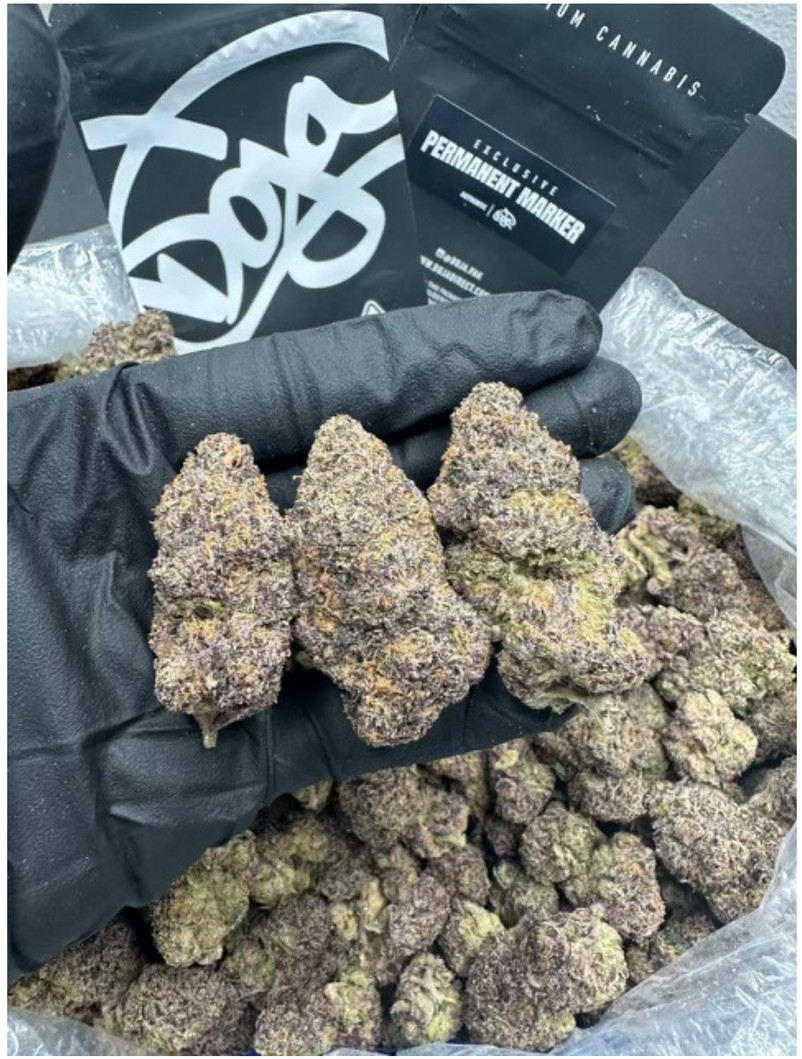
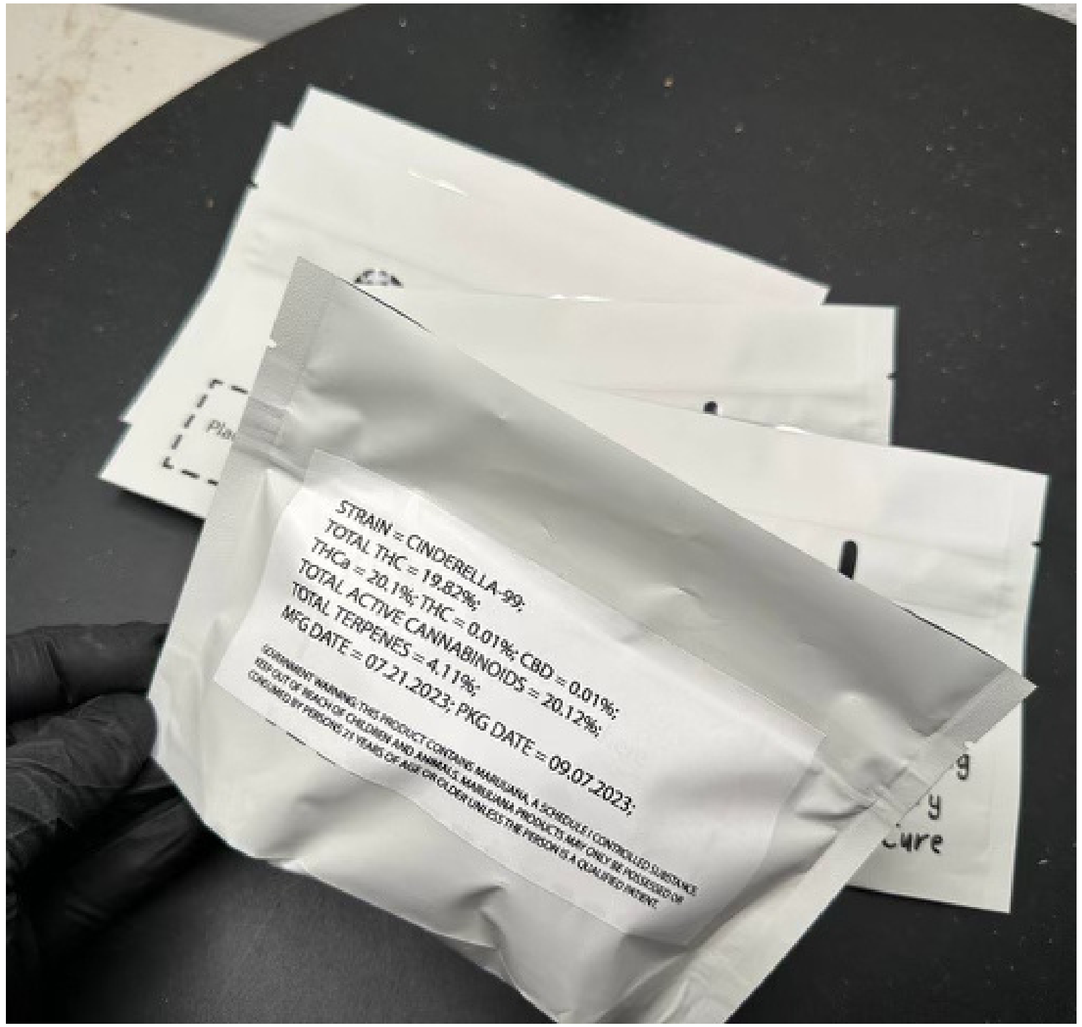


Image 5

DATA SET TERMINOLOGY



- STRAINS- Unique combination of compounds; all strains are categorized by type

- BREEDERS - One who cultivates or develops strains of cannabis plants

Image 6

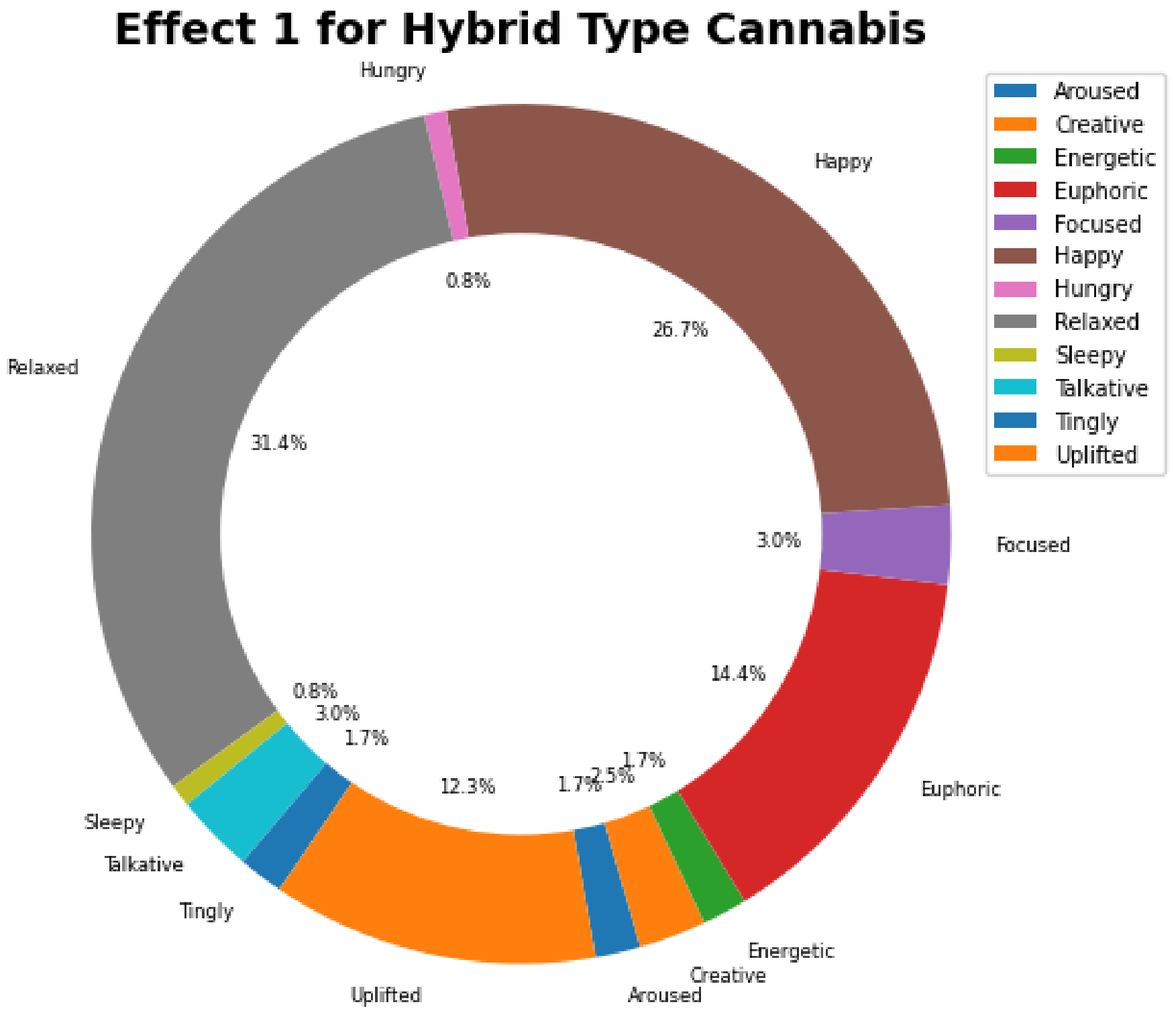
Hypothesis #1

HYBRID TYPES HAVE MORE HAPPY EFFECTS COMPARED TO NON-HYBRID TYPES

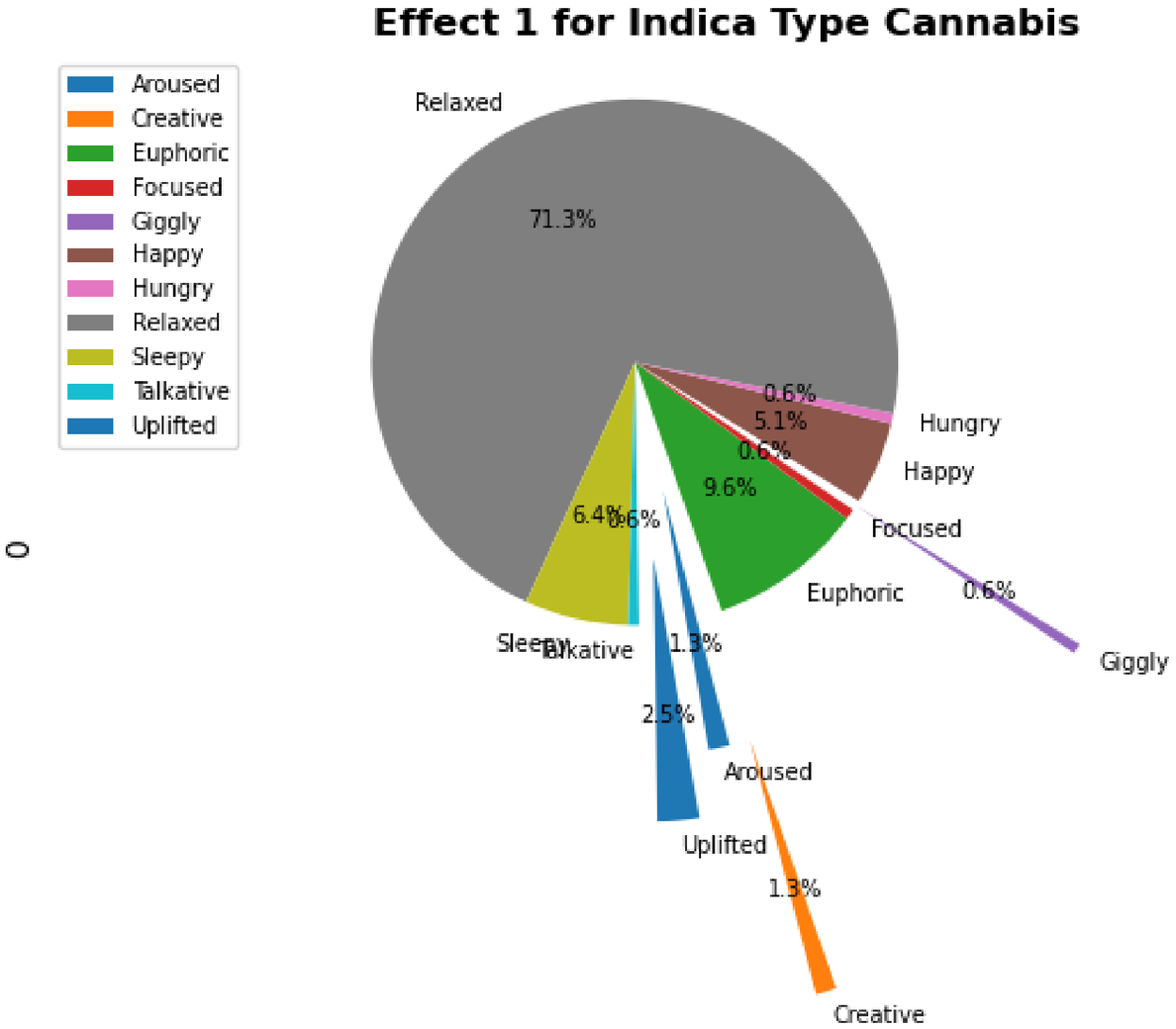
Data Background Information for Hypothesis#1

- This Data Set is comparing three different Cannabis Types :
  - Hybrid
  - Indica
  - Sativa
- Up to 5 different effects were reported for each type, but Hypothesis 1 is only analyzing the first effect reported

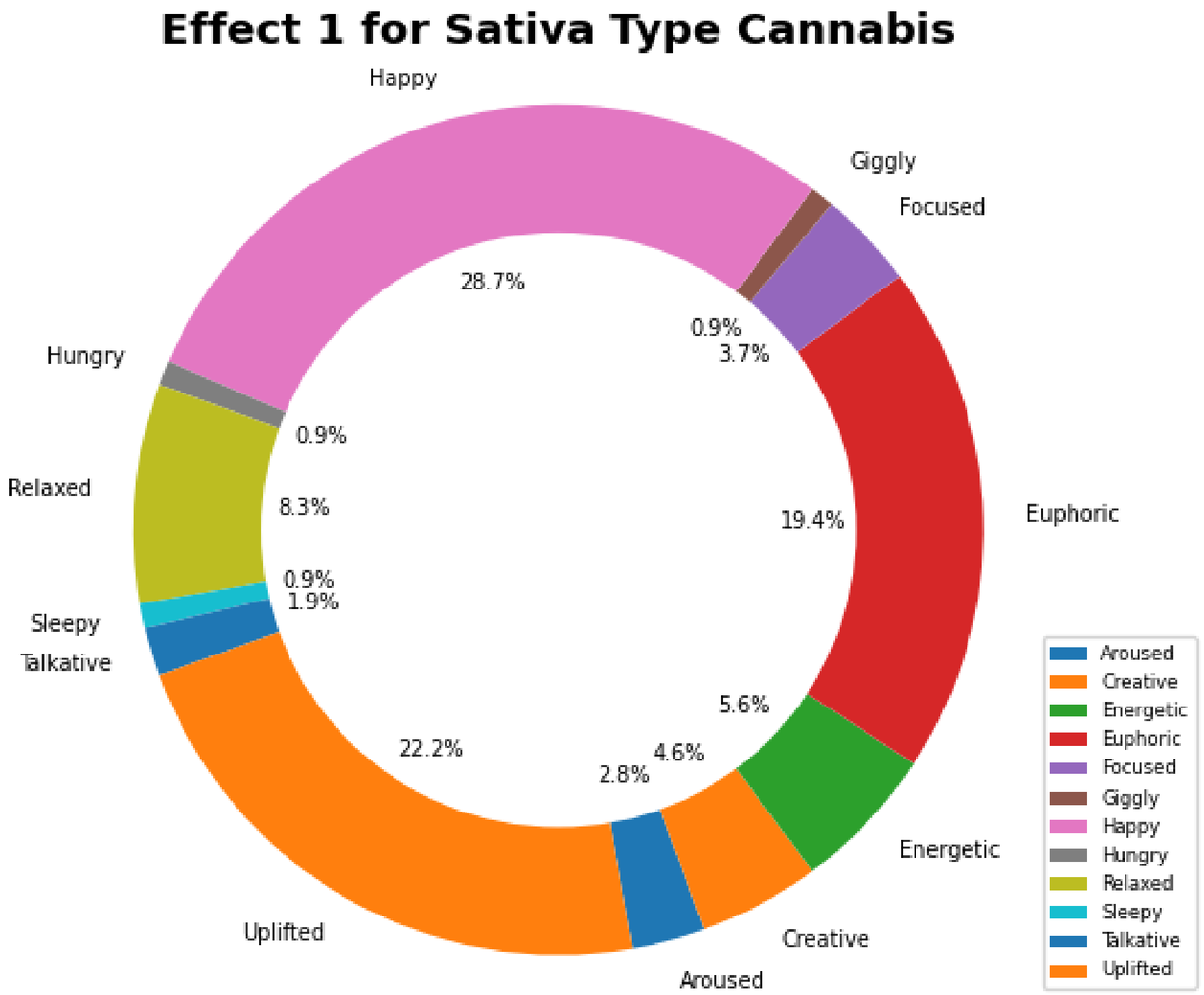
Main Effect of Hybrid Type

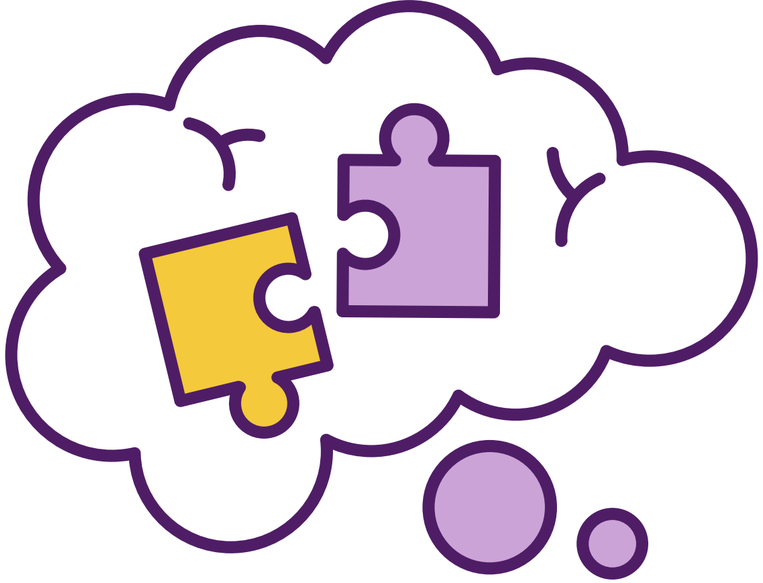


Main Effect of Indica Type



Main Effect of Sativa Type





Hypothesis 1

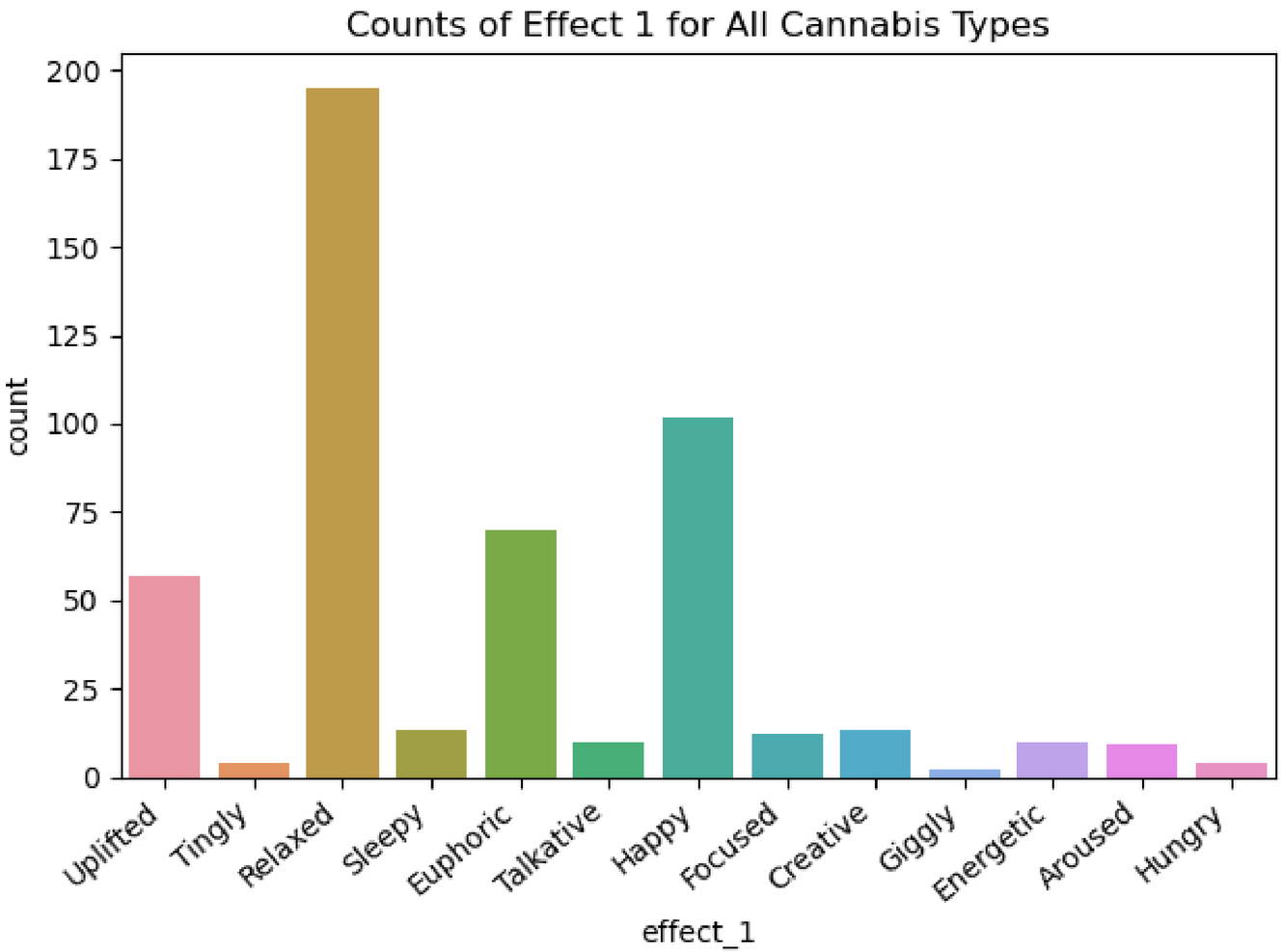
Conclusion

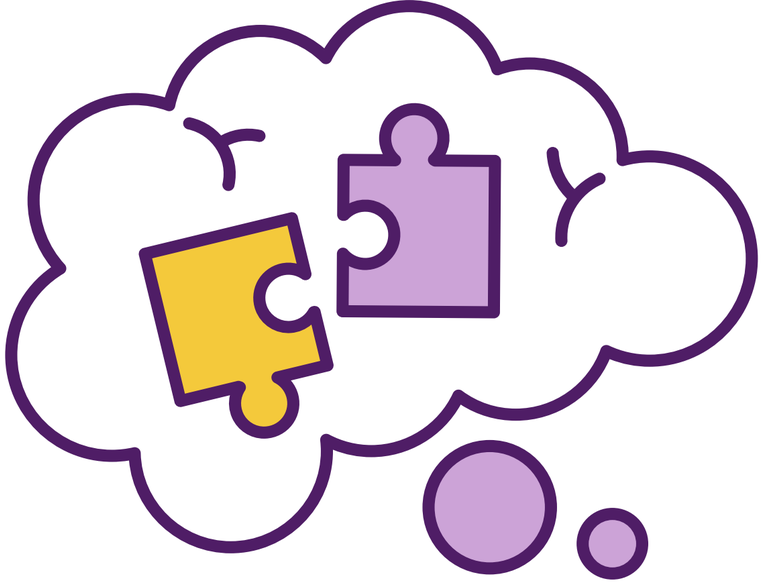
- ***HYBRID TYPE CANNABIS MAIN EFFECT IS "RELAXED"***
- ***THEREFORE OUR HYPOTHESIS IS NOT TRUE***
- ***IN FACT THE CANNABIS TYPE THAT REPORTS "HAPPY" AS THE MAIN EFFECT IS SATIVA***

Other Findings

WHAT IS THE MAIN EFFECT EXPERIENCED BY CONSUMING ANY TYPE OF CANNABIS?

Main Reported Effect





Other Findings

- THE MAIN EFFECT REPORTED COMBINING ALL TYPES OF CANNABIS IS "RELAXED"
- "HAPPY" IS THE SECOND MOST REPORTED EFFECT FOLLOWED BY "EUPHORIC"
- THE LEAST REPORTED EFFECT IS "GIGGLY"

Hypothesis #2

SWEET FLAVOR CANNABIS HAS THE HIGHEST RATING

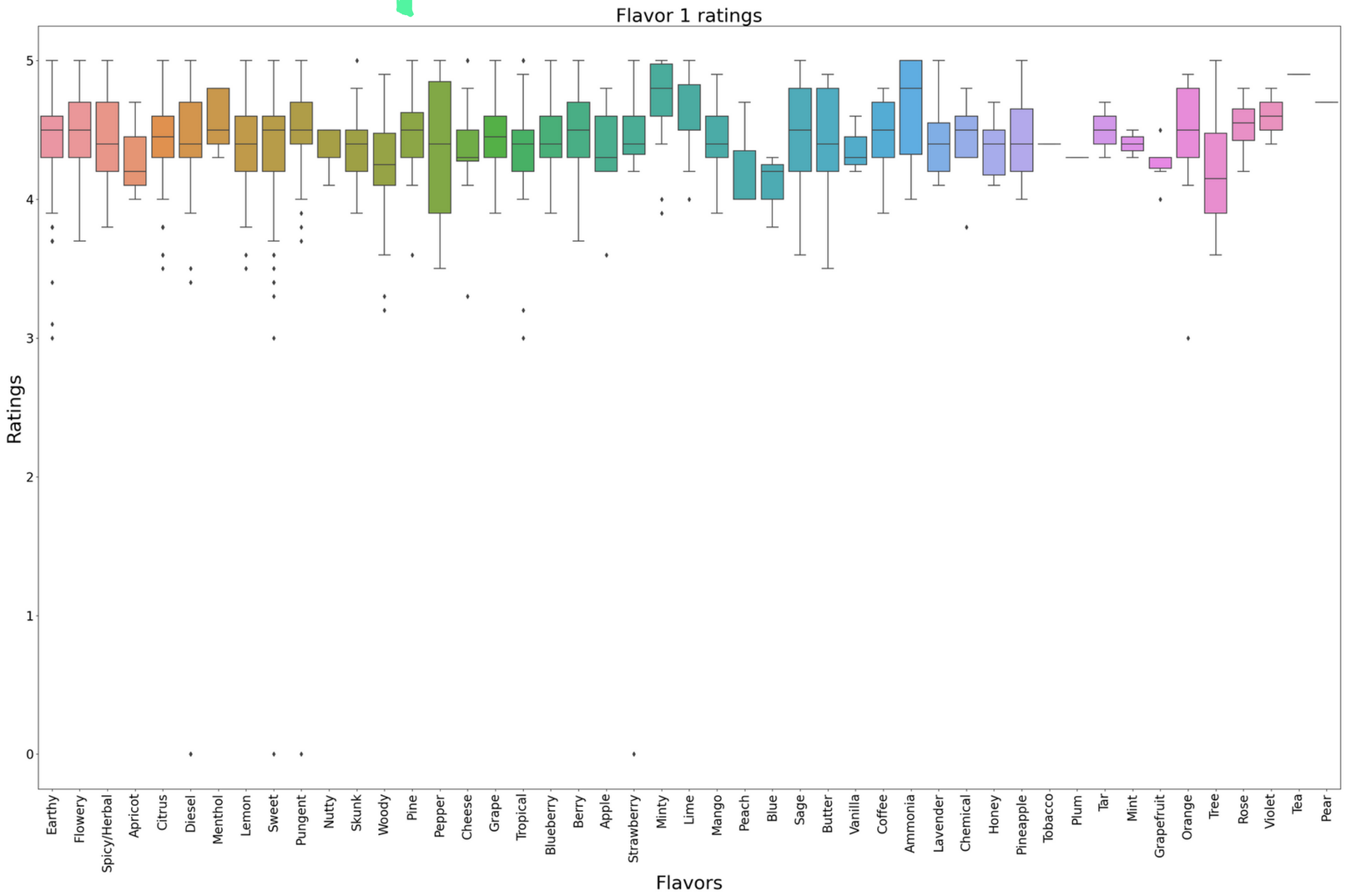
Data Background Information for Hypothesis#2

- This Data Set is comparing flavor profiles :
  - Flavor 1
  - Flavor 2
  - Flavor 3
- Four different flavor profiles were reported
  - Dropped flavor 4 from dataset due to inadequate datapoints

Rating	Effects	Flavor	Breeders
4.4	Uplifted,Happy,Relaxed,Energetic,Creative	Spicy/Herbal,Sage,Woody	Medical Seeds Co
4	Creative,Energetic,Tingly,Euphoric,Relaxed	Earthy,Sweet,Citrus	
4.2	Tingly,Creative,Hungry,Relaxed,Uplifted	Apricot,Citrus,Grapefruit	Canadian LP Delta 9 BioTech

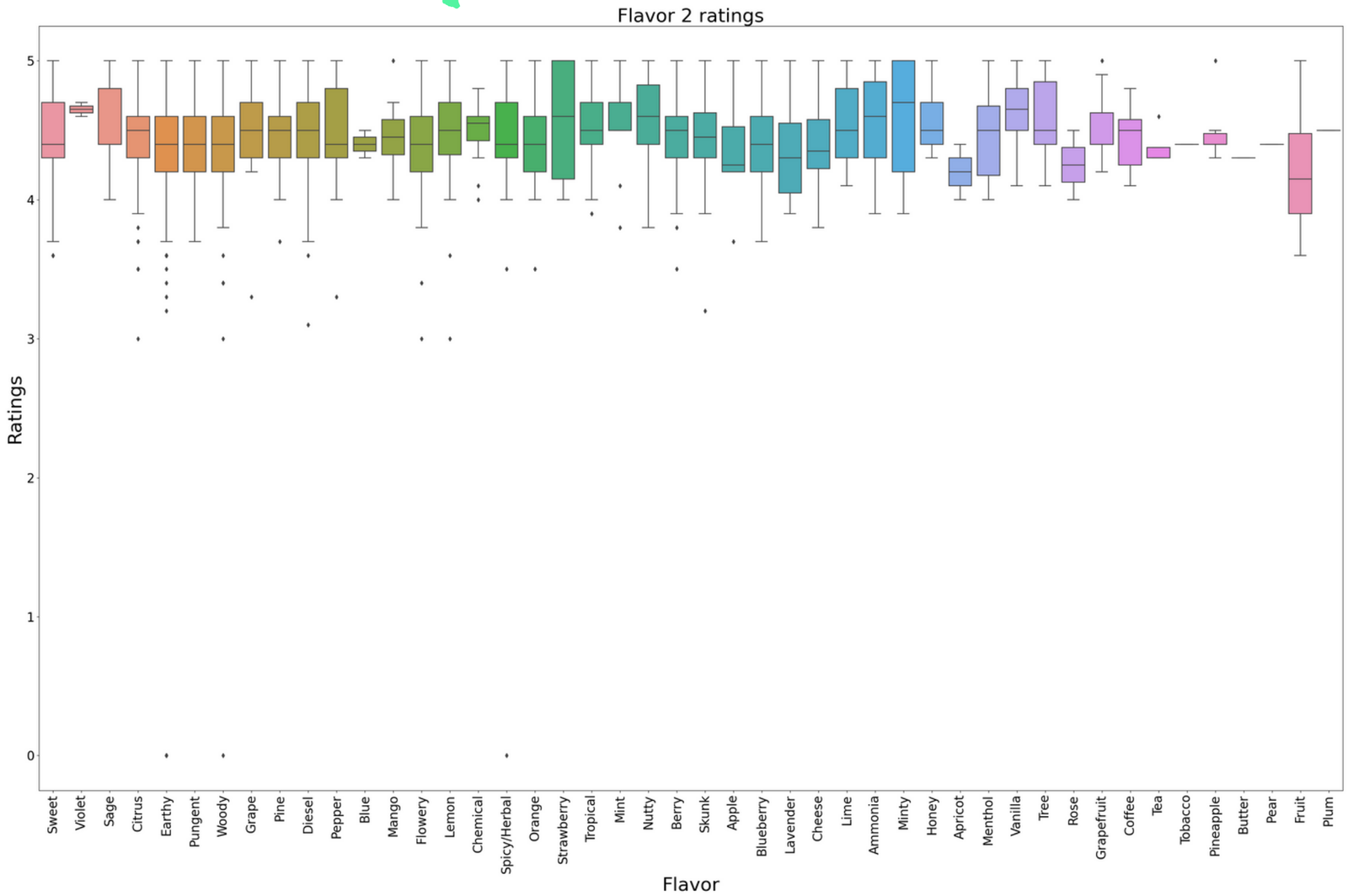
Flavor 1 profile

- **The avg rating between flavors was similar and ranged between 4.1-4.9**
  - **Mean Rating: 4.4**
  - **Mode: 4.4**
  - **Minimum Rating: 4.1 (Blue)**
  - **Maximum Rating: 4.9 (Tea)**



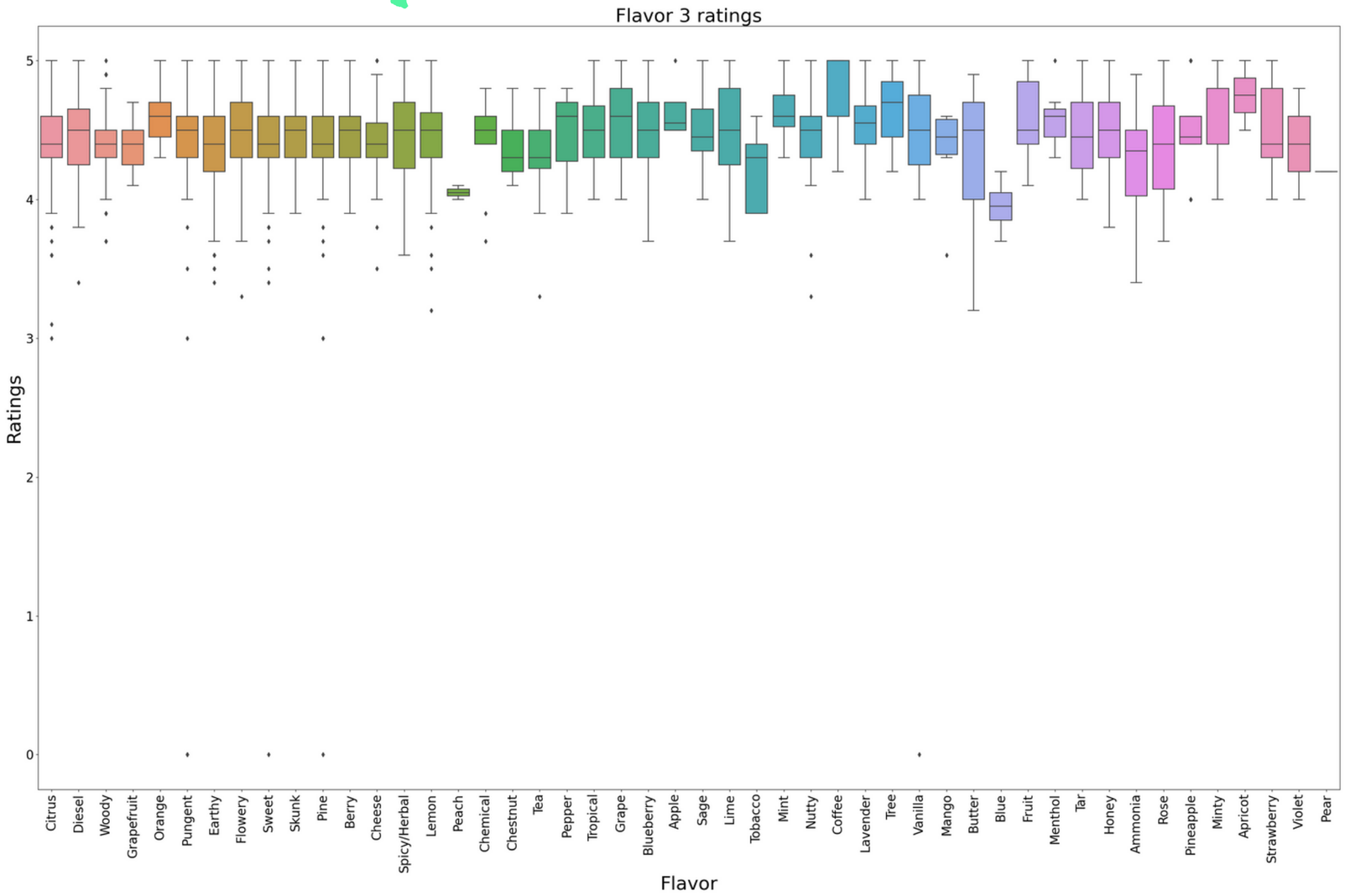
Flavor 2 profile

- The avg rating between flavors was similar and ranged between 4.2-4.6
  - Mean Rating: 4.4
  - Mode: 4.5
  - Minimum Rating: 4.2 (Apricot)
  - Maximum Rating: 4.6 (Violet)



Flavor 3 profile

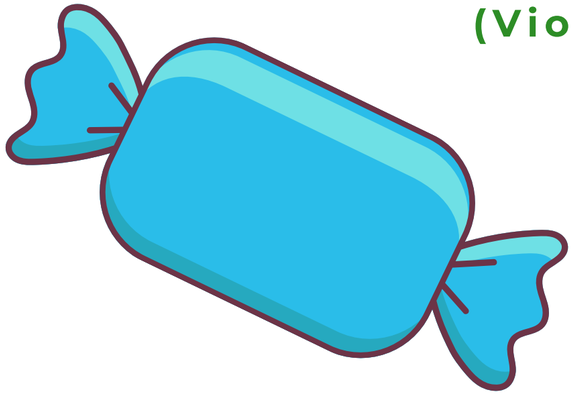
- **The avg rating between flavors was similar and ranged between 4.2-4.6**
  - **Mean Rating: 4.4**
  - **Mode: 4.4**
  - **Minimum Rating: 3.9 (Blue)**
  - **Maximum Rating: 4.7 (Coffee)**



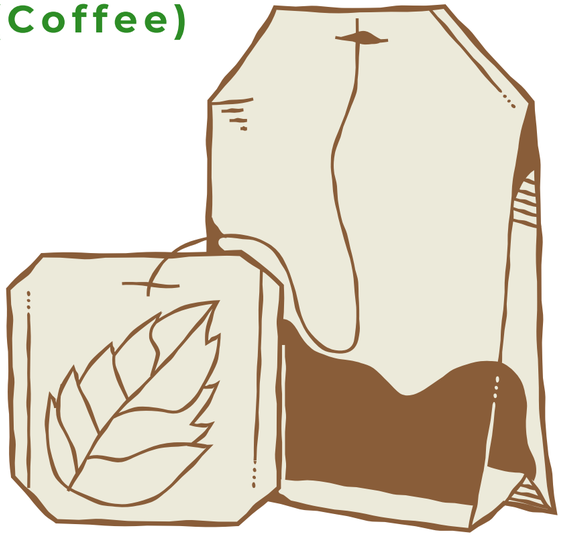
Flavor comparison

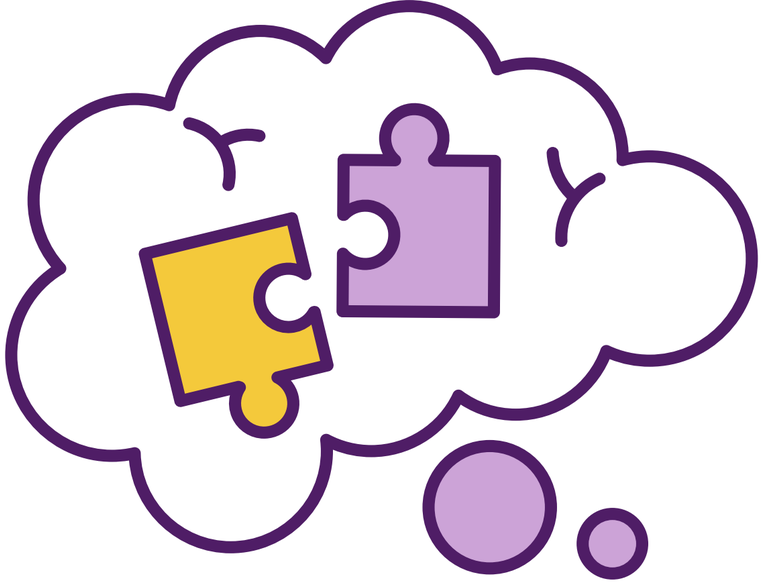
- **Flavor 1**
  - Mean Rating: 4.4
  - Mode: 4.4
  - Minimum Rating: 4.1 (Blue)
  - Maximum Rating: 4.9 (Tea)
- **Flavor 2**
  - Mean Rating: 4.4
  - Mode: 4.5
  - Minimum Rating: 4.2 (Apricot)
  - Maximum Rating: 4.6 (Violet)
- **Flavor 3**
  - Mean Rating: 4.4
  - Mode: 4.4
  - Minimum Rating: 3.9 (Blue)
  - Maximum Rating: 4.7 (Coffee)

Lowest Rating



Highest Rating





Hypothesis 2

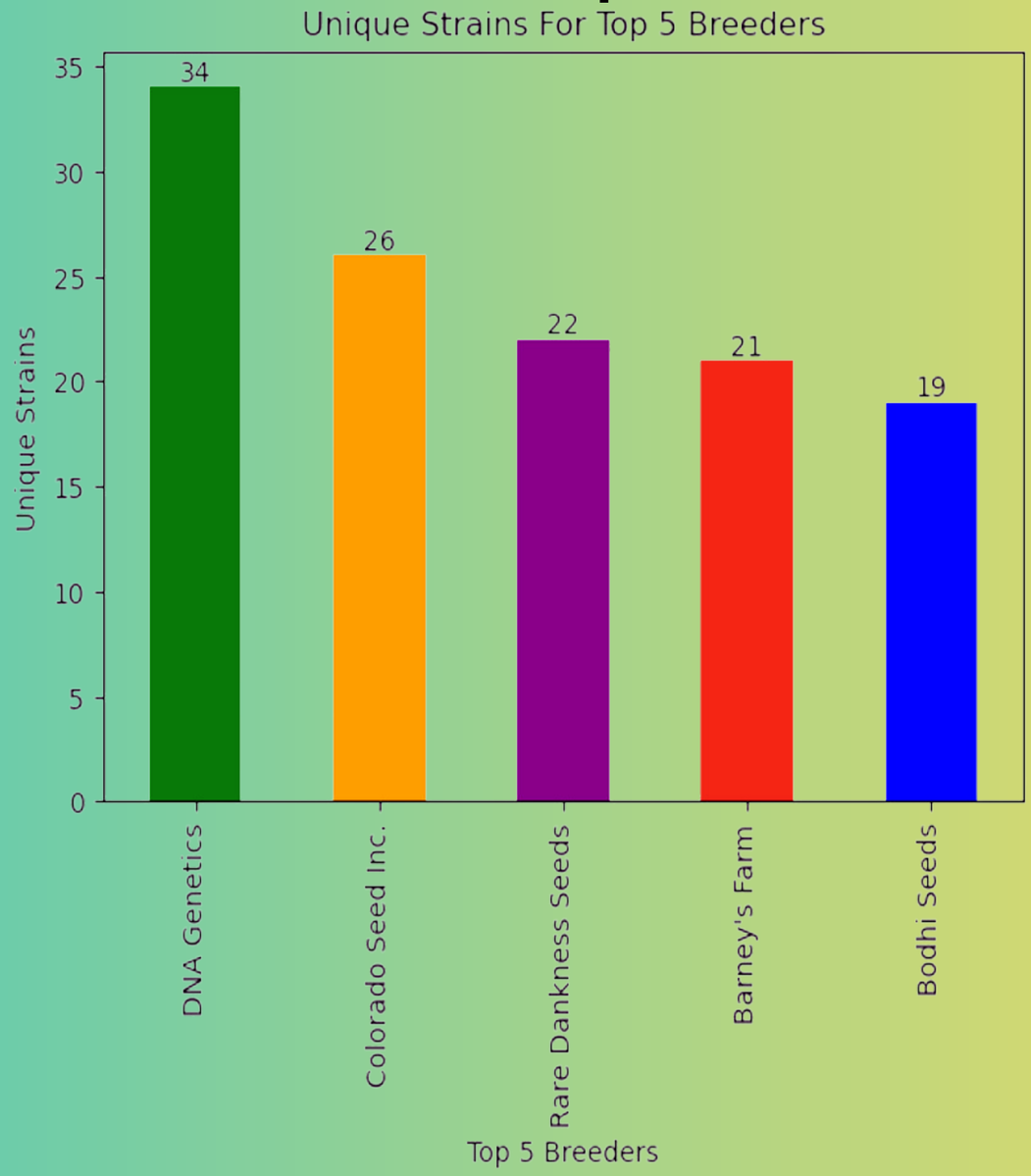
Conclusion

- TEA FLAVOR CANNABIS HAS THE HIGHEST RATING
- THEREFORE OUR HYPOTHESIS IS FALSE
- INTERESTING FACT IS THAT "COFFEE" IS THE SECOND HIGHEST RATED

Hypothesis #3

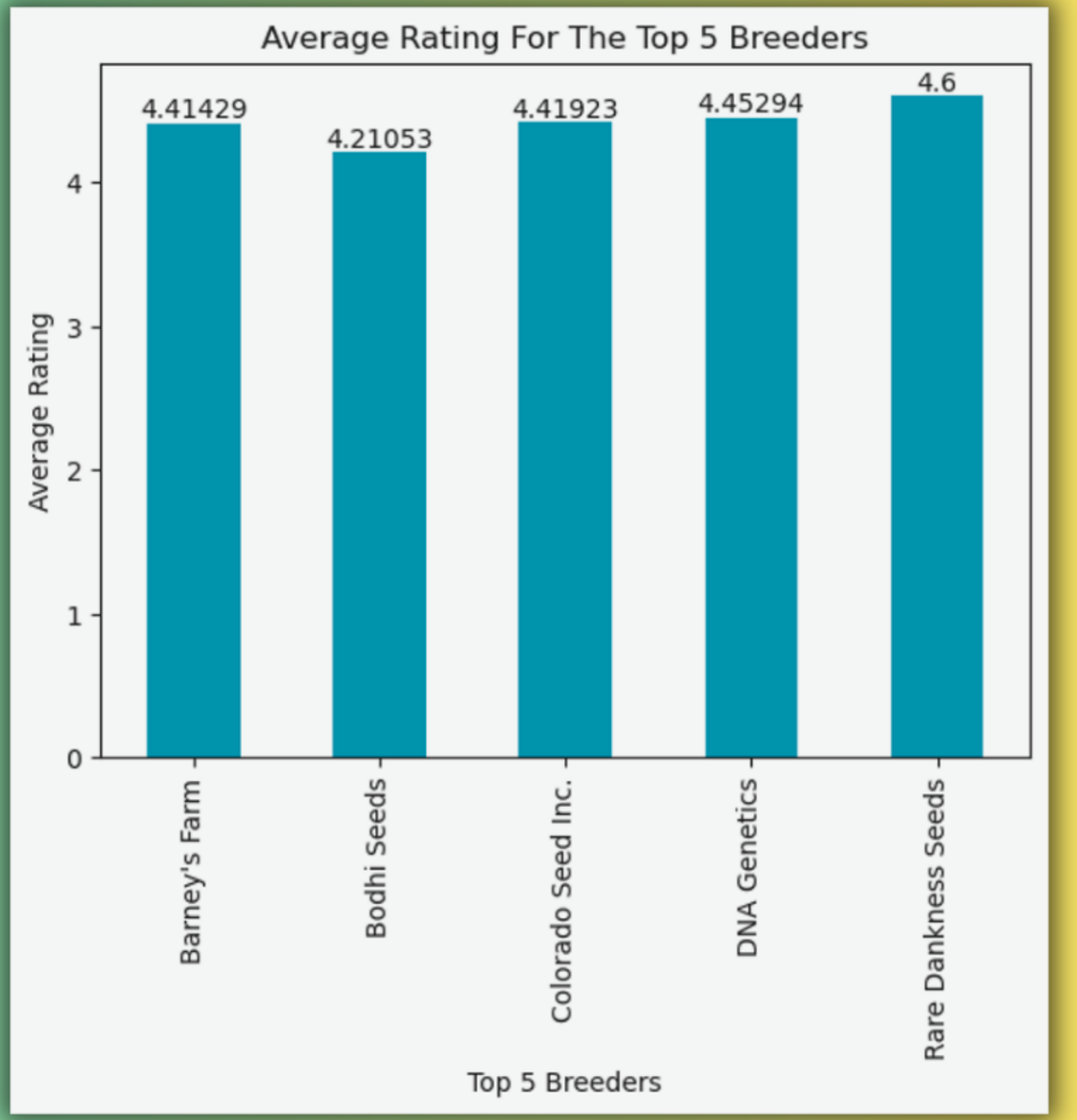
BREEDERS WITH THE HIGHEST COUNT OF UNIQUE STRAINS HAVE THE HIGHEST AVERAGE RATINGS

We determined the Top 5 Breeders by counting each of their unique strains.

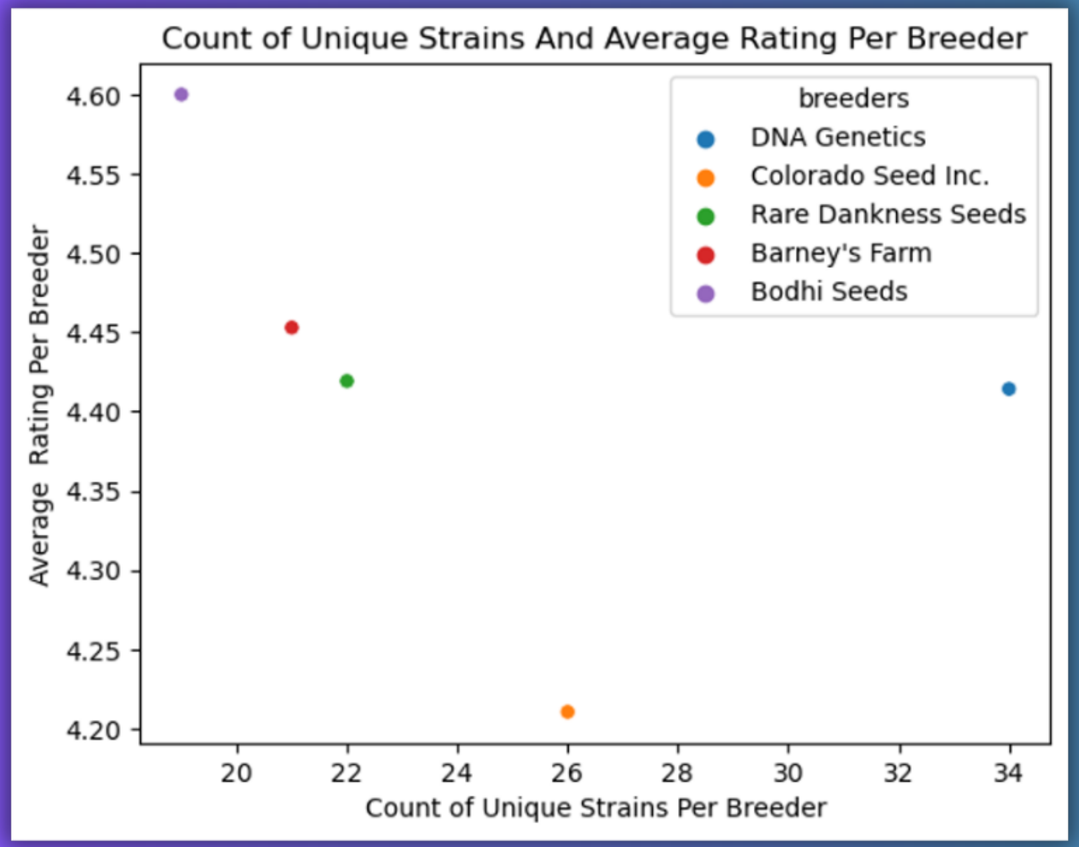


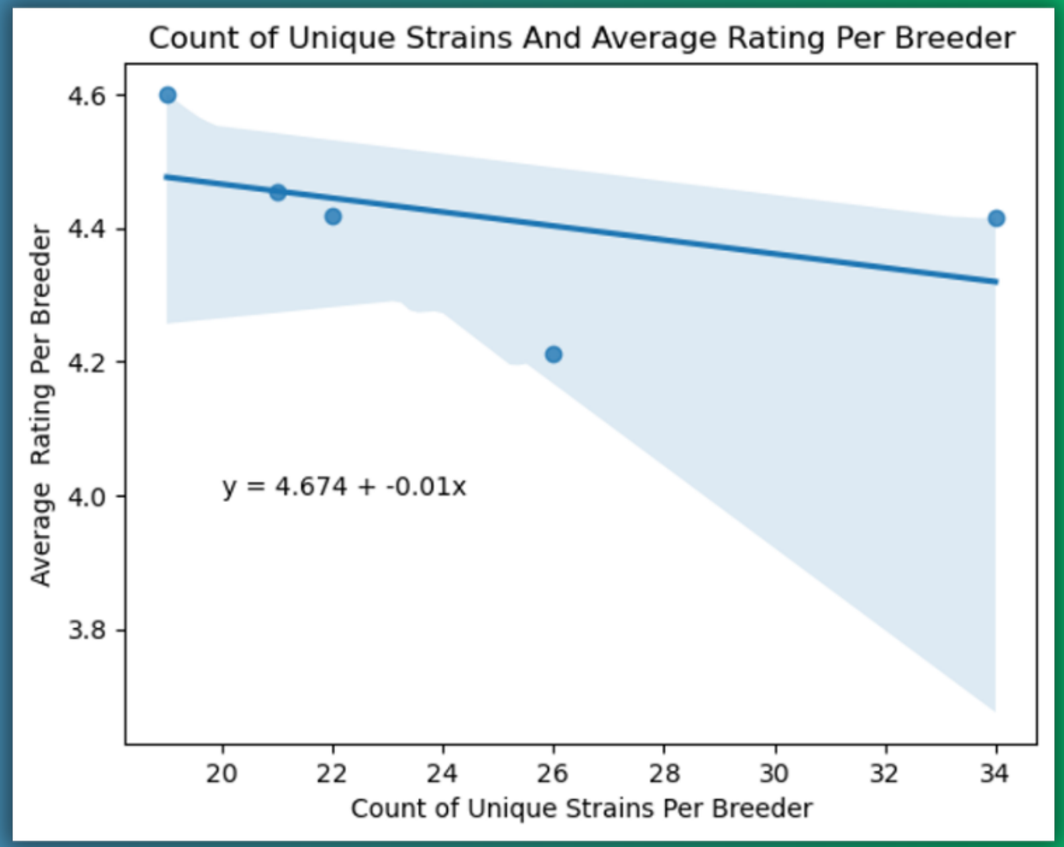
What are the average ratings for The Top 5 Breeders?

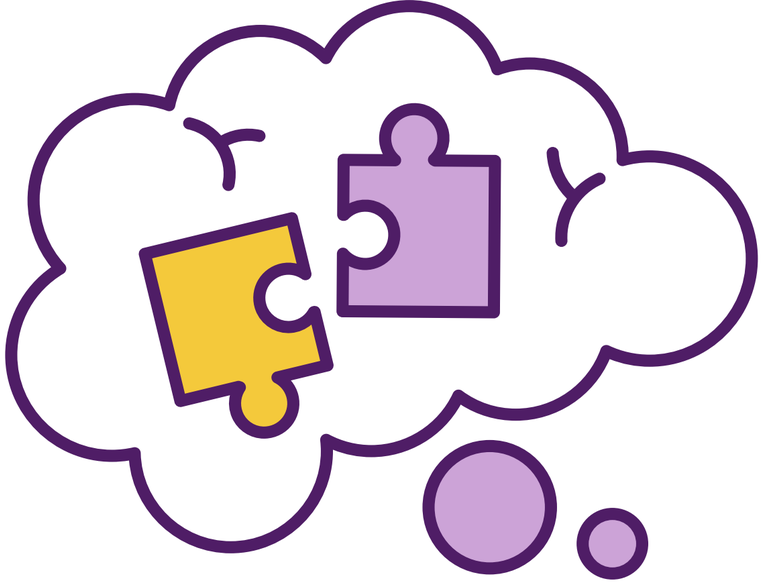
- 40% of the Top 5 breeders had the same ranking based on the quantity and average rating of their unique strains.
- 60% of the Top Breeders had no correlation in these two categories. For example, Rare Dankness Seeds came in 1st place for the highest average rating and 3rd place based on their total number of unique strains.



What is the correlation between the Top 5 Breeders' count of unique strains and their average rating?



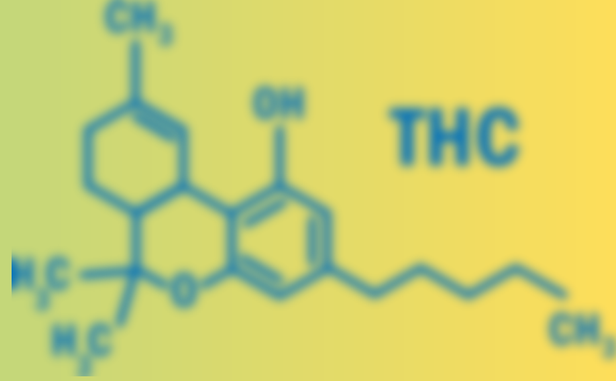




Hypothesis 3

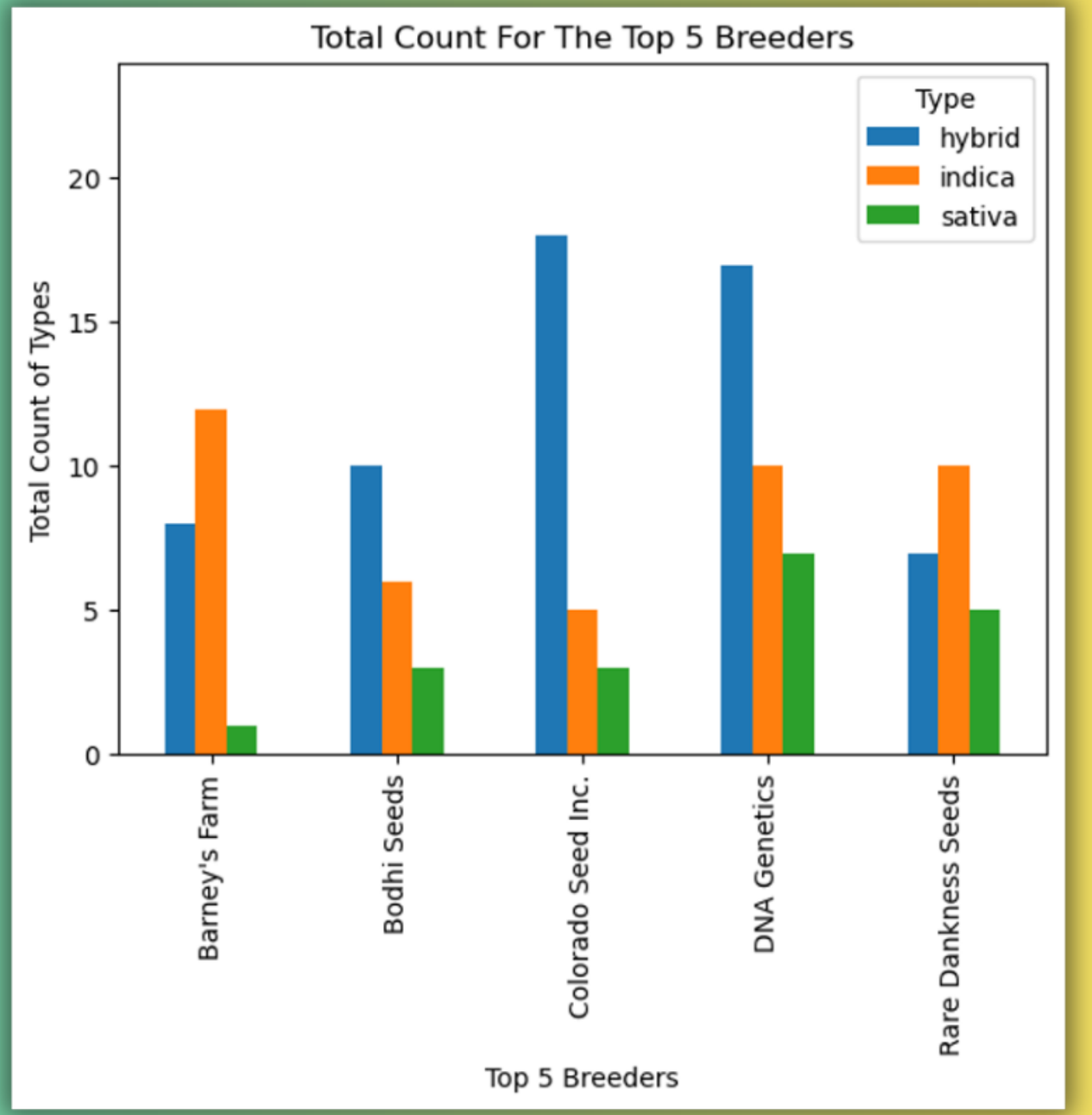
Conclusion

- ***THERE IS NO SIGNIFCANT CORRELATION BETWEEN THE COUNT OF UNIQUE STRAINS AND AVERAGE RATING WITH THE PRESENT DATA.***
- ***THEREFORE OUR HYPOTHESIS IS NOT TRUE!***



Let's take a closer look at the breeders

60% percentage of the Top 5 Breeders' most popular cannabis type to breed is Hybrid, while 100% of the Top 5 Breeders' least popular cannabis type is Sativa.

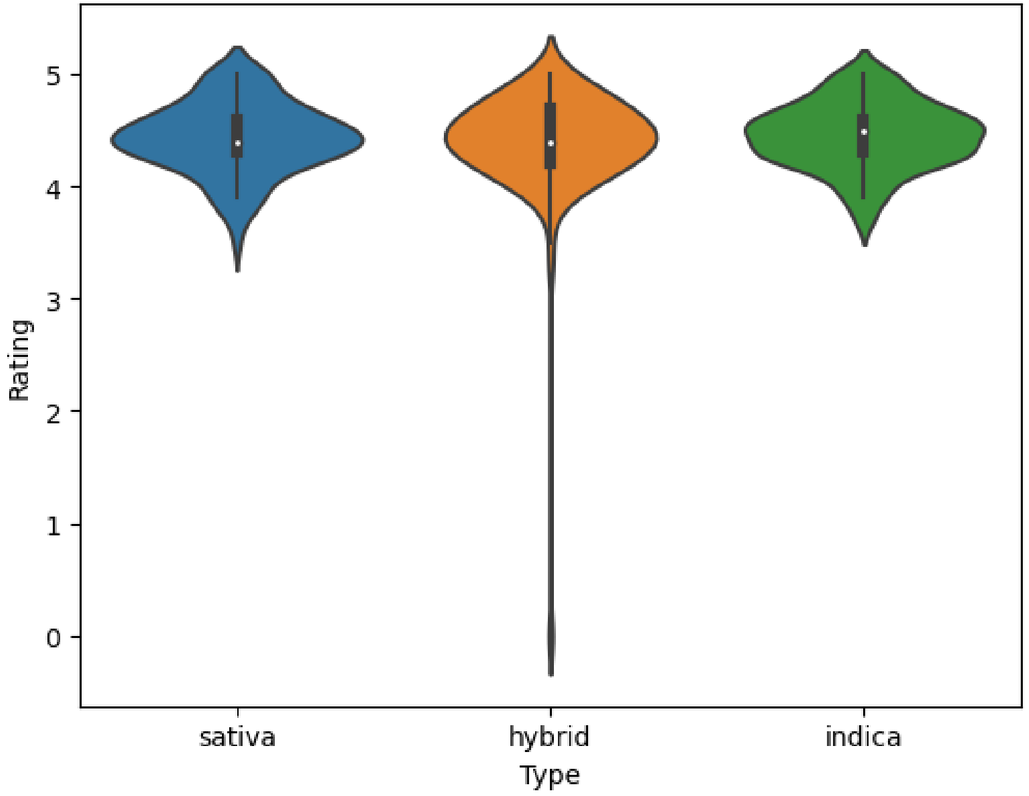


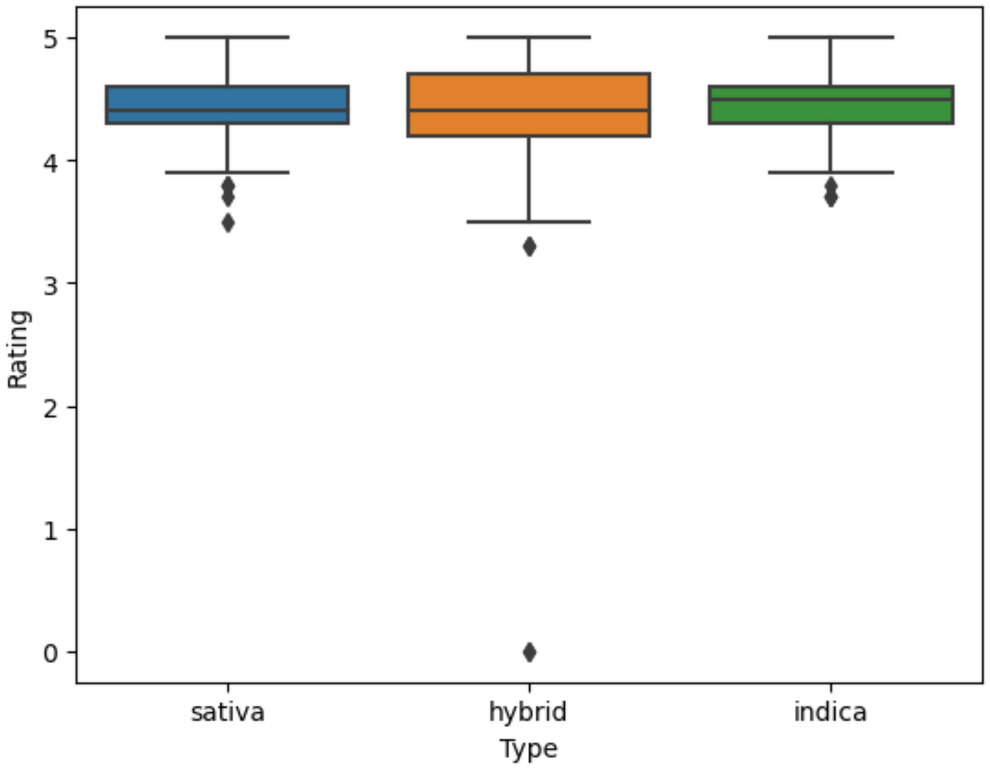
Hypothesis #4

THERE IS A SIGNIFICANT DIFFERENCE IN RATING BY TYPES AND OR EFFECTS (EFFECT_1)

Rating by Type

Type	mean
hybrid	4.398305
indica	4.455414
sativa	4.435185

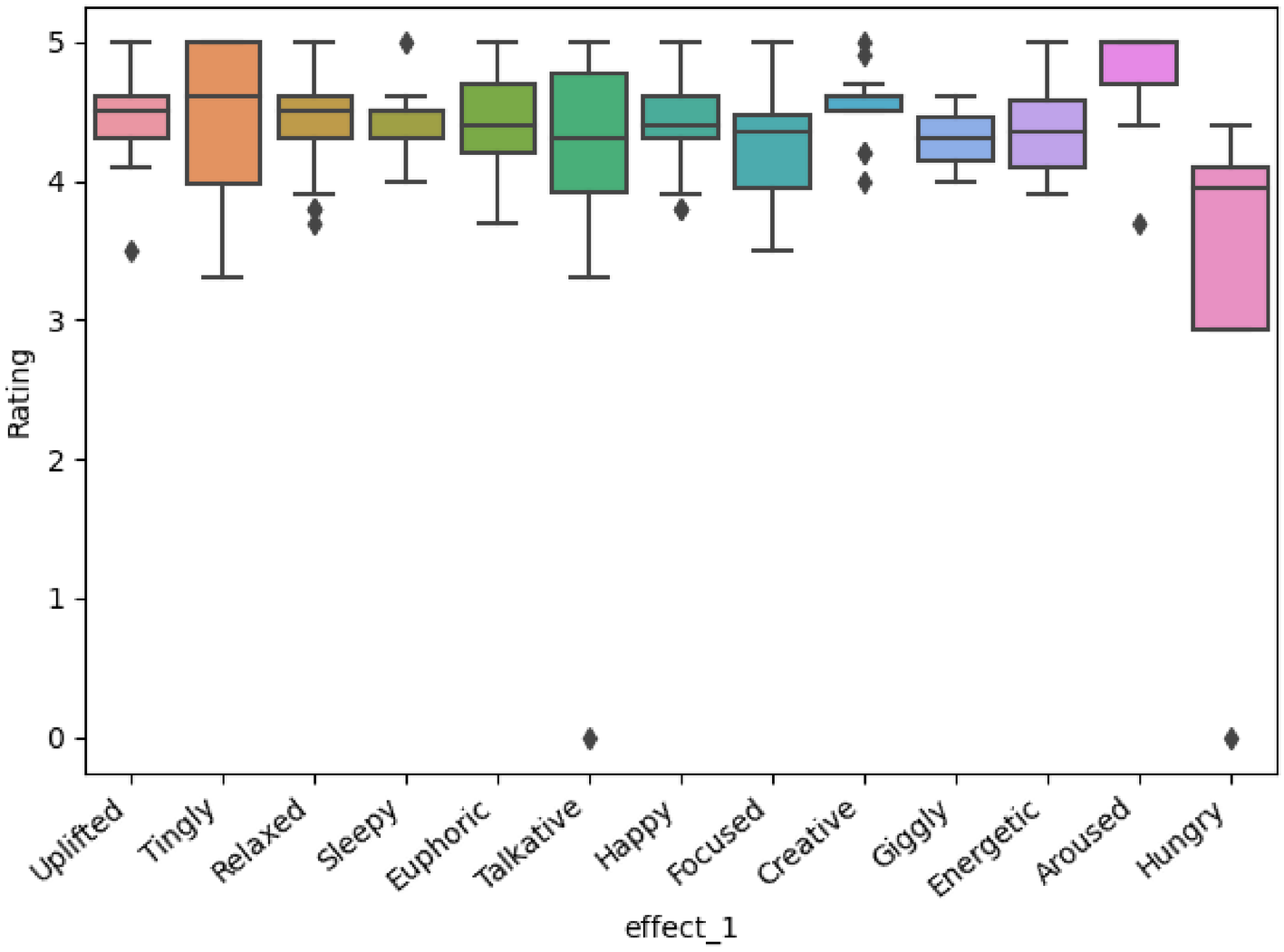




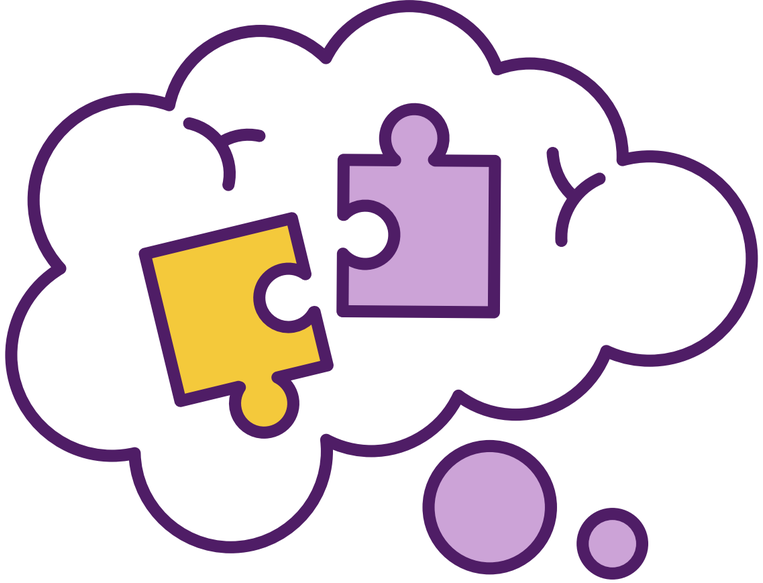
SINCE THE P VALUE IS HIGHER THAN 0.05, THERE IS NO SIGNIFICANT CORRELATION BETWEEN RATING AND CANNABIS TYPE

SATIVA VS HYBRID	TTESTRESULT(STATISTIC=0.6965064730155417, PVALUE=0.48658481052453917, DF=342.0)
SATIVA VS INDICA	TTESTRESULT(STATISTIC=-0.5386418658960523, PVALUE=0.5905896023937005, DF=263.0)
HYBRID VS INDICA	TTESTRESULT(STATISTIC=-1.2752629761607839, PVALUE=0.2029733692729021, DF=391.0)
ALL 3 TYPES	F_ONEWAYRESULT(STATISTIC=0.9571357342086968, PVALUE=0.3846963878282835)

Rating by Effect



count	2351.000000
mean	4.310634
std	0.836394
min	0.000000
25%	4.200000
50%	4.400000
75%	4.700000
max	5.000000



Hypothesis 4

Conclusion

- ***THERE IS NO SIGNIFICANCE DIFFERENCE IN RATINGS FOR TYPES AND EFFECTS (EFFECT 1) OF CANNABIS***

- ***THEREFORE OUR HYPOTHESIS IS NOT TRUE!***

LIMITATIONS

Key Points to Consider Regarding the Statistical Analysis of the Raw Data:

- Only the first three flavors listed in the raw data were used for the statistical analysis.
- Although there was potential for additional data points to be extracted from the data descriptions, we lacked the technical expertise to utilize specific programming to dissect the language.
- The data is limited to breeders who operate legally, resulting in the exclusion of consumer data for non-regulated cannabis.

LIMITATIONS

Key Points to Consider Regarding the Statistical Analysis of the Raw Data:

- Some breeders in the data set did not share their specific location(s). Due to time, we were unable to extract the location information from the data set found within various columns

- If we had unlimited time and resources we would extract more data from the description column

FUTURE IMPLICATIONS

Key Insights from Analysis of the Data Regarding Advancements and Changes as the Legal Cannabis Landscape Continues to Evolve:

- Government

Formulate regulatory guidelines when defining medical/recreational cannabis use

- Health/Medical

Professionals can recommend specific cannabis to treat mood disorders as more research and studies are conducted under legalized varieties of cannabis

FUTURE IMPLICATIONS

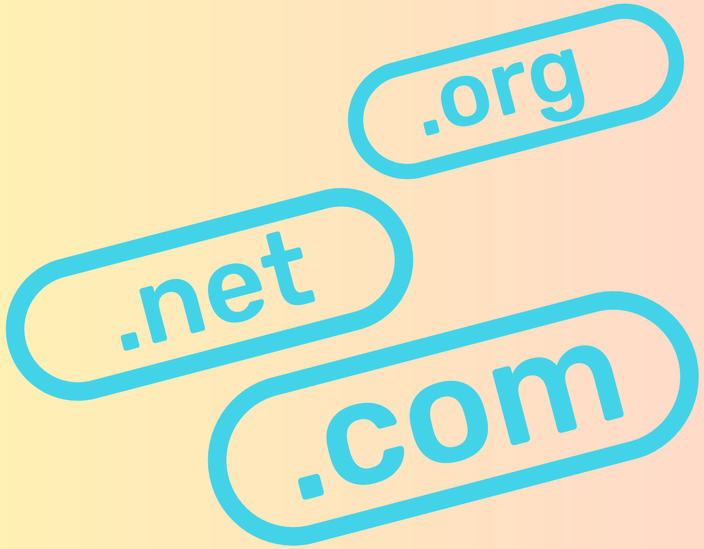
Key Insights from Analysis of the Data Regarding Advancements and Changes as the Legal Cannabis Landscape Continues to Evolve:

- Consumers

Make more informed choices based on ratings, experiences, and trusted breeders

- Breeders

Can educate consumers about their brand, ensure consistency, and predictability in the quality of their product



WEBSITE REFERENCES

1. **Interesting Facts about Marijuana**
https://marijuanapackaging.com/blogs/resources/what-makes-weed-colorful-a-look-into-what-the-colors-mean

2. **Pew Research U.S. Map and Facts about Marijuana**
https://www.pewresearch.org/short-reads/2023/04/13/facts-about-marijuana/

3. **Kaggle: Data Set**

IMAGE LINKS REFERENCES

www.marijuanapackaging.com..... IMAGE 1

T.Robbins - Budco..... IMAGE 2

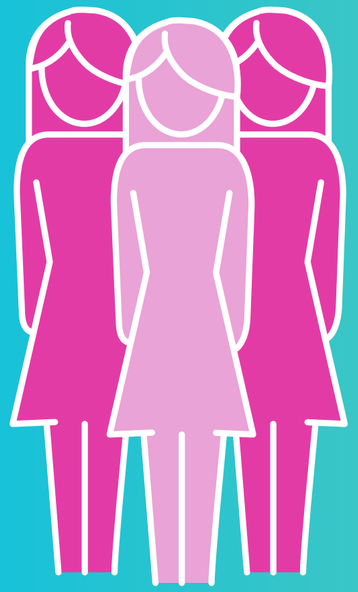
T.Robbins - Budco..... IMAGE 3

Pew Research..... IMAGE 4

T.Robbins - Budco..... IMAGE 5

T.Robbins - Budco..... IMAGE 6

DO YOU LOVE ME, MARY JANE?



ONLY

GETS YOU

HIGH

QUESTIONS