Mushroom Hunters

The Quest for Edible Mushrooms

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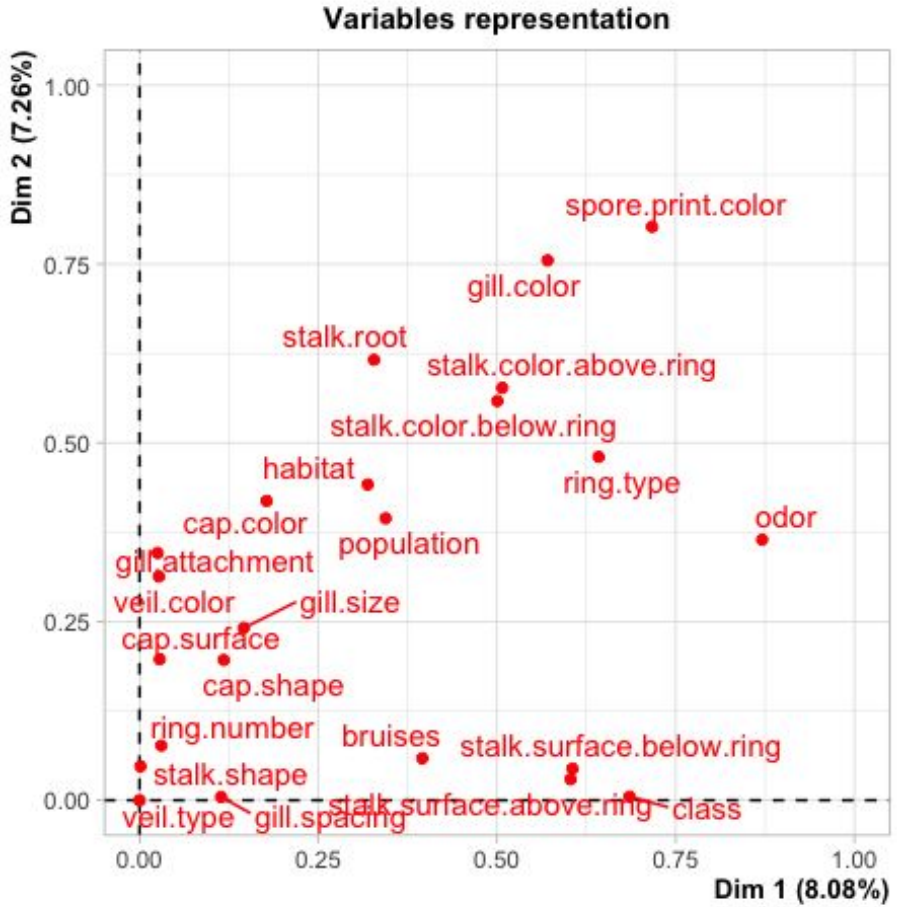
Data Cleaning

There were many steps needed to completely clean the dataset:

- Gill attachment and veil type are all or almost completely the same observation
- Stalk surface above and below and stalk color above and below are extremely similar, so we considered removing this feature

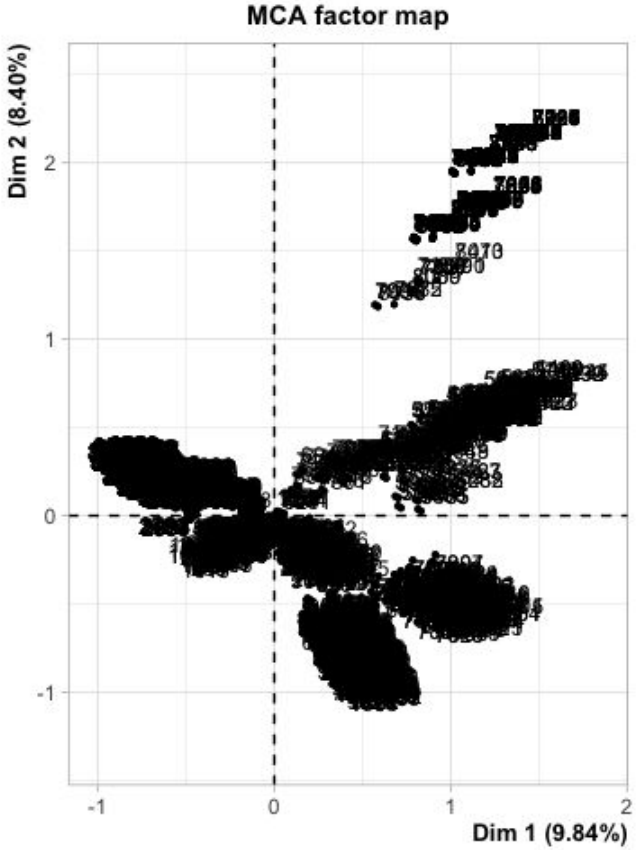
Data Exploration

The way we decided to perform variable selection was with Multiple correspondence analysis to analyze the data deeper…



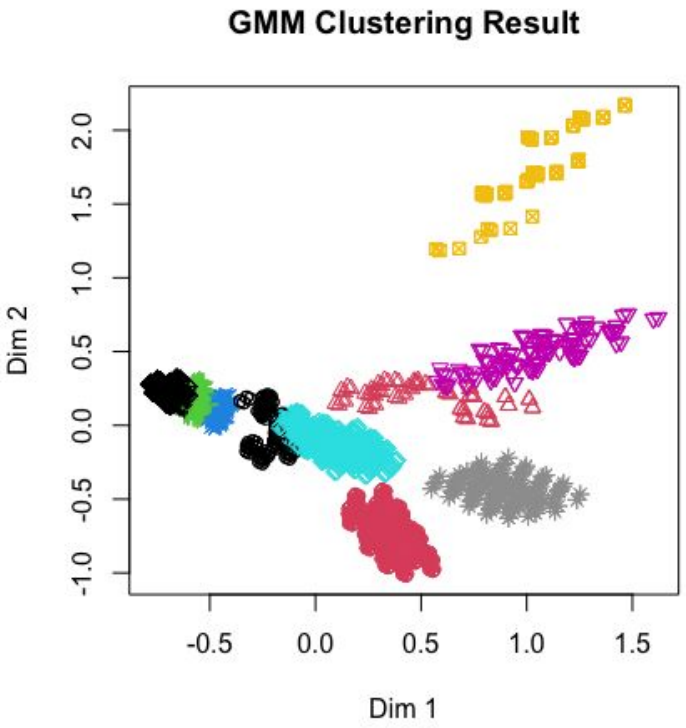
Data Exploration: Types of Poison

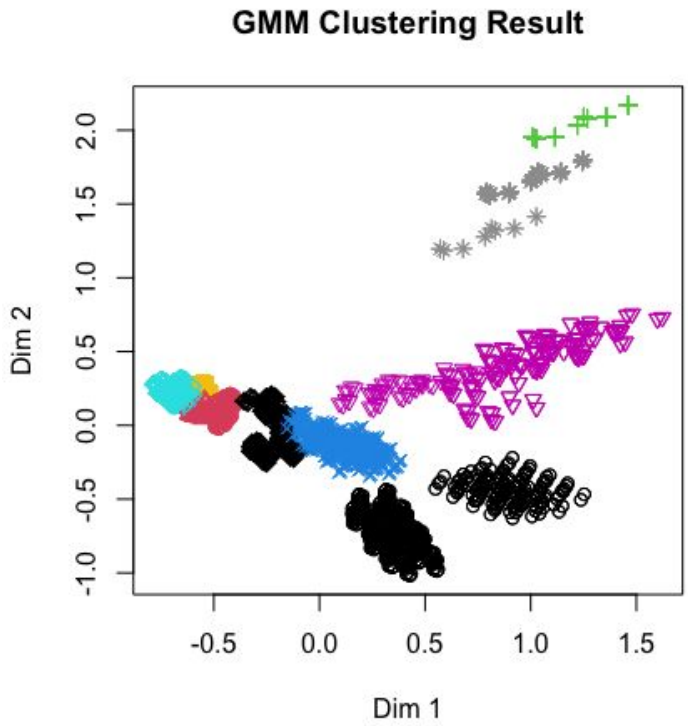
Another aspect of the mushrooms we tried to analyze was the type of poisonous mushrooms.



Clustering Algorithm Results: GMM

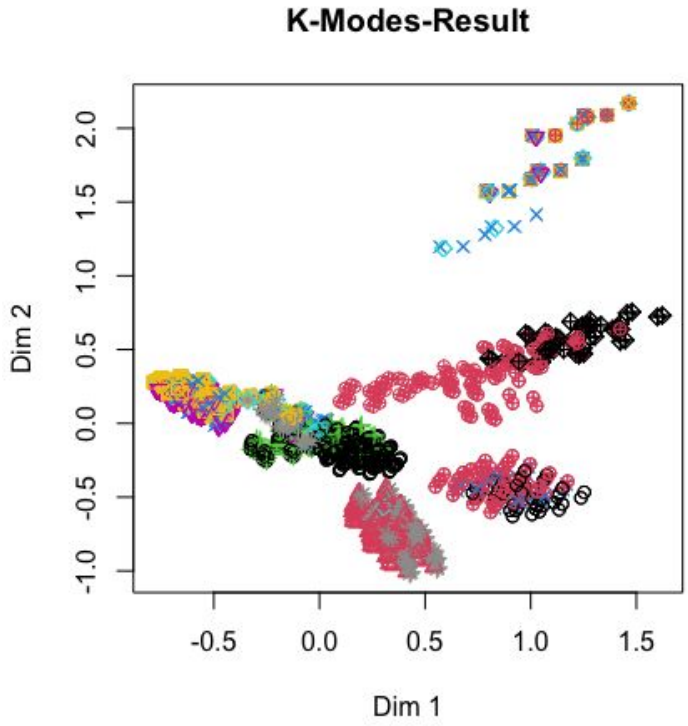
Clearly, the results do not converge





Clustering Algorithm: k-mediods

In k-mediods, the graph converges to a consistent shape, however the MCA clustering does not explain these clusters.



What’s in our poison clusters?

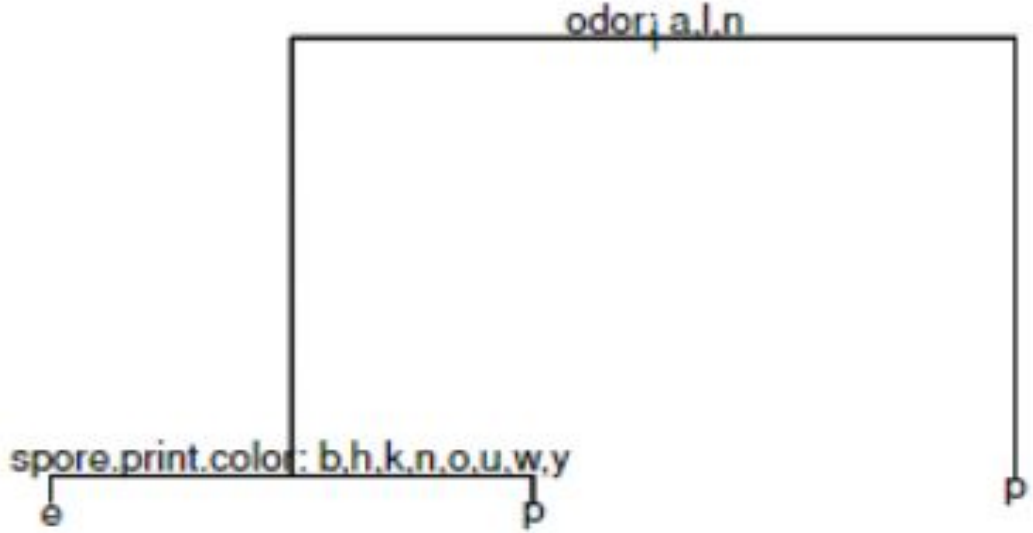
- Bruises
- Odorless
- Close gill spacing
- Broad gill size
- Red gill
- Clustered
- Enlarging stalk shape
- White veil color
- Lives in waste
- White spore color
- Stalk surface is smooth

Odor:

- **a** = almond
- **l** = anise
- **n** = none
- **c** = creosote
- **y** = fishy
- **f** = foul
- **m** = musty
- **p** = pungent
- **s** = spicy

Spore.print.color:

- **b** = buff
- **k** = black
- **n** = brown
- **h** = chocolate
- **o** = orange
- **u** = purple
- **w** = white
- **y** = yellow
- **r** = green



99.30%	Edible	Poison
Edible	**1418**	**20**
Poison	**0**	**1406**

Spore.print.color:

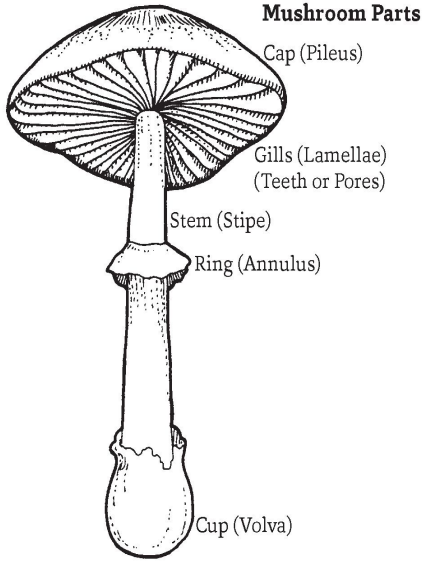
- **b** = buff
- **k** = black
- **n** = brown
- **o** = orange
- **u** = purple
- **y** = yellow
- **h** = chocolate
- **r** = green
- **w** = white

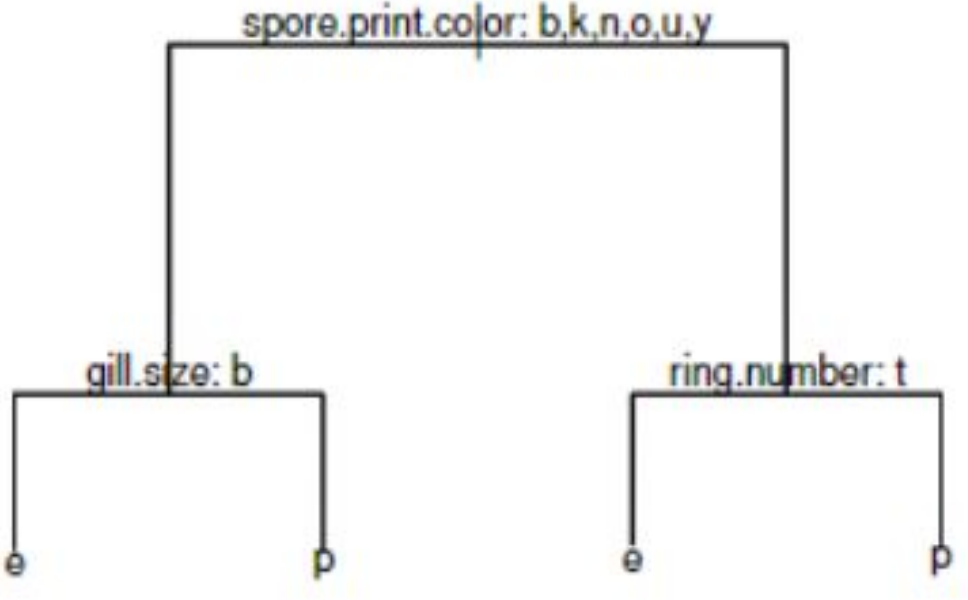
gill.size:

- **b** = broad
- **n** = narrow

ring.number:

- **t** = two
- **o** = one
- **n** = none





95.14%	Edible	Poison
Edible	1357	27
Poison	111	1349

The quest of hunting mushrooms continues

References

Mushroom poisoning syndromes. North American Mycological Association. (n.d.). Retrieved May 6, 2022, from https://namyco.org/mushroom_poisoning_syndromes.php