HUDK 4050:CORE METHODS IN EDM

10/25/18 11:57 AM

https://stackoverflow.com/help/how-to-ask

Research

- Search for your answer

Research

- Search again for your answer

Research

- Search again for your answer just to make sure

Clarity

- Ask question clearly
- Ask only one one question at a time
- Make sure the title ***says what it is on the tin***
    - “R confusion” **(Bad)**
    - “What is the difference between a factor variable and a numeric variable in R?” **(Better)**
- Make sure spelling and grammar are correct (ask someone if you are unsure)
- Identify code with by using ` ` and >
- Don’t use tabs! (SO doesn’t interpret them)

Format

- Title
- Question body: expand on title
    - How did the problem arise, brief background
- Code
- Reiterate question
- Thank you

Reproducible Example

https://stackoverflow.com/help/mcve

- **Minimal**: Use as little code/explanation as possible
  - Don’t post your whole assignment!
  - Recreate the problem with a smaller toy data set (you may solve the problem by doing this)

Reproducible Example

https://stackoverflow.com/help/mcve

- **Complete**: Include all aspects of problem
  - Where did the data come from?
  - A single problem
  - What is the overall goal and the specific goal of the code
  - If you have a lot of code you need to isolate the line with the issue
  - It was working and then stopped

Reproducible Example

https://stackoverflow.com/help/mcve

- **Verifiable**: Can the problem be reproduced
  - Toy data
  - Code
  - Any other relevant information: system, R version

Asking Good Questions

- Life skill not just for SO
- Many people don’t have it
- It takes practice
- Is worth spending time to think about it

K-means Gotchas

- Assumes there are clusters to find - it will find clusters regardless of whether there are any or not
- Does not work on some shapes (Like PB&J need an even spread)
- Need uniform scale (uniform variance) - larger scale will swamp smaller scale
- Doesn’t work on categorical data of more than two categories (and the scale may be difficult to interpret)
- Can get stuck on local minima (need to run iterations)
- Too easy

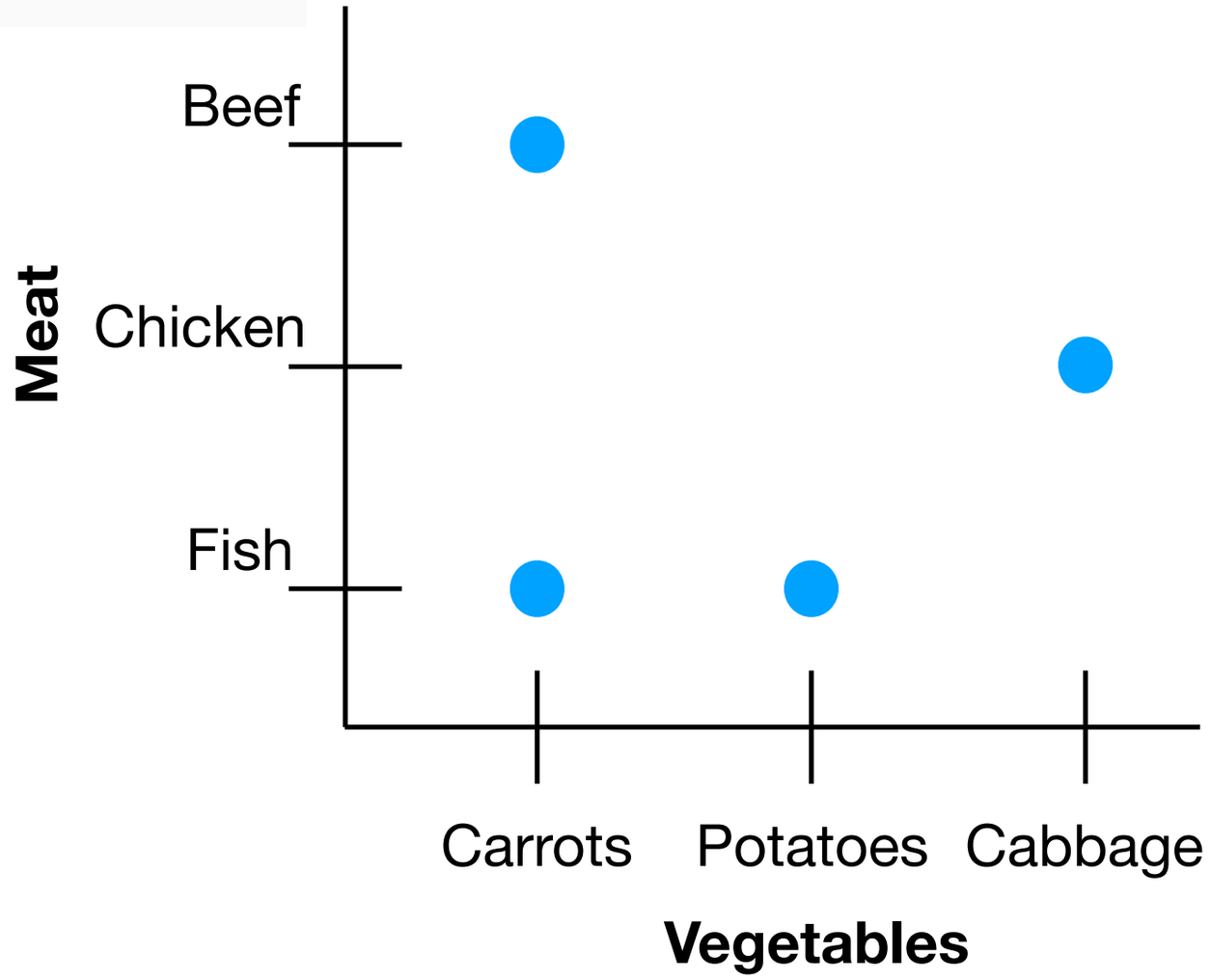
K-modes

Data Mining and Knowledge Discovery
September 1998, Volume 2, Issue 3, pp 283–304 | Cite as

Extensions to the k-Means Algorithm for Clustering Large Data Sets with Categorical Values

Recipes

- Same as K-means, but uses the modal value of a vector
- Similarity



Adaptive Systems

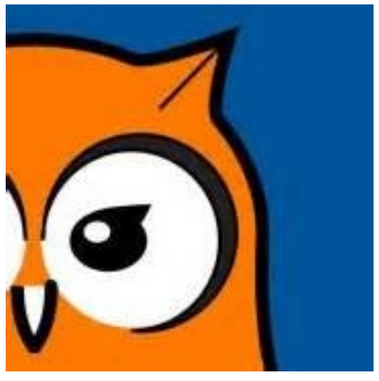
Adaptive

- Originally = assistive
- ~1990s = sequential estimate of aptitude (IRT)
- ~2012 = a system that adapts the educational environment according to students' learning needs
- Distinct from Intelligent Tutors in terms of methods employed

Adaptive Systems

Adaptive Engines

KNEWTON



Grockit

prepme

KAPLAN

adapt courseware

gymglish

Recommender Systems

Collaborative filter: build a model from a user's past behavior + similar decisions made by other users

Content filter: utilize a series of discrete characteristics of an item in order to recommend additional items with similar properties

K-modes

- Put A2 data into the format opposite

- install the **`klaR`** package

- `kmodes(df, number of modes, iter.max = 10, weighted = FALSE)`

- Color the vertices in your network diagram according to cluster

student	HUDK4050	HUDK4011	HUDK5053
A	1	0	0
B	1	1	1
C	1	1	0
D	1	0	0