The Yelp Machine

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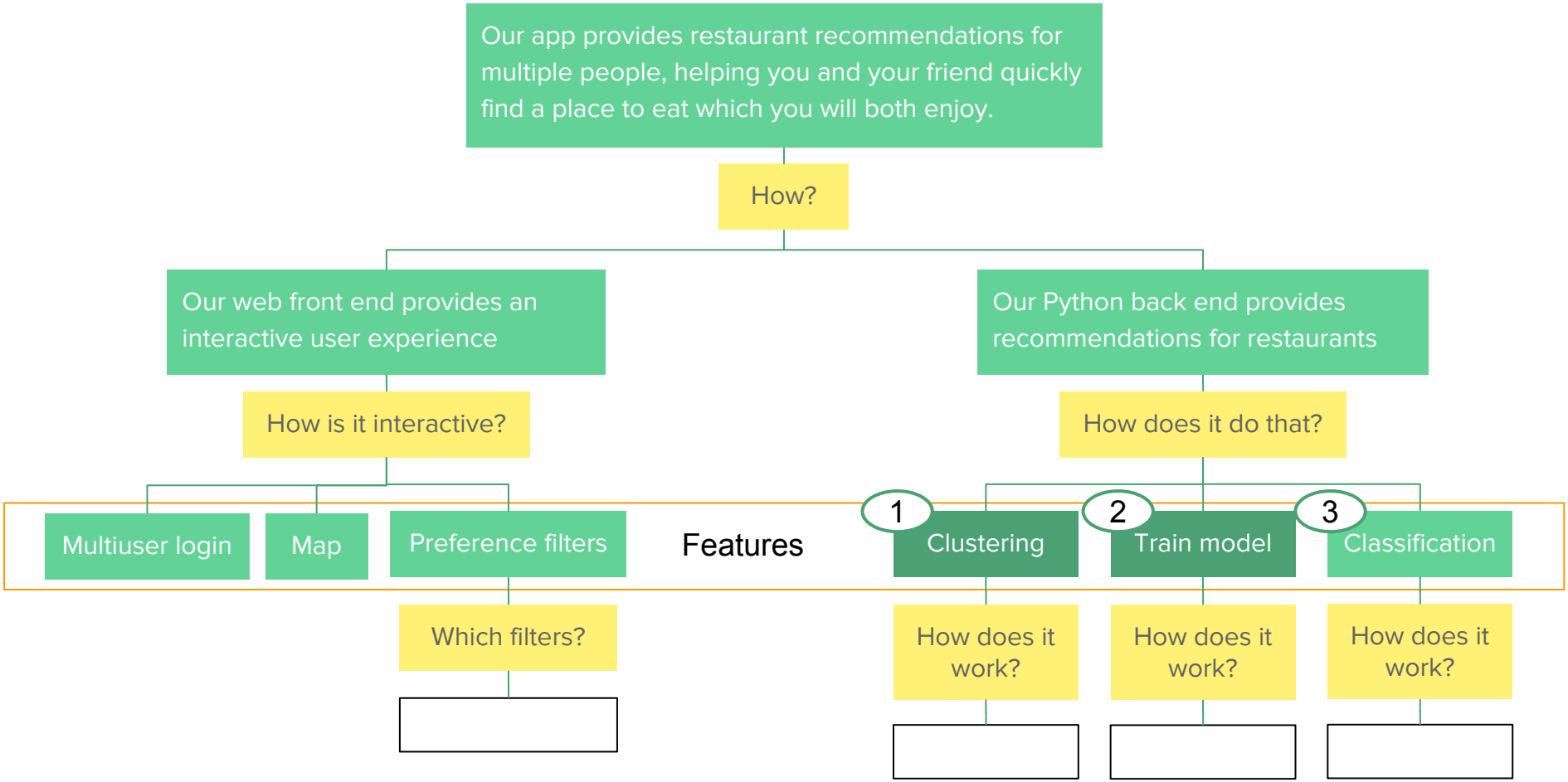
SPQA

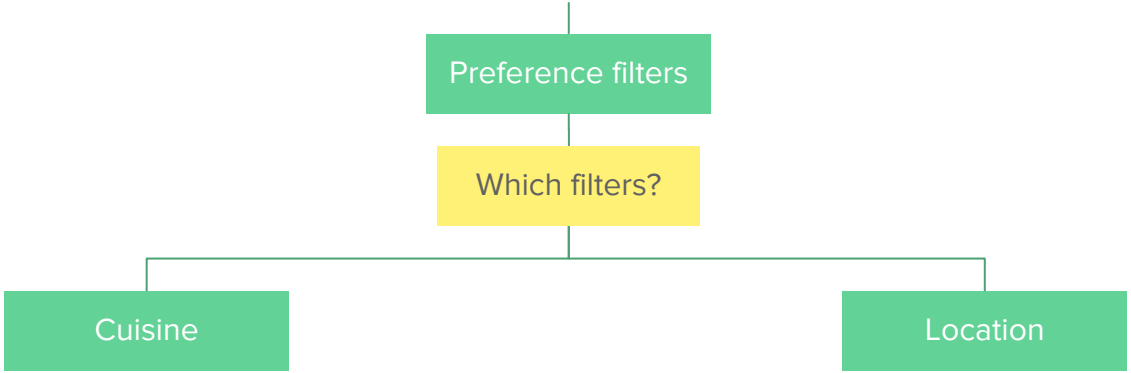
S: You and a friend want to go out to eat, but you need to find a restaurant which suits both of you.

P: Sifting through listings and reviews is time consuming and frustrating.

Q: Could Yelp data be used in conjunction with machine learning to find a restaurant which will suit both of your tastes?

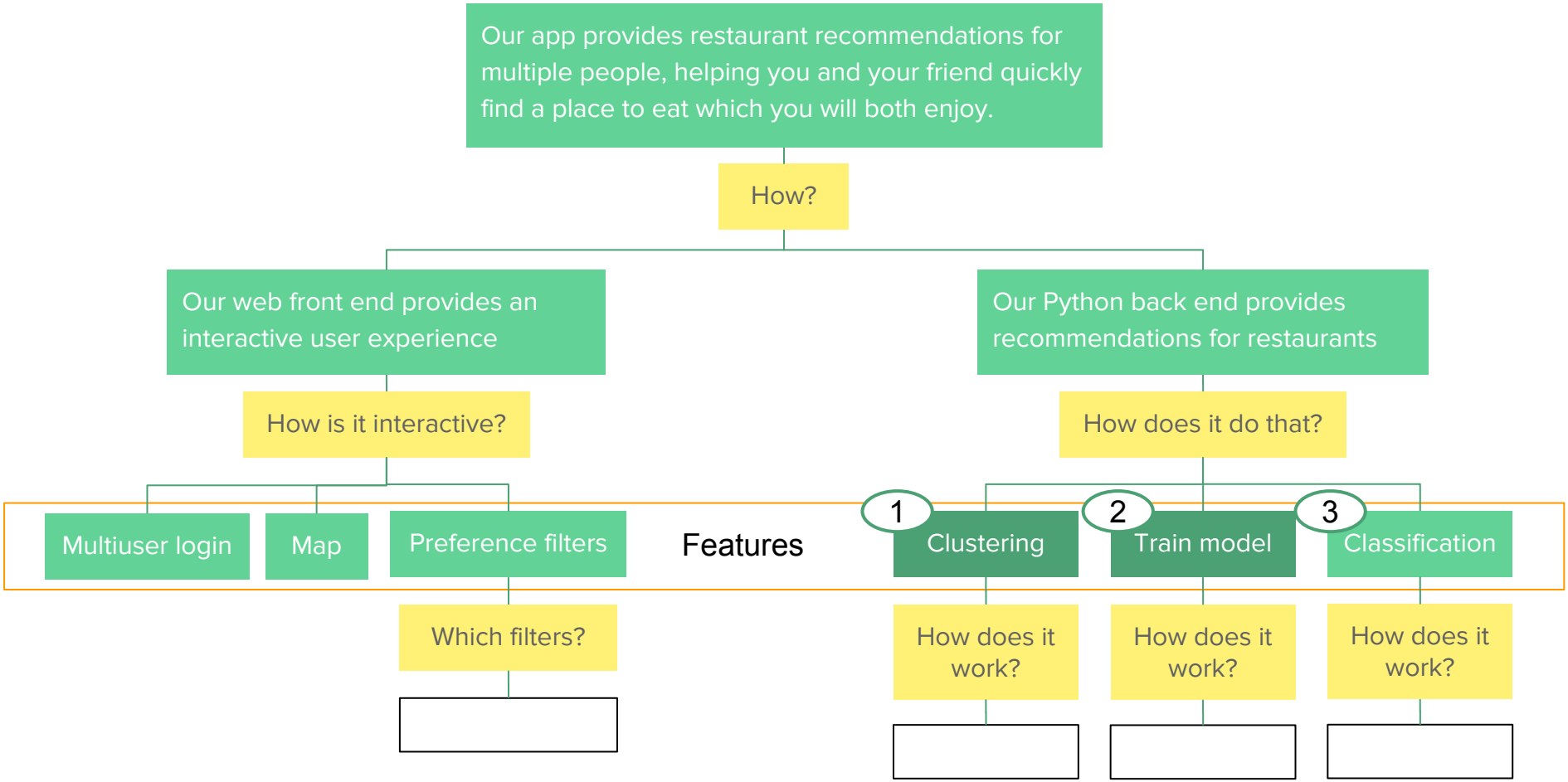
A: Yes: our app provides restaurant recommendations for multiple people, helping you and your friend quickly find a place to eat which you will both enjoy.


Our app provides restaurant recommendations for multiple people, helping you and your friend quickly find a place to eat which you will both enjoy.
How?
Our web front end provides an interactive user experience
Our Python back end provides recommendations for restaurants
How is it interactive?
How does it do that?
Multiuser login
Map
Preference filters
Features
1
Clustering
2
Train model
3
Classification
Which filters?
How does it work?
How does it work?
How does it work?



- Chinese
- Japanese
- French
- American
- ...

- Geographically limited data
- App recommends anywhere in the US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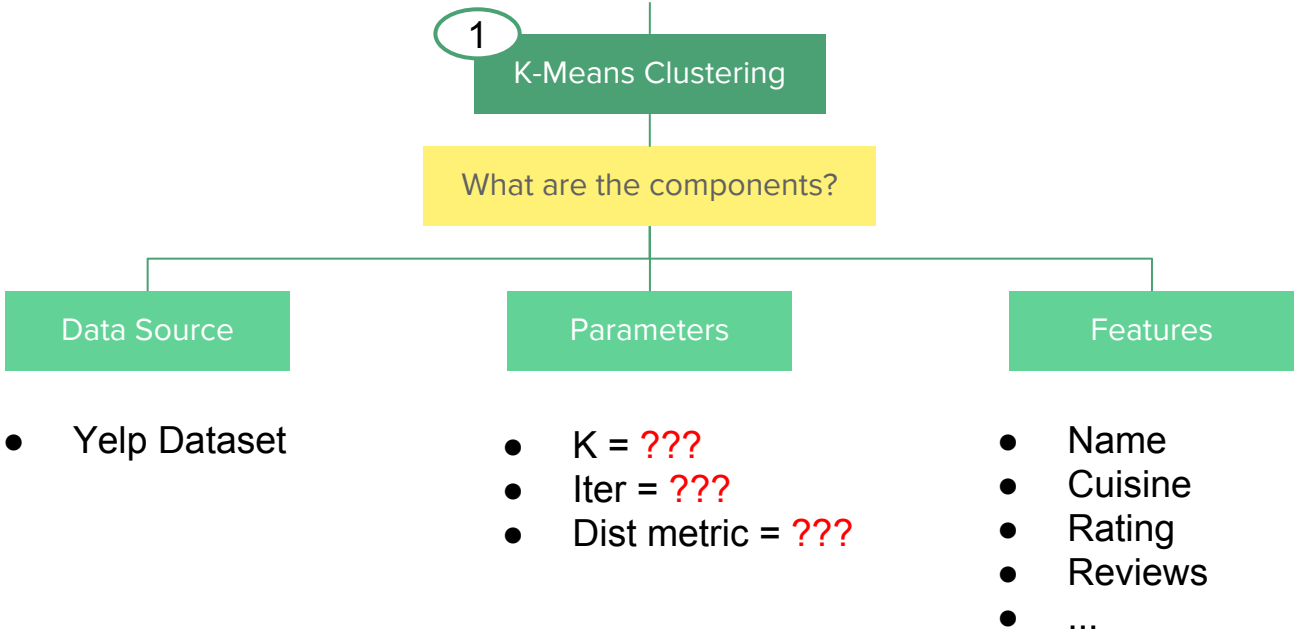
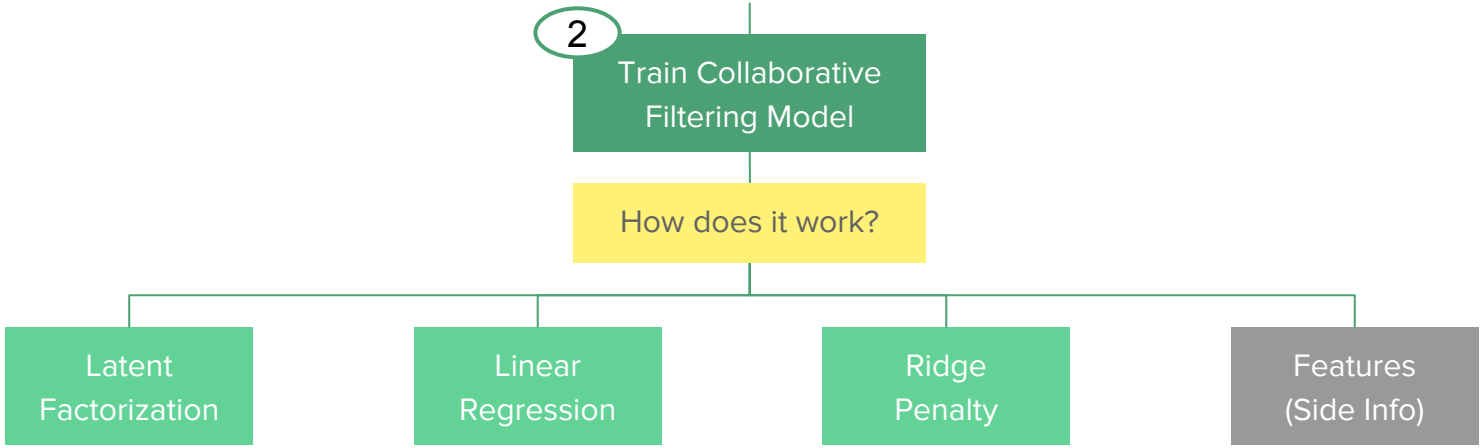

1
K-Means Clustering
What are the components?
Data Source
Parameters
Features
Yelp Dataset
K = ???
Iter = ???
Dist metric = ???
Name
Cuisine
Rating
Reviews
...


2
Train Collaborative Filtering Model
How does it work?
Latent Factorization
Linear Regression
Ridge Penalty
Features (Side Info)

3

KNN Classification

What are the components?

K-Means Clusters

New Data from Yelp API

Input:

- Cuisine
- Map bounds

Output:

- Name
- Cuisine
- Rating
- Reviews
- ...

Parameters

- K = ???
- Distance metric = ???