#ASLI ENGINEERING

How Flipkart made their type-ahead search personalized

SWIPE

BY

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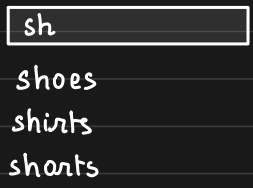
Hyper-personalized Type-ahead Search at Flipkart

When user is typing the query, suggest the search terms

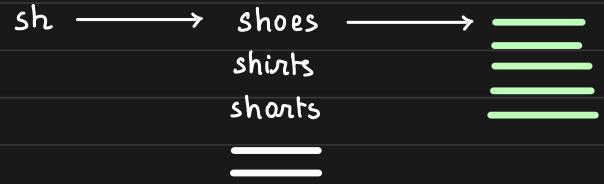
making it easier to look for products

instead of showing generic / popular suggestions,

what if we make it personalized?



Personalized Suggestions



Given all the terms that 'match' rank them such that user's time to purchase is minimized

Parameters of ranking

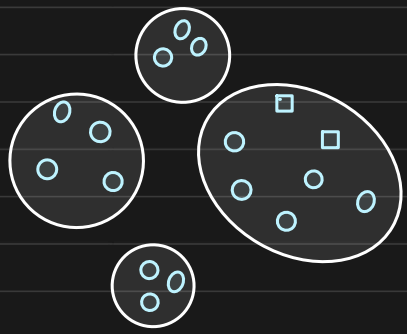
1. Quality of the suggestion
   - popularity : how popular the term is ?
   - performance : does this term have enough results ?
   - grammar quality : is the term grammatically correct ?

No company could and would generate them manually, hence the check

2. Prefix : strong prefix, beginning of word, substring
3. User Dependent :
   - past actions : context of previous search
   - user profile : historical purchases

sh	sh	sh
sports shoes	casual shoes	shirts under 2000
shirts	formal shirts	sneakers

Personalizing the suggestions



The first approach

↳ group users and for each group generate suggestions

But every user has its own unique journey

hence grouping them will not have the best outcome

So, we have to generate and rank, on a personal level

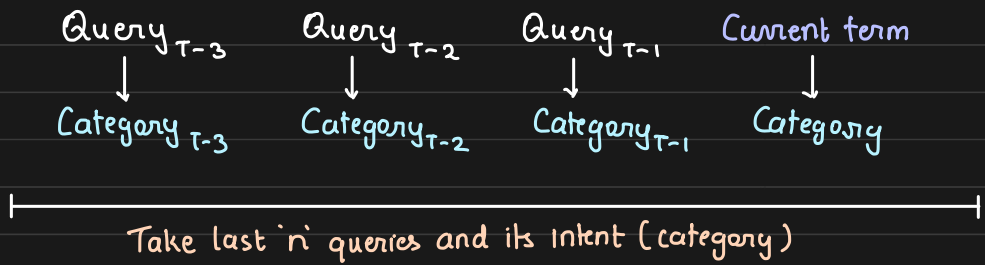
Understanding the user intent

Flipkart has taxonomy / catalog (5000)

- Fashion
  - Clothing
  - Footwear
    - Shoes
    - Sandals
  - Jewellery
- Electronics

1. closer the entries in the tree, more similar they are
2. past searches / browse / purchases can be clubbed and mapped on this taxonomy and grouped by similarity

Map the input to this tree and see what's close to it and get the intent



Evaluate Category Similarity: Prob that current is similar to T-x category

eg: computer monitor, computer mouse

Evaluate Reformulation: Prob that user would reformulate query

eg: shoes, red shoes, nike under 2000

Personalizing suggestions

Training data for the model

↳ all viewed (clicked) suggestions for every prefix entered by a user

sh

sports shoes

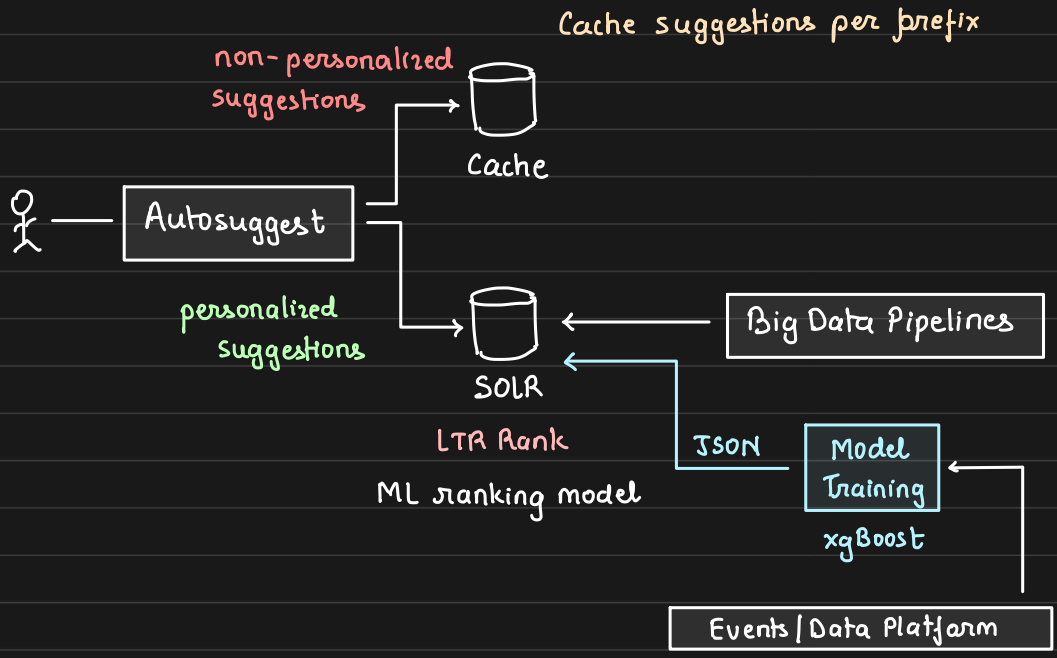
shirts

score ↑ for clicked suggestion

score ↓ for shown but not clicked suggestion

The feature relationships were modelled & ingested in Xgboost (decision trees) and importance of each feature was quantified and evaluated

High level Architecture



A suggestion can be personalized or non-personalized based on search categories of previous searches.

eg: Red Shoes → Shoes Nike Shoes → shoes "a" → adidas shoes, apple laptops ✗