

Topics covered today

1. Intro to Recommender Systems
2. Some simple recommendation systems (ecommerce,Social Media, Feeds)
3. Feedback signals
3. Content based Rec Systems

Recommender Systems

[Start at 9:05]

→ Broad Ideas

→ Content based filter / RS } Agenda

① Every online business need this → Hottest topic:

↳ This drives
business

↳ Shop you want to go
* Hotel
grocery

② Ecommerce:

↳ Customer also bought ⇒ general order/purchase data.
↳ Similar items → Product Info/feature
↳ You may also like ⇒ User likes/purchase history/wishlist

③ Social Media → Fb/LinkedIn (~~twittter~~)

↳ You may also know →

④ Feeds → Instagram Feed, LinkedIn Feeds, Newsfeed
↳ Similar posts/blogs/news → my history, likes, interactions
↳ Similar songs ↳ time spent
↳ Similar movies.

① Rare example →

↳ Datings App → Recommendation.

A_{2c}

↳ Keyboard helper / nextword predictor →

↳ Search algorithm → Rec system

↳ based on

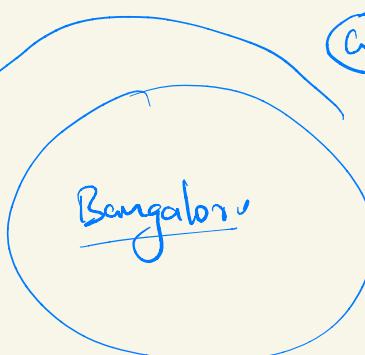
Similarity with
Keyboard.

⇒ Omnipresent in all websites →

~~offline~~ ⇒ Inventory placement →

Amazon

w2
iphone



w1
iphone
Cover

iphone
+
iphone cover

→ USA → Shipment is
Very
Costly

User will get 2 orders/shipment

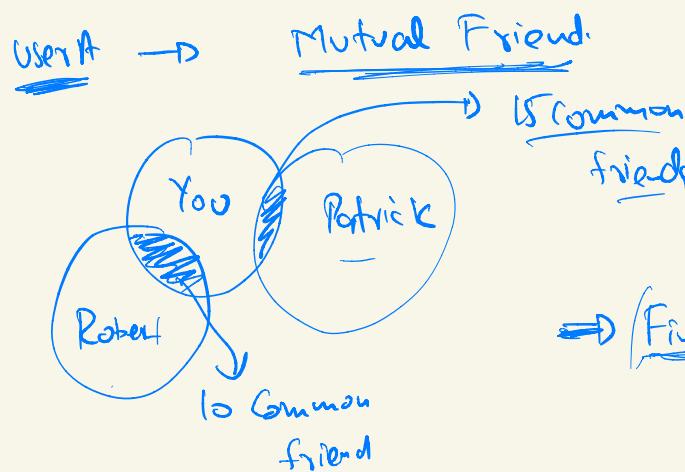
⇒ All items bought together → optimized in the same warehouse

* Intra warehouse optimisation can also be done.

↳ Present everywhere:

\Rightarrow I min Rec-Sys :-

\star Facebook \Rightarrow You may also know ??



1st Recommendation
 \hookrightarrow Patrick
 \hookrightarrow Robert

\Rightarrow Find Count of common friends b/w
All user pairs.

\hookrightarrow Logic based Rec Sys

\Rightarrow

\Rightarrow 1M users on face book

1M \times 1M

\rightarrow Filter

- Same city
- Same College
- Same Company
- Have phone no.

!

1M \Rightarrow 50k

⇒ Why are RS useful? → Business logic

E-commerce

↳ Recommend a good \rightarrow buy more \rightarrow profit $\$$
next product

Spotify | YouTube | Netflix

↳ Recommend \rightarrow Spend more time \Rightarrow more ads \Rightarrow $\$ \$$

Social media

↳ "User engagement"

Recommend \rightarrow Spend more time \rightarrow more ads \Rightarrow $\$ \$$

⇒ Amazon \rightarrow

① Similar product \rightarrow

⇒ User have come to buy a laptop \rightarrow Dell XRB 8GB
i7 processor

⇒ Id RAM ROM Processor Price OS

1

2

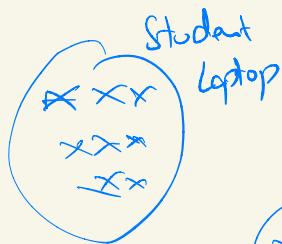
3

4

Data

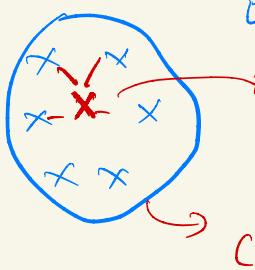
⇒ Find the closest match of my product ??

Clustering



giving → group based RS

Recommend a cluster



↳ and then recommend N values

Similarity based

⇒ to M product → Vector databases

Fast way to calculate dist b/w 2 data pts.

e.g. Pinerope
Chowdhury

② People also bought

iPhone →
too order

30 → Case
20 → warranty
15 → Apple Watch
15 → air pods

← together purchases

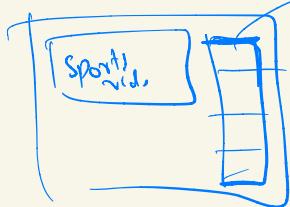
history

(apriori
Rec sys)

• Bread
too order

milk
eggs

⇒ YouTube (Feed)



you may
also
like

⇒ Likes, history

- Same channel
- Recency
- Popularity

Broad Ideas

(Mutual
friend)
Simple
logic
based

Similar
product
Similarity
based

Customer
also bought
Popularity
based

Group based

Regression
based

Collaborative
filtering

⇒ user
interaction

Opinion
based

Frequency
based

⇒ RS module → Case Study → Very good for resume

⇒ Judging Recommendation Models →

MAPE

Feedback Signals → Business related metrics :-

Product
RS



- Sales ↑
- Cart Size ↑
- Wish list ↑

some

example

of E-commerce

⇒ Instagram →

Good System →

views

likes

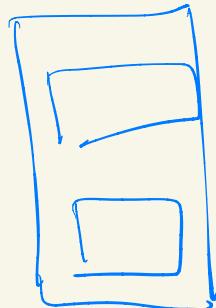
comments

minutes Spend

Save Image

}

Business
metrics



→ success

Total
Spent

< 1 sec

3 sec

6 sec

⇒ Netflix | Spotify

⇒ Playlist, downloading

⇒ Watching full movie | song

⇒ Giving ratings

⇒ How do you recommend to a new user for whom there is no data available.

→ Recomm

→ Friend recom

Board (Contact)

→ Popularity

→ Select 5 genre

5 language

→ a person
of user

$$\Rightarrow \vec{v}_1 = 0 \ 1 \ 0 \ 0 \ 1$$

$$\vec{v}_2 = 1 \ 0 \ 0 \ 0 \ 1$$

$$1 \ 1 \ 0 \ 0 \ 0 = 2$$

$$\vec{v}_1 - \vec{v}_2 = \sum |v_{1x} - v_{2x}|$$

Hamming
distance

⇒ Create features



Calculate closest k matches



Recommend all | partial values

{ Create feature }
↓
Find 1 closest match
↓
Recommend all liked movie

⇒ 30-40 columns ⇒ 90-95%

⇒ ~~Logistic~~

→ 8 / 10

