JOIN LIVE

AI Recommender System - LIVE DEMO

LEARN TO BUILD AI RECOMMENDER SYSTEM FROM ZERO TO HERO WITH LIVE DEMO.

LIVE ONLINE SESSION

ON 27-AUG-2022@ 7.00 - 08.30 PM IST (SATURDAY)
@ 9.30 - 11.00 AM EST
@ 2.30 - 04.00 PM LONDON

REGISTER FREE

REGISTRATION LINK:
HTTPS://FORMS.GLE/QA1GQFZ3HF485T716

HTTPS://WWW.LINKEDIN.COM
/IN/PRASANNA-VENKATESH-
JAYAPRAKASH/

PRASANNAVJ@GMAIL.COM

+91-9840337443

BY PRASANNA VENKATESH J

AI & CLOUD EVANGELIST

AI RECOMMENDER SYSTEM

- Introduction to Recommender Systems

- Evolution of Recommender Systems

- Content Based Recommender System

- Colloborative Filtering based recommender system

- Matrix Factorization based Recommender System

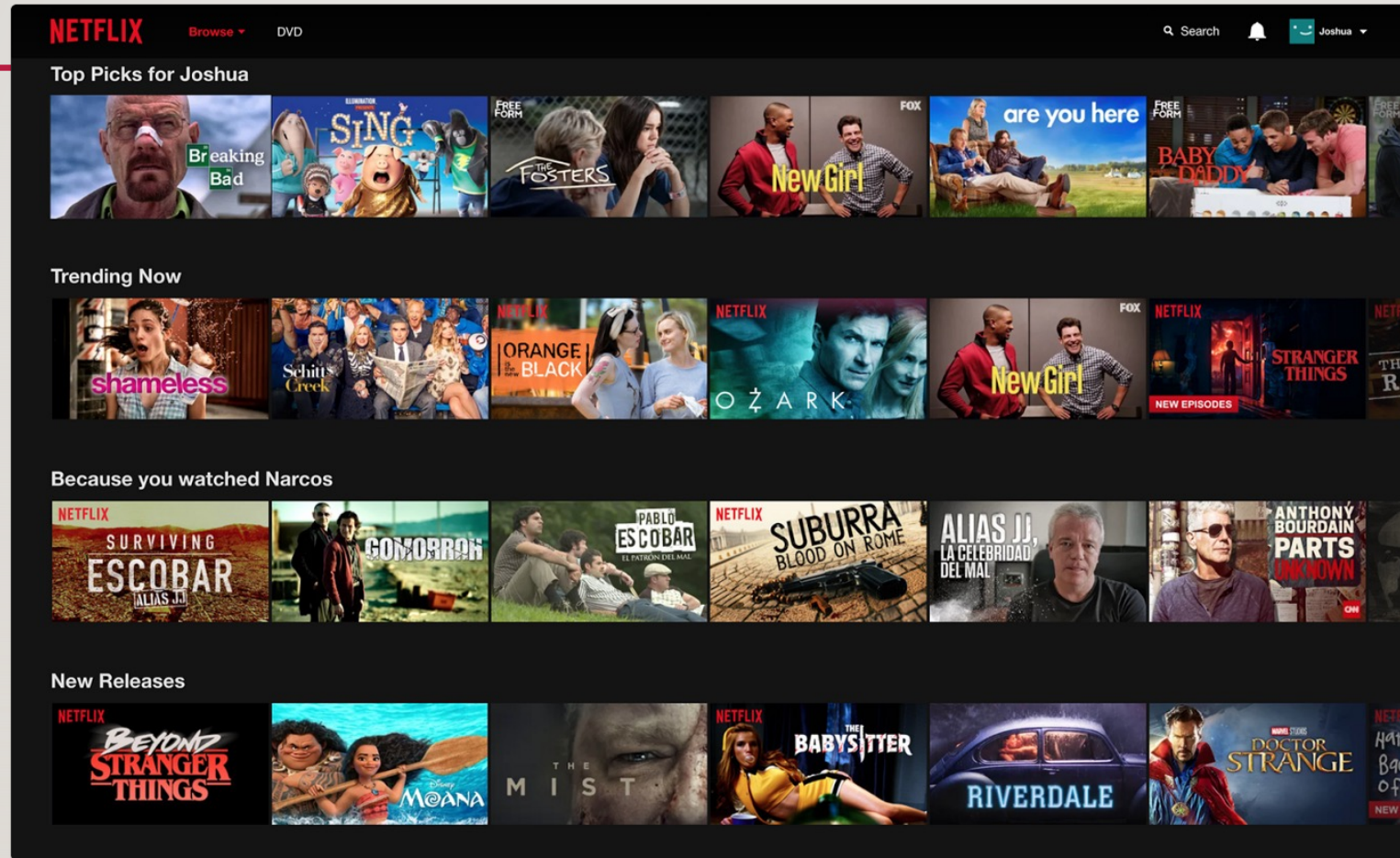- Live Demo

prasannavj@gmail.com

AI RECOMMENDER SYSTEM - INTRO

MOVIE RECOMMENDATIONS

prasannavj@gmail.com

ECOMMERCE PRODUCT RECOMMENDATION SYSTEM

EVOLUTION OF RECOMMENDER SYSTEMS

Content Based Recommendations	→	Collaborative Recommendation systems	→	Matrix Factorization	→	Factorization machine	→	Deep Learning based Matrix Factorizations
Early 2000s		2000s		2006/7		2006-2010		Recent development
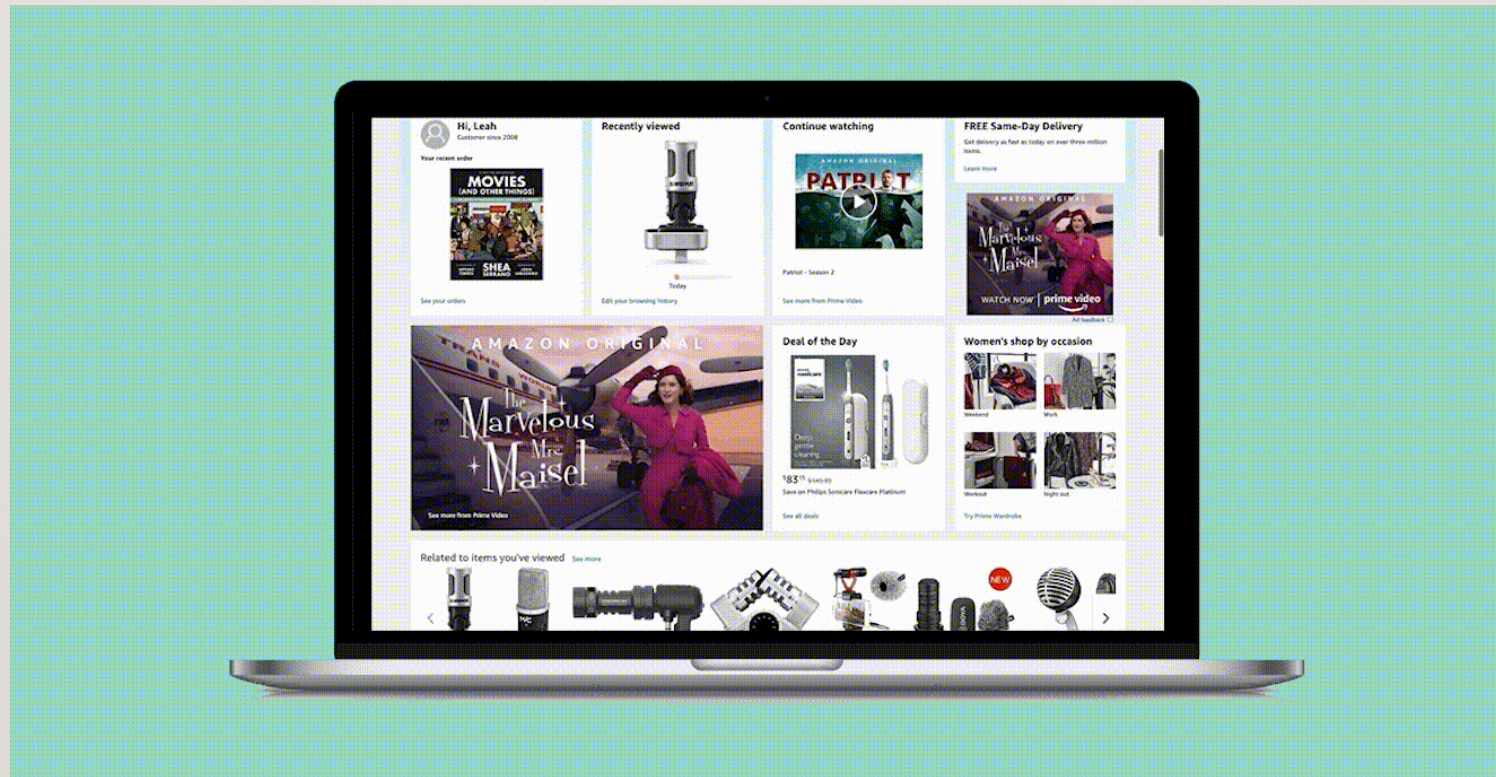
BASICS OF RECOMMENDATION SYSTEMS - EVENTS

- Events
  - Implicit Events
    - Online- Page view, click, app interactions
    - Commerce – cart, purhcase, return
    - Media – review, watch, listen

  - Explicit Events
    - Ratings , review
  - Intents
    - Search query,
  - Socila Events
    - Like, share, follow, unfollow, block

BASICS OF RECOMMENDATION SYSTEM - CONTEXT

- Context
  - Devices accessed
  - Time
  - Location
  - Type of event
  - Reference
  - Type of interactions

BASICS OF RECOMMENDATION SYSTEM - PREDICTION

- Given the ==User, Event and Context== Predict the interest of the ==recommend the top rangined outcome== to users.
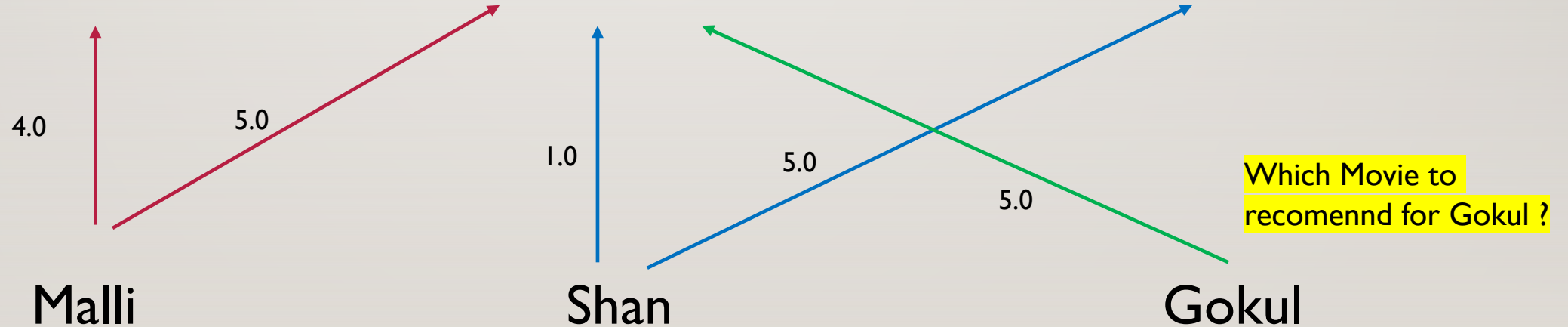
BASICS OF RECOMMENDATIONS

A CIA's mercenary team is ordered to assassinate the dictator of a South American island without knowing that their mission is viciously planned by a vindictive CIA officer, James Monroe.

THE EXPENDABLES

Jake, who is paraplegic, replaces his twin on the Na'vi inhabited Pandora for a corporate mission. After the natives accept him as one of their own, he must decide where his loyalties lie.

AVATAR

American teenager Peter Parker, a poor sickly orphan, is bitten by a radioactive spider. As a result of the bite, he gains superhuman strength, speed, and agility, along with the ability to cling to walls, turning him into Spider-Man.

THE AMAZING SPIDER-MAN

4.0   5.0

1.0   5.0

5.0

Which Movie to recomennd for Gokul ?

Malli   Shan   Gokul

prasannavj@gmail.com
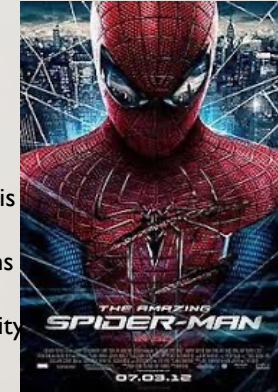
CONTENT BASED RECOMMENDATIONS

A CIA's mercenary team is ordered to assassinate the dictator of a South American island without knowing that their mission is viciously planned by a vindictive CIA officer, James Monroe.
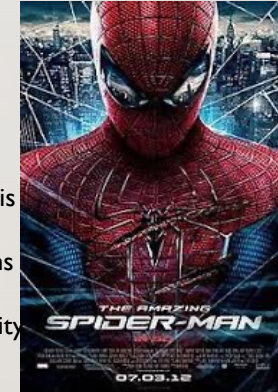

Adventure

Jake, who is paraplegic, replaces his twin on the Na'vi inhabited Pandora for a corporate mission. After the natives accept him as one of their own, he must decide where his loyalties lie.

Fantacy Science Fiction

American teenager Peter Parker, a poor sickly orphan, is bitten by a radioactive spider. As a result of the bite, he gains superhuman strength, speed, and agility, along with the ability to cling to walls, turning him into Spider-Man.

Kids and Adventure

CONTENT BASED RECOMMENDATIONS – MOVIE RECOMENDATIONS

Get the data specific to Movies → Process the description of the Movies → Find similar movies and group them and rank them → Provide recommendation based on watching history

Movie Data set → Get Movie topic and process using NLP /BERT/Encoding → PCA for dimensionality reduction → Cosign Similarity Detection

prasannavj@gmail.com

CODE DEMO -1 – CONTENT BASED RECOMENDATIONS

- Github link for the content-based recommendations

- https://github.com/prasannavj/AI-Recommender-System/

COLLOBORATIVE FILTERING- BASED ON USER BEHAVIOUR PROVIDE THE RECOMMENDATIONS

4.0

5.0

1.0

5.0

5.0

Which Movie to recomennd for Gokul ?

Malli

Shan

Gokul

REPRESENT THE MOVIE DETAILS IN A MATRIX
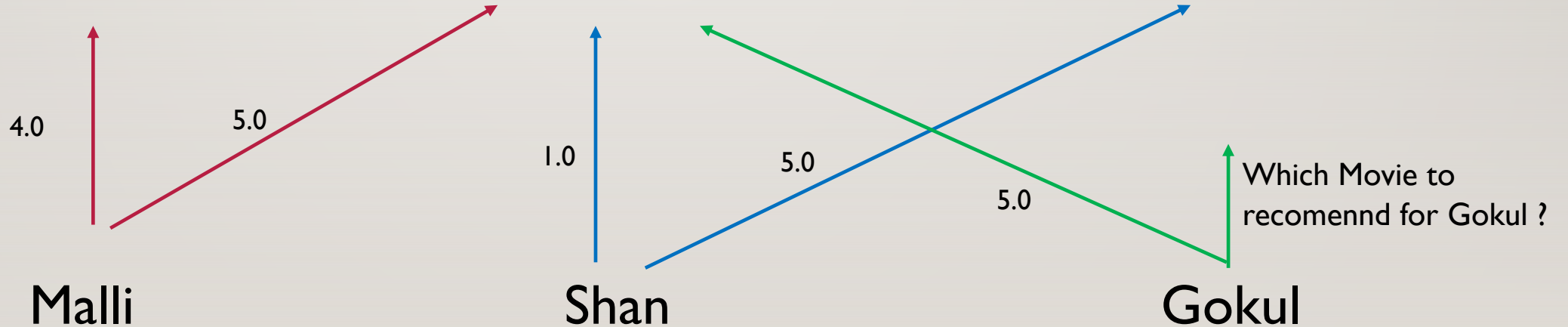
	The Expendables	Avatar	Spiderman	Matrix
Malli	4.0	5.0		4.0
Shan		1.0	5.0	
Gokul	4.0	5.0	?	?

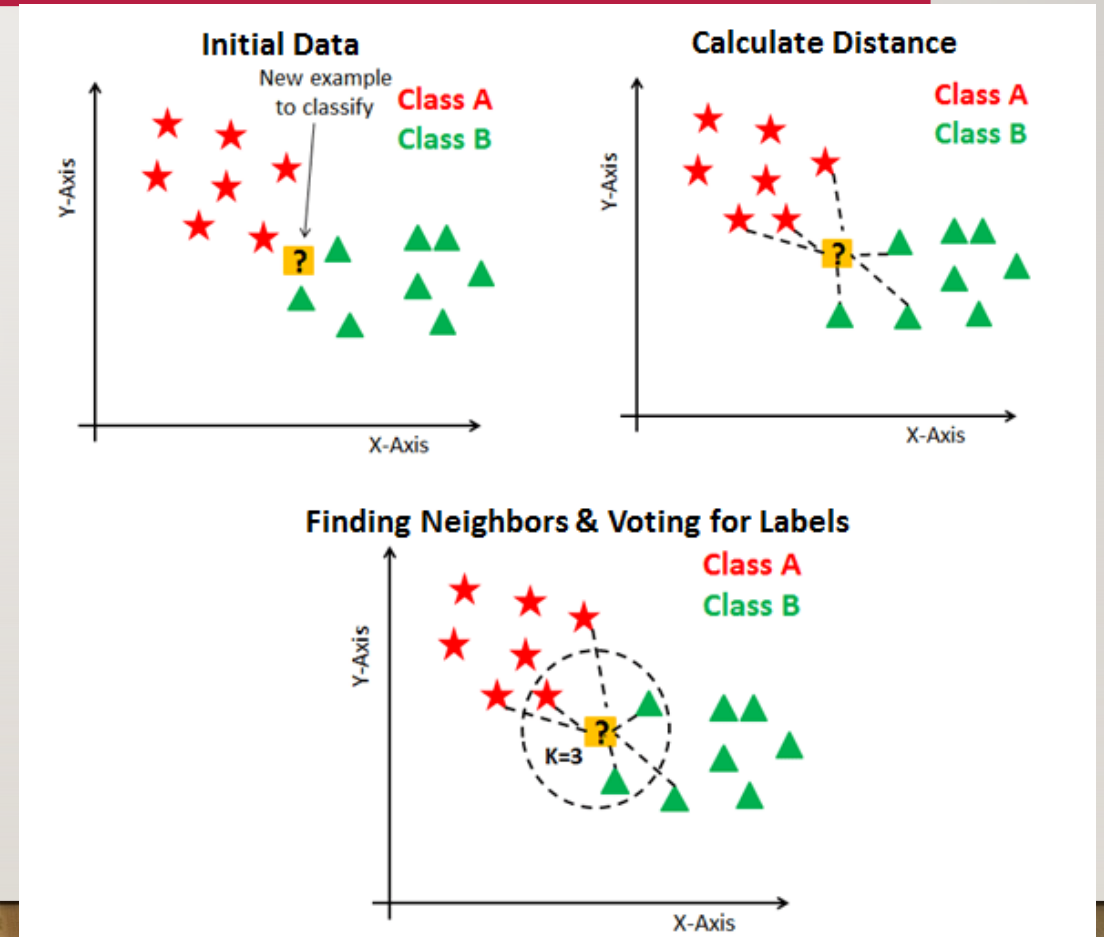# K-NEAREST NAIGHBOUR BASED COLLOBORATIVE FILTERING BASED RECOMMENDATION

- KNN (K – Nearest Neighbour Algoritm)
  - Un Superwised classification algorthm
  - Build K classes from the data set
  - All the item on a class are considered related.

CODE DEMO -2 – COLLBORATIVE FILTERING BASED RECOMENDATIONS

- Github link for the content-based recommendations

- https://github.com/prasannavj/AI-Recommender-System/

MATRIX FACTORIZATION - INTRODUCTION

1	2	3
5	10	15

1
5

X

1	2	3

=

1	2	3
5	10	15

REPRESENT THE MOVIE DETAILS IN A MATRIX

	The Expendables	Avatar	Spider-Man	Matrix	Introduce Features
Malli	4.0	5.0	2.0	4.0	- Action - Fantacy
Shan	5.0	1.0	5.0	5.0	
Gokul	4.0	5.0	2.0	5.0	

prasannavj@gmail.com

HOW TO FACTORIZE THE MOVIE MATRIX

Action	4	1	5	2
Fantacy	1	5	0	2

	Action	Fantacy				
Malli	1	0	4	1	5	2
Shan	0	1	1	5	0	2
Gokul	1	0	4	1	5	2

prasannavj@gmail.com

HOW DO WE IDENTIFY THE FACTORIZED MATRIX?

	The Expendables	Avatar	Spider-Man	The Matrix
Action	4	1	5	2
Fantacy	1	5	0	2

?????

	Action	Fantacy
Malli	1	0
Shan	0	1
Gokul	1	0

?????

prasannavj@gmail.com

APPROACH

4	**1**	**5**	**2**
1	5	0	2

Action (row 1), Fantacy (row 2)

	Action	Fantacy
Malli	**1**	**0**
Shan	**0**	**1**
Gokul	**1**	**0**

- Initiate These matrix with random value.
- Calculate the Error with the expected matrix
- Correct the values of the Factorized matrix
– repeat the process

RESULT TO MATCH WITH THIS MATRIX

4	1	5	2
1	5	0	2
4	1	5	2

DEMO -3 - MATRIX FACTORIZATION

Github link for the Matrix Factorization based recommendations

https://github.com/prasannavj/AI-Recommender-System/

CONSTRAINTS OF RECOMMENDATION SYSTEMS

- Data Size and Dimentionality

- Extream Sparcity

- Dificulty in model serving

- Wide varierty of data and settings

  - Session, context, events, prefered data etc.

- Complex data structures – Video, Audio processing.

prasannavj@gmail.com

REFERENCE

- https://www.youtube.com/watch?v=4g8IVU9w3bg&t=136s

- https://towardsdatascience.com/hands-on-content-based-recommender-system-using-python-1d643bf314e4

- https://www.youtube.com/watch?v=ZspR5PZemcs

- https://www.youtube.com/watch?v=y_TzOOCJqxI

- https://www.youtube.com/watch?v=EjOIN6uVBOg&t=14s

prasannavj@gmail.com