أكاديمية مسك
MISK ACADEMY
GENERAL ASSEMBLY

Courses Recommendation System

أكاديمية منشآت | منشآت monsha'at

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Outlines:

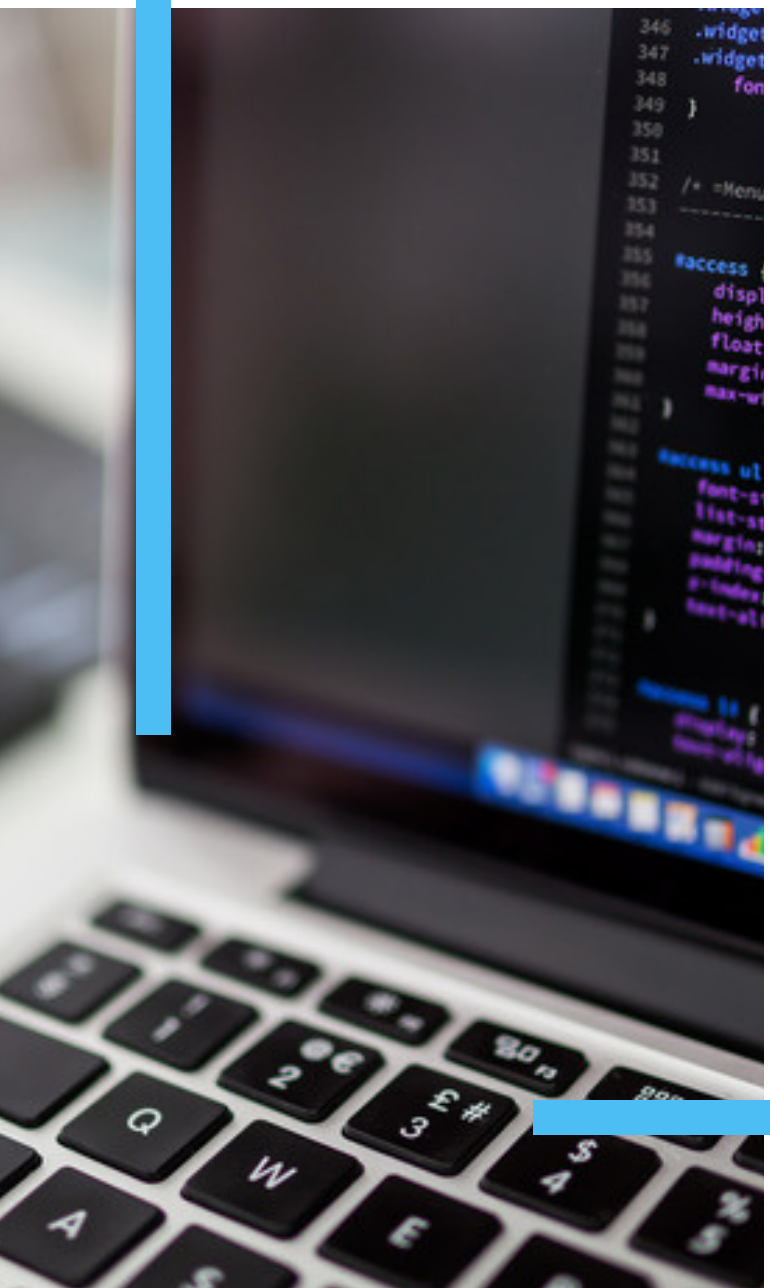
- Introduction.
- Approach.
- The result.
- Challenges.

Introduction

The explosive growth in the amount of available information, and the number of visitors to the Internet has created a potential challenge of information overload which hinders timely access to items of interest. This has increased the demand for recommender systems more than ever before.

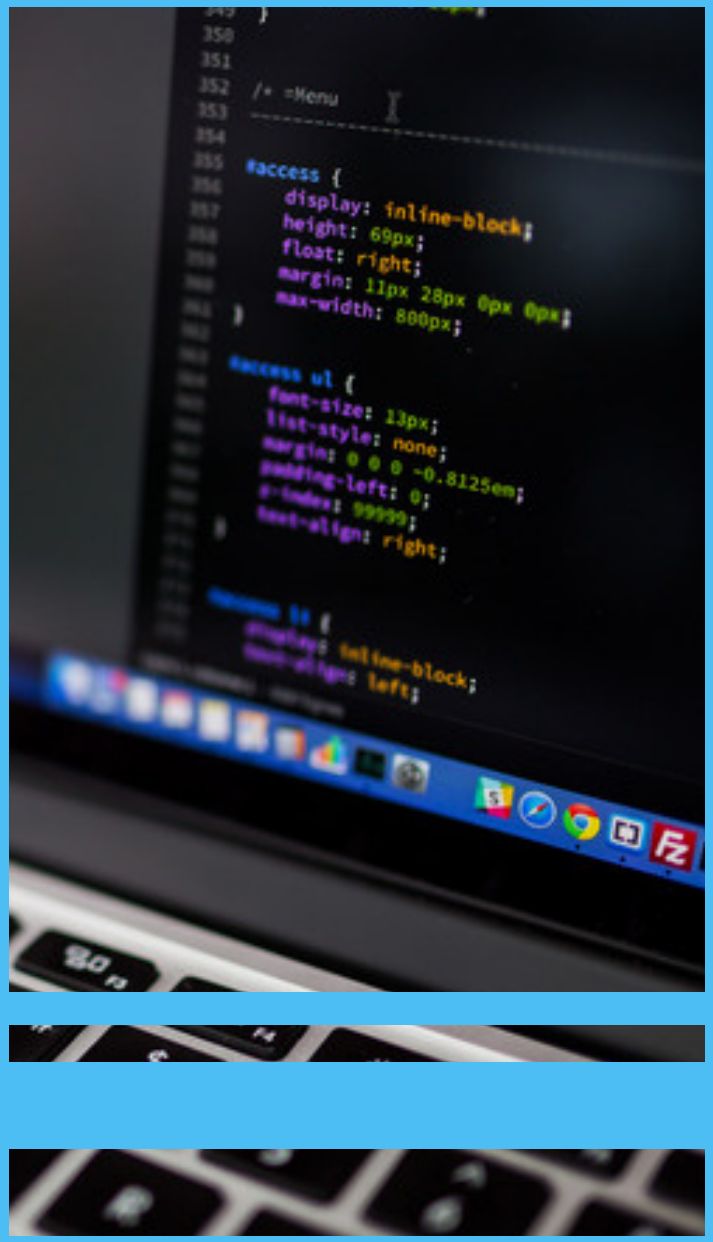
Introduction

Recommender systems are information filtering systems that deal with the problem of information overload by filtering vital information fragment out of a large amount of dynamically generated information according to the user's preferences, interest, or observed behaviour about the item.



Problem statement

The students may face difficulties to choose appropriate courses or search for courses based on their interest, and this may time consuming.



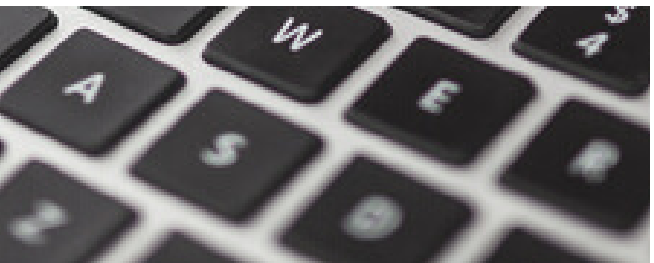
Solution

To cope with this issue, the solution is recommender system helps the student by provides a finding the relevant suggestions to the students. This process done through a filtering based on the student interests.

About the System

Recommendations typically speed up searches and make it easier for users to access courses they're interested in.

The recommendation system finds a similarity between the different courses.



Work Approach

Step 1: Organizing the Data

- Monshaat Academy Dataset

Step 2: Cleaning the data

- selecting the relevant columns
- filter the dataset
- drop duplicates
- There are no missing values so we didn't have the deal with that

Step 3: EDA

- Explore dataset
- Understanding data using visualization

Step 4: Modeling

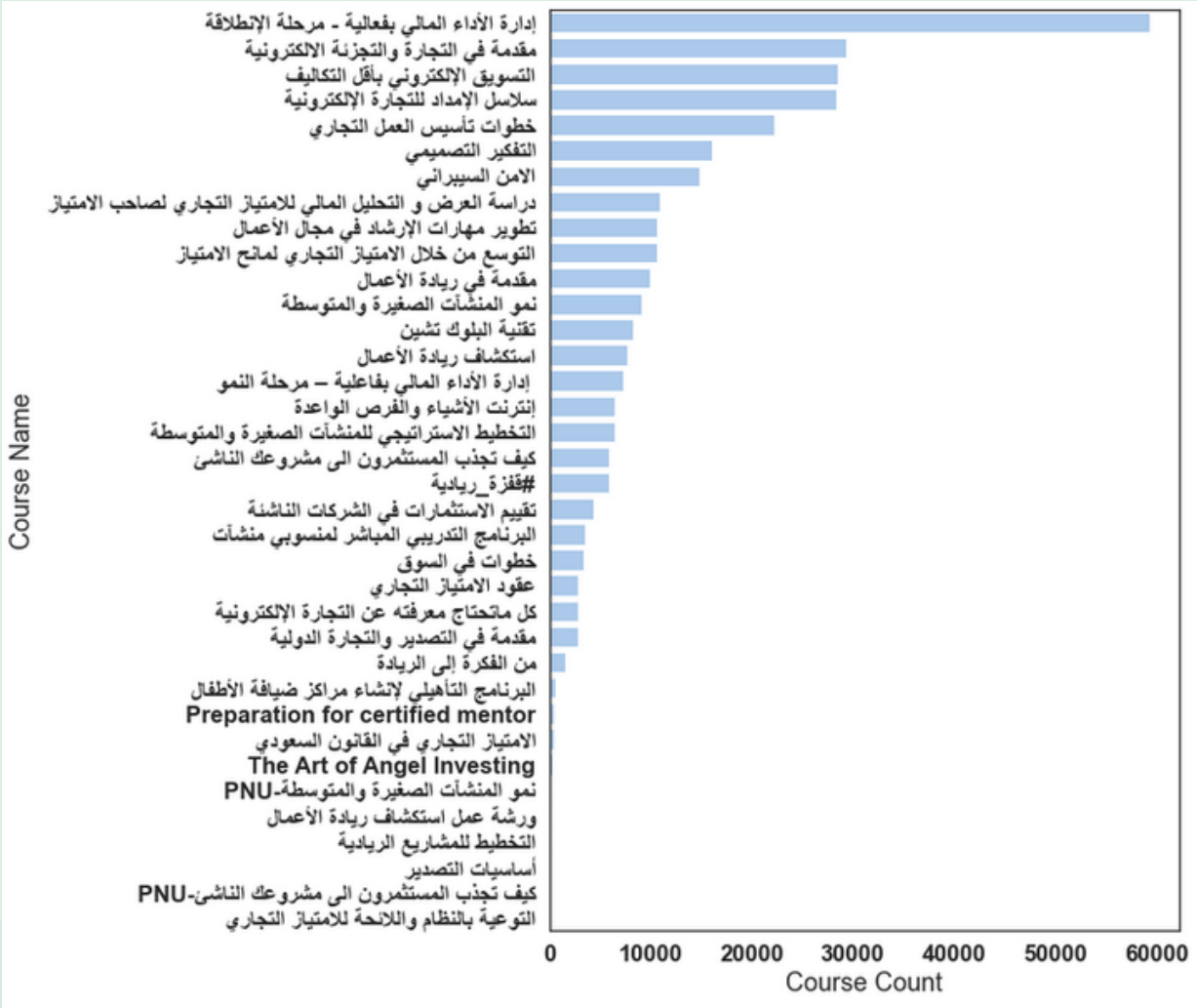
- Used different models
- The best model is the LightFM

Step 5: Building the Recommender System

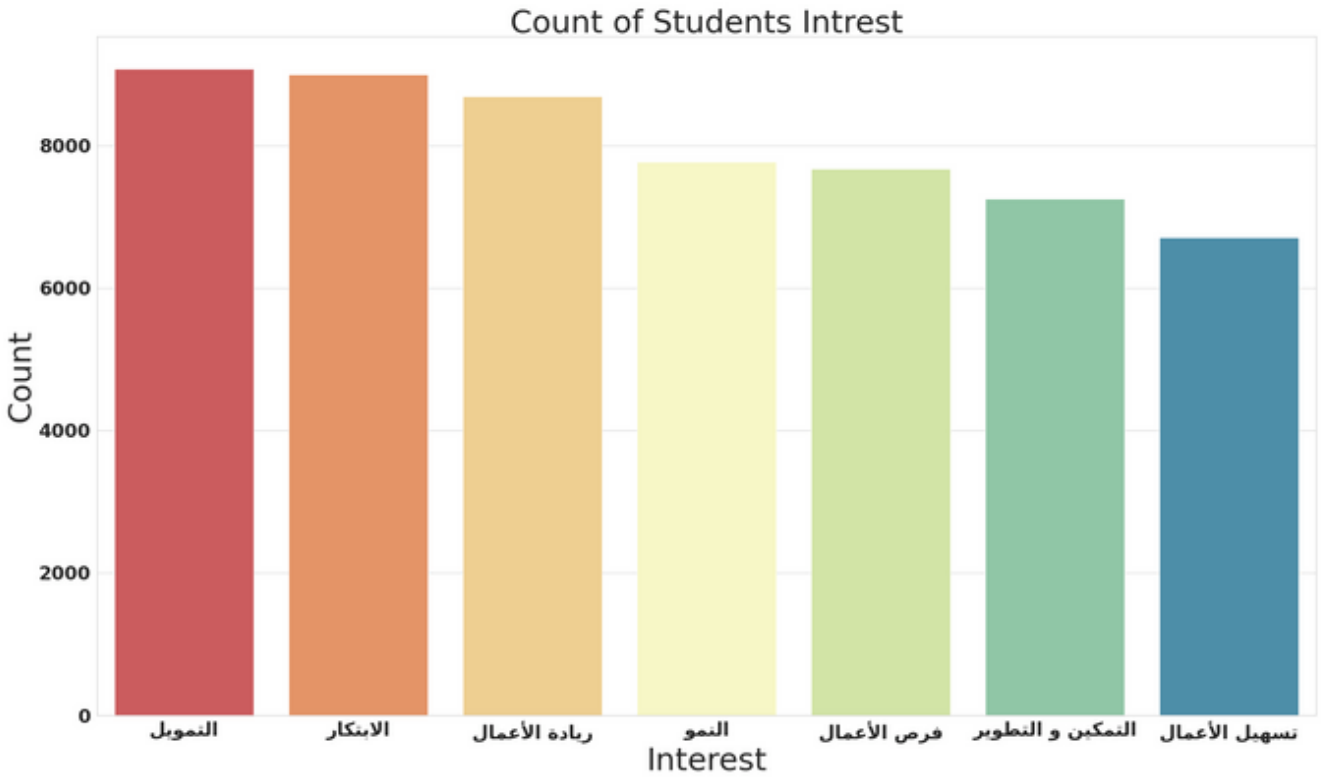
- Present our model result as a web application

DATA VISUALIZATION

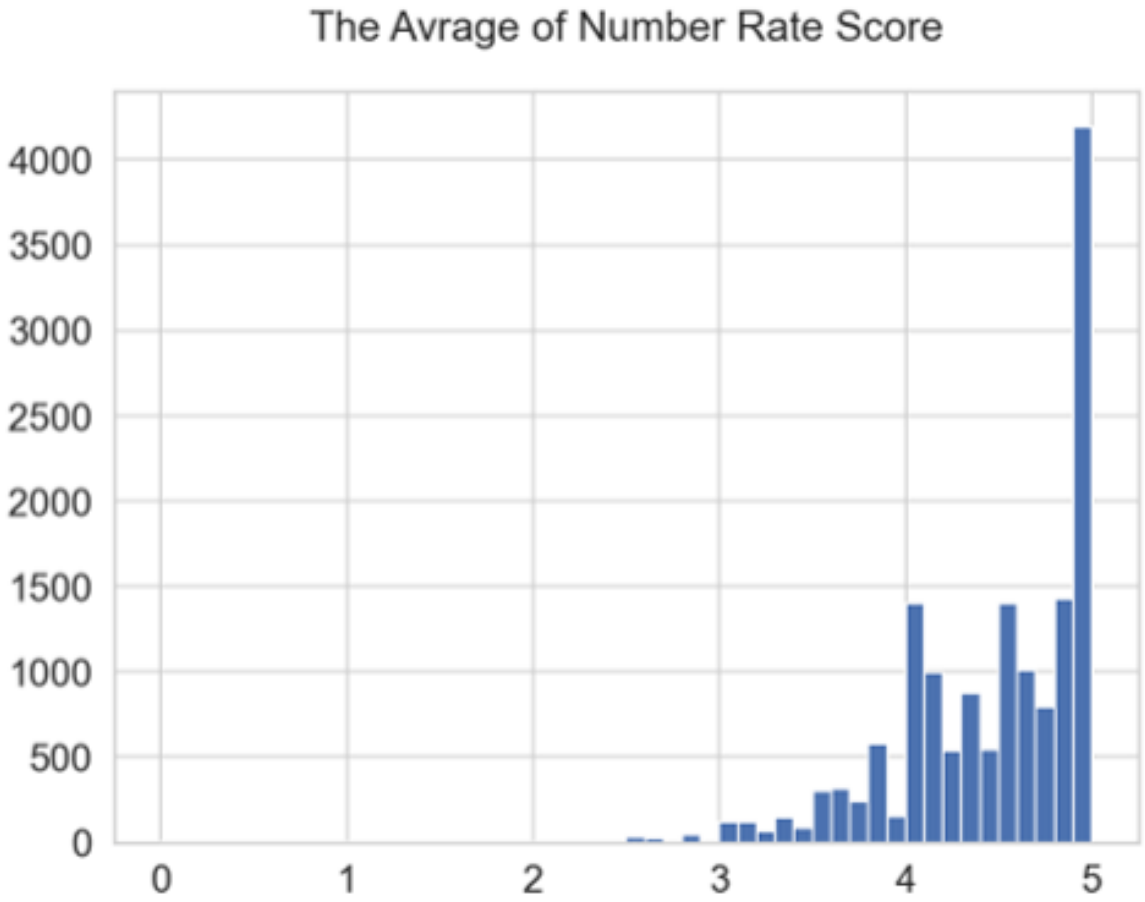
UNDERSTANDING MONSHAAT ACADEMY DATASET IN STEP 3 EDA AS FOLLOWING:

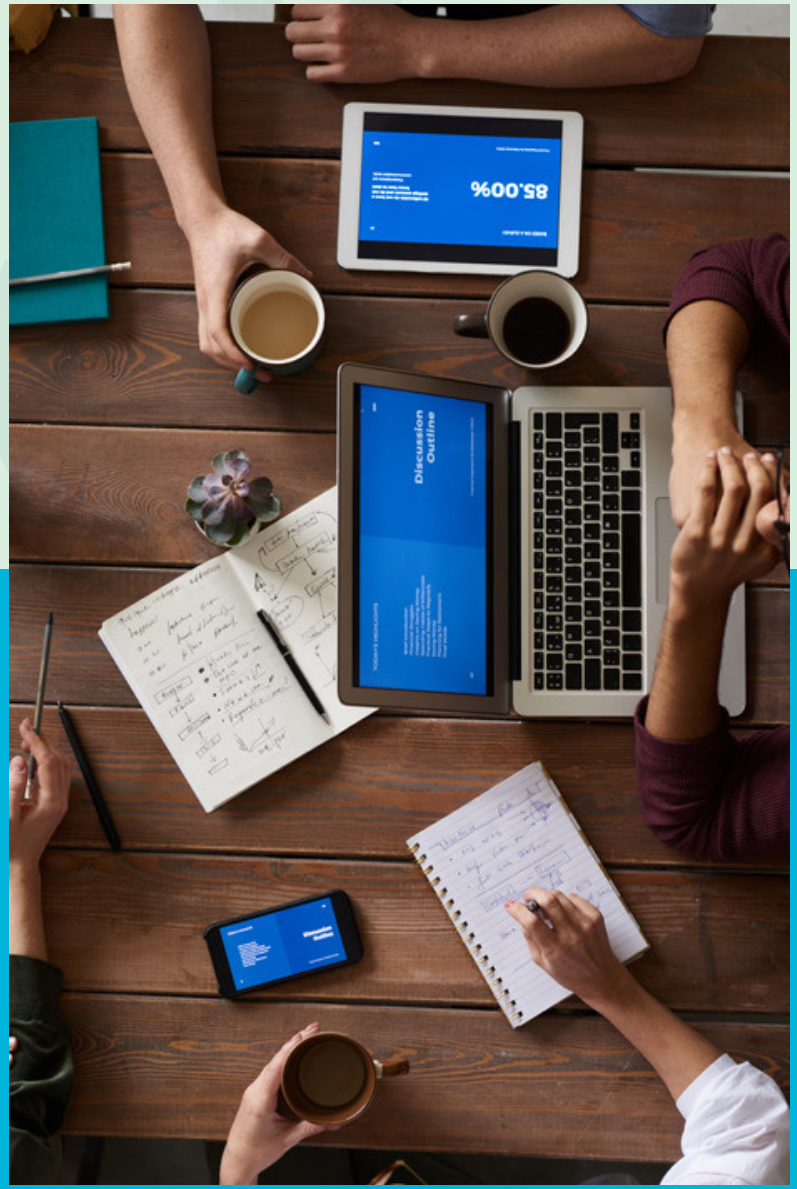


Student Interest



Rate Score


The Avrage of Number Rate Score
4000
3500
3000
2500
2000
1500
1000
500
0
0
1
2
3
4
5



Model

Find the best recommendation model

- *k-mean clustering*
- *User-based Collaborative Filtering using Nearest Neighbors*
- *LightFM*

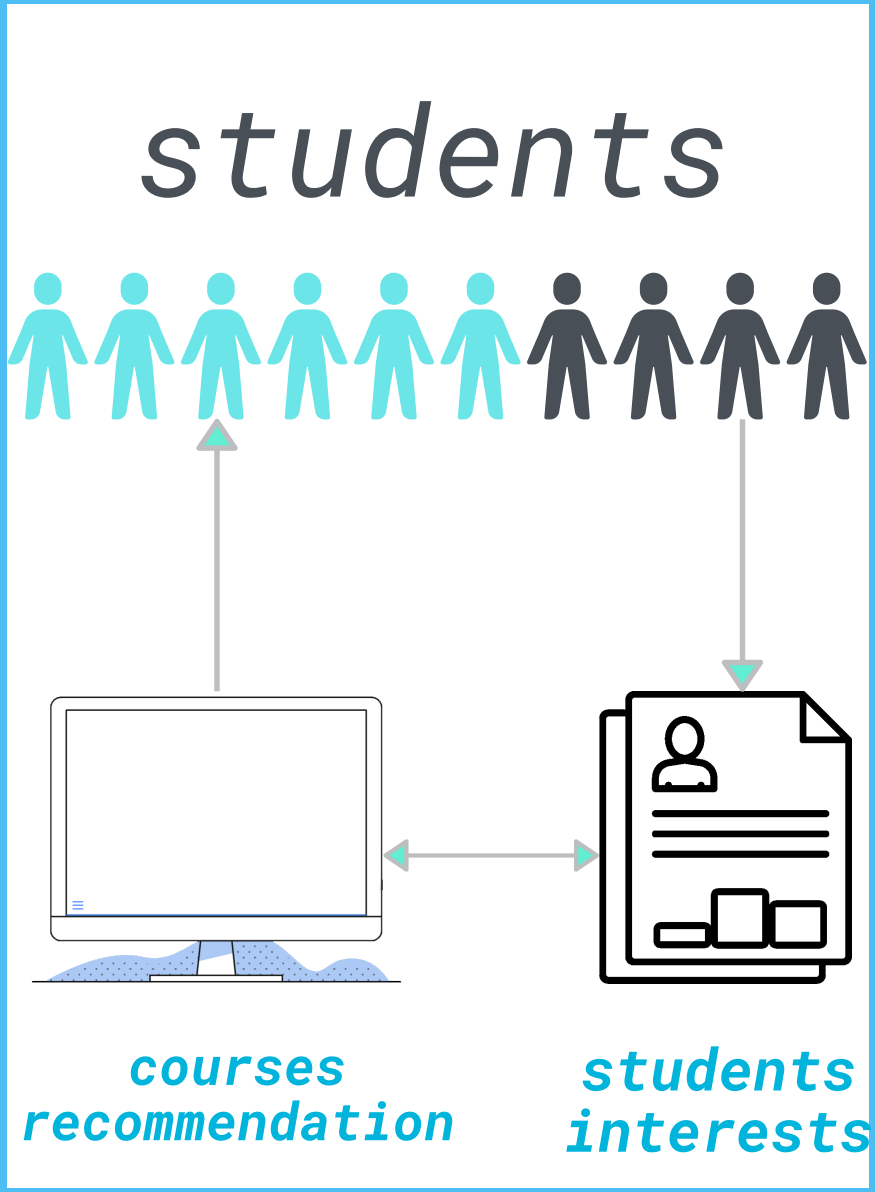
LightFM

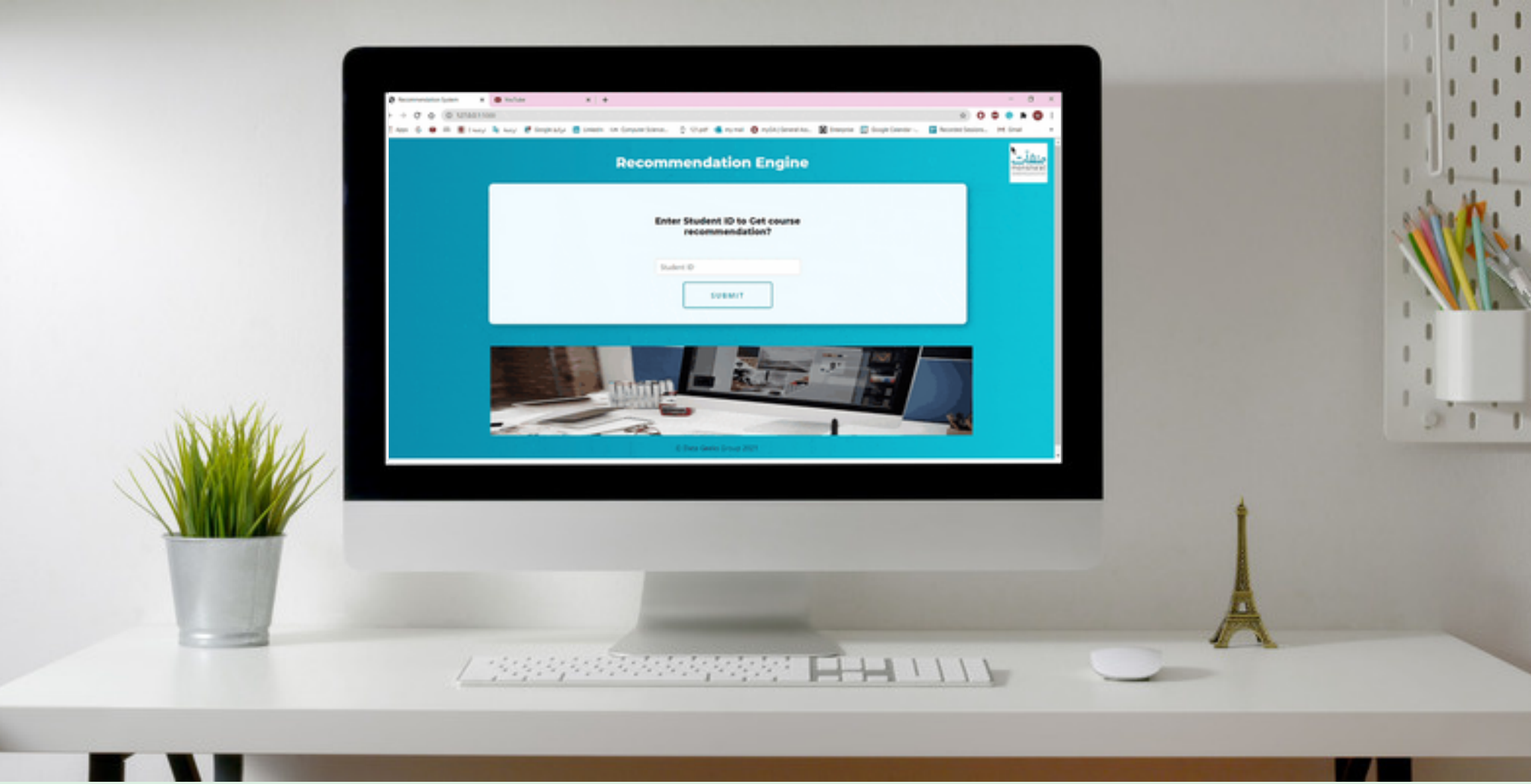
- LightFM is a hybrid model that incorporates both content-based recommendations and the transfer learning of collaborative filtering methods.
- In this hybrid model, we don't need to use Evaluate Matrix

Building Recommender System Web Application

Based on Students interest

- create an application using Flask to be deployed in the cloud.





DEMO

Our Recommender Engine Search by Student ID to recommend 5 Courses name related to his/her Interest

Challenges :

1. Converting interests from words to numbers
2. Evaluate the model
3. Dealing with flask

Converting interests from words to numbers

the Interests wrote in word, But the model deals with numbers only. we searched for a tool to give each interest an ID and we find LabelEncoder() from sklearn library

Evaluate the model

LightFM is a hybrid model. This means it's difficult to evaluate it, But we tried to see some student interest and what's the model recommends to them and evaluate the result.

Dealing with flask

when we work on flask, we faced some problems. like :

We encountered a problem with linking the site to the model, but with research and learning, we were able to solve the problem.

When we refresh the page, it goes to recommend courses to another student without asking to enter an ID. here we wrote a function on JavaScript to go back to the home page.

We also noticed that the entry "Student ID" accepts letters, and we've solved it by usinge JavaScript to confirm that the entry is a number.

Future Work

The future work will be dedicated to improved techniques and algorithms for the recommendation. In addition to that using more data and features including more information to help in course suggestions to the students.

THANK YOU

About Us

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