DATASET 1

Vua Dev 007

"We are the King of Dev"

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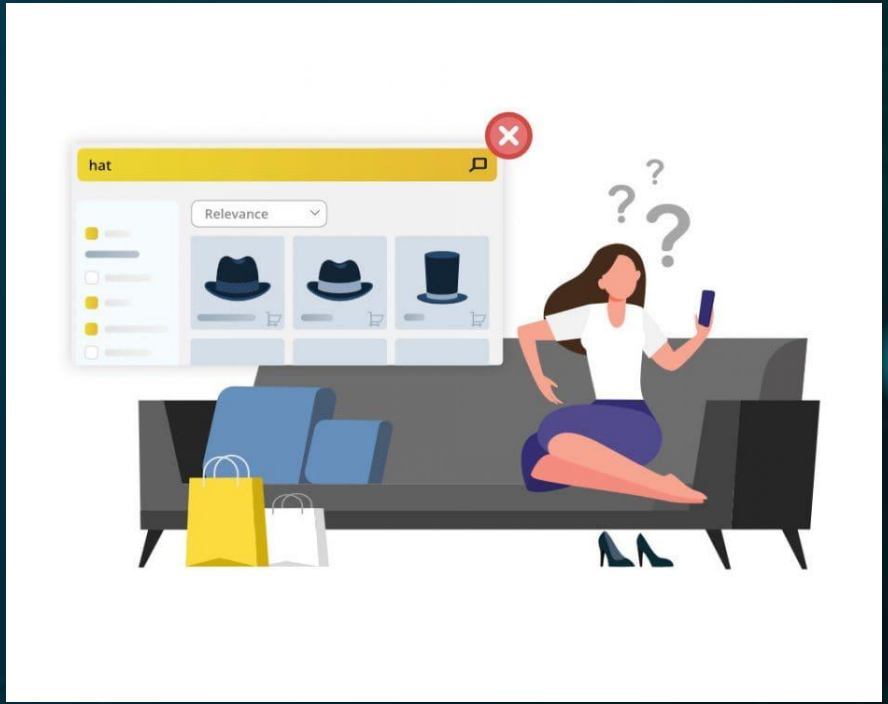
01 INTRODUCTION

ONLINE SHOPPING

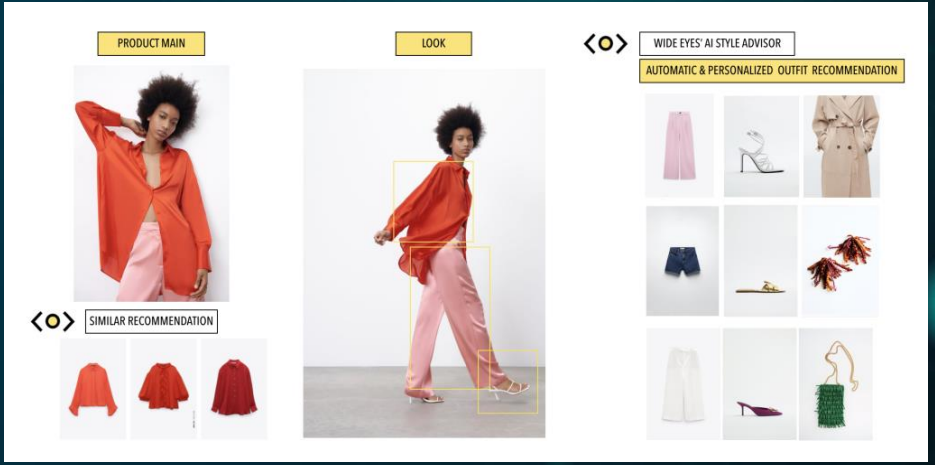
ADVANTAGES

- Better price and discount
- Convenience
- Ease of Comparison and Research
- Variety and Selection

However, online clothing stores also face challenges when they are unable to provide personalized support to their customers.



So, based on dataset 1, we introduce our product: a website where customers can discover clothes that align with their style.



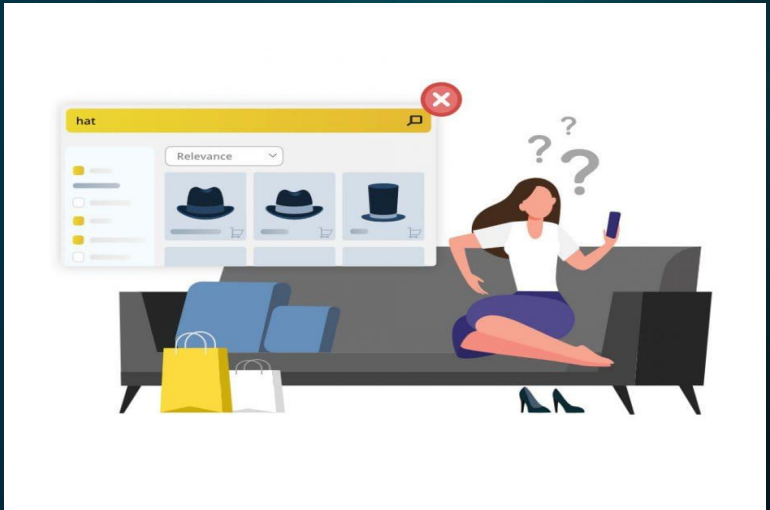
02

Problem statement

At store

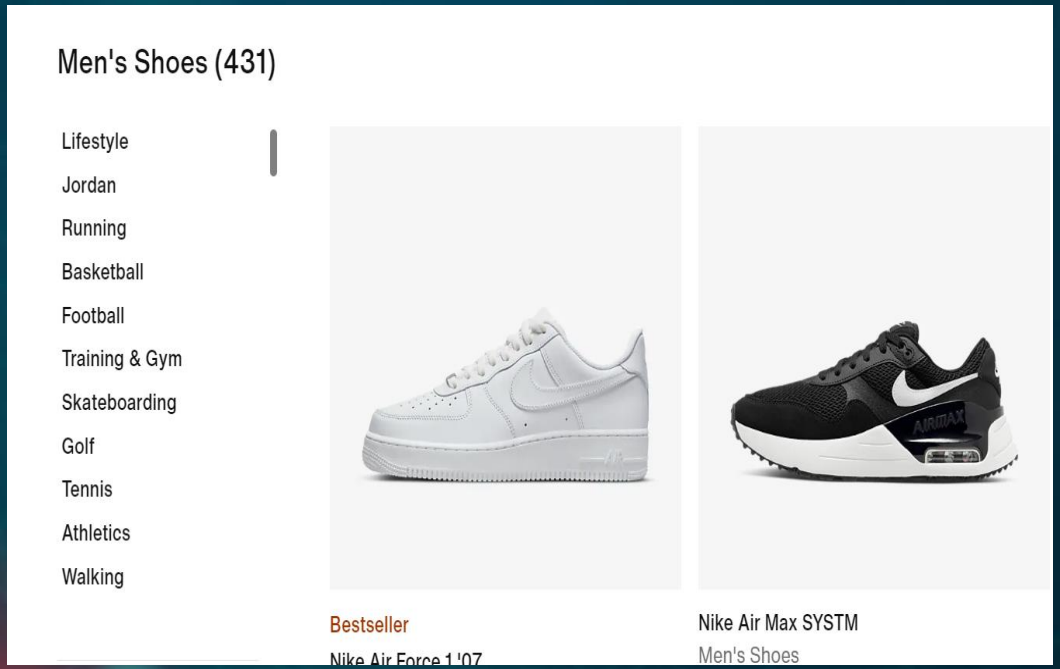
- Try on the clothes
- Receive advice from fashion consultant

Online Shopping



- Cannot try on the clothes
- Finding it challenging to find clothes that fit your style

PROBLEM

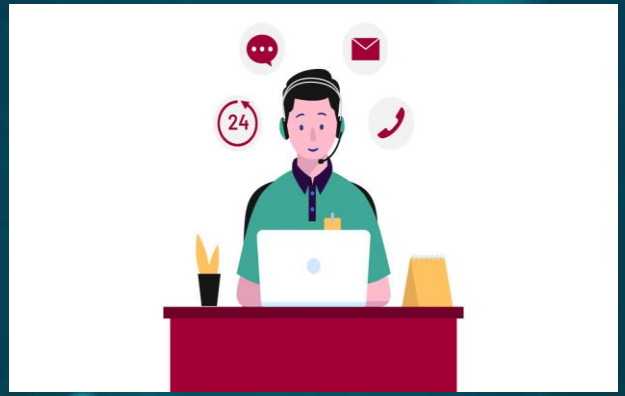


- When searching for men's shoes on Nike's store, there is a whopping 431 different shoe models.

- This scream a need for customer services as the customers are having trouble choosing clothing because there are too many options.

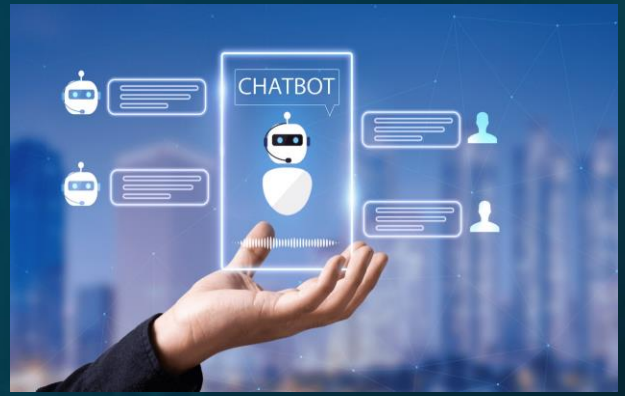
PREVIOUS SOLUTION

Online customer service



- Labor-intensive
- Waste of money

Chatbot



- Generally good
- Lack of visualized content

Virtual fitting room

- Slow
- Expensive to host
- Unreliable

03

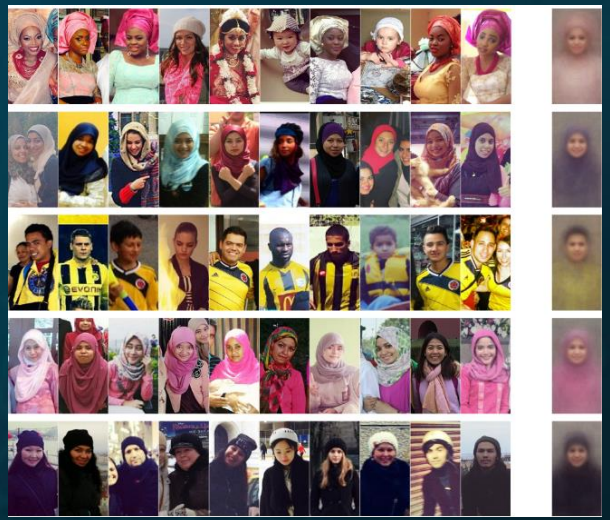
Solution Overview

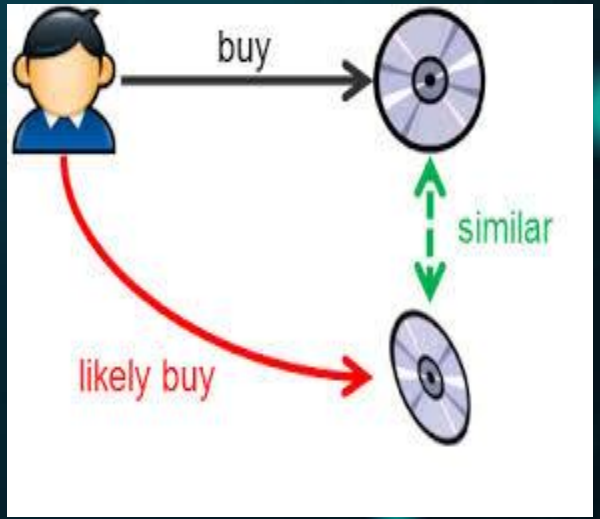
We systematize the AI solution into **three components** as follows.

Clothing classification

Style adaptation

Recommendation system





How our solution works

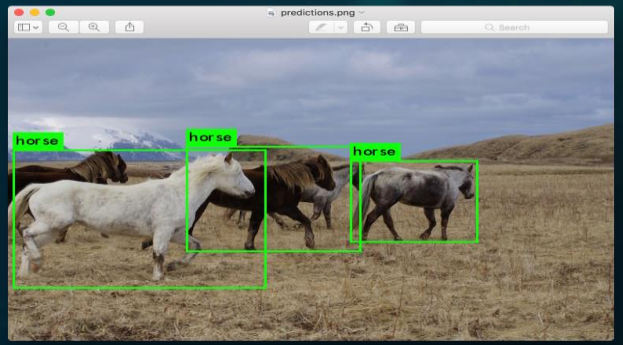
This would be a lightweight, easy to deploy model which uses classic ML/AI techniques while still seeming to overcome the difficulty of previous work.

04

Methodologies

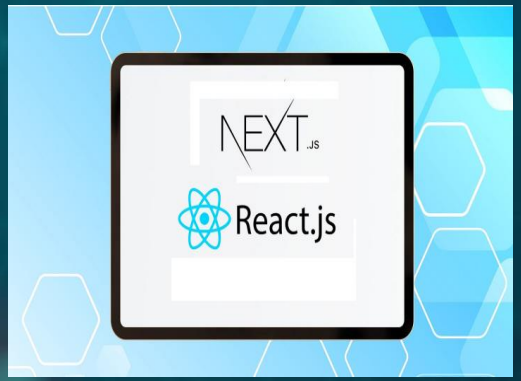
Methodologies

We employ **YOLO** for clothing classification and use an attentive convolutional neural network to understand the overall style from the categorized images. Subsequently, our recommendation system, based on clustering algorithms, suggests items from the database that align with the user's identified style.



Methodologies

When deploying our web app, we use **Next.js** for the frontend, **Fast API** for the **Restful backend**, and **Elastic Search** for centralized storage of the clothing inventory in the store.



05

Core Funtionality

What's inside our system?

1

Users send photos to the system.

2

The system sends back compatible items.

06

Performance metrics

Ranking what matter to us

1

Inference Speed

2

Segment and Style Accuracy

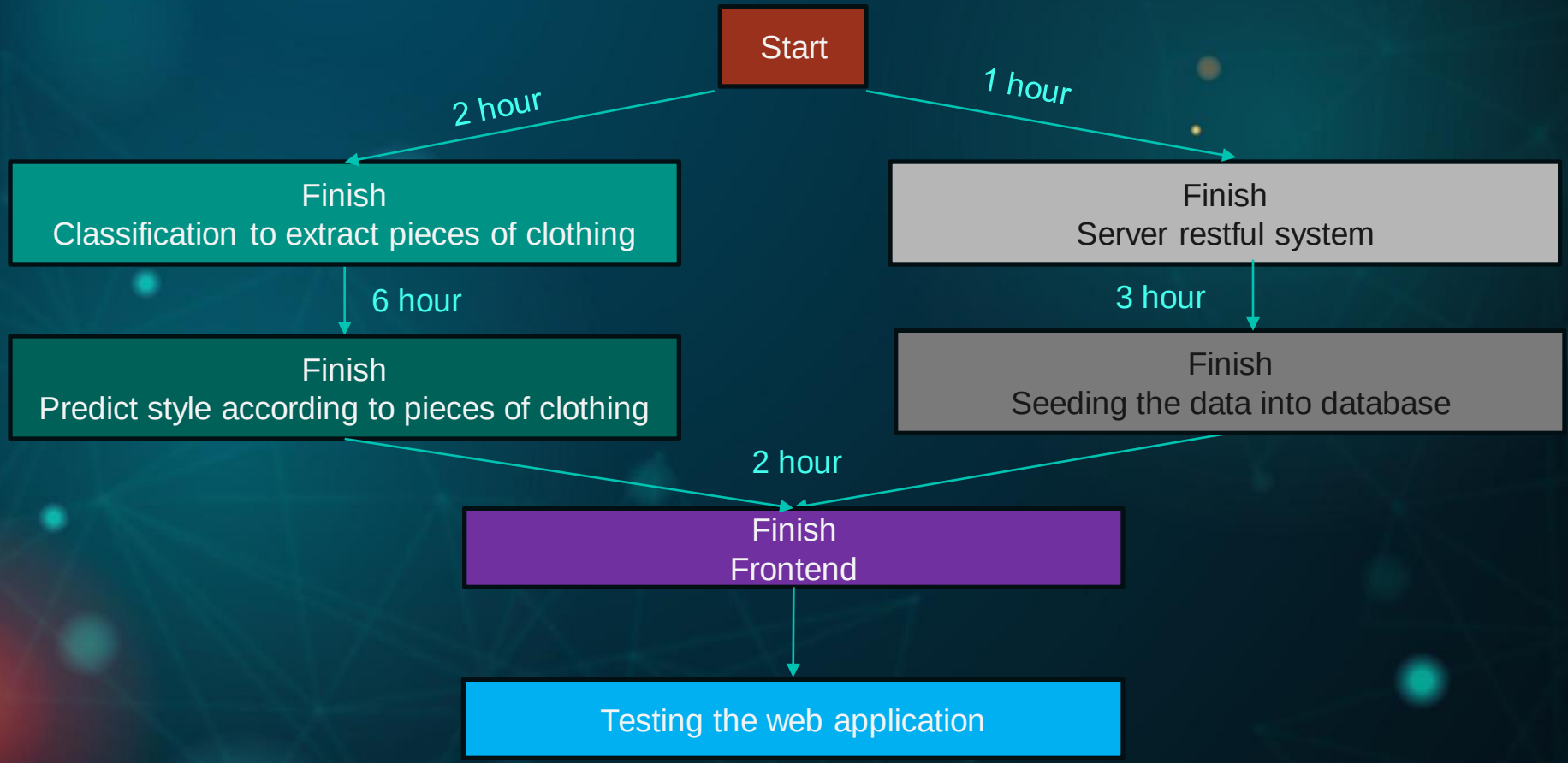
3

Customer satisfaction

07

Timeline and Roadmap

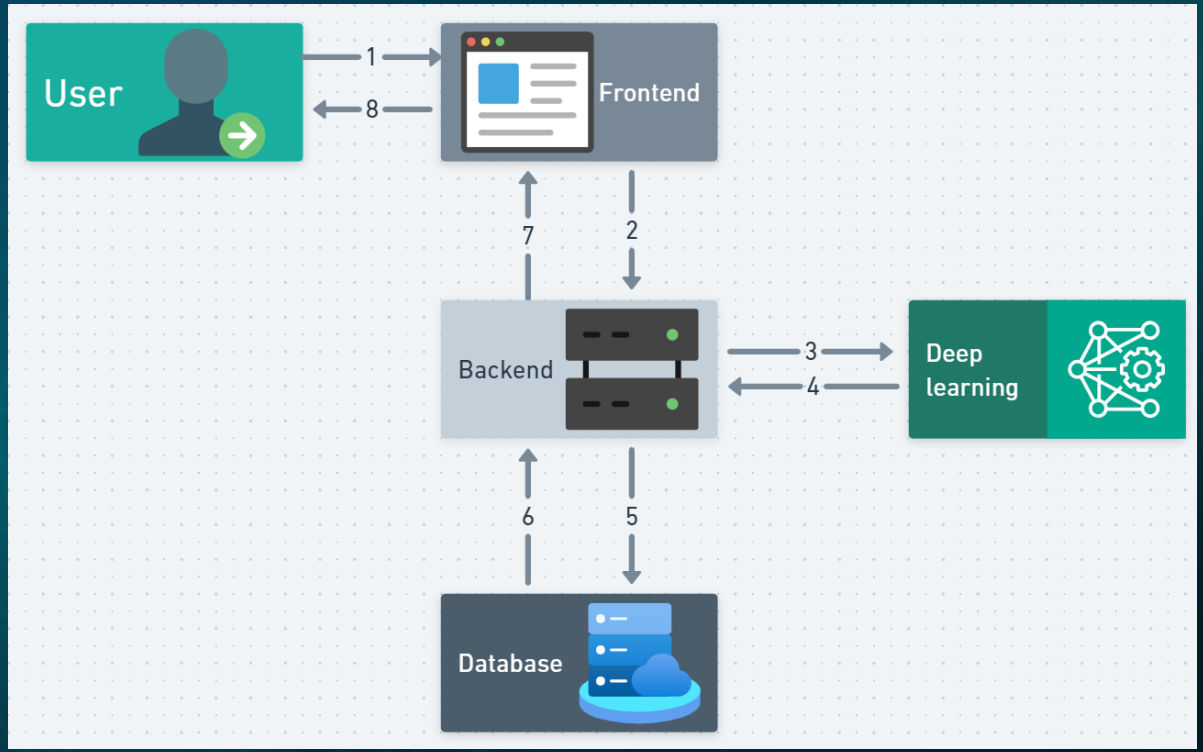
Timeline and Roadmap

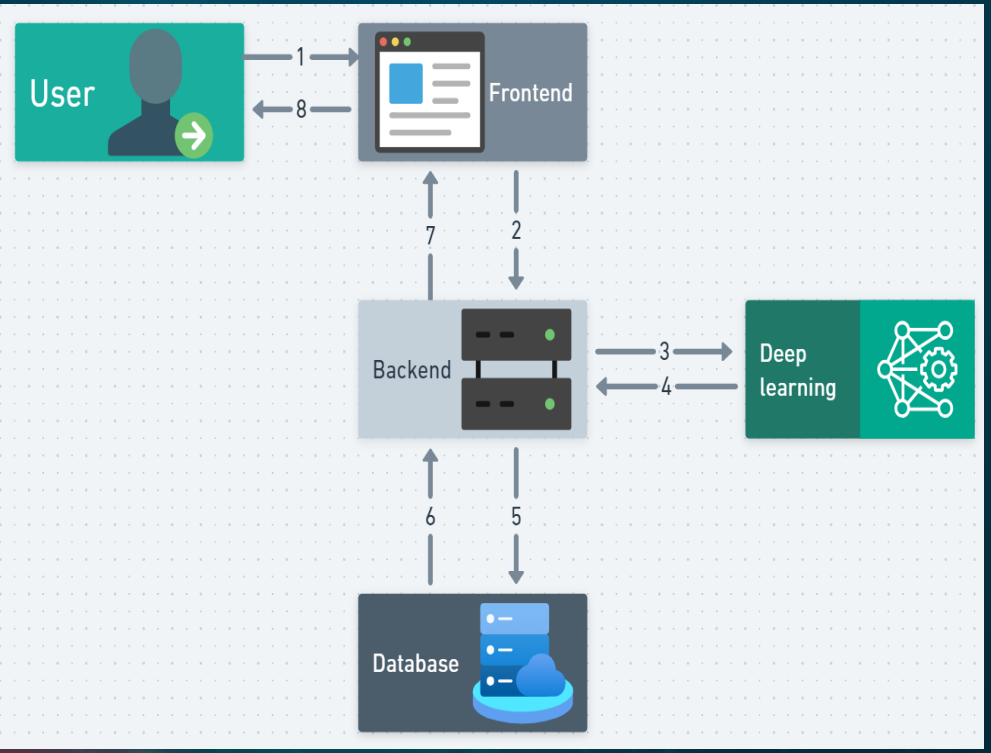


08

User interface and Interaction

Interaction flow





1. When users access the web, they will be prompted to upload an image with their preferred style on the frontend.

2. The frontend receives and sends this data to the backend.

3. The system forward data to the deep learning model for the classification of fashion items.

4. After obtaining the image segments of clothing, this model send them to another deep learning model to determine the desired style of the user. Afterward, the deep learning model return the results to the backend.

5. With that specific category, the backend will query related items in the database based on the classification results.

6 – 7. After obtaining the list of items from the database (8), the backend will return this result to the frontend (9).

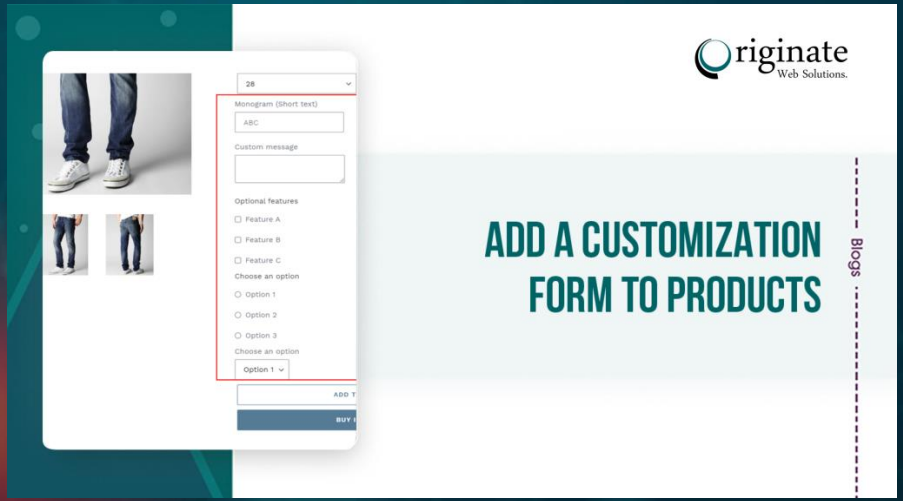
8. Frontend display the list of items.

09

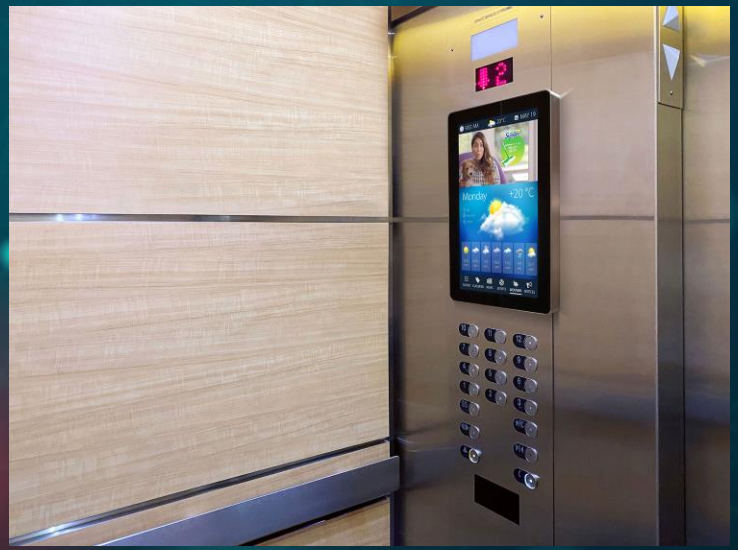
Future enhancement

Future enhancement

We empower businesses to showcase their products on our platform by allowing them to upload preferred styles. Additionally, we introduce the "Score My Outfit" feature, fostering a social media trend that enhances user engagement with our technology.



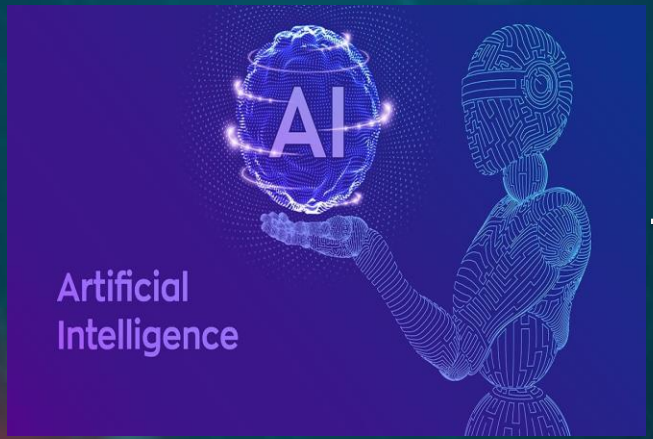
We can utilize our product in mall elevator to customized the advertisements base on their clothing style



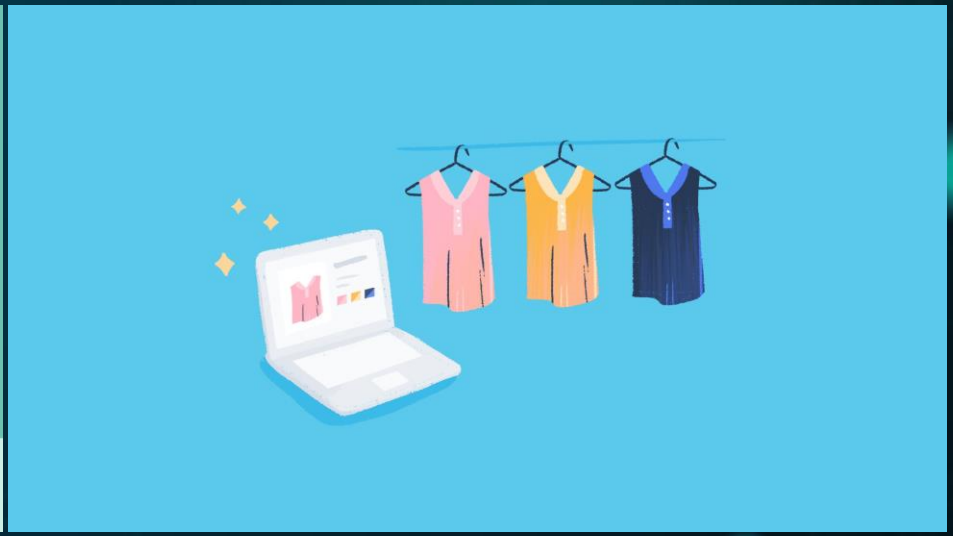
Based on the customer’s avatar, we will suggest clothing styles that suit them.

10 Conclusion

Thanks to the power of AI, we provide a solution that helps customers receive personalized clothing suggestions based on their style preferences.

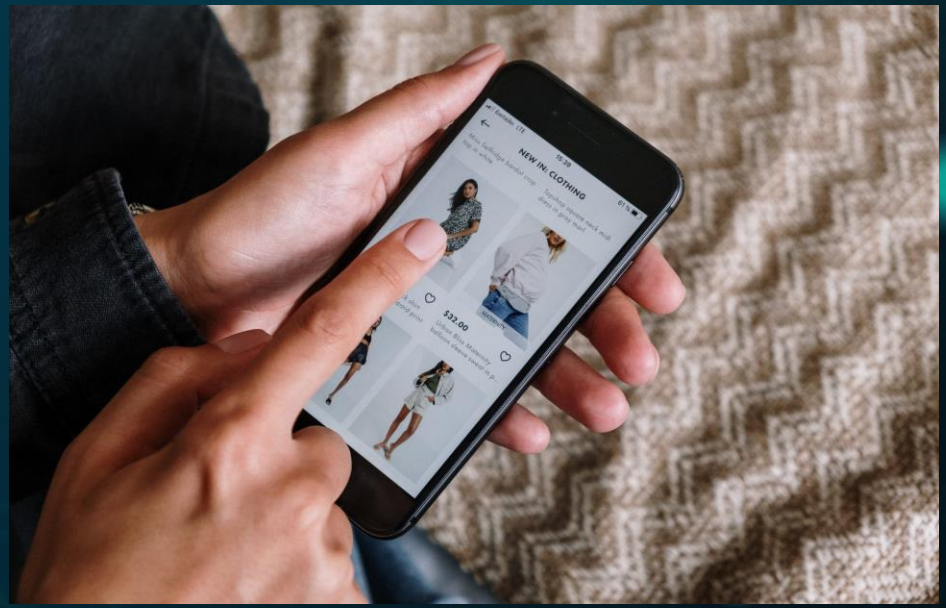


Our products aims to address the challenges faced by online clothing stores in personalizing support for their customers



Our product also enhances the customer experience

Overall, our product promises to revolutionize the world of online fashion shopping, making it more accessible, efficient, and engaging for everyone involved.



DATASET 2

01 INTRODUCTION

Overview

In recent years, Vietnam's fashion market has experienced robust growth, attracting investors and fashion enthusiasts alike. This dynamism not only reflects changing fashion preferences but also underscores the country's increasing economic strength. Known for innovative designs and a unique cultural emphasis, Vietnam's fashion market is gaining prominence on the global fashion map.

Vietnamese brands.

Foreign brands in Vietnamese market.

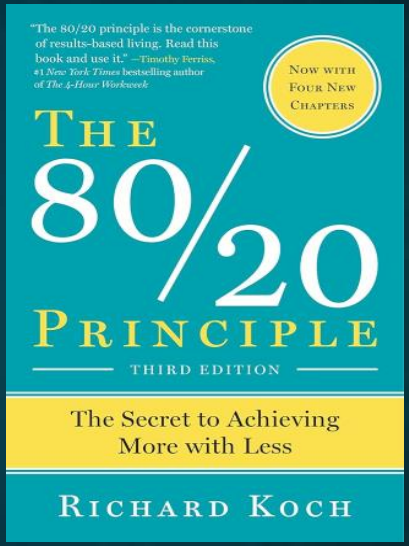
The Importance of Inventory Management

With the booming development of Vietnam's fashion market, effective inventory management has become more crucial than ever. Given the diverse range of products and large quantities involved, businesses are focusing on implementing modern solutions such as smart inventory management systems to optimize processes, minimize stock levels, and maintain the necessary flexibility to swiftly respond to the market's growing diversity.

02

Problem statement

The long-tail tendency states that only 20% products are consumed by 80% users (pareto ratio) => Lots of decent products may stay unknown to most consumers.



Business unknown (undefined clearly) the tendency of customer behavior to products.

03

Solution Overview

How our solution works

Using exploratory data analysis (EDA) and advanced feature engineering to make the huge and diverse dataset useful

Use information from previous step to build a hybrid recommendation system

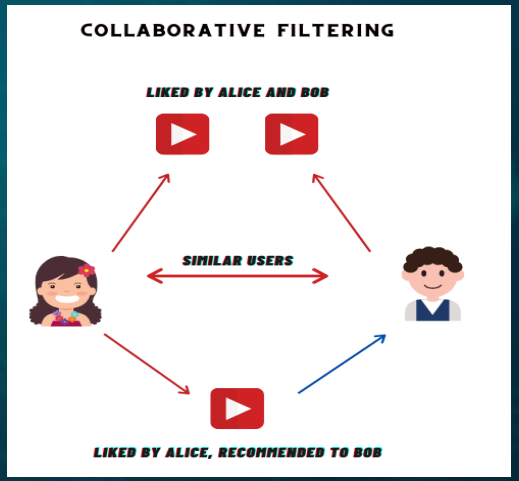
Building Machine learning models to predict customer behaviors.

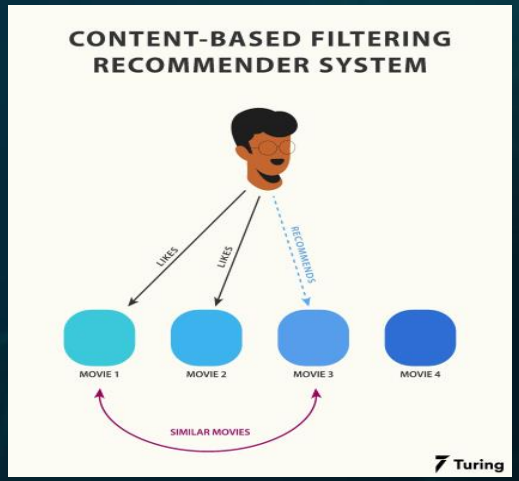
04

Methodologies

Methodologies

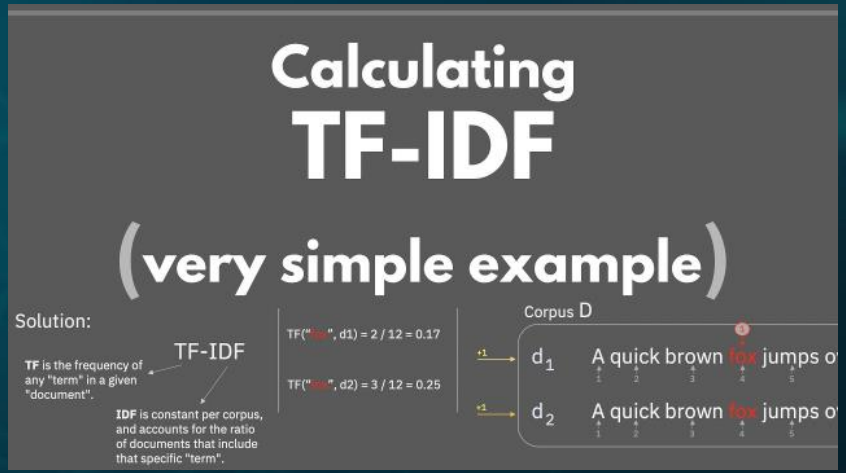
The hybrid recommendation system consists of the **collaborative filtering** and **the content-based** approaches to take advantage of the huge dataset(customers and products)





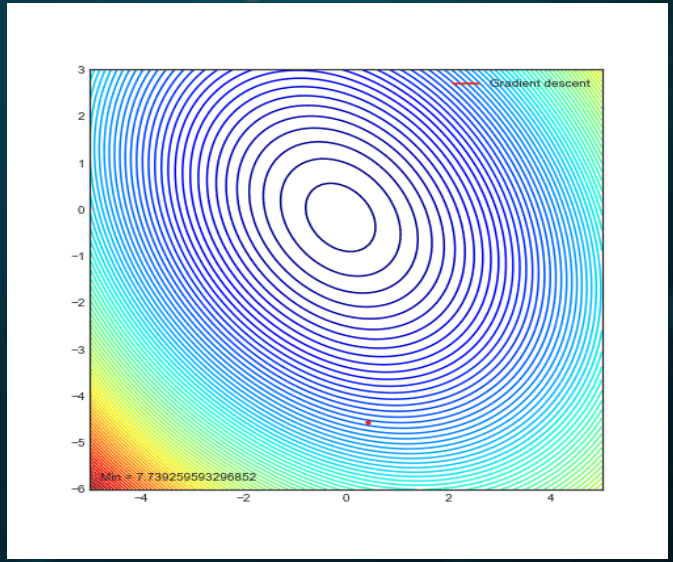
Content-based

A recommendation system based on products mostly.(Item based) Item profiles can be built with TF-IDF.



Collaborative filtering

Leveraging data from other customers with similar preferences (user-based). While there are some collaborative filtering methods, prioritizing matrix factorization is recommended due to various techniques available for minimizing the loss function, such as Stochastic Gradient Descent, Gradient Descent, and Singular Value Decomposition.



What's next?

Building a hybrid recommendation system and then evaluating the weights of each approach to get the best result.

A hybrid recommendation system can recommend items to customers who have similar tastes to them, and content-based filtering to recommend items that are similar to items that the user has liked in the past.

05

Core Funtionality

What's inside?

1

Suggesting customers with the most appropriate products.

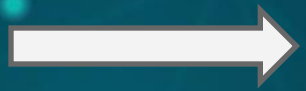
2

Defining the best locations, times and other contributors for selling items.

06

Performance metrics

Performance metrics

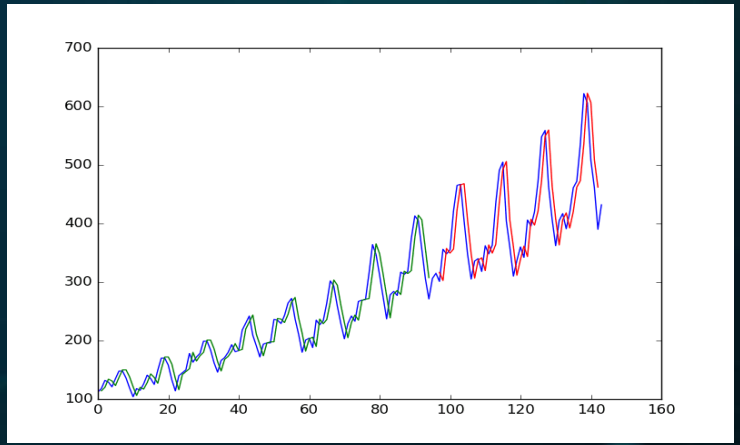


The recommendation system must be quick and increase the number of sales because of the recommendation system.

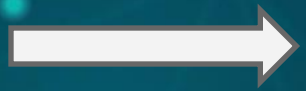
Performance metrics

RMSE score of the recommendation system must be below 1.0.

The model must be appropriate for a continuously updating dataset.



How to meet the business demand for understanding customer behavior?



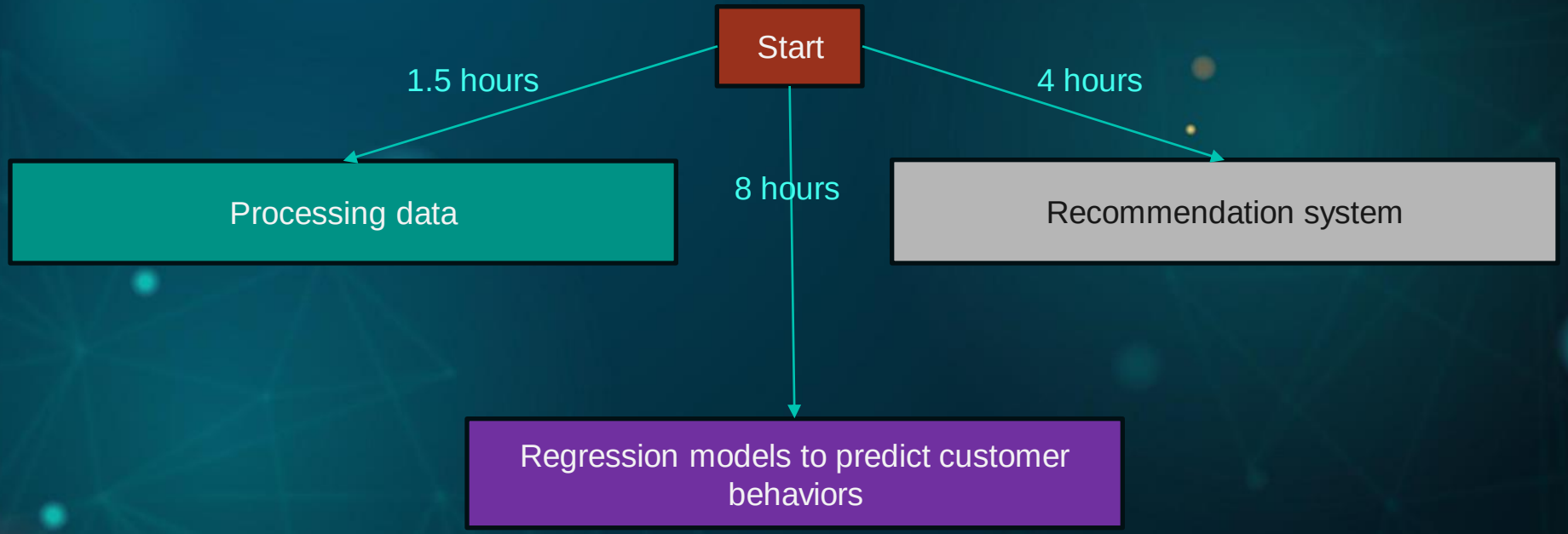
Implementing suitable strategies.

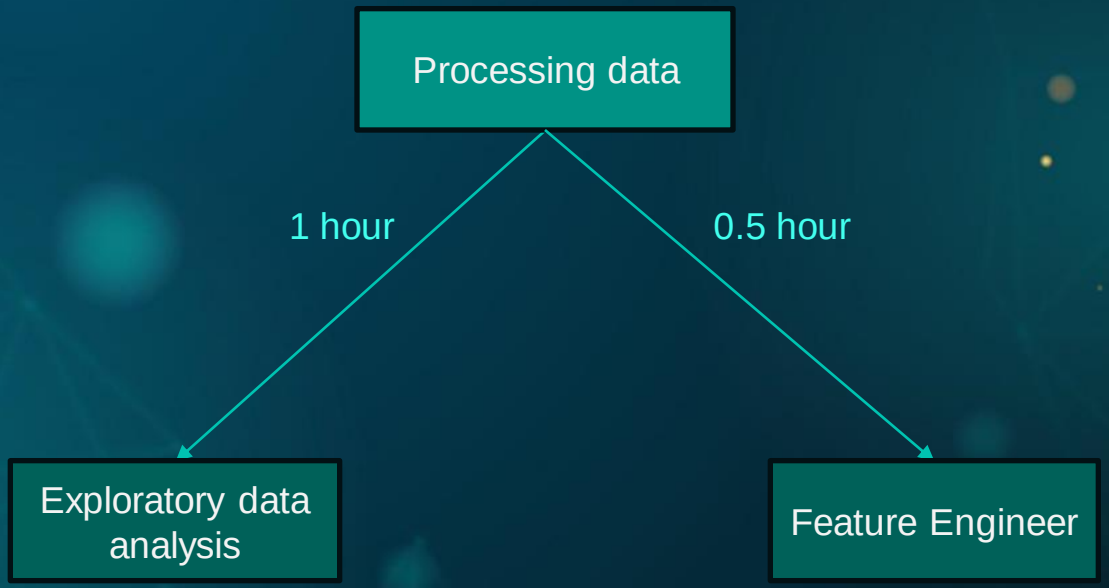
These strategies can be tested by using the current dataset but should be evaluated in real-life situations in the future.

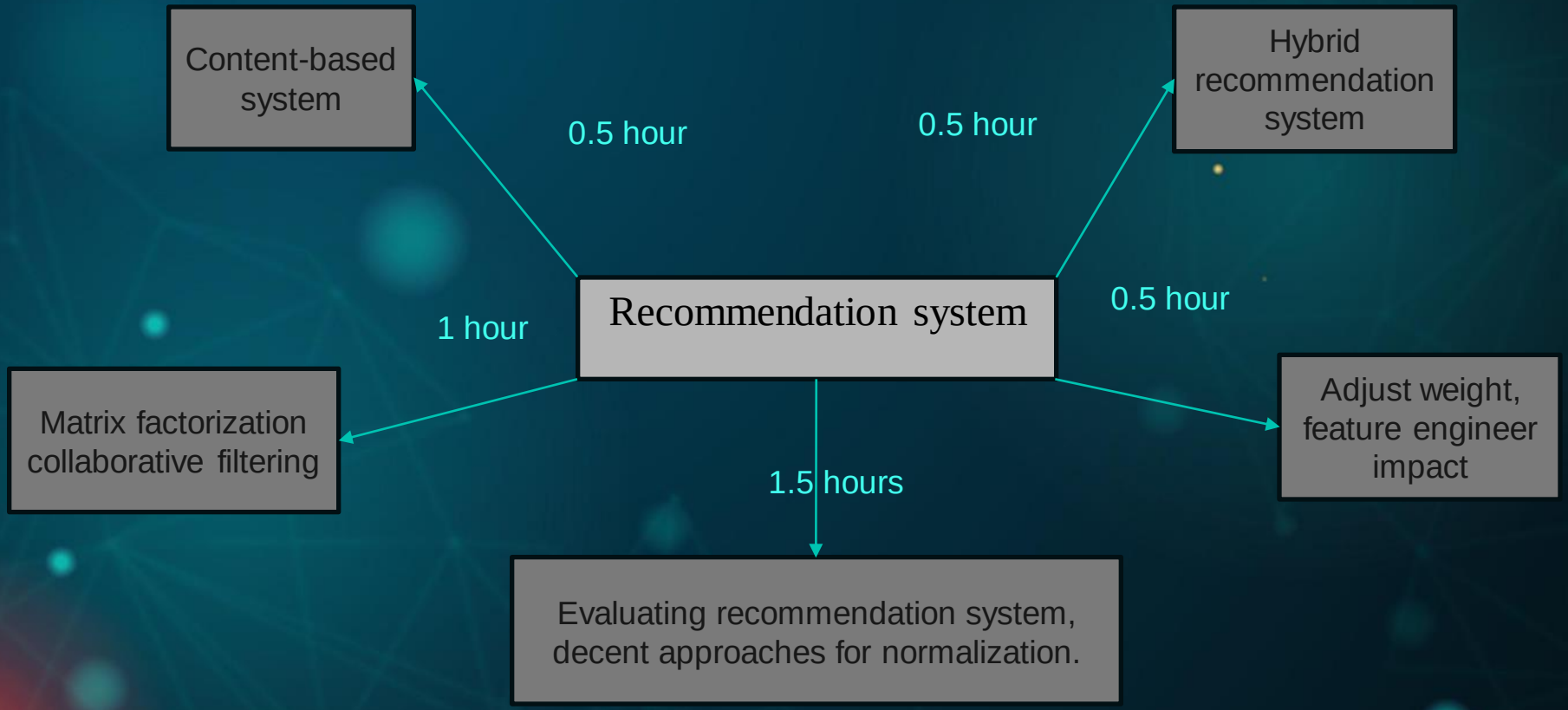
07

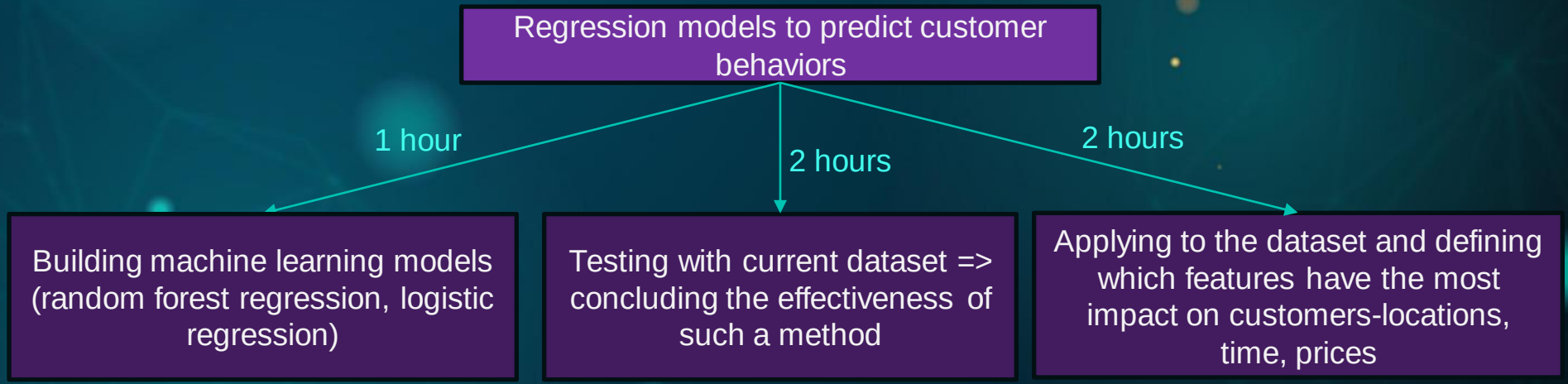
Timeline and Roadmap

Overview


Start
1.5 hours
4 hours
8 hours
Processing data
Recommendation system
Regression models to predict customer behaviors

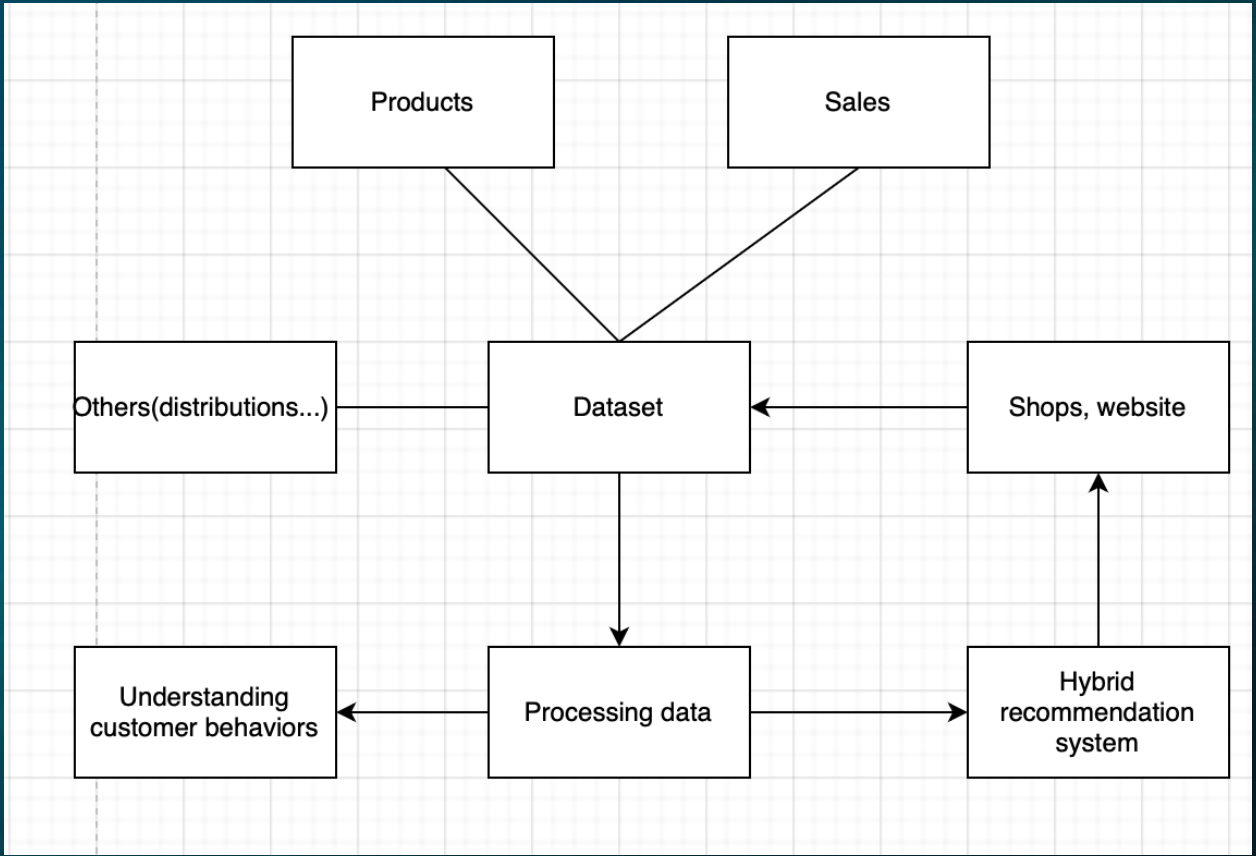

Processing data
1 hour
0.5 hour
Exploratory data analysis
Feature Engineer


Content-based system
0.5 hour
0.5 hour
Hybrid recommendation system
Recommendation system
1 hour
0.5 hour
Matrix factorization collaborative filtering
Adjust weight, feature engineer impact
1.5 hours
Evaluating recommendation system, decent approaches for normalization.


Regression models to predict customer behaviors
1 hour
2 hours
2 hours
Building machine learning models (random forest regression, logistic regression)
Testing with current dataset => concluding the effectiveness of such a method
Applying to the dataset and defining which features have the most impact on customers-locations, time, prices

08

User interface and Interaction


Products
Sales
Others(distributions...)
Dataset
Shops, website
Understanding customer behaviors
Processing data
Hybrid recommendation system

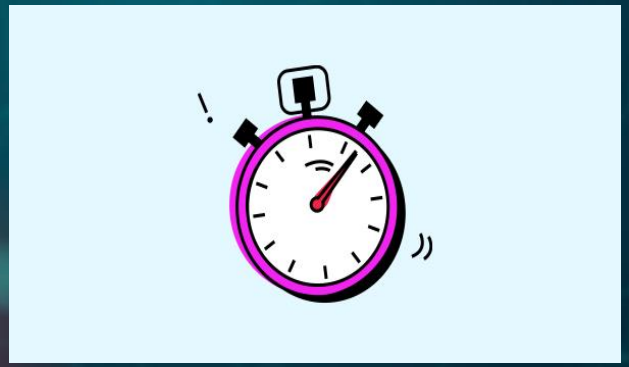
09

Limitations and Future enhancement

Limitations

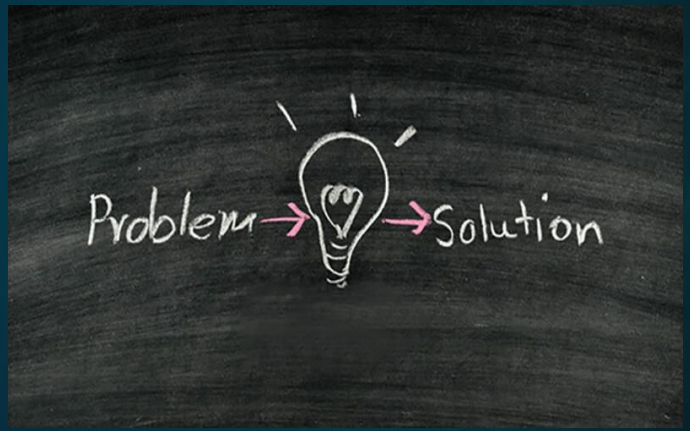
Because of the limited time, some features may not be exploited ultimately

Using matrix factorization, collaborative filtering, and content-based methods together might not give us the most accurate results

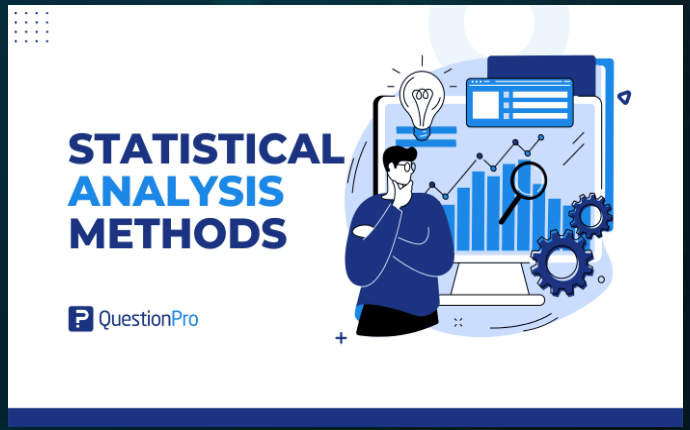


Future enhancement

If the current recommendation system can not support enough, the knowledge-based one should be the other solution



More advanced statistical approaches can be applied to comprehend the dataset



10 Conclusion

Thanks to the power of AI, we provide a solution that helps customers receive more suggestions. Moreover, our product help business gain a better understanding of customer's behavior.