The Product Recommendation for H&M

Course: BIA 679

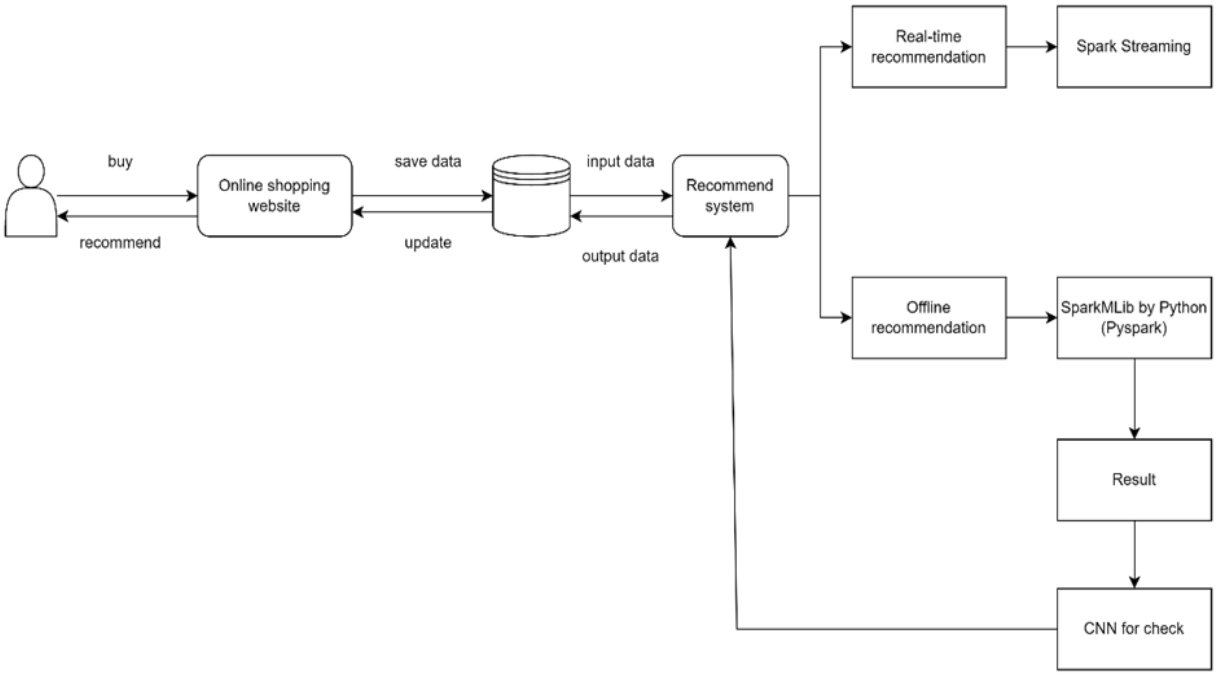
Member: Tengyue Chen, Hao Miao, Haoxing Zhang

Introduction

Online shopping has become one of the shopping channels for consumers with the development of the Internet. Total e-commerce sales in 2021 are expected to be $870.8 billion and grow 14.2% from 2020 (Young, 2022) in the U.S. Many online shopping companies have grown into well-known global companies, such as Amazon, Ebay, and Alibaba. However, with the increase in the number of items on online shopping platforms or websites. However, because the number of products on online shopping platforms continues to increase, the users may not choose their favorite products.

Recommend systems provide users with product information to help users make decisions and complete online purchases. The E-commerce recommendation system builds models that reflect user attributes and behaviors through the collected user information (Zhao, 2019). Online shopping platforms could use the E-commerce recommendation model in the backend to help users quickly find their favorite products.

This project attempts to build a model based on the dataset of products and user behavior provided by H&M. This model could predict the user's potential product selection and provide purchase suggestions through the user's previous purchase behavior or habits. Because real-time data cannot be obtained, the model of this project will focus on offline recommendation. The figure 1 shows the design of the recommendation model system.



Figue1. Model Design

Data collection

The dataset is collected from the Kaggle(https://www.kaggle.com/competitions/h-and-m-personalized-fashion-recommendations/data). The dataset contains the purchase history of H&M customers in the online store. The dataset contains three files, includes product pictures, product purchase records, and user information. Table 1 and table 2 show the dataset columns.

Columns	Feature
article_id	The article id
product_code	The code of product
prod_name	The name of product
product_type_no	The number of product type

product_type_name	The name of product name
product_group_name	The group name of product
graphical_appearance_no	The number of graphical appearances
graphical_appearance_name	The name of graphical appearances
colour_group_name	The name of color group
perceived_colour_value_id	The value id for perceived color
perceived_colour_master_id	The master id for perceived color
perceived_colour_master_name	The master’s name for perceived color
department_no	The number of departments
department_name	The name of departments
index_code	The index code
index_name	The name of index
index_group_no	The number of index group
index_group_name	The name of index group
section_no	The number of sections
section_name	The name of section

garment_group_no	The number of garment group
garment_group_name	The name of garment group
detail_desc	The detail describes

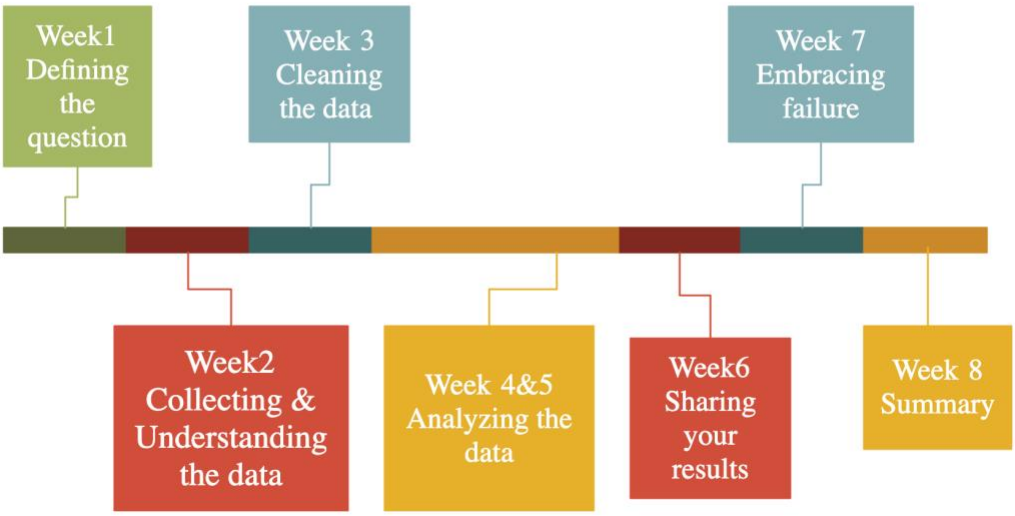
Table 1. Columns of articles

Columns	Feature
customer_id	The customer id
FN	
Active	Active or not active
club_member_status	The status of club member
fashion_news_frequency	The frequency of fashion news
age	The customer age
postal_code	The customer’s postal code

Table 2. Columns of customer

Project Timeline

BIA 679 Group Project



Teamwork Log

Week 1 Teamwork Log

Time	Event	Member	Duration
Monday	Slide Generate	All	10min
Tuesday	Discussion of project	All	1.5hr
Tuesday	Slides for project	Tengyue	45min
Wednesday	Log generate	Haoxing, Hao	15min

Week 2 Teamwork Log

Time	Event	Member	Duration
Tuesday	Discussion on group due	all	30min
Tuesday	White Paper	All	1hr
Tuesday	Slides	All	30min

Reference:

Zhao, Xuesong. “A Study on e-Commerce Recommender System Based on Big Data.” *2019 IEEE 4th International Conference on Cloud Computing and Big Data Analysis (ICCCBDA)*, 2019, https://doi.org/10.1109/icccbda.2019.8725694.

Jessica Young | Feb 18, 2022, et al. “US Ecommerce Grows 14.2% in 2021.” *Digital Commerce 360*, 16 Sept. 2022, https://www.digitalcommerce360.com/article/us-ecommerce-sales/.

“H&M Personalized Fashion Recommendations.” *Kaggle*, https://www.kaggle.com/competitions/h-and-m-personalized-fashion-recommendations/data.