

# 笔杆检测报告单 (全文标明引文)

全文标明引文

全文对照

打印

检测说明

标题: An intelligence recommendation system for onli...

去除引用文献复制比: 0%

作者:

去除本人已发表文献复制比: 0%

报告编号: BG202311031133136224

提交时间: 2023-11-03 11:33:27

单篇最大文字复制比: 1.1%



重复字数:0 总字数: 9,260

检测范围

## An intelligence recommendation system for online food ordering platform based on\_第1部分

### 原文内容

UNDERGRADUATE PROJECT PROPOSAL

Project Title:

An intelligence recommendation system for online food ordering platform based on Collaborative Filtering

Surname: Quan

First Name: zhihao

Student Number:202018010410

Supervisor Name: Monty Mu Module Code: CHC 6096

Module Name: Project

Date Submitted:2023/11/3

Table of Contents

1 Introduction .3

1.1 Background .3

1.2 Aim .3

1.3 Objectives .3

1.4 Project Overview .4

1.4.1 Scope .4

1.4.2 Audience .4

2 Background Review .4

3 Methodology .7

3.1 Approach .7

3.1.1 Software development model:.7

3.1.2 Requirement collect method:.8

3.1.3 Test and evaluation:.8

3.2 Technology .9

3.3 Version management plan .9

4 Project Management .9

4.1 Activities .9

4.2 Schedule .10

4.3 Data management plan .11

4.4 Project Deliverables .11

5 References .12

1 Introduction

1.1 Background

In the era of highly developed information technology and logistics industry, online food delivery has become a new trend sweeping the world [1]. In online food platform, customers can browse menus, place orders, and pay for meals via websites or mobile applications.

However, the increasing health consciousness of consumers and their growing demand for healthy and sustainable food options has become a major trend in the online food delivery market. As a result, online food delivery platforms need to respond by offering a wider range of healthy and sustainable food choices.[1] However, too many kinds of products will make it difficult for users to find the information they like. Over time, user interest in the platform will decrease.[2]

Therefore, in order to solve the problem of information overload, recommend system are needed to help customer to find suitable products easily.[2] This project use an intelligent

recommendation system based on collaborative filtering can provide personalized recommendations to customers, leading to a better user experience and augment customer satisfaction. Collaborative filtering is a type of recommendation algorithm that uses data to predict preferences and make recommendations.[2]

## 1.2 Aim

The aim of this project is to develop an online food ordering platform featuring a collaborative filtering recommendation system that recommend foods based on user.

## 1.3 Objectives

The object are as follows:

- i. Research on existing recommendation system algorithm.
- ii. Analyze the function of online ordering platform.
- iii. Compare and choose the suitable recommendation system algorithm for website.
- iv. Develop the function and module design of the system.
- v. Implement the basic function of the online food ordering website.
- vi. Collect data from multiple sources.
- vii. Build a user-friendly product recommendation system model.
- viii. Implement and improve the UI of the website.
- ix. Testing all modules and documenting and analyzing the performance of the recommended systems.

## 1.4 Project Overview

### 1.4.1 Scope

With the rapid development of the Internet and the increasing demand for food diversification, there are more and more types of food in the online ordering software. In order to improve the

efficiency of consumers' search, this Online Food Ordering and Delivery Platform with Recommendation System, which can allow customer to browse, search and order the foods and pay the orders online, and also recommend foods or restaurants to customer based on the customer's interests. For restaurant owner, they can view their order information and customer information on the system.

### 1.4.2 Audience

This is an online ordering system, which means the main audience is restaurant merchants and customers. For customers, the system can provide them with personalized recommended food,

reducing the selection difficulty and time cost. For restaurant owner, the system can more accurately show the foods and promotions to potential customer, and also can recommend foods suitable for users based on their preferences and historical order data, helping restaurants attract more satisfied customers.

## 2 Background Review

Online food ordering platforms have become increasingly popular in recent years, revolutionizing the way customers order food and receive delivery. Several companies, including Meituan, Ele.me and Uber eats, are commercial giants in the food delivery platform space, with Meituan and Ele.me being the most used delivery software in China [3]. These platforms have transformed the food industry, providing consumers with an easy and convenient way to order food online. Therefore, in order to analyze and investigate the characteristics of Online food ordering platforms, Table 1 below shows some functional comparisons of the three platforms. Through comparison, it is found that the basic functions of search, recommendation, purchase, shopping cart and order management are well implemented on the three platforms, while the payment methods are different due to different countries. It is worth noting that Uber eats performs better than the other two software in terms of Delivery Method and schedule.

Table 1: Feature comparison between different platforms

Feature	Meituan food delivery [4]	Ele.ME [5]	Uber eats [6]
Register required	YES	YES	YES
Information	Phone number	Phone number	Phone number Email & Phone number
Shopping Cart	YES	YES	YES
Search restaurants	YES	YES	YES
Search foods in restaurant page	YES	YES	NO
Favorite function	YES	YES	YES
Modify personal information	YES	YES	YES
Delivery Method	Delivery	Delivery	Delivery & Pickup
Schedule pickup	NO	NO	YES
Recommended Restaurants	YES	YES	YES
Address			

Management

YES YES YES

Order view YES YES YES

Payment method Alipay, Wechat  
payment, Meituan

payment

Alipay, Wechat

payment, China

unionpay

Paypal, Cash,

Credit card

Customer rating

function

YES YES YES

The success of these online food ordering platforms is largely due to their ability to provide personalized recommendations to users. Therefore, recommender systems play an important role in the e-commerce environment. Although a variety of recommendation technologies have

appeared in recent years, collaborative filtering (CF) is a widely used algorithm in recommender systems, and is widely used in product recommendation and other fields.[7] CF can be divided into two categories according to the object of analysis: item-based recommendation or user-based recommendation.[8]

Therefore, in this project, collaborative filtering based on user recommendation is implemented, which predicts the most relevant items or services by analyzing the user's preference and behavior data (such as ratings, favorites and other behavior s).

### 3 Methodology

#### 3.1 Approach

##### 3.1.1 Software development model:

In the choice of software development model, the waterfall model is a common and classic development model, which shows the software development process in linear order. As shown in Figure 1 below, the software development process can be divided into seven parts in linear order: Requirement Analysis, System design, Model selection, Implement the system, system integration, test, system operation and maintenance.

Figure 1: Waterfall model

##### 3.1.2 Requirement collect method:

□ Market research: Utilize websites like statista to study the relevant market and competitors to understand the needs and preferences of users across the market. Relevant information can be obtained by investigating industry reports, data from market research agencies, and product analysis from competitors.

□ User observation: Observe the behaviors and interactions of friends and classmates around when using the online takeout platform, so as to obtain the needs and problems of users in actual usage scenarios.

□ Analysis for competitive products: Observe the popular online ordering software (Meituan, Ele.me, uber eats etc.) recorded to analyze which requirements are the most needed by users.

##### 3.1.3 Test and evaluation:

□ Functional:

Unit tests: Test the independence and correctness of each functional module to ensure that the module works as expected.

Integration test: Test the cooperation between the various functional modules to ensure that the overall system functions normally.

## An intelligence recommendation system for online food ordering platform based on\_第2部分

### 原文内容

Scenario test: Based on the actual use scenario, test the function and logic of the whole system to verify whether it meets the needs of users.

□ Recommendation system:

Personalization evaluation: Tests whether the recommender system can provide personalized recommendation services according to the interests and preferences of users.

Product diversity evaluation: To test whether the recommendation system can provide diversified recommendation product and avoid excessive preference for specific types of recommendations.

□ Non-functional:

Security testing: Evaluates the security of the system, including tests on data encryption, user authentication, and access control.

Performance test: By simulating different load and pressure conditions, the response time and other performance indicators of the system are tested.

#### 3.2 Technology

The hardware used in the project are as follows:

Hardware:

□ Computer: ASUS Tianxuan

□ CPU: R7-4800H

□ Random Access Memory:16GB

The software used in the project are as follows:

Software:

- Language: Python, Javascript
- IDE: Pycharm
- Database: Mysql 8.0, Mysql workbench, Navicat
- Backend framework: Django
- UI: Javascript, Html, Css, JQuery, Bootstrap
- Operating system: windows 10
- Algorithm Model: Collaborative Filtering Algorithm

### 3.3 Version management plan

Use git to manage all the files used in the project.

Here is Github url: [https://github.com/Blueblue22two/202018010410\\_project\\_recommendation-system](https://github.com/Blueblue22two/202018010410_project_recommendation-system)

## 4 Project Management

### 4.1 Activities

- i. Investigation on the Existing Food Delivery Platform
- ii. Comparison between food delivery platform
- iii. Research on Collaborative Filtering (CF)
- iv. Determine a feasible recommender system model
- v. Write Project proposal
- vi. Requirement analysis
- vii. System design (Split the system into modules)
- viii. Implementation (Implement the front-end and back-end)
- ix. Implement the recommend function
- x. Test and evaluate the recommend function
- xi. System testing
- xii. Write Final report
- xiii. Create Poster

### 4.2 Schedule

The schedule of the project is shown in figure 2 below:

Figure 2: Gantt chart

### 4.3 Data management plan

- For Weekly reports, I upload them to the Weekly report folder every week. □ Upload all the reports to the Reports folder.
- Upload all the Reference files to the References folder.
- Upload all the code to a code file and do version management. □ Upload other files (such as charts) to the others folder.
- Upload the files related to Presentation to the Presentation folder. □ Upload UI-related files to the UI folder.

The figure 3 below shows the file format in the repository in detail.

Figure 3: Repository format

### 4.4 Project Deliverables

- Project proposal
- Progress report
- Final report
- Weekly report
- Ethical form 1
- References
- Project Code (include development software list)
- Presentation (pdf, image, video)

## 5 References

[1] Statista Market Insights, 'Online Food Delivery: market data & analysis', Statista Market Insights, Mar. 2023. Accessed: Oct. 30, 2023. [Online]. Available: <https://www.statista.com/study/40457/food-delivery/>

[2] X. Li, 'Research on the Application of Collaborative Filtering Algorithm in Mobile E-Commerce Recommendation System', in 2021 IEEE Asia-Pacific Conference on Image

Processing, Electronics and Computers (IPEC), Dalian, China: IEEE, Apr. 2021, pp. 924-926. doi: 10.1109/IPEC51340.2021.9421092.

[3] Statista, 'Catering-services-in-china', Statista. Accessed: Nov. 01, 2023. [Online]. Available: <https://www.statista.com/study/63164/catering-services-in-china/>

[4] 'Meituan Waimai'. Meituan. [Online]. Available: <https://waimai.meituan.com/>. Accessed on: Oct. 31, 2023.

[5] 'Ele.me'. Ele.me. [Online]. Available: <https://www.ele.me/>. Accessed on: Oct. 31, 2023.

[6] 'Uber Eats'. Uber Eats. [Online]. Available: <https://www.ubereats.com>. Accessed on: Oct. 31, 2023.

[7] X. Zhu, H. Ye, and S. Gong, 'A personalized recommendation system combining case-based reasoning and user-based collaborative filtering', in 2009 Chinese Control and Decision Conference, Jun. 2009, pp. 4026-4028. doi: 10.1109/CC

DC.2009.5192712. [8] H. Liu, 'Implementation and Effectiveness Evaluation of Four Common Algorithms of Recommendation Systems - User Collaborative Filter, Item-based Collaborative Filtering,

Matrix Factorization and Neural Collaborative Filtering', in 2022 International Conference on

Cloud Computing, Big Data Applications and Software Engineering (CBASE), Sep. 2022, pp. 224-227. doi: 10.1109/CBASE57816.2022.00049.

2.本报告单仅对您所选择比对资源范围内检测结果负责

写作辅助工具

[选题分析](#)

帮您选择合适的论文题目

[资料搜集](#)

提供最全最好的参考文章

[提纲推荐](#)

辅助生成文章大纲

[在线写作](#)

规范写作，提供灵感

[参考文献](#)

规范参考文献，查漏补缺