# COMP2008J SE Project 1 Plan Report

## Group 1

19206207 Yang Liuxin 19206206 Liu Wenrui 19206229 Ma Kuangxuan 19206188 Yu Jianxiang 19206178 Xiong Tongyuan

March 2021

## 1 Project Introduction

With the rapid development of the Internet, recent years have witnessed mushroom growth of takeout software, such as Meituan, while traditional campus canteens sales suffer in the meantime. Problems of traditional canteen ordering, such as long queues, crowded dining environment and taste of food in campus cafeterias, discourage students from dining in the canteen.

#### 1.1 Software introduction

Our team aims to design a **canteen reservation ordering application** that implements functions to meet user requirements which will be further explained later. Furthermore, our application not only allows instant in-store ordering and picking up meals, but allows order reservations in advance, which greatly optimizes customers' dining experience by reducing the customer queuing.

#### 1.2 Reasons for this software

There are several reasons why our **canteen reservation ordering application** could alleviate the aforementioned problems and why our project distinguishes from other ordering systems in the market.

Firstly, our innovative ordering system allows **reservation**, optimizing the traditional mode queuing in school canteens. Moreover, our project is particularly designed for our school by analyzing user requirements through questionnaires. The major factor that motivates us to do such a project is to apply food ordering systems to our school canteens by gaining deeper comprehension of current similar systems during the software developing process. More importantly, our project will add some distinctive functions which current softwares do not equip and simplify existing functions to make our light and efficient software tailored for BJUTers (Beijing University of Technology students).

### 1.3 Gitlab repo link

Here is our Gitlab repo link: https://csgitlab.ucd.ie/bug\_creator/canteen-order-app

## 2 Technology

The following table lists main technologies that we will adopt for this software.

Techonology							
	Project	Туре	Yang Liuxin	Liu Wenrui	Ma Kuangxuan	Yu Jianxiang	Xiong Tongyuan
Platform	Арр	Android	V	V	<b>√</b>	V	V
Operating system	Server	Centos					
Database	Main database	Mysql	V	V	<b>√</b>	V	V
Middleware	Search engine	Solr					
Programming language	Component	Java	^_^	^_^	^_^	^_^	^_^
Developing toos	Component	Intellij idea	^_^	^_^	^_^	^_^	^_^
Build tools	Java projects	Maven			<b>√</b>		
Development components	Database access	Mybatics		V		V	
	Front end framework	Vue.js	V				V
	Front end	H5	V				V
	Data processing	Pytorch		✓	V	✓	

The  $\checkmark$  symbol represents the technology that we have not grasped but are very willing to learn for our project. The smile symbol represents the technology that we have already learned and can learn more for our project.

## 3 User Requirements

Our highest priority is given to satisfy customers through early and continuous delivery of valuable software during Agile software development. In this project, we designed a **questionnaire** concerning individual requirements towards the canteen food ordering application with carefully chosen questions and sent it to BJUTers. For the purpose of catering to both students and canteens staffs' needs, we analyze the collected data and highlight those needs which a majority of students are concerned with. Afterwards, we elicit user requirements eventually, which is shown as followed:

From the perspective of **students**, many of them state that:

- As student, we want to have meals in relatively comfortable atmosphere without queuing for a long time.
- As a student, I want recommendations and suggestions for me to order delicious food.
- As a student, I want to make comments and view others' comments about dishes.

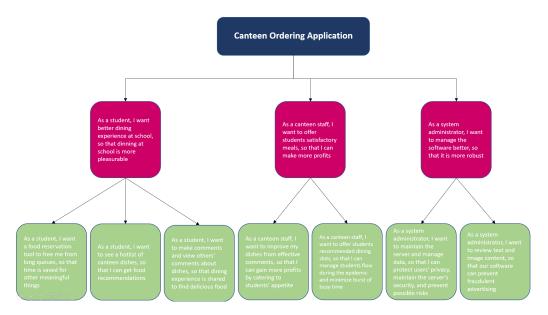
From the perspective of our **canteen staffs**, many of them state that:

- As a canteen staff, I want to serve more customers in relatively continuous time, rather than
  having busty business, which contributes to better students flow management during epidemics.
- As a canteen staff, I want to attract more students to have meals in my stand by better catering to students' appetite.
- As a canteen staff, I want to increase our profitability in the fierce competition with off-campus takeaway and make some implicit advertisements, such as mutual recommendation between students.

## 4 System Design and Plan

## 4.1 Structure of all Themes and Epics

The following figure presents the architecture of our software, while we will still embrace changes during its development.



**Theme:** Our software is a school canteen ordering application.

- **Epic 1:** As a student, I want a food reservation tool to free me from long queues, so that time is saved for other meaningful things.
- Epic 2: As a student, I want to see a hot-list of canteen dishes, so that I can get food recommendations.
- **Epic 3:** As a student, I want to make comments and view others' comments about dishes, so that dining experience is shared to find delicious food.

- Epic 4: As a canteen staff, I want to improve my dishes from effective comments, so that I can gain more profits. Additionally, I want to offer students recommended dining slots if possible, so that I can manage students flow during the epidemic and minimize burst of busy time.
- **Epic 5:** As a system administrator, I want to maintain the server and manage data, so that security can be ensured and possible risks could be prohibited. Additionally, I want to review text and image content, so that fraudulent information could be avoided.

#### 4.2 Plan

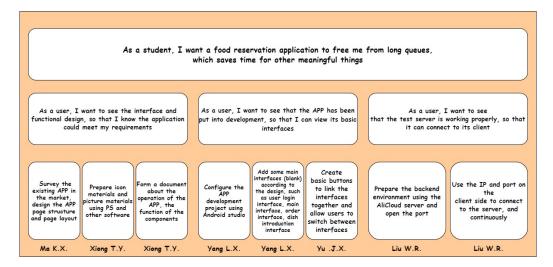
The following graph shows our plan for this software and the order of product owners in five sprints. Moreover, we have also decided when to compete each epic.

Plan						
	Product Owner	Epic 1	Epic 2	Epic 3	Epic 4	Epic 5
Week 6/Sprint 1	Xiong Tongyuan	<b>√</b>				
Week 8/Sprint 2	Liu Wenrui	<b>√</b>	<b>√</b>			
Week 10/Sprint 3	Yu Jianxiang	V	V	V		
Week 12/Sprint 4	Yang Liuxin	V	V	V	V	
Week 14/Sprint 5	Ma Kuangxuan	<b>√</b>	<b>√</b>	V	<b>√</b>	V

However, we admit that we welcome reasonable change during the Agile developing process.

# 5 Next Sprint

The following graph presents user stories and tasks of epic 1, which are to be completed in sprint 1.



#### 5.1 User Story 1

As a user, I want to see the interface and functional design, so that I know the application could meet my requirements.

- Task 1: Survey existing similar APPs in the market. Design the APP interface structure and layout.
  - Acceptance criteria: The electronic design includes all interfaces and components. Components should contain descriptive information such as size, position, rbg and have a unique label. There should be no ambiguity.
- Task 2: Prepare icon and picture materials using related software.

  Acceptance criteria: Component icons should be vector graphics with a consistent style.

  They should be named according to the function of their category.
- Task 3: Form a document about the operation of the APP, and the function of components. Acceptance criteria: Documentation should fully describes how all components are used and what they do. There should be no ambiguity.

#### 5.2 User Story 2

As a user, I want to see that the APP has been put into development, so that I can view its basic interfaces.

- Task 1: Configure the APP development project using Android studio. (YLX)

  Acceptance criteria: All members should have a uniformly configured development environment. The server can be successfully accessed and Gitlab can be used properly for version control.
- Task 2: Add main interfaces (blank) according to the design, such as user login interface, main interface, order interface, and dish introduction interface. (YLX)
- Task 3: Create basic buttons to link the interfaces together and allow users to switch between interfaces. (YJX)
  - **Acceptance criteria:** Pass code integrity tests. Compatibility tests is required to check if the display and functionality works well on different versions of Android devices.

#### 5.3 User Story 3

As a user, I want to see that the test server is working properly, so that it can connect to its client.

- Task 1: Prepare backend environment using the AliCloud server and open the port. (LWR) Acceptance criteria: Check server working environment to see if the program can be compiled and run properly. Verify the server backup function. Test the server for proper version control from Gitlab.
- Task 2: Use the ip and port on the client side to connect to the server, and continuously check the quality of the network connection to the server while the client is running. (LWR) Acceptance criteria: Test if the server network is working properly. Use different types of devices and network environments to connect to the server port. Test if the connection can be connected and exited successfully.

# **Appendices**

# A Allocation of Sprint 1

Task	Student Number	Student Name
U1T1	19206229	Ma Kuangxuan
U1T2	19206178	Xiong Tongyuan
U1T3	19206178	Xiong Tongyuan
U2T1	19206207	Yang Liuxin
U2T2	19206207	Yang Liuxin
U2T3	19206188	Yu Jianxiang
U3T1	19206206	Liu Wenrui
U3T2	19206206	Liu Wenrui

# B Questionnaire

Q1: How many times a week do you order takeaway?

Total Value: **684** Average Value: **4.25** 

**Q2:** What is the main reason for you to order takeaway?

Options	Total	Percentage
Dishes do not taste good in school canteens.	18	11.18%
Long queues are annoying.	88	<b>54.66</b> ~%
Canteens are not easily accessible.	37	22.98%
Others, please specify:	18	11.18%
Valid completed number	161	100%

**Data Analysis:** From the above questionnaire, we see that the average number of takeaway is 4.25, showing that takeaway is preferable to many students. Furthermore, many students consider long queues to be the major reason for their choice of takeaway. From the allocated data, we reach the conclusion that developing an application which allows reservation is quite necessary.

# C Draft GUI of Sprint 1

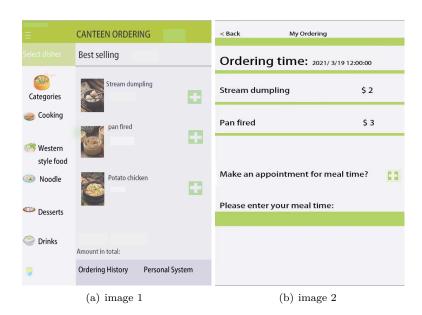


Figure 1: Interfaces