



Faculty of Computer Science and Information Technology

***AN ANDROID-BASED POS APPS FOR HAWKER STALL***

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Bachelor of Computer Science with Honours

(Computational Science)

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# **AN ANDROID-BASED POS APPS FOR HAWKER STALL**

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This project is submitted in partial fulfilment of the  
requirements for the degree of  
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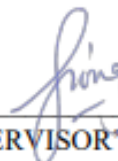
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## **ABSTRACT**

*There are a lot of hawkers are still taking orders and remembering orders with memory or pen and papers. The traditional methods will have difficulty in handling increase of customers' demands. Besides, pen-and-papers method is causing a lot of waste and not environmentally friendly as it uses a lot of papers. The project is about designing and building an Android-based mobile Point of Sales (POS) application for hawkers. The application is designed for hawkers to ease them in their daily business and increase efficiency to their sales process. It allows hawker to keep track on the orders and get the total amount of payment in an order. The proposed application also allows hawkers to input some remarks for them to remember more information about the customers or orders.*

## **ABSTRAK**

Banyak penjaja masih mengambil pesanan dan mengingat pesanan dengan memori atau pen dan kertas. Kaedah tradisional akan menghadapi kesukaran dalam menangani permintaan pelanggan yang semakin meningkat. Selain itu, kaedah pen dan kertas menyebabkan banyak sampah dan tidak mesra alam disebabkan penggunaan kertas yang banyak. Projek ini adalah untuk mereka bentuk dan membangunkan aplikasi *Point of Sales* (POS) mudah alih berasaskan Android untuk penjaja. Aplikasi ini direka bentuk untuk penjaja supaya dapat memudahkan mereka dalam perniagaan harian mereka dan meningkatkan kecekapan dalam proses jualan mereka. Aplikasi ini membenarkan penjaja menjejaki pesanan dan mendapatkan jumlah yang perlu dibayar dalam setiap jualan. Aplikasi yang dicadangkan juga membenarkan penjaja memasukkan komen bagi mereka untuk mengingatkan lebih banyak maklumat tentang pelanggan atau pesanan.

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## **CHAPTER 1: INTRODUCTION**

### **1.1 Introduction**

POS is an abbreviation of Point of Sale which means the place of a sale happens for a product or service (Feemster, n.d.). An Android-based POS Apps is an application which can be downloaded to mobile devices which runs on Android platform.

There are a lot of hawker stalls which are still using old methods to record and memorise orders. One of the reasons is a POS system might be too expensive and not worth it to buy for small business usage. However, there might be time that business is very good, and a lot of customers come at the same time. It will be difficult for hawkers to remember every order and serve food efficiently.

Mobile application has become very popular and convenient nowadays. Hawker POS App is an Android-based mobile application which is developed for the convenience of small business hawkers. By using the mobile POS application, hawkers can focus on serving food while letting the application handle all the memorising and order details. Hawkers will not forget or miss out any orders if they are using the low-cost POS application. The application allows hawkers to focus on serving their food. The application will handle all the orders, sequences, and prices.

## **1.2 Problem Statement**

A lot of stall hawkers are still using pen and papers or brain memory to take and record orders. It is not being environmentally friendly as a lot of papers are being used. A lot of wastes are being created by street hawkers (Sarpong & Nabubie, 2015). Besides, hawkers will be having difficult time to handle the orders if there are a lot of customers at a time. Hawkers might not be able to serve food efficiently or correctly due to big number of orders at a time. Papers used by hawkers to take orders might be lost or not clear due to unclear handwritings. Prices of the food also might be calculated wrongly. Hence, there are time that hawkers forgetting or missing out some orders. There will be time that orders are being messed up where food given to the customers are not those which they ordered. It might happen more for hawkers who are older or bad in memorising. As for hawkers who are moving around to sell food, they might have difficulty in carrying a POS system with them.

## **1.3 Scope**

- Specifically design the system for self-service hawker stall
- System is used by hawkers themselves

## **1.4 Objectives**

- To develop an Android-based mobile application for small business hawkers.
- To evaluate the usability of the proposed mobile application.

## **1.5 Brief Methodology**

- **Agile**

Agile methodology will be a good method in creating mobile application. Agile methodology is very flexible and adaptive (Valacich, George, & Hoffer, 2012). The mobile application is meant to bring convenience and efficiency to hawkers and to be able to reduce waste at the same time. Users or hawkers will be focused in this project. Hence, it matches one of the key principles of Agile. Interaction with users and short release are required to allow system evolution. User requirements will be collected and analysed in the first phase. Interface and model will be designed at the next phase. The following phase uses most of the project schedule time. The application will start to be developed or coded in this phase. The prototype will be tested by programmer and users. Data or feedbacks will be collected and analysed. Improvement will be made based on users' feedbacks and requirements.

- **Android Studio**

Android Studio is an integrated development environment to develop the android-based mobile application. It is a collaboration between JetBrains and Google. Android Studio is very similar to JetBrains' IntelliJ as it is builded atop of it (Gerber & Craig, 2015). In order to develop an android-based mobile POS application for hawkers, Android Studio is the tool selected for the project.

## **1.6 Significance of Project**

An android-based mobile POS application for hawker stall will be developed in this project in order to replace old "pen & papers" method in taking and memorising orders.

## **1.7 Project Outline**

Chapter 2 is about the reviews on existing mobile application. Three application will be installed from Google Play Store and tested. A comparison between these mobile applications will be carried out to compare the functionalities of the applications.

Chapter 3 will cover the methodologies to be implemented in the project. The phases of Agile Methodology will be further discussed according to the planning and the progress of the mobile application in this chapter.

Chapter 4 will explain about the implementation and testing of the interface and functionalities of the mobile application. The features and functionalities of the mobile application will also be covered in detail in this chapter.

Chapter 5 includes the summary and conclusion of the project bring done. It also includes some brief discussion or suggestion for possible future improvement.

## CHAPTER 2: LITERATURE REVIEW

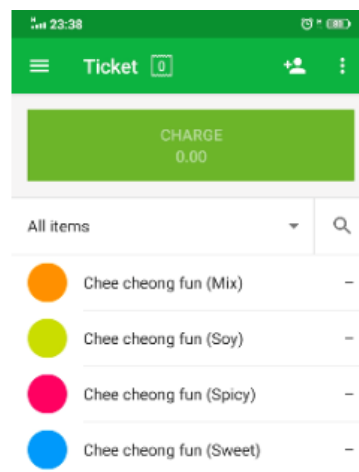
### 2.1 Introduction

This chapter is about the background study of the application and literature review. A few existing mobile applications will be installed from Google Play Store and tested. These applications will be studied and compared. Every mobile application should have their own advantages and disadvantages. The comparison will be listed in a table to show the functionalities of the different systems.

### 2.2 Review on Existing Mobile Application

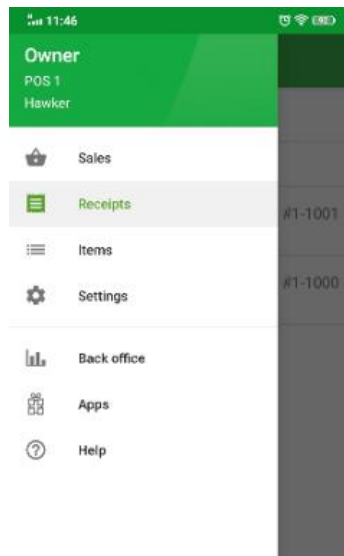
Mobile applications are very popular and widely used as they are very convenient and less costly (Sandra, 2018). Their mobility and low cost are the reasons for their popularities nowadays. There are quite a few mobile point-of-sales applications in the market. Three of the applications will be selected to be reviewed and compared. The applications are Loyverse POS, Square, and Kyle.

#### 2.2.1 Loyverse POS



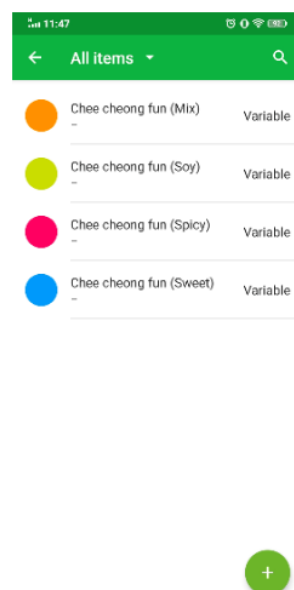
*Figure 2.1.* Loyverse POS Sales page (default page)



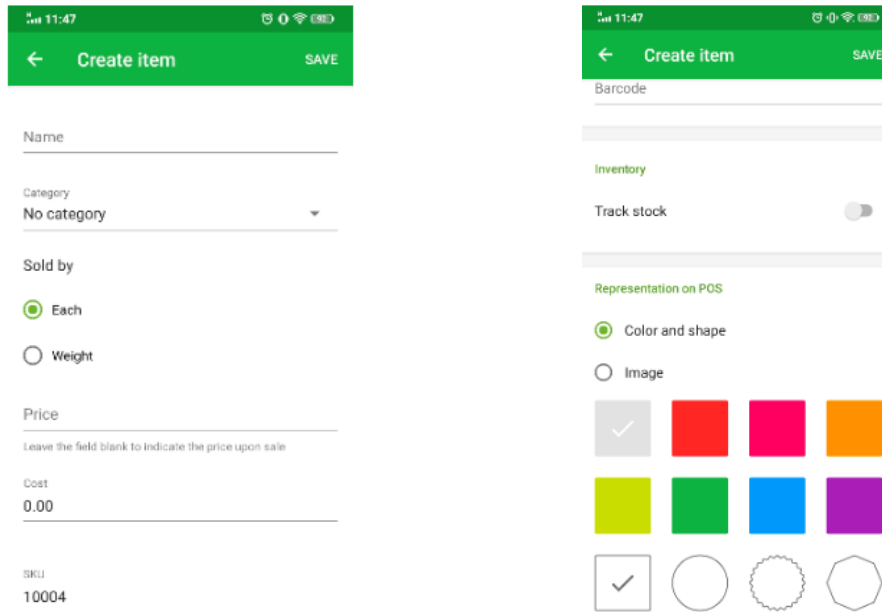


*Figure 2.2. Loyverse POS pop-out menu*

Loyverse POS, which stands for Loyalty Universe, is a free POS system and inventory system for café, retail stores, salons, and more (Loyverse, 2019). It is a useful tool in managing medium scale and below retail business (Loyverse, 2019). Figure 2.1 shows the default page or item menu page of the application and Figure 2.2 shows the pop-out menu. The pop-out menu consists of the three main component of the application, which are Sales, Receipt, and Items pages.

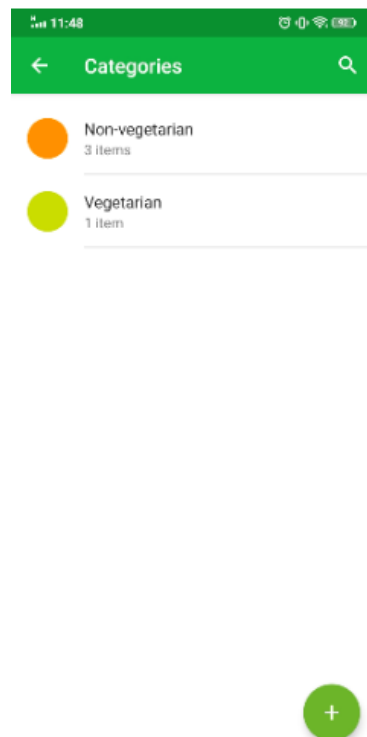


*Figure 2.3. Loyverse POS Item page*

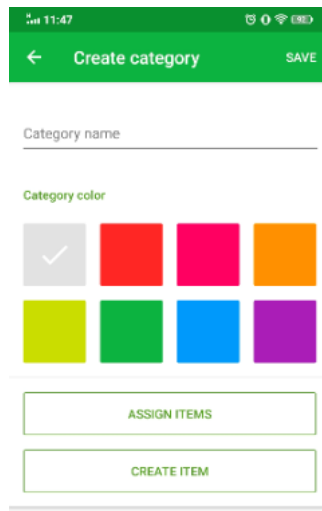


*Figure 2.4. Item creation page (a) & (b)*

Figure 2.3 depicts the Item page where user can edit or add in new items. Figure 2.4 is the item creation page. It lets user to customise the items, but the price will need to be keyed in manually upon sale if it's left empty.

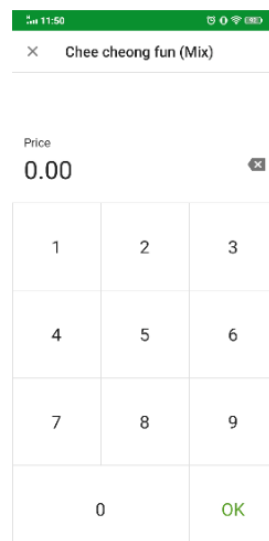


*Figure 2.5. Loyverse POS Category page*



*Figure 2.6. Loyverse POS Category creation page*

Figure 2.5 is the Category page of the application and Figure 2.6 is the Category creation page which allows user to customise their category with name and colour.



*Figure 2.7. Loyverse POS Ordering page (Manual price entering)*

In Figure 2.7, price is required to be entered manually if the price of item is left empty during item creation process.

11:50

×

Chee cheong fun (Mi... SAVE

Price

3.00

Quantity

− 1 +

Comment

Enter comment

*Figure 2.8.* Loyverse POS Ordering page (edit order details)

User can always edit the order details such as price, quantity, and also remarks as shown in Figure 2.8. It lets user to correct any error order and freely add in a few numbers of the same item following the customers' order.

11:50

×

Add customer to ticket

Search

ADD NEW CUSTOMER

Recent customers

2

1

*Figure 2.9.* Loyverse POS Customer page

*Figure 2.10.* Loyverse POS Customer creation page

Figure 2.9 is the Customer page and Figure 2.10 is the Customer creation page of Loyverse POS. The application allows user to create and add customers' information to any order. This allows the tracking of customers and their orders. It can also prevent serving food ordered by different customers.

Tuesday, November 12, 2019		
	38.50 11:32	#1-1001
	18.00 11:25	#1-1000

*Figure 2.11.* Loyverse POS Receipt page

User is also able to keep track of all the orders or transaction made in the Receipt page as shown in Figure 2.11. All items and customers' information are depicted in the receipts.

### 2.2.2 Square

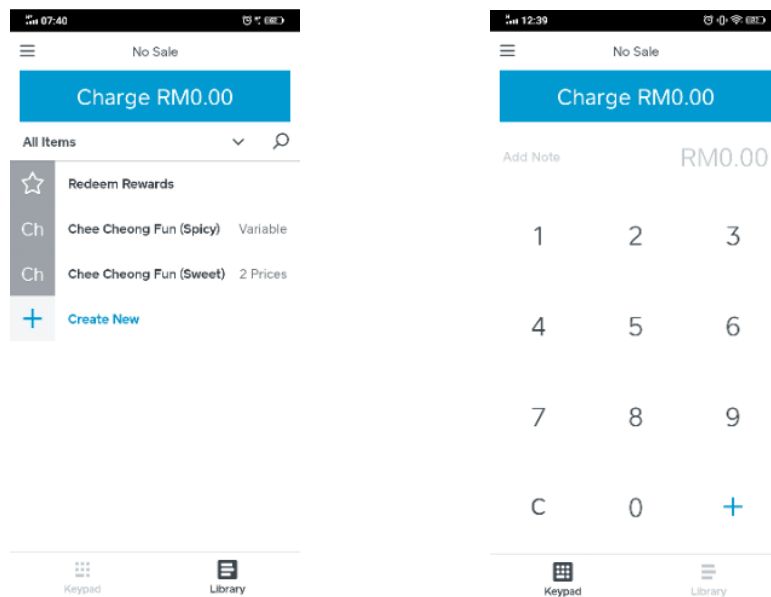


Figure 2.12. Square Sales page (a) & (b)

Square is one of the highest rating mobile POS application in Google Play Store which has many features including sales analytic which help hawker to plan on their strategies (Square, Inc., 2019). Figure 2.12 is the Sales page of Square. User can either choose to input orders using created items or key in the value they wish to sell manually.

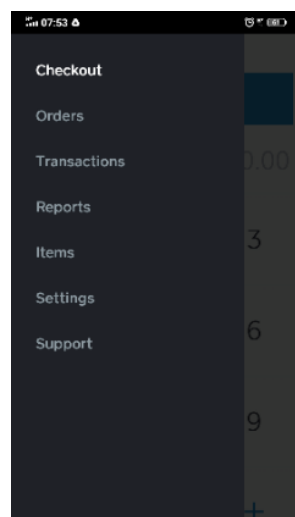


Figure 2.13. Square pop-out menu

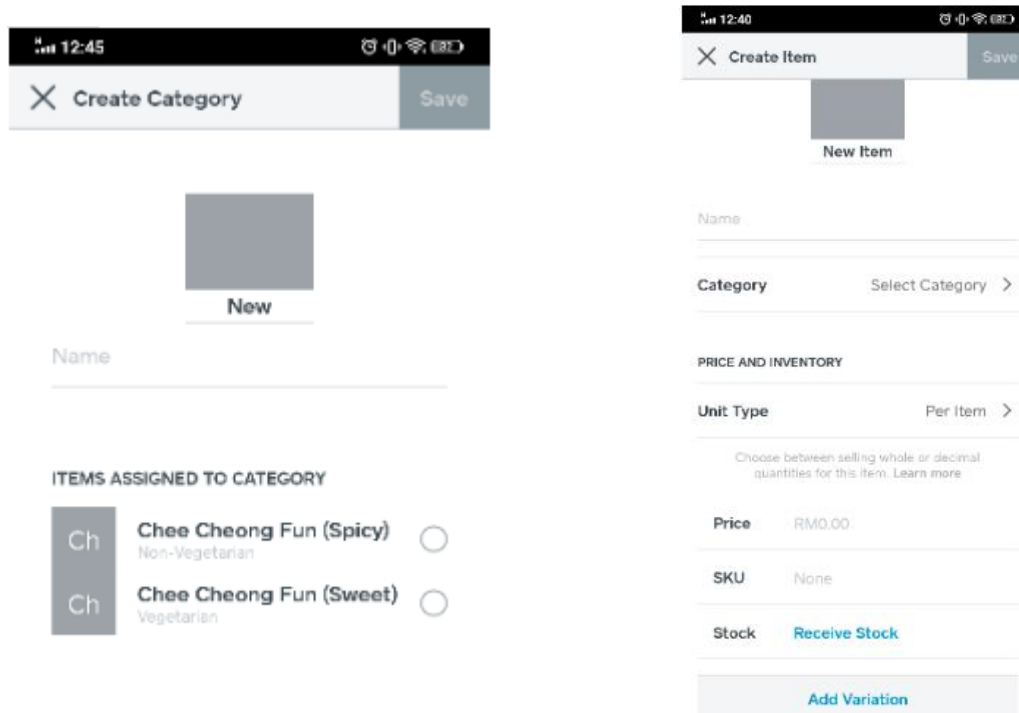


Figure 2.14. Square Category creation page & Item creation page

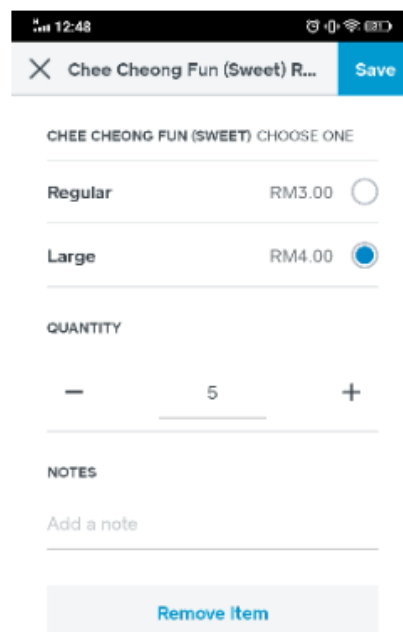
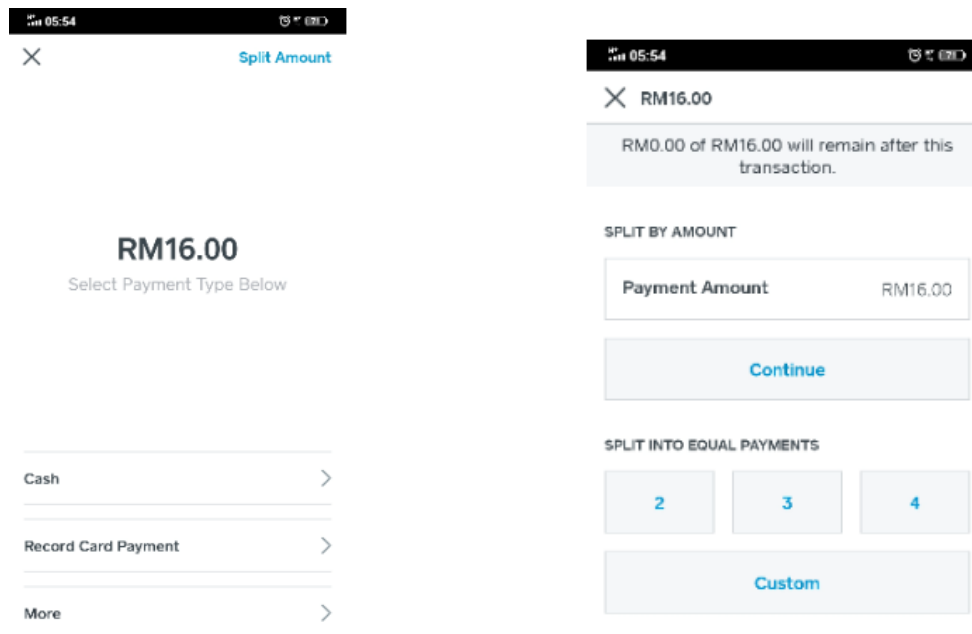


Figure 2.15. Square Sales page (Price selection)

Figure 2.13 depicts the pop-out menu of the application. Figure 2.14 shows the Category and Item creation page. There is a “Add Variation” button at the Item creation page which allow user to add variation of prices depending on the needs of user. Figure 2.15 shows

the selection of price according to the portion of the food (Regular/ Large) when placing order. This function increases the flexibility of item customisation for user especially in term of pricing.



*Figure 2.16. Square Payment page & Split amount page*

The Payment page of Square is shown in Figure 2.16. The Split amount page shows the Split Amount function of the application. Square allow customers to pay by individuals from a group by splitting the amount according to the numbers they want to split into. This function is very helpful for the user to split the amount as some customer groups wish to pay individually. The same bill will have more than one time of transaction until the amount has been fully paid.