APPLICATION DEVELOPMENT COFFEE EXPRESS USING MIDTRANS API AS PAYMENT GATEWAY ON ANDROID SMARTPHONE

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ABSTRACT

International Coffee Organization (ICO) data shows that Indonesian coffee consumption in the period of 2000-2016 experienced an upward trend. In 2000, Indonesia's coffee consumption only reached 1.68 million packs @ 60kg, but in 2016 has reached 4.6 million packs @ 60kg, or jumped more than 174 percent. Even since 2011, coffee consumption is always experiencing growth until 2016. Coffee is famous for its high caffeine content. Caffeine or often referred to as caffeine is a compound of the alkaloid group's secondary metabolism of the coffee plant and has a bitter taste. According to The Food and Drug Administration, 400mg is a safe amount of caffeine consumed by adults in one day. Some people are sensitive to the effects of caffeine Caffeine can cause headaches, stomachaches and can cause people to sleep, feel anxious or make the heart beat quickly, when intake is high. Based on observations in a cafe that is among consumers who buy coffee is the teenagers who spend time in the cafe to chat with friends. Some things to do at work. Based on the results of questionnaires on some respondents who are office workers that they never buy coffee in the morning when leaving for work because often stuck in the street or have to wait while ordering coffee plus queue that takes quite a long time if there are other customers who are ordering fear late entry work and respondents are at work or at a cafe table when they come home to work to talk with colleagues. Moreover they do not know the amount of caffeine present in coffee that they consume daily. Therefore an application is made to make it easier for consumers to order coffee in the cafe using midtrans api as payment gateway and information about the amount of caffeine that has been consumed daily.

Keywords: Midtrans API, Location Based Services, Caffenie Tracker, Coffee Express App, Android App

INTRODUCTION

1.1 Problem Identification

International Coffee Organization (ICO) data shows that Indonesian coffee consumption in the period 2000-2016 experienced an upward trend. In the year 2000, Indonesia's coffee consumption reached only 1.68 million packs @ 60kg, but in 2016 has reached 4.6 million packs @ 60kg, or jumped more than 174 percent. Even since 2011, coffee consumption is always experiencing growth until 2016. Indonesia is one of the world's largest producer and exporter of world coffee commodities. Indonesia's coffee production reached 6.56 million packs @ 60kg, ranked fourth in the world under Brazil, Vietnam, Columbia. While Indonesia's exports amounted to 5.4 million packs of @ 60kg and were in fifth place under Brazil, Vietnam, Columbia and Honduras [1].

Drinking coffee now has become a separate culture for the people of Indonesia. Currently also many cafes are emerging, in order to meet the wishes of people who start drinking coffee [2]. Coffee is famous for its high caffeine content. Caffeine or commonly referred to as caffeine is a compound of the alkaloid group's secondary metabolism from the coffee plant and has a bitter taste. According to The Food and Drug Administration, 400mg is a safe amount of caffeine consumed by adults in one day. For pregnant women, the maximum number is 200mg. while the Mayo Clinic recommends teenage children not to consume more than 100mg per day. Some people are sensitive to the effects of caffeine. Caffeine can cause headaches, stomachaches and can cause people to sleep, feel restless or make the heartbeat fast, when intake is high [3].

Based on observations in a cafe that most consumers who buy coffee are teenagers who spend time in the cafe to chat with friends. There are also consumers who are office workers who come to the cafe during a break with the aim to refresh his mind and energy after being tired of working. As for some consumer office workers who only buy coffee in the cafe to be brought to the workplace. Based on the results of questionnaires on some respondents who are office workers that they sometimes do not have time to buy coffee in the morning when leaving for work because often stuck in the street or have to wait when ordering coffee plus queue that takes a long time if there are other customers who are ordering so afraid are late in work and respondents sometimes do not get a place or table in the cafe when they come home to work to talk to their coworkers. Some

respondents do not really know the cafes on the route in accordance with the destination. Moreover they do not know the amount of caffeine content found in coffee that they often consume every day. 26 of 30 respondents involved, using an Android-based smartphone.

Based on the above problems it takes an application that can help consumers to order online without having to visit the store to avoid the queue and can display caffeine consumption every day in order to avoid excessive consumption of caffeine.

1.2 Purpose and Objectives

Based on the problems studied then the purpose of writing this final task is to build applications that can help consumers to facilitate the ordering coffee cafe available on an Android-based Smartphone. While the objectives to be achieved in this research are:

a. Provide cafe information that is on the consumer route in accordance with the direction of its purpose.
b. Providing online ordering system especially for consumers who are office workers to avoid queuing up when ordering and reducing the risk of being late for work.
c. Showing information about the amount of caffeine from coffee that has been consumed by the user to avoid excessive consumption.

RESEARCH CONTENTS

2.1 System Architecture Analisys

Analysis of system architecture aims to identify the architecture to be built. The software architecture of the mobile system describes how software interacts with each other as shown below:

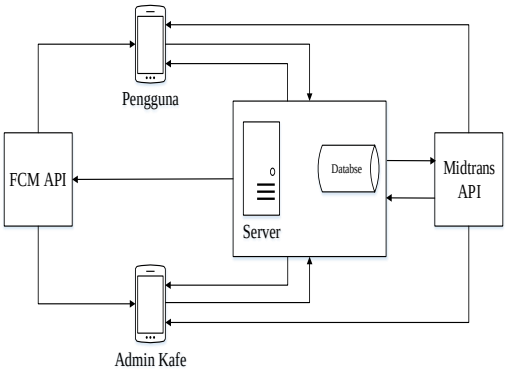


Figure 2.1 System Architecture

2.2 Firebase Cloud Messaging Architecture Analisys

Firebase Cloud Messaging analytics is aimed at getting a push notification from a consumer who makes a transaction payment or displays information about the promo of an available cafe. Here is an overview of the architecture of the firebase cloud messaging analytics.

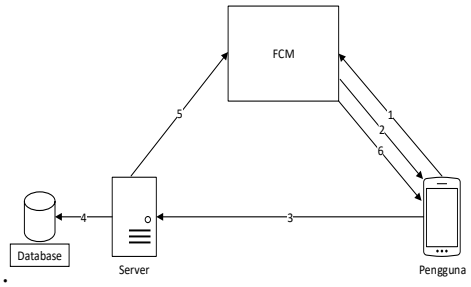


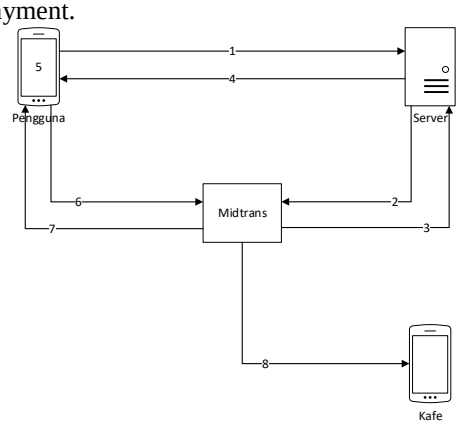
Figure 2.2 FCM Architecture

Here is a description of the picture above:

a. The user device sends the user id to the FCM server to register the device.
b. FCM server makes id_fcm for user devices that have been shipped.
c. The user device sends id_fcm to the server via the API.
d. The server stores the id_fcm that the user's device sends in the database.
e. For push requests, the server sends a request to the FCM server with id_fcm already registered.
f. FCM server sends push notification to user device according to id_fcm registered.

2.3 Payment Arcitecture Analisys

The payment analysis on the built application will use one of the payment methods provided by Midtrans by way of Bank Transfer. By using this payment method, users will have the option to make a payment via bank transfer and Midtrans will send notifications in a timely manner when the user meets the payment.



Gambar 2.3 Arsitektur Pembayaran

Here is a description of the picture above:

a. User makes an order.
b. The server makes a payment method request to the Midtrans API.
c. Midtrans API provides response.
d. Displays the payment methods provided by Midtrans.
e. Choose a payment method.

f. Pay the booking fee.
g. User-initiated payment response
h. Get notification of payment information by user.

2.4 Use Case

The use case diagram illustrates the process that exists in the application. Use case on the built application can be seen in the following figure:

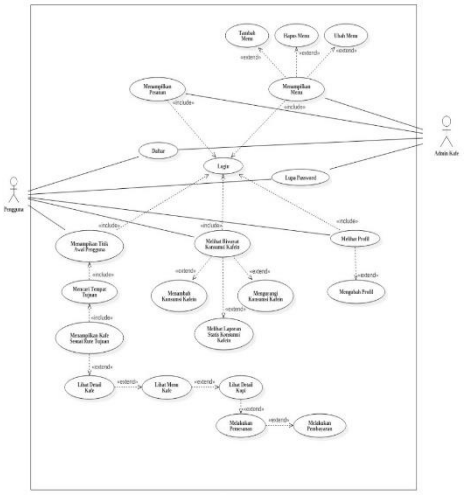


Figure 2.4 Use Case

2.5 Activity Diagram

Activity diagrams describe the main scenario activities and alternative scenarios in use cases. The activity diagram in the use case is illustrated as follows.

1. Activity Diagram Sign Up

The following activity diagram illustrates the list process.

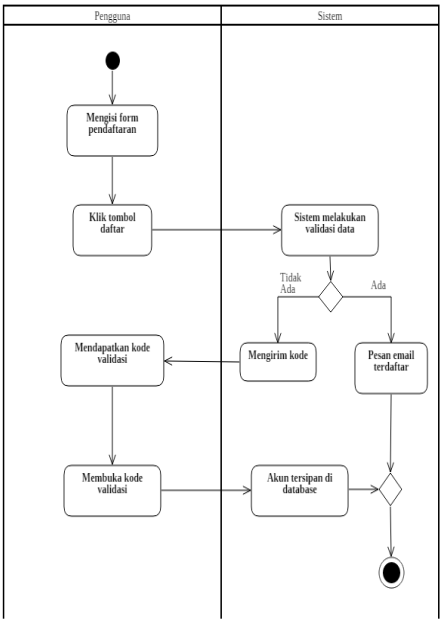


Figure 2.5 Activity Diagram Sign Up

2. Activity Diagram Login

The following activity diagram illustrates the list process.

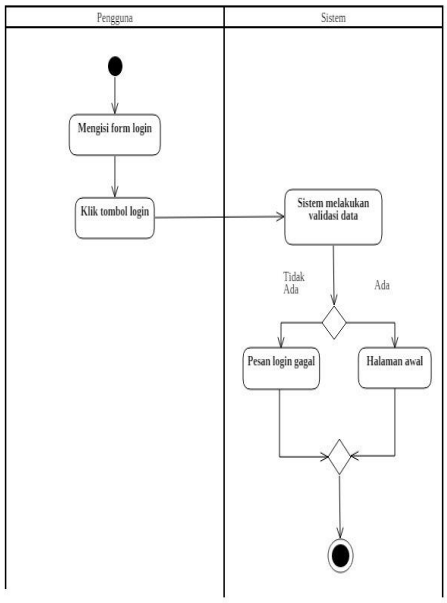


Figure 2.6 Activity Diagram Login

3. Activity Diagram Forgot Password

The following activity diagram illustrates the list process.

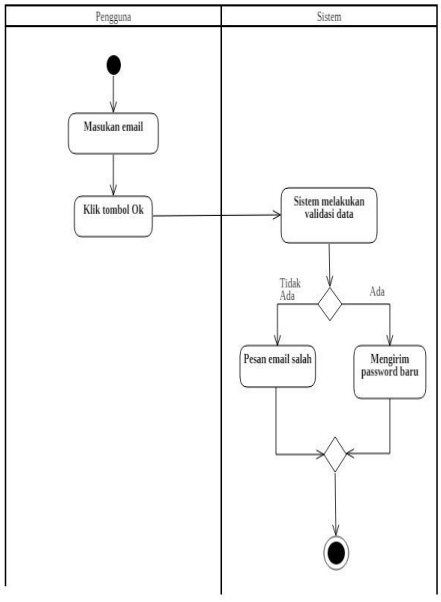


Figure 2.7 Activity Diagram Forgot Password

2.6 Interface Design

1. Splash Screen Page

Here is a design figure for the splash screen page.

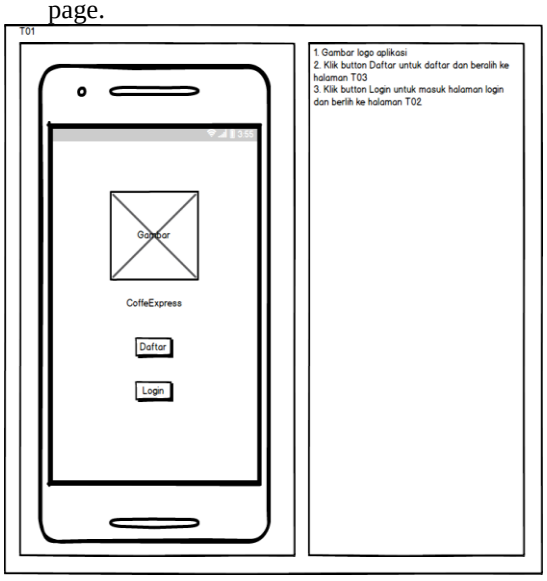


Figure 2.8 Splash Screen Page

2. Login Page

Here is a design figure for login page.

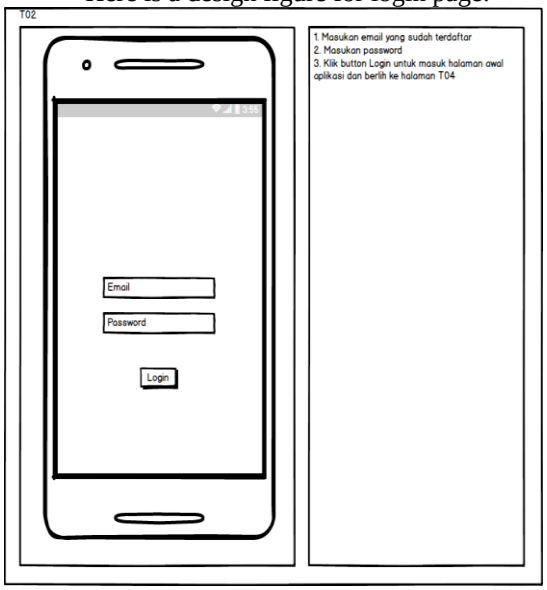


Figure 2.9 Login Page

3. Sign Up page

Here is a design figure for Sign up page.

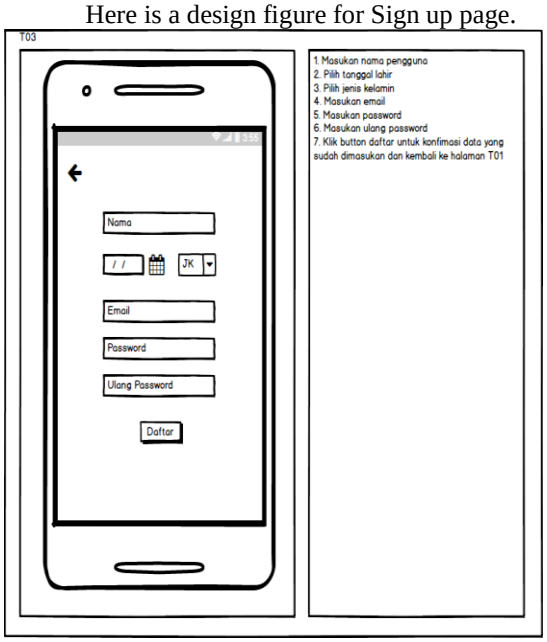


Figure 2.10 Sign Up Page

4. User Home Page

Here is a design figure for user home page.

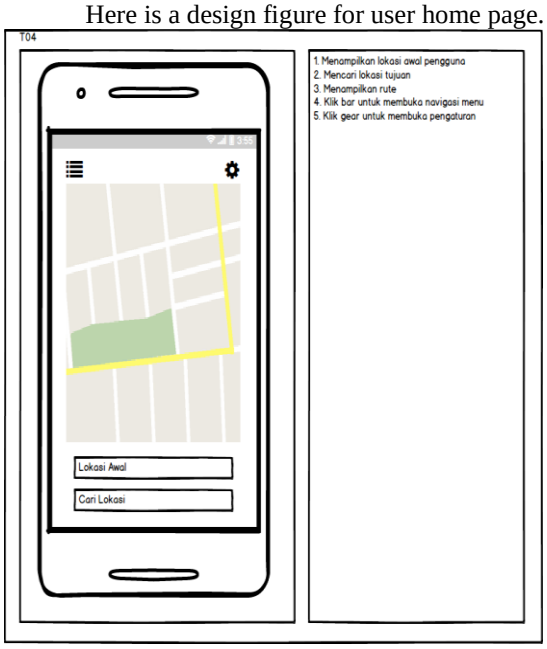


Figure 2.11 User Home Page

5. Choose Destination Page

Here is a design figure for choose destination page.



Figure 2.12 Choose Destination Page

6. Café Details Page

Here is a design figure for café details page.

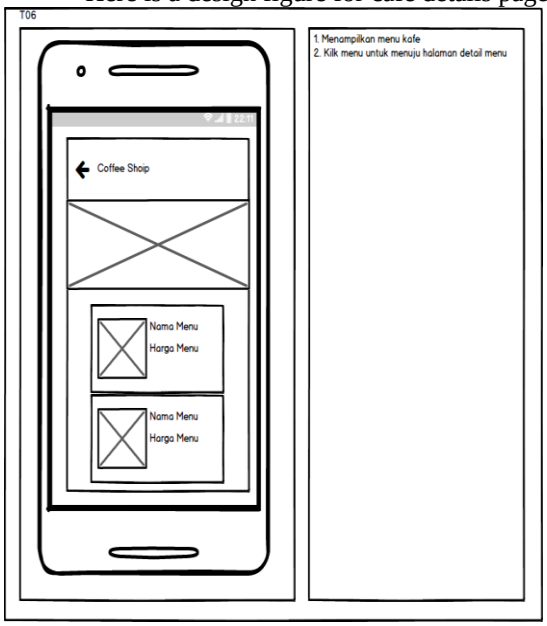


Figure 2.13 Café Details Page

7. Halaman Detail Menu

Here is a design figure for menu details page.

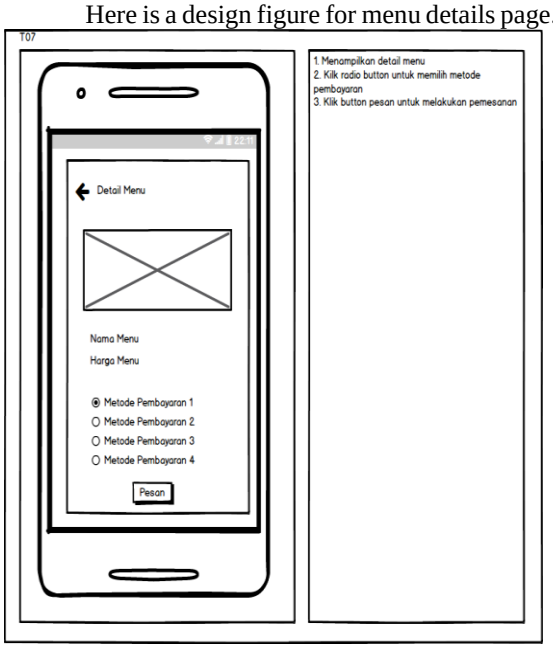
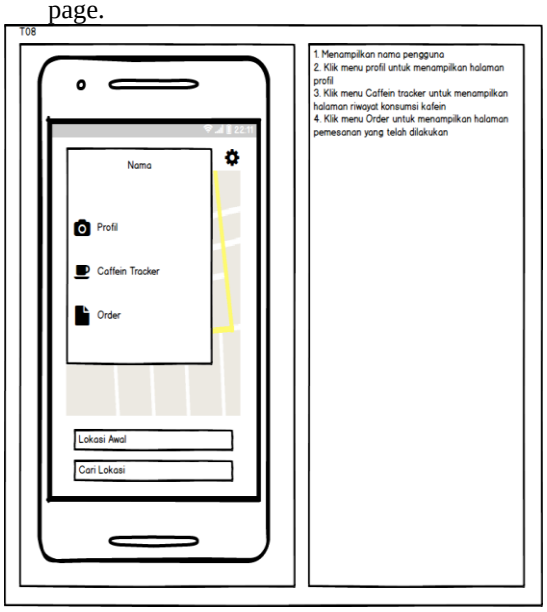


Figure 2.14 Menu Detail Page

8. Navigation Menu Page

Here is a design figure for navigation menu page.



Gambar 2.15 Navigation Menu

9. Profil Page

Here is a design figure for profil page.

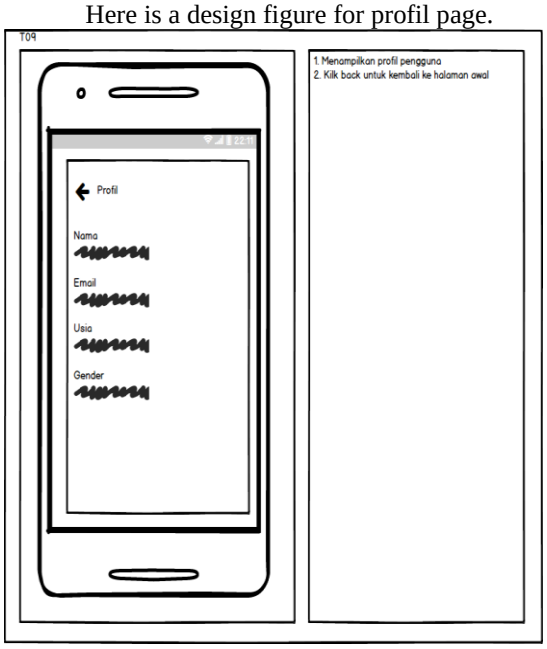


Figure 2.16 Profil Page

10. Caffeine Page

Here is a design figure for caffeine page.

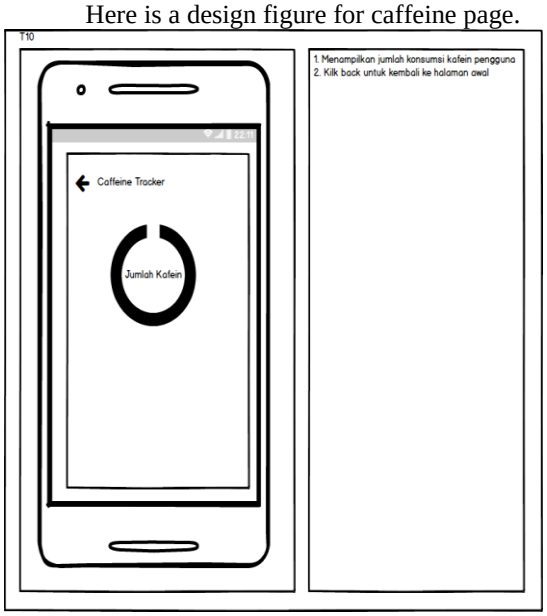
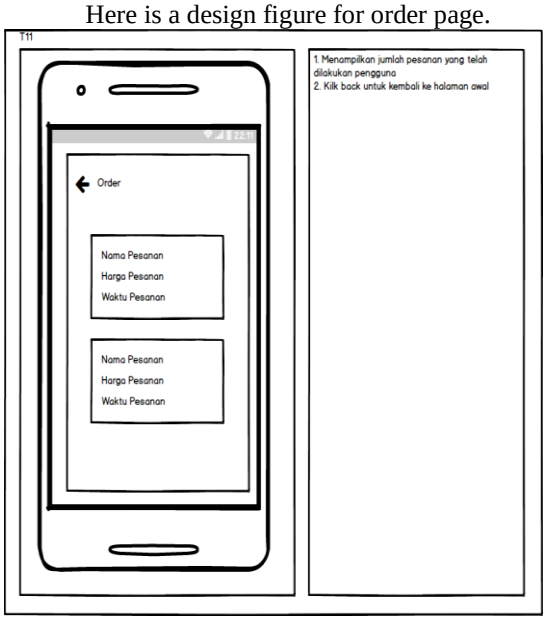


Figure 2.17 Halaman Kafein

11. Order Page

Here is a design figure for order page.



Gambar 2.18 Order Page

2.7 Menu Structure

The design of the system menu can be seen in the figure below:

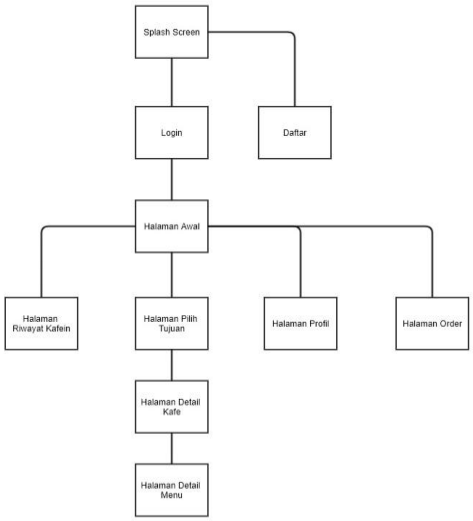


Figure 2.19 Menu Structure

2.8 Semantic Network Design

Semantic network for the application can be seen in the figure below:

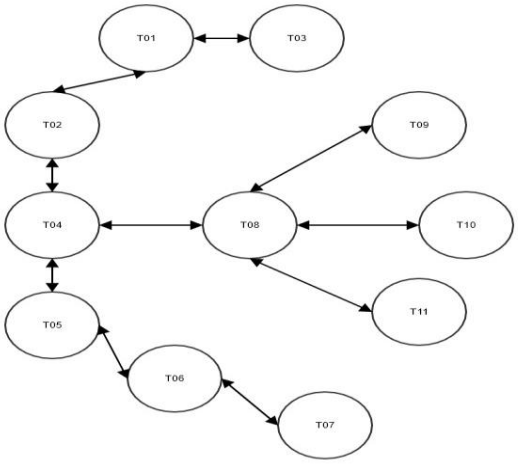


Figure 2.20 Semantic Network

Table 2.1 Table View Code

Kode Tampilan	Deskripsi
T01	Splash Screen Page
T02	Login Page
T03	Sign Up Page
T04	User Home Page
T05	Choose Destination Page
T06	Café Details Page
T07	Menu Details Page
T08	Navigation Menu Page
T09	Profil Page
T10	Caffeine Page
T11	Order Page

2.9 Alpha Test Conclusion

Based on the results of software testing conducted it can be concluded that the software built is running as expected both in terms of validation and error handling process.

2.10 Beta Test Conclusion

From the results of questionnaires conducted on 35 respondents who provide answers to the questions posed can be concluded that:Pengguna setuju bahwa aplikasi Coffee Express dapat memudahkan dalam mencari kafe.

a. Users strongly agree that Coffee Express apps can make it easy to order coffee at the cafe.
b. Users agree that Coffee Express application can make it easy to know the amount of caffeine consumed every day.
c. Users agree that the Coffee Express app can make it easy to find out information about existing promotions in available cafes.
d. The user agrees that the Coffee Express app is easy to use.

CLOSING

3.1 Conclusion

Based on the testing results of Coffee Expresss app on Android platform can be concluded that:

a. Applications built to facilitate the search for cafe information according to destination routes.
b. The built application provides an online ordering system that simplifies the user in ordering coffee in the cafe without having to wait in line.
c. The built application provides information about the history of caffeine consumption that allows users to know the amount of caffeine that has been consumed every day.
d. The built application makes it easy to provide information about promotions in the cafe.

3.2 Suggestion

The Coffee Express app is built to make it easier for coffee enthusiasts to find the location of cafes, order coffee, find out the amount of caffeine they have consumed and find out information about promotions available at the cafe. The suggestions are as follows:

a. Displaying travel duration information from the user's starting point to the location of the café
b. Displays available queue information in available cafes.

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