

Universiti Teknologi MARA

**Aroma Atlas: A Mobile
Application for
Personalized Café Finder
Using Global Positioning
System**

Adam Hakimi Bin Abdul Mutalib

**Thesis submitted in fulfillment of the requirements
for Bachelor of Information Technology (Hons.)
Faculty of Computer and Mathematical Sciences**

July 2025

ACKNOWLEDGEMENT

First and foremost, I would like to express my deepest gratitude to Allah SWT for granting me the strength, patience, and perseverance to complete this final year project entitled *"AROMA ATLAS: A Mobile Application for Personalized Café Finder Using Global Positioning System."*

I would like to extend my sincere appreciation to my supervisor, Miss Maznie binti Manaf, for her invaluable guidance, encouragement, and constructive feedback throughout the development of this project. Her continuous support has been instrumental in helping me stay on track and motivated during the entire process.

My heartfelt thanks also go to the Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA (UiTM), for providing the resources and academic foundation necessary for the completion of this work.

I am deeply grateful to my family, especially my parents, for their endless love, prayers, and moral support. Their unwavering belief in me has been a constant source of strength.

To my friends and classmates, thank you for the camaraderie, teamwork, and helpful discussions that have made this journey less daunting and more enjoyable.

Finally, I would like to thank everyone who directly or indirectly contributed to the success of this project. Your support and kindness are truly appreciated.

ABSTRACT

In the current digitalized world, coffee lovers want to have more than a caffeine dose, they want to have an individualized, convenient, and interactive experience when exploring cafes. Nevertheless, most of the current applications do not provide any significant customization, multi-vendor, and filtering. The proposed project introduces Aroma Atlas, a mobile application developed using Android Studio, that designed to help users find cafes based on their current GPS location, preferred drink types and coffee bean choices, while also offering role-based functions for customers, business owners and administrator. Firebase was used to develop the system as a real-time cloud database and Google Maps API to provide location services. The process of development was based on the Agile Scrum methodology, which made it possible to implement, test, and improve features iteratively. The most important modules are user registration and log-in, discovery and filtering of cafes, personalized recommendations of cafes, rating and reviews, booking and order management, a dashboard of the business owner, and an admin panel with approval and analytics on the web. The System Usability Scale (SUS) and User Acceptance Testing (UAT) were used to evaluate the system. The findings proved to be very usable, user-satisfying, and reliable in terms of functionality. Even though the system is confined to the Machang, Kelantan region and has not yet implemented machine learning or loyalty rewards, the project is effective in achieving its goals and is the basis of future improvements, including the expansion of coverage to other locations, the development of smart recommendations, and publishing to app stores. Aroma Atlas eventually closes the gap between the users and the independent cafes and facilitates a smarter and more fun experience of finding cafes.

TABLE OF CONTENT

CONTENT	PAGE
SUPERVISOR APPROVAL	ii
STUDENT DECLARATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENT.....	vi
LIST OF FIGURES.....	x
LIST OF TABLES	xii
LIST OF ABBREVIATIONS	xiii
 CHAPTER 1 INTRODUCTION.....	 1
1.1 Background.....	1
1.2 Problem Statement.....	2
1.3 Research Questions	3
1.5 Scope.....	4
1.6 Project Significance.....	5
1.7 Expected Outcome	6
1.8 Project Limitation	7
1.9 Chapter Summary.....	8
 CHAPTER 2 LITERATURE REVIEW	 9
2.1 Introduction	9
2.1.1 Understanding Café Users: Enthusiasts, Experiences, and Discovery Trends	10
2.1.2 Mobile User Experience in Café Discovery.....	12
2.1.3 The Role of Mobile Applications in Supporting Local Businesses..	15

CHAPTER 1

INTRODUCTION

This chapter presents the foundation of the project, including background, problem statement, research questions, objectives, scope, and significance. It introduces Aroma Atlas, a mobile application developed to help users find cafés based on their preferences and current location. By utilizing GPS technology and a personalized recommendation system, the application aims to improve user experience in discovering cafés while also supporting local café owners in promoting their businesses.

1.1 Background

Coffee lovers now choose cafés for more than just a good cup of coffee - they want to meet people for social interaction and culture experiences. More people today are joining a growing group who love all things good coffee, preparing small batches with care while also taking care of the environment (Smith & Taylor, 2022). People who love coffee want unique experiences created by independent and specialty coffee shops that focus on making great and creative drinks (Lone et al., 2023). Small local coffee shops often struggle to stand out in markets filled with big chain stores. This shows coffee lovers need new ways to find and support local coffee businesses.

To address this issue the project introduces a personalized solution that helps people to locate distinctive coffee places aligned with their preferences. Recommendation systems are made to give recommendations, which are based on the preferences and interests of the users. Although most contemporary recommendation systems involve machine learning and artificial intelligence to increase flexibility and the accuracy of predictions (Zhang et al., 2016), the rule-based filtering strategy is used in cafe finder application. It depends on the user-selected preferences, such as type of beverage and