# CHAPTER ONE INTRODUCTION

## **Background of Study**

The inevitable growth of new media within technological advances and enormous consumers’ Internet use causes changes in the companies’ marketing communication strategies to have a competitive advantage within the marketplace. Therefore, new media is considered as a global marketplace that covers the use of marketing communication tools in a technological facet. The new media campaigns give an opportunity for the companies to analyze the campaign’s success easily by checking the pre-/post-launches of their marketing communication campaigns by using the number of interactions, accessions, views, previews, engagement rates, and electronic word-of-mouth communication (eWOM) responses. One of the traditional ways of face-to-face communication known as word-of-mouth (WOM) communication transforms into eWOM after the use of new media platforms.

The term mobile advertising refers to any form of advertising that appears on mobile devices such as smartphones and tablet computers. Companies advertise on these devices through text ads via SMS or through [banner advertisements](https://www.investopedia.com/terms/b/banneradvertising.asp) that appear embedded on a mobile website. They may also be found through downloaded apps including mobile games.

Modern technology has given consumers a wider range of options when it comes to how they consume media. In fact, people now spend more time on their [smartphones](https://www.investopedia.com/terms/s/smartphone.asp), tablets and other mobile devices than they do sitting in front of the TV. ﻿ That's because of the ease and cost of these devices, not to mention the availability of wireless connections allowing people to tap in. In order to keep up with changing consumer habits, companies adapted their [advertising campaigns](https://www.investopedia.com/financial-edge/1111/8-of-the-most-successful-ad-campaigns-of-all-time.aspx) by adopting mobile advertising strategies. That's because the chance that new and existing customers will see an ad through a mobile device is greater than they would through traditional avenues. Because mobile devices typically have smaller screens than computers or laptops, this form of digital advertising is usually optimized for small displays.

The focus of this project is to create a platform that advertises products as posts on a social media-based app using Instagram as a reference.

## **Statement of the Problem**

Understanding a customer base is why companies advertise their product but to gauge customer engagement with a product will require the customer understanding of the product and that’s portrayed through advertisements. Client and customers engagement with a product is influenced by advertisement and with 2-Dimentional (2D) advertising customer are left to their imaginations to gauge the applicable areas of products and their usage which limit engagement but with 3-Dimentional (3D) or video streaming, products can be advertised through professional usage in their areas of application and method of usage.

## **Aim and Objectives of the Study**

The project is aimed at developing a social media platform application for posting an advertisement.

The objectives are:

1. To develop an engaging and easy-to-use UI with good UX using Flutter.
2. To Implement a logic that will handle and process advertisement data.
3. To Evaluate and verify the efficacy of the application.

## **Scope of the Project**

The area covered in the project focus on the posting of advertisement product by a company using an online platform powered by Firebase. The project is based on the Instagram social media platform. The platform is limited to a picture approach meaning no live streaming or video and will have minimum functionality with no payment gateway due to resource and time constraints

## **Limitations of the Study**

This study's scope has been constrained by several core issues, including:

**Time** - The researcher's everyday busy academic pursuits limited the time allotted for research for this study.

**Access to literature** – Access to some material was restricted, although the available material was optimized.

## **Significance of the Study**

The platform or web app stands to benefit the industry with a choice of diverse advertising for different products and a way for customers to see how products are used (through model sampling) and their relevance thereby allowing customers to make a better choice in choosing products and brands.

**1.7 Project Organization**

The project is divided into five chapters. The outlines are presented below:

**Chapter One: Introduction**

Chapter one introduces this project work, the background of the study, the statement of the problem, the aim and objectives, the scope of the study, limitations of the study, the significance of the study, project organization, and the definition of terms.

**Chapter Two: Literature review**

This chapter focuses on the literature review, and the contributions of other scholars on the subject matter being discussed.

**Chapter Three: Methodology and Design**

This chapter is concerned with the presentation of the results of system analysis and design. It presents the research methodology used in the development of the system to facilitate an understanding and effective future implementation of the system.

**Chapter Four: System Implementation Evaluation**

This chapter describes the system implementation and documentation, analysis of modules, and system requirements for implementation.

**Chapter Five: Summary, Conclusion, and** **Recommendation**

The chapter provides a summary of major findings, conclusions, and recommendations based on the study conducted.

# CHAPTER TWO LITERATURE REVIEW

## **Introduction**

# By referencing pertinent works by other researchers who have tackled a comparable subject, this chapter tries to show how the topic under examination ties to prior research, current practice, or other domains of knowledge. In addition, this chapter will provide a summary of recent research on the subject, highlighting areas of agreement and disagreement as well as any gaps in the body of knowledge, in order to highlight the significance of the project issue and suggest potential directions for further study.

**2.2 Literature Review**

Lee et al. (2017). Design and implementation of the companion app. service for scene-based product advertisement. With the rapid increase in multimedia content and various screen devices, mobile users want to watch content regardless of device type anytime and anywhere, which is called multi-screen service (MSS), performed by service mobility technology.

Moreso, the proposed app service works mostly in a client/server scenario. The server contains a database server, a web server for information delivery, and an open API server. The client app runs in an HTML5-based web browser, the server in an Express framework based on nod.js, and the client in a Cordova hybrid platform that allows a web app to run the web view browser control. In order to build it in the model-view control paradigm, we also present the backbone and the Marionette framework.

Finally, we presented the design of the companion app service as well as the implementation outcome. The companion app works on a client/server model. We also provided the architecture of the companion app service and the schema of the broadcasting program database in order to emulate a real-time broadcasting system. Based on the companion app, we want to create a scene-based VOD (Video on Demand) clip service and a media commerce business in the future. And a second-screen gadget.

Adikari, (2017). Understanding the in-app advertisement effect on mobile user ad accessibility. This study aims to examine the effect of in-app advertising on mobile user behavior. The focus is on the ad features such as ad size, ad position, and ad vividness. The study also looks at how meta-motivations moderate the impact of vividness on user intentions. The research is based on the gap in understanding in-app advertising and how existing studies on online advertising cannot be directly applied to it. The study will test its hypotheses using data from a laboratory experiment and contribute to the mobile marketing literature by introducing new concepts and measurement techniques. The ultimate goal is to improve the outcomes for both advertisers and publishers in the online ad ecosystem.

Amatullah et al. (2019). An analysis of multimodal in beauty product advertisements. The writer conducted a multimodal analysis of beauty product commercials in this study. The use of visual and verbal language in beauty product marketing is the most straightforward technique to affect buyers' beliefs. Wardah Lip Cream Matte Lipsticks and Purbasari Hi Matte Lip Cream were the cosmetic goods studied in this study. Meanwhile, there are several studies that focus on beauty product advertising, particularly lipstick items. These two advertisements are audiovisual advertisements, which communicate a message through music and moving images.

Furthermore, the descriptive qualitative approach was employed in this study. The visuals, phrases, symbols, sounds, and movements contained in Wardah Lip Cream Matte Lipsticks and Purbasari Hi Matte Lip Cream commercial films were used in this study as data.

In conclusion the examination of the two marketing films above, it can be determined that every metafunction component in the verbal and visual elements has the same potential in expressing meaning in both Wardah Exclusive Matte Lip Cream and Purbasari Hi Matte Lip Cream audiovisual advertisements. The study also reveals that the visual and verbal processes of these advertising are in sync and complement one another. To put it another way, whatever is offered in the linguistic text describes the processes depicted in the visuals.

Kang et al. (2020). Tree-based real-time advertisement recommendation system in online broadcasting. The first means to perform an online (or network-based) purchase was through electronic home shopping. In contrast to traditional shopping, which needs a visit to stores and shopping malls, electronic home shopping allows consumers to buy for items and services from the comfort of their own homes. With the widespread usage of smart TV and IPTV services, Mario Luca Bernardi was the assistant editor in charge of managing the evaluation of this article and authorizing it for publication. T-Commerce, or TV commerce, is a new e-commerce business model that handles queries or transactions in digital broadcasting. In contrast to other traditional advertising methods, product placement (PPL) exposes or displays sponsored items to users indirectly. Furthermore, there are numerous kinds of advertisements.

Moreso, user preferences should be forecasted in real-time to offer tailored advertising services. Existing recommendation systems based on matrices, on the other hand, have difficulties meeting real-time needs. We present a tree model in this work to anticipate user preferences in real-time. The tree is a DAG (directed acyclic graph) with no loops or circuits. It can do logarithmic time complexity data searches and is appropriate for expressing hierarchical data. Furthermore, the tree may handle data dynamically. Matrix-based recommendation systems require all item properties to predict similarity and preference. As a result, the matrix form has scalability limitations and cannot condense redundant data. Unlike the matrix, the tree may eliminate wasteful calculations by merging redundant data and removing superfluous nodes.

In conclusion, we provided many strategies for implementing tailored advertising services in internet broadcasting. To deliver individualized advertising services, the advertisement system must be aware of the user's item preferences. The advertisement system can forecast user preferences thanks to the recommendation algorithm. Existing recommendation systems, on the other hand, suffer from the significant cost associated with developing the model for preference prediction or identifying groups of similar users. Overspecialization and data sparsity issues may arise in content-based filtering algorithms since preference is anticipated based on a single user's previous data. We presented a tree-based real-time advertisement recommendation system to address these concerns. To forecast a user's preferences in real time, we used a tree model. Furthermore, we used a sorted HashMap data structure.

Manurung et al. (2021). Semiotic in milk advertisements. In general, audiovisual commercials presented on mass media have a short length. There are numerous messages from a product that the advertiser wants to convey in a short period of time. As a result, advertisers employ a range of signals to effectively convey product messaging. The usage of various types of signage is also intended to draw the notice and interest of potential consumers. These symbols might be icons, indexes, or symbols. The semiotic technique was used to investigate several types of these markers. Advertisements may be seen and created in semiotics based on a major connection (signs, objects, interpretant).

Furthermore, the descriptive qualitative approach was employed in this study. A qualitative study focuses on characteristics rather than things. According to Lincoln and Guba (1982:128-152), the researcher's own instrument is used in qualitative research. The study's data consists of verbal text (words and sentences) and visual text (images, sounds, and color) from four Bear Brand audio-visual advertisements that aired on television between 2009 and 2015.

In conclusion, is possible to conclude that all of the advertising employs semiotic signals. There are 20 icons, 8 indices, and 26 symbols in all. The signs are designed to be entertaining, intelligible, and effective. The indications of Bear Brand advertising are always introduced in order to provide the clearest information about the alleged benefits of the items offered. In all commercials, signs are always affixed. Their presence was intended to help the public understand the commercials. The word is seen and wood head sign serves an important part in compelling the audience to pay attention to the goods being marketed or sold.

**2.3 Summary of Related Literature Reviews**

|  |  |  |  |
| --- | --- | --- | --- |
| **Author & Year** | **Title & Description** | **Merits** | **Demerits** |
| Lee et al. (2017) | Design and implementation of the companion app. service for scene-based product advertisement This app aims to provide additional information and services related to the TV content being watched | The authors propose an architecture and schema for the companion app service and broadcasting program database, making the implementation process more streamlined. | The proposed design may not suit the needs of all users or TV content |
| Adikari, (2017) | Understanding the in-app advertisement effect on mobile user ad accessibility  This study aims to examine the effect of in-app advertising on mobile user behavior. The focus is on the ad features such as ad size, ad position, and ad vividness. | it has provided a deeper understanding of the effect of in-app advertising on mobile user behavior and contributed to the mobile marketing literature by introducing new concepts and measurement techniques. | The system is limited to laboratory experimentation, which may not fully reflect real-world scenarios and user behavior. |
| Amatullah et al. (2019) | An analysis of multimodal in beauty product advertisements.  The focus of the study is on the comparison between verbal and visual elements used in two lipstick product advertisements, Wardah Lip Cream Matte Lipsticks and Purbasari Hi Matte Lip Cream. | it provided a deep understanding of the meaning of the text in beauty product advertisements by using a multimodal analysis approach and comparing verbal and visual elements in two advertisements. | it is limited in scope as it only focuses on two lipstick product advertisements and may not be representative of all beauty product advertisements or other forms of advertising |
| Kang et al. (2020) | Tree-based real-time advertisement recommendation system in online broadcasting  The goal of this study is to overcome the limitations of traditional advertising services, which do not take into account user preferences. | The proposed recommendation system overcomes the limitations of traditional advertising services by taking into account user preferences. | It only focused on the performance of the proposed system and does not compare it with existing recommendation systems, so it is unclear how it performs relative to other systems. |

## **Flutter & Dart**

Flutter is a free and open-source mobile UI framework created by Google and released in May 2017. In a few words, it allows you to create a native mobile application with only one codebase. This means that you can use one programming language and one codebase to create two different apps (for iOS and Android) (Thomas, 2021).

Flutter consists of two important parts (Thomas, 2021):

1. An SDK (Software Development Kit): A collection of tools that are going to help you develop your applications. This includes tools to compile your code into native machine code (code for iOS and Android).
2. A Framework (UI Library based on widgets): A collection of reusable UI elements (buttons, text inputs, sliders, and so on) that you can personalize for your own needs.

To develop with Flutter, you will use a programming language called Dart. The language was created by Google in October 2011, but it has improved a lot over the past years (Thomas, 2021).

Dart focuses on front-end development, and you can use it to create mobile and web applications (Thomas, 2021). If you know a bit of programming, Dart is a typed object programming language. You can compare Dart's syntax to JavaScript (Thomas, 2021).

### **Simple to Learn and Use**

Flutter is a modern framework, and you can feel it! It’s way simpler to create mobile applications with it. If you have used Java, Swift, or React Native, you'll notice how Flutter is different (Thomas, 2021).

### **Quick Compilation: Maximum Productivity**

Thanks to Flutter, you can change your code and see the results in real time. It’s called Hot-Reload. It only takes a short amount of time after you save to update the application itself.

Significant modifications force you to reload the app. But if you do work like design, for example, and change the size of an element, it’s in real time! (Thomas, 2021).

### **Ideal for start-up MVPs**

If you want to show your product to investors as soon as possible, Flutter is a good choice (Thomas, 2021).

Here are some of the top 4 reasons to use it for MVP (Thomas, 2021):

* It’s cheaper to develop a mobile application with Flutter because you don’t need to create and maintain two mobile apps (one for iOS and one for Android).
* One developer is all you need to create your MVP.
* It’s performant – you won't notice the difference between a native application and a Flutter app.
* It’s beautiful – you can easily use widgets provided by Flutter and personalize it to create a valuable UI for your customers (you can find examples of applications made with Flutter below).

### **Firebase**

What is Google Firebase? It is a mobile application development platform from Google with powerful features for developing, handling, and enhancing applications. Firebase is a backend platform for building web and mobile applications (Batschinski, 2022).

Firebase is fundamentally a collection of tools developers can rely on, creating applications and expanding them based on demand (Batschinski, 2022).

Firebase aims to solve three main problems for developers (Batschinski, 2022):

* Build an app, fast
* Release and monitor an app with confidence
* Engage users,

Developers relying on this platform get access to services that they would have to develop themselves, and it enables them to lay focus on delivering robust application experiences (Batschinski, 2022).

Some of the Google Firebase platform’s standout features include databases, authentication, push messages, analytics, file storage, and much more (Batschinski, 2022).

Since the services are cloud-hosted, developers can smoothly perform on-demand scaling without any hassle. Firebase is currently among the top app development platforms relied upon by developers across the globe (Batschinski, 2022).

# CHAPTER THREE METHODOLOGY AND DESIGN

**3.1 Introduction**

A methodology is an approach to rigorous study or investigation, particularly to uncover new facts or information; hence, research methodology should be good enough to make the attainment of the established objectives attainable with certain components, such as methods of data collecting and design. This chapter includes the input/output specifications and system requirements for the development of a product advertisement application, as well as the system modeling (use case, activity, and class diagrams).

**3.2 Methods of Data Collection**

It is crucial to acquire data and facts about the current system before implementing any system since one has to understand what is happening. Two techniques were used to conduct this study.

1. Primary
2. Secondary

**3.2.1 Primary Source of Information**

This comprises information that is collected directly or indirectly from target users without any alterations or ideas from other authors. The information from this primary source is deemed more accurate and reliable. Hence, the aim is to assimilate the information gathered from this source into the project in order to meet requirements. The chosen fact-finding techniques for the primary source data gathering are: interview and observation

**3.2.2 Secondary Source of Information**

This basically comprises the totality of information someone is able to obtain from existing sources such as books, the internet, case study, articles, newsletter, and other valuable publications. The resources gathered from the internet specifically have been very relevant, various search engines especially Google made information finding very easy.

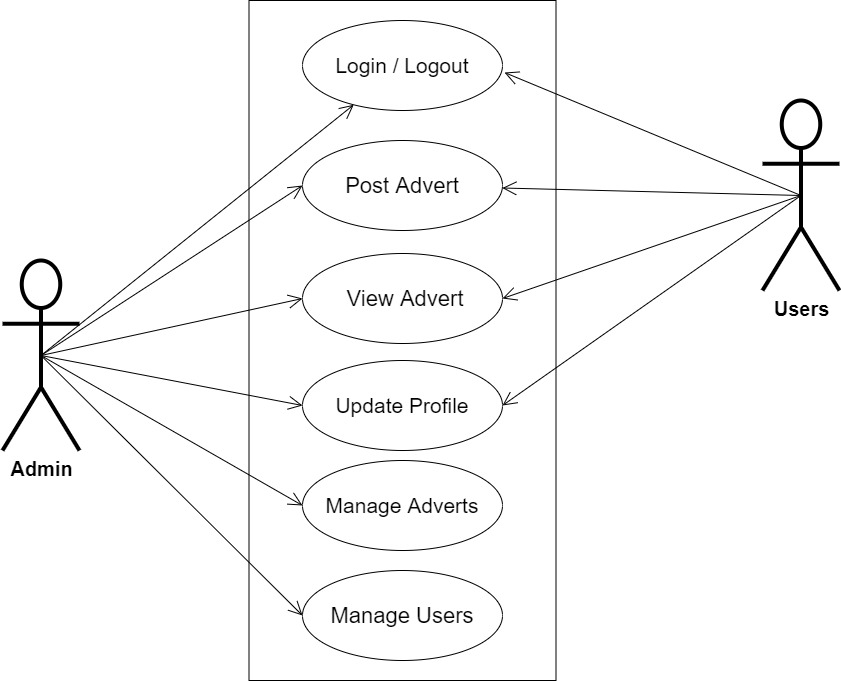
3.3 **System Modeling**

A system model is a conceptual model that describes and portrays a system. A system is any interaction between a collection of components that collaborate to achieve a shared goal. Visual models of object-oriented software-intensive systems may be constructed using a set of visual notation techniques contained in the Unified Modeling Language, which was used to develop this modern system. Use case diagrams, class diagrams, and activity diagrams are among the UML diagrams used in this new design



**3.3.1 Use Case Diagram**

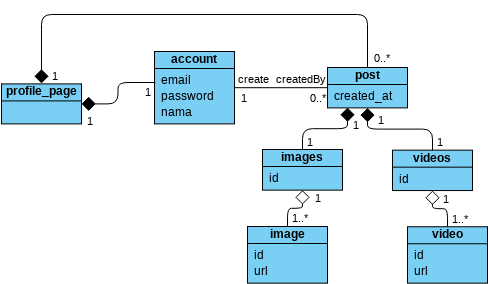
Use-case diagrams describe the high-level functions and scope of a system. These diagrams also identify the interactions between the system and its actors. The use cases and actors in use-case diagrams describe what the system does and how the actors use it, but not how the system operates internally.



**Figure 3.1: Use Case Diagram**

**3.3.2 Class Diagram**

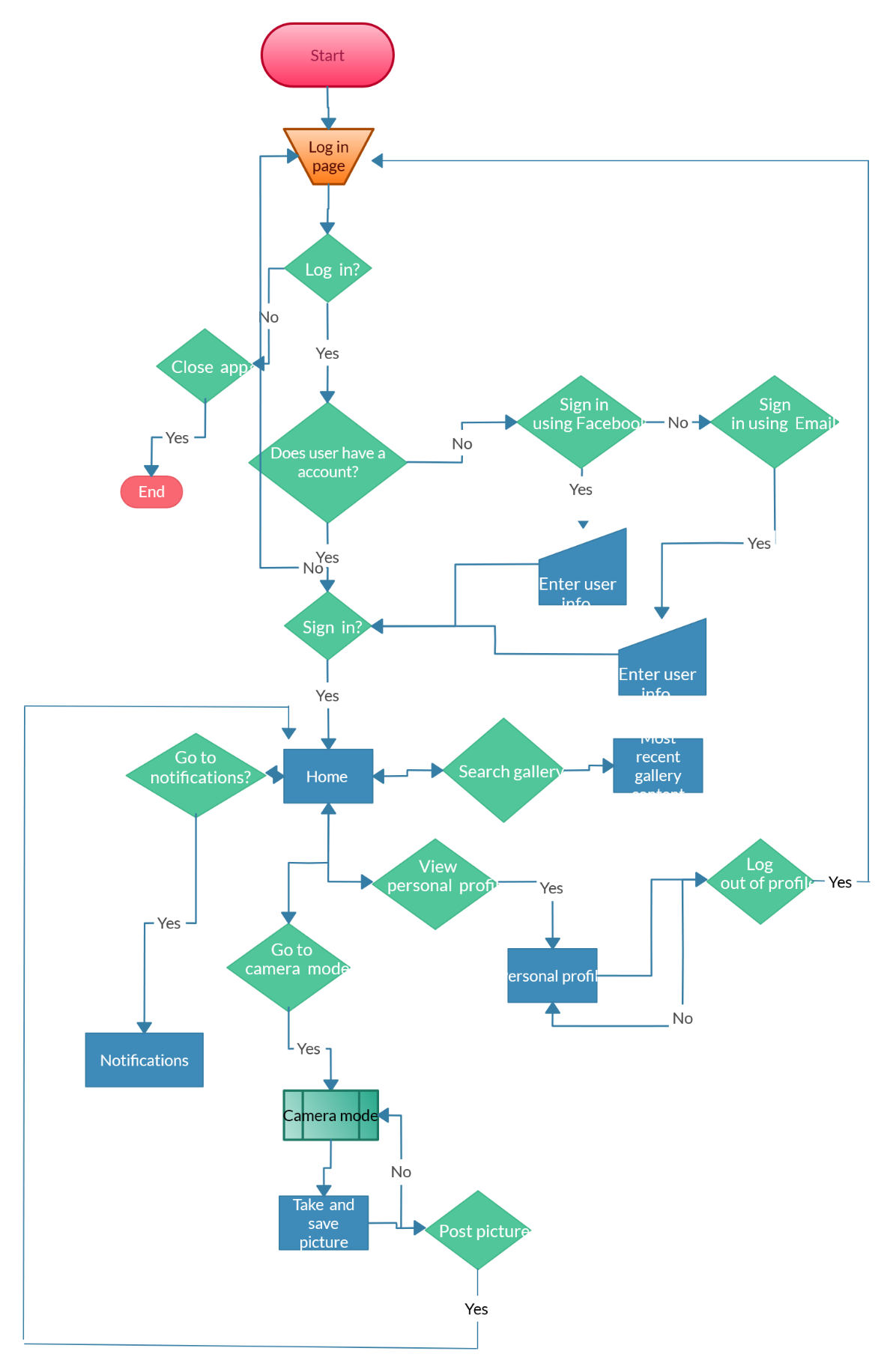
A class diagram is basically a graphical representation of the static view of the system and represents different aspects of the application. A collection of class diagrams represent the whole system. The name of the class diagram should be meaningful to describe the aspect of the system.



**Figure 3.2 Class Diagram**

**3.3.3 Flow Chart Diagram**

A flowchart is a diagram that depicts a process, system or computer algorithm. They are widely used in multiple fields to document, study, plan, improve and communicate often complex processes in clear, easy-to-understand diagrams. Flowcharts, sometimes spelled as flow charts, use rectangles, ovals, diamonds and potentially numerous other shapes to define the type of step, along with connecting arrows to define flow and sequence. They can range from simple, hand-drawn charts to comprehensive computer-drawn diagrams depicting multiple steps and routes.



**Figure 3.3: Flow Chart Diagram**

### **3.3.4 Sequence Diagram**

Sequence Diagrams are interaction diagrams that detail how operations are carried out. They capture the interaction between objects in the context of a collaboration.

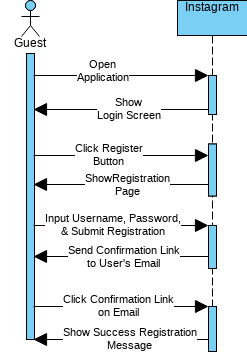


Figure 3.4: Sequence Diagram

**3.4 Database Design**

Input specification is the logical explanation of how data is stored in the computer's memory. SQL standards are vital for guaranteeing that structured data is uniform and independent of applications due to the flexibility experienced when using the system, as well as the simplicity of accessing and reading the data and ensuring applicability throughout the internet. The following are some of the input specifications used in this project effort.

1. Users Table: contains basic information about all system users.
2. Advert Table: contains every system-saved advert information.

**Table 3.1 Users Input Specification Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Null** | **Key** | **Length** | **Description** |
| user\_id | Varchar | No | PK | 32 | Unique string for identifying users |
| email | Varchar | No |  | 100 | User email address |
| password | Varchar | No |  | 128 | User Password |
| full\_name | Varchar | No |  | 60 | User full name |
| phone | Varchar | No |  | 20 | User type (student/others) |
| address | Varchar | No |  | 200 | User contact address |
| pics | Varchar | No |  | 100 | User profile picture |

**Table 3.2 Advert Input Specification Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Null** | **Key** | **Length** | **Description** |
| advert\_id | Varchar | No | PK | 32 | Unique string for bids |
| advertTitle | Varchar | No |  | 60 | Advert Title |
| advertDesc | Varchar | No |  | 100 | Advert Description |
| advertImage | Varchar | No |  | 100 | Advert image |
| created\_date | Date | No |  | 20 | Registered date |

**3.5 Output Design**

This declares and displays the outcome of the given input. This automated system's output is dependent on its input. The output specification is listed below.

**Table 3.4 Users** **output design table**

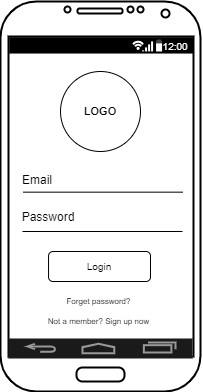
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **User\_id** | **Email** | **Password** | **Full\_name** | **phone** | **address** | **pics** |
| XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | 833 No Image Available Stock Photos and Images - 123RF |
| XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | 833 No Image Available Stock Photos and Images - 123RF |
| XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | 833 No Image Available Stock Photos and Images - 123RF |
| XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | 833 No Image Available Stock Photos and Images - 123RF |

**Table 3.5 Advert** **output design table**

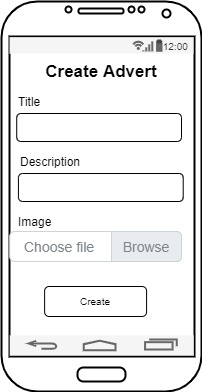
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Advert\_id** | **AdvertTitle** | **AdvertImage** | **AdvertDesc** | **Created\_date** |
| XXXX | XXXX | XXXX | XXXX | XXXX |
| XXXX | XXXX | XXXX | XXXX | XXXX |
| XXXX | XXXX | XXXX | XXXX | XXXX |
| XXXX | XXXX | XXXX | XXXX | XXXX |

**3.6 Input & User Interface Design**

This shows a visual representation of the system interface; it will be made to be intuitive to use, quick to respond, and visually appealing. Additionally, it will be properly protected, so signing in will be necessary to view some levels of the contents. A mid-fidelity wireframing application named Draw.io is used to assist with the designs.



**Fig 3.6.1 User Login Screen**



**Fig 3.6.2 Create Advert Screen**

**3.7 System Requirement**

Every piece of software that is created has preset system requirements that it must meet in order to run at its best. However, the system requirements are the bare minimum hardware and software needed for the system's intended operation.

**3.7.1 Hardware Requirement**

System Hardware Requirement Include:

a. Minimum of 8 GB of RAM (Random Access Memory) installed.

b. Minimum of intel core i3 processor.

c. Minimum of 250GB HDD (Hard Disk Drive).

**3.7.1 Software Requirement**

The software requirements include:

a. At least windows 10 OS (Operating System).

b. Flutter Installation.

c. Vs. Code / Android studio installation.

d. Emulator installation.

**3.8 Choice of Programming Language**

The proposed design will be implemented using flutter for its user interface (frontend) while Dart will be used for the backend programming, and firebase will be used for its database due to its portability, the combination of the above modern technology forms the technology for this research work.

**CHAPTER FOUR**

**SYSTEM IMPLEMENTATION EVALUATION**

**4.1 Introduction**

This section describes in detail how the new system will be implemented in order to assure its efficacy. It illustrates instances of functional (new) systems as well as how the system will be implemented.

* 1. **System Testing and Evaluation**

The developed system should be tested for a variety of reasons. For example, only via testing will we be able to detect and address any problems in the new system. Unit and integration testing were used in this project to confirm the design's efficacy and efficiency, as well as to ensure the new system satisfies its functional requirements and is error-free.

**Unit Testing**

specific units or single components of the system are examined individually in this part to confirm that specific phases function properly and without problems.

**Integration Testing**

The program was tested via integration testing, in which all of the components were integrated and worked as one. The connection between the different components was examined to ensure that they are correctly integrated and that the units can function as a unit.

**4.3 System Installation**

In order to use the proposed application on any computer system, the following steps need to be taken:

1. Make sure, android studio, JDK, and Android emulator are installed on the system.
2. Copy your project folder to any location of your choice.
3. Open the project folder in Visual Studio Code
4. In the terminal run “flutter pub get” to get all the dependencies in the pubspec.yaml file
5. Select the Android emulator as the device to be used.
6. Locate the main.dart file and run the file in debug mode.

**4.4 Security Measures**

Since the scope of the application is public, literally all the information is made available to any user (students and admin), but some functionalities are restricted to the admin, functionalities that have to do with creating the student accounts, creating the candidates, managing the voting periods etc are restricted from the general student. The restriction is carried out by using passwords when the application is accessed.

**4.5 Sample Outputs**

These describe and give the pictorial representation of the program or software; it shows and gives clear understanding of the design, and displays all the interfaces

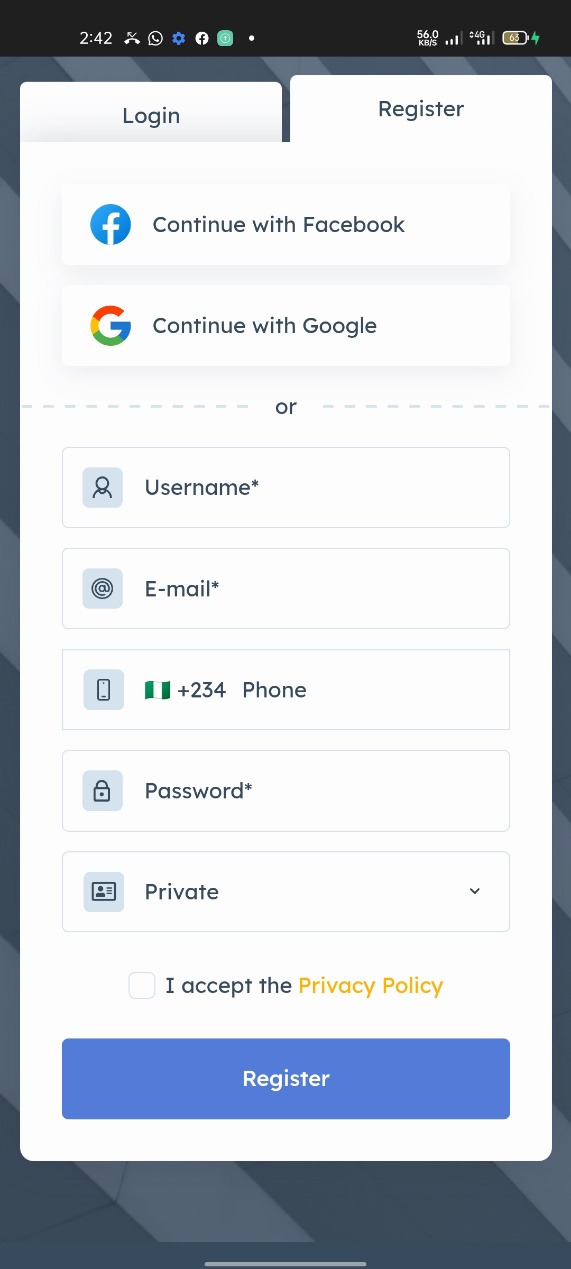
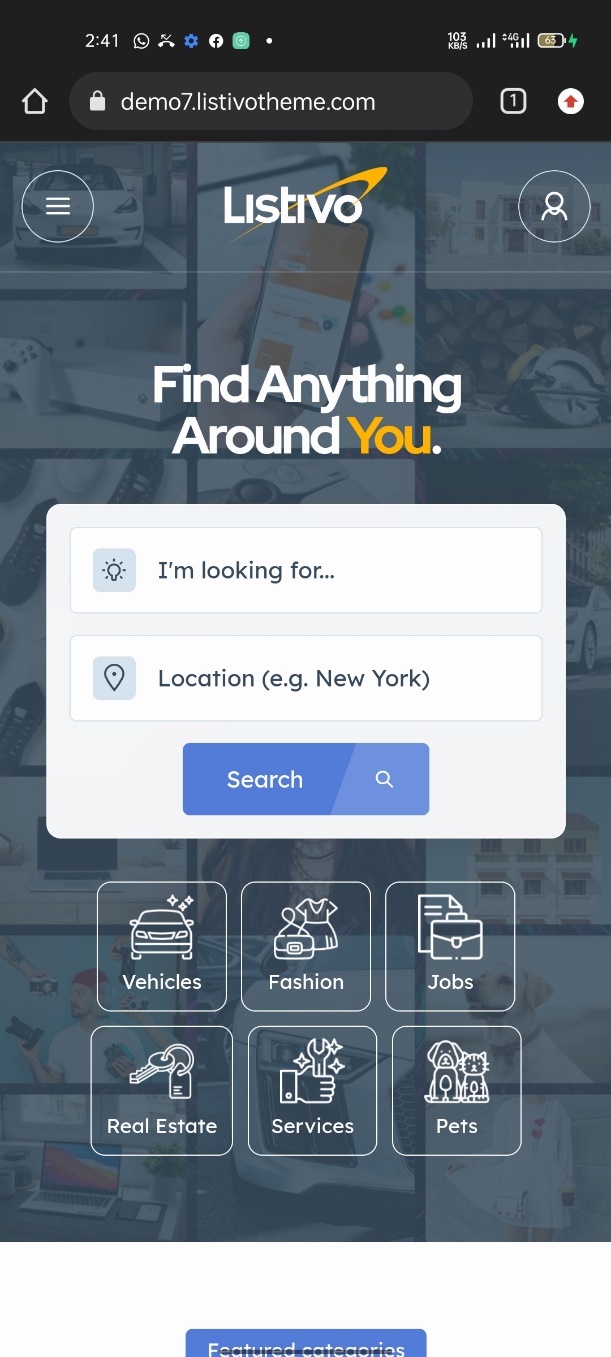
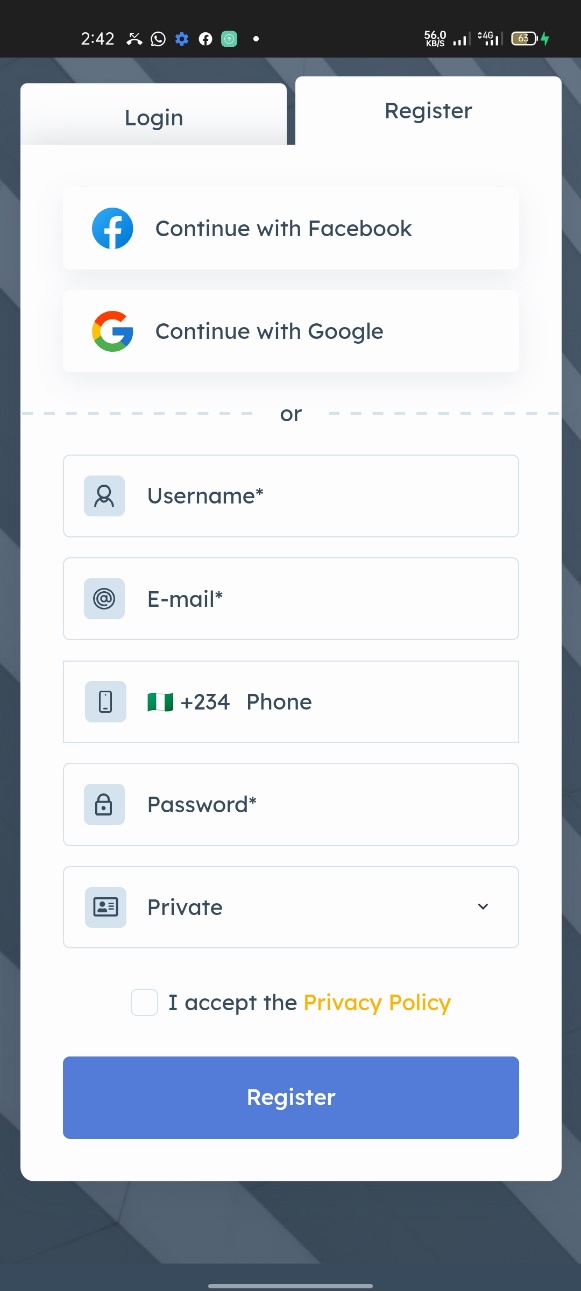


Fig 4.5.1 Homepage Fig 4.5.2 Login Screen

**Fig 4.5.1 Homepage**: This is the first screen displayed to every user that wishes to make use of the application.

**Fig 4.5.2 Login Screen**: The screen grants users access (students, admin) to the application only if the correct credentials are provided.



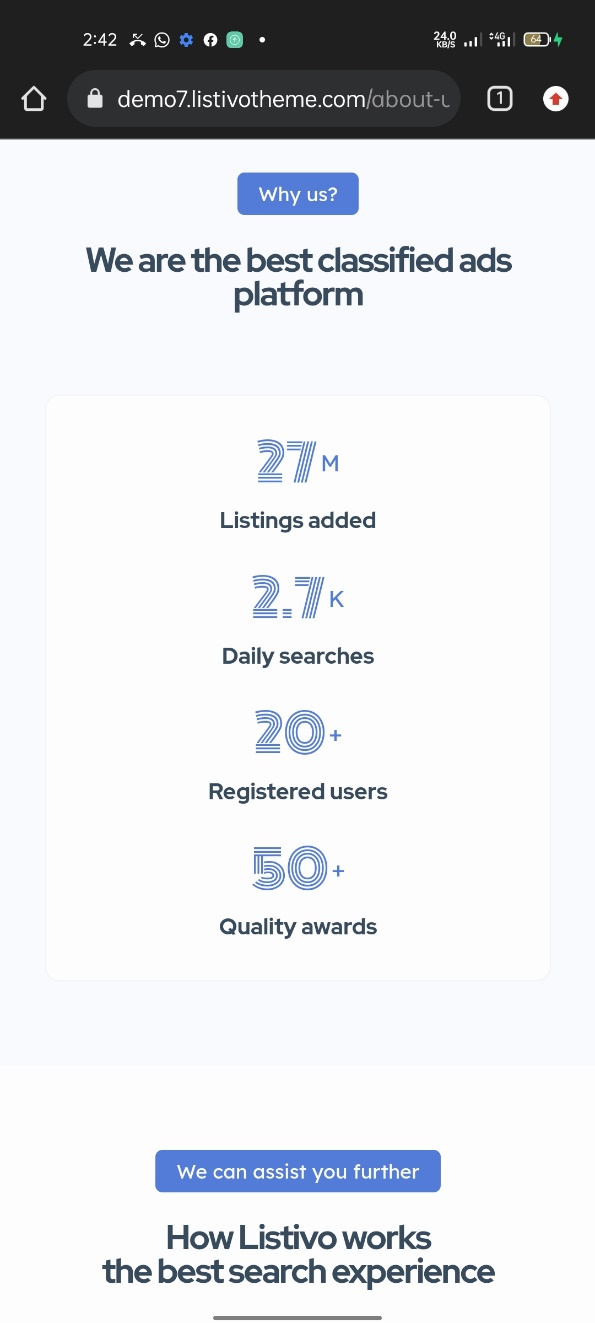


Fig 4.5.3 Register Screen Fig 4.5.4 Classified Ads

**Fig 4.5.3 Register Screen**: The application ensures that only registered users can have access to the system, there the screen enables the creation of accounts for new users.

**Fig 4.5.4 Classified Ads**: The screen lists the number of classified Ads.

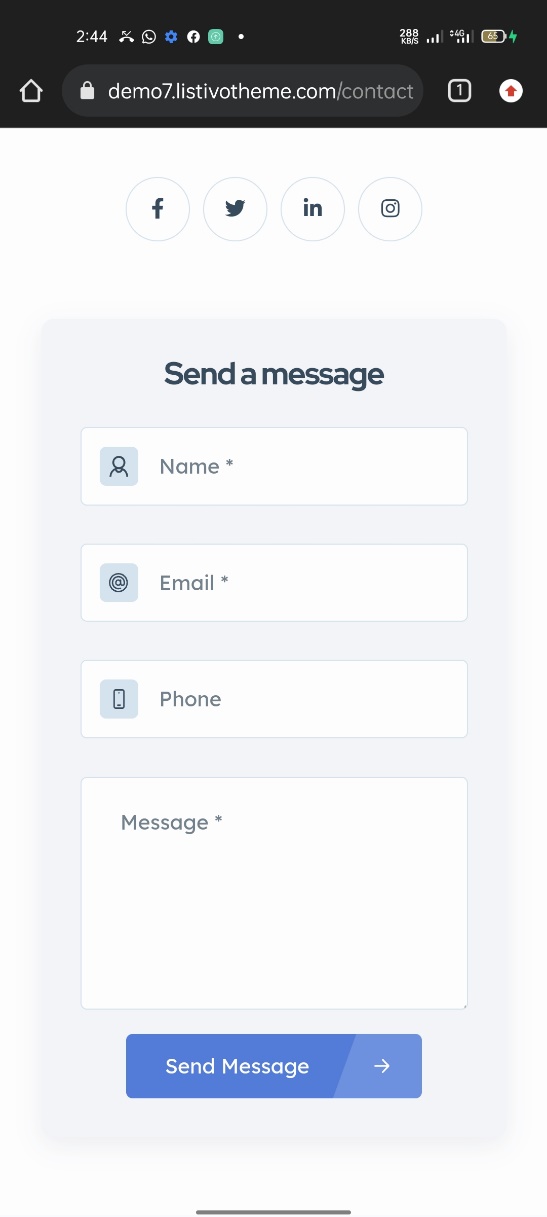
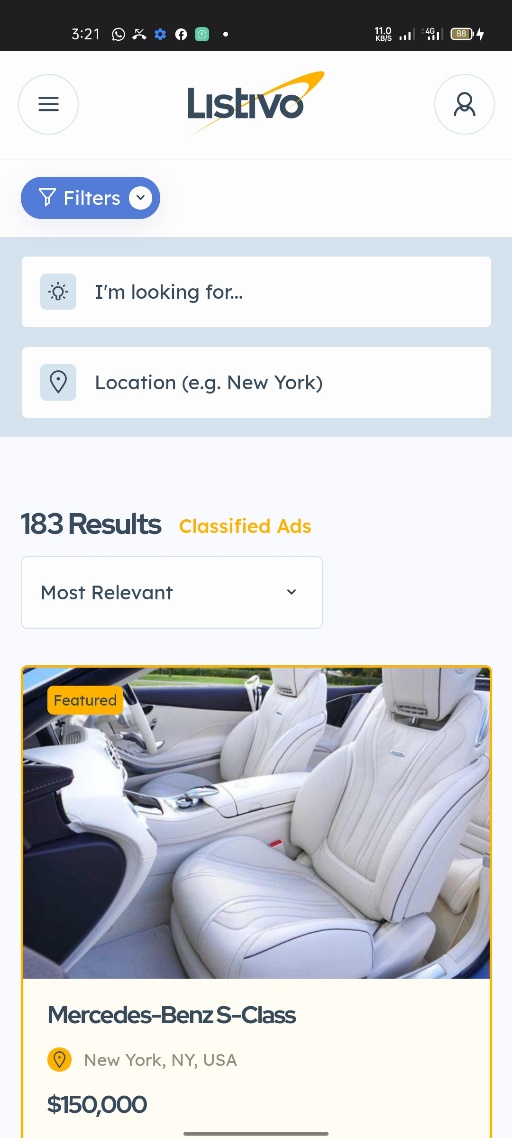


Fig 4.5.5 Contact Us Fig 4.5.6 Ads Listings

**Fig 4.5.5 Contact Us**: This is the screen where the user can contact the admin possibly because of any difficulty faced in placing an advert.

**Fig 4.5.6 Ads Listing**: The screen list all the advertisement that has been placed by users of the system.

**CHAPTER FIVE**

**SUMMARY CONCLUSION AND RECOMMENDATION**

**5.1 Summary**

This study developed a social media platform application for advertising products, aiming to create a user-friendly interface and implement a logic system to handle advertisement data. The project's scope focused on posting picture-based advertisements on a platform similar to Instagram, with limitations including no support for live streaming, video content, or a payment gateway. The evaluation aimed to verify the application's efficacy. This research contributes to marketing communication strategies in the digital age and provides opportunities for customers to engage with products through the platform's diverse advertising options.

**5.2 Conclusion**

In conclusion, this study focused on the development of a user-friendly social media platform application for advertising products. The project aimed to create an engaging interface and implement a logic system to handle advertisement data. The scope of the project revolved around posting picture-based advertisements on a platform resembling Instagram, with limitations on live streaming, video content, and payment gateways. Despite these constraints, the application has the potential to enhance marketing communication strategies in the digital era. It provides diverse advertising options for customers, enabling them to engage with products and make informed choices. The findings of this study contribute to the industry by offering a valuable tool for companies to effectively promote their products in the competitive marketplace of new media. Future research can build upon.

**5.3 Recommendation**

Based on the findings of this study, the following recommendations are proposed:

1. Expand Platform Functionality: In future iterations of the application, consider incorporating additional features such as live streaming and video content. This will provide users with a more immersive and interactive advertising experience, allowing for greater customer engagement.
2. Implement Payment Gateway: To enhance the user experience and facilitate seamless transactions, it is recommended to integrate a secure and reliable payment gateway into the platform. This will enable users to make purchases directly through the application, further bridging the gap between advertising and sales.
3. Conduct User Testing and Feedback: To ensure continuous improvement, it is essential to gather user feedback through thorough testing and evaluation. Conduct user testing sessions to identify areas for improvement, usability issues, and any potential bugs. Incorporate user feedback into the development process to refine the application's features and enhance overall user satisfaction.
4. Explore Integration with Other Social Media Platforms: Consider expanding the platform's reach by integrating it with other popular social media platforms in addition to Instagram. This will allow companies to maximize their advertising potential and reach a broader audience across multiple platforms.
5. Continuously Update and Optimize: In the fast-paced digital landscape, it is crucial to stay updated with the latest technological advancements and user preferences. Regularly update the application to ensure compatibility with new operating systems, devices, and user interface trends. Optimize the platform's performance and loading times to provide a seamless and efficient user experience.

By implementing these recommendations, the developed social media platform application can evolve into a robust and comprehensive advertising tool, providing enhanced functionalities, user satisfaction, and increased opportunities for companies to effectively promote their products in the dynamic landscape of new media

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**APPENDIX**

**Main.py**

import 'package:firebase\_auth/firebase\_auth.dart';

import 'package:firebase\_core/firebase\_core.dart';

import 'package:flutter/foundation.dart';

import 'package:flutter/material.dart';

import 'package:instagram\_clone\_flutter/providers/user\_provider.dart';

import 'package:instagram\_clone\_flutter/responsive/mobile\_screen\_layout.dart';

import 'package:instagram\_clone\_flutter/responsive/responsive\_layout.dart';

import 'package:instagram\_clone\_flutter/responsive/web\_screen\_layout.dart';

import 'package:instagram\_clone\_flutter/screens/login\_screen.dart';

import 'package:instagram\_clone\_flutter/utils/colors.dart';

import 'package:provider/provider.dart';

void main() async {

  WidgetsFlutterBinding.ensureInitialized();

  // initialise app based on platform- web or mobile

  if (kIsWeb) {

    await Firebase.initializeApp(

      options: const FirebaseOptions(

        apiKey: "AIzaSyCZ-xrXqD5D19Snauto-Fx\_nLD7PLrBXGM",

        appId: "1:585119731880:web:eca6e4b3c42a755cee329d",

        messagingSenderId: "585119731880",

        projectId: "instagram-clone-4cea4",

        storageBucket: 'instagram-clone-4cea4.appspot.com'

      ),

    );

  } else {

    await Firebase.initializeApp();

  }

  runApp(const MyApp());

}

class MyApp extends StatelessWidget {

  const MyApp({Key? key}) : super(key: key);

  @override

  Widget build(BuildContext context) {

    return MultiProvider(

      providers: [

        ChangeNotifierProvider(create: (\_) => UserProvider(),),

      ],

      child: MaterialApp(

        debugShowCheckedModeBanner: false,

        title: 'Instagram Clone',

        theme: ThemeData.dark().copyWith(

          scaffoldBackgroundColor: mobileBackgroundColor,

        ),

        home: StreamBuilder(

          stream: FirebaseAuth.instance.authStateChanges(),

          builder: (context, snapshot) {

            if (snapshot.connectionState == ConnectionState.active) {

              // Checking if the snapshot has any data or not

              if (snapshot.hasData) {

                // if snapshot has data which means user is logged in then we check the width of screen and accordingly display the screen layout

                return const ResponsiveLayout(

                  mobileScreenLayout: MobileScreenLayout(),

                  webScreenLayout: WebScreenLayout(),

                );

              } else if (snapshot.hasError) {

                return Center(

                  child: Text('${snapshot.error}'),

                );

              }

            }

            // means connection to future hasnt been made yet

            if (snapshot.connectionState == ConnectionState.waiting) {

              return const Center(

                child: CircularProgressIndicator(),

              );

            }

            return const LoginScreen();

          },

        ),

      ),

    );

  }

}

Model.dart

import 'package:cloud\_firestore/cloud\_firestore.dart';

class User {

  final String email;

  final String uid;

  final String photoUrl;

  final String username;

  final String bio;

  final List followers;

  final List following;

  const User(

      {required this.username,

      required this.uid,

      required this.photoUrl,

      required this.email,

      required this.bio,

      required this.followers,

      required this.following});

  static User fromSnap(DocumentSnapshot snap) {

    var snapshot = snap.data() as Map<String, dynamic>;

    return User(

      username: snapshot["username"],

      uid: snapshot["uid"],

      email: snapshot["email"],

      photoUrl: snapshot["photoUrl"],

      bio: snapshot["bio"],

      followers: snapshot["followers"],

      following: snapshot["following"],

    );

  }

  Map<String, dynamic> toJson() => {

        "username": username,

        "uid": uid,

        "email": email,

        "photoUrl": photoUrl,

        "bio": bio,

        "followers": followers,

        "following": following,

      };

}

Add\_advert.dart

import 'package:cloud\_firestore/cloud\_firestore.dart';

import 'package:flutter/material.dart';

import 'package:instagram\_clone\_flutter/models/user.dart';

import 'package:instagram\_clone\_flutter/providers/user\_provider.dart';

import 'package:instagram\_clone\_flutter/resources/firestore\_methods.dart';

import 'package:instagram\_clone\_flutter/utils/colors.dart';

import 'package:instagram\_clone\_flutter/utils/utils.dart';

import 'package:instagram\_clone\_flutter/widgets/comment\_card.dart';

import 'package:provider/provider.dart';

class CommentsScreen extends StatefulWidget {

  final postId;

  const CommentsScreen({Key? key, required this.postId}) : super(key: key);

  @override

  \_CommentsScreenState createState() => \_CommentsScreenState();

}

class \_CommentsScreenState extends State<CommentsScreen> {

  final TextEditingController commentEditingController =

      TextEditingController();

  void postComment(String uid, String name, String profilePic) async {

    try {

      String res = await FireStoreMethods().postComment(

        widget.postId,

        commentEditingController.text,

        uid,

        name,

        profilePic,

      );

      if (res != 'success') {

        if (context.mounted) showSnackBar(context, res);

      }

      setState(() {

        commentEditingController.text = "";

      });

    } catch (err) {

      showSnackBar(

        context,

        err.toString(),

      );

    }

  }

  @override

  Widget build(BuildContext context) {

    final User user = Provider.of<UserProvider>(context).getUser;

    return Scaffold(

      appBar: AppBar(

        backgroundColor: mobileBackgroundColor,

        title: const Text(

          'Comments',

        ),

        centerTitle: false,

      ),

      body: StreamBuilder(

        stream: FirebaseFirestore.instance

            .collection('posts')

            .doc(widget.postId)

            .collection('comments')

            .snapshots(),

        builder: (context,

            AsyncSnapshot<QuerySnapshot<Map<String, dynamic>>> snapshot) {

          if (snapshot.connectionState == ConnectionState.waiting) {

            return const Center(

              child: CircularProgressIndicator(),

            );

          }

          return ListView.builder(

            itemCount: snapshot.data!.docs.length,

            itemBuilder: (ctx, index) => CommentCard(

              snap: snapshot.data!.docs[index],

            ),

          );

        },

      ),

      // text input

      bottomNavigationBar: SafeArea(

        child: Container(

          height: kToolbarHeight,

          margin:

              EdgeInsets.only(bottom: MediaQuery.of(context).viewInsets.bottom),

          padding: const EdgeInsets.only(left: 16, right: 8),

          child: Row(

            children: [

              CircleAvatar(

                backgroundImage: NetworkImage(user.photoUrl),

                radius: 18,

              ),

              Expanded(

                child: Padding(

                  padding: const EdgeInsets.only(left: 16, right: 8),

                  child: TextField(

                    controller: commentEditingController,

                    decoration: InputDecoration(

                      hintText: 'Comment as ${user.username}',

                      border: InputBorder.none,

                    ),

                  ),

                ),

              ),

              InkWell(

                onTap: () => postComment(

                  user.uid,

                  user.username,

                  user.photoUrl,

                ),

                child: Container(

                  padding:

                      const EdgeInsets.symmetric(vertical: 8, horizontal: 8),

                  child: const Text(

                    'Post',

                    style: TextStyle(color: Colors.blue),

                  ),

                ),

              )

            ],

          ),

        ),

      ),

    );

  }

}