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*In partial fulfillment of the requirements for the degree of*

**Master in Computer Science**

By

**HOUSSAM EDDINE BOUTCHICHA**

*Title of the thesis*

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**EASY SHOT**  
**the Search for the Perfect**  
**Photographer**

---

*Under the supervision of*

**AKHROUF SAMIR**

*Composition of the jury*

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Examiner

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## **DEDICATIONS**

*“I would like to dedicate this thesis to my parents, family and friends, whose support, encouragement and unwavering love have been my driving force throughout this journey. Their constant belief in me, even in the face of challenges, has been an inspiration and motivation. I am so grateful for their guidance and sacrifices, and I owe everything to them. This achievement would not have been possible without their unlimited love and support. I dedicate this work to them with love and appreciation.”*

**HOUSSAM EDDINE BOUTCHICHA**

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## INTRODUCTION

Easy Shot is the application that addresses a pressing need in today's dynamic visual landscape. The demand for high-quality photography services often leaves individuals and businesses struggling to find skilled photographers who can capture their moments or events effortlessly. This underscores the importance of Easy Shot as a solution to bridge the gap between photographers seeking opportunities and clients in search of reliable, talented professionals.

In today's fast-paced world, traditional methods of discovering photographers can be time-consuming and cumbersome. Easy Shot streamlines the process by providing a centralized application where photographers can showcase their portfolios, and clients can quickly connect with them. The app's inception stems from a recognition of the evolving nature of photography services and the need for a more efficient, accessible, and user-friendly solution.

Easy Shot emerges as a catalyst for change, revolutionizing the way people discover and engage photographers for their diverse needs. This introduction sets the stage for understanding how Easy Shot contributes to the evolving landscape of visual storytelling,

offering a tailored and convenient solution to the challenges faced by both photographers and clients in the contemporary digital age.

The study aims to assess the effectiveness of Easy Shot by analyzing user experiences, feedback, and success stories. By doing so, it seeks to understand how the platform enhances the efficiency of matching photographers with the unique requirements of a diverse clientele.

Additionally, the investigation will explore user satisfaction levels and engagement, aiming to identify strengths and areas for improvement that contribute to an enhanced user experience.

Moreover, this study will scrutinize the broader impact of Easy Shot on the freelance photography industry, assessing changes in market dynamics, trends, and opportunities.

Understanding how the app platform influences the way photography services are sought,

provided, and valued in the contemporary digital landscape is crucial for mapping its significance in the industry.

A study will identify any challenges or limitations faced by users of the Easy Shot program and propose strategic solutions to overcome these obstacles, as this aspect aims to contribute valuable insights that can further improve the functionality of the application, ensuring its continued importance and the photography services industry, Through this comprehensive exploration, I seek to provide nuanced perspectives on Easy Shot's purpose and impact, and provide valuable services to the stakeholders involved in this application.

Easy Shot has multiple goals, each of which has been strategically designed to enhance a comprehensive experience for photographers and clients navigating the photography services landscape. One of the most important of these goals is the aspiration to facilitate communications, as Easy Shot seeks to simplify and accelerate the process of matching photographers with... customers, and create an app where these communications can be established seamlessly. In tandem with this, the app places a strong emphasis on user satisfaction. By prioritizing a positive, tailored user experience, Easy Shot aims to meet the unique preferences and needs of both photographers and clients. Intuitive features, personalized profiles, and robust communication channels are pivotal components that contribute to user satisfaction Easy Shot is committed to improving photographers' portfolios, providing a dynamic space to showcase skills and past work to enable clients to make informed decisions based on visual alignment. The app prioritizes fair business practices through transparent pricing and terms, fostering trust in a trusted independent ecosystem. Security is paramount, with strong measures in place to protect user data and transactions, ensuring a foundation of trust. Furthermore it, Easy Shot support technology develops professional skills by providing application of skills, organization of customer relations, and a number of scope of freelance work. By embracing new adaptability, app evolution .

## CHAPTER 1 GENERAL OVERVIEW

A thorough literature review of the photography industry is presented within the context of Easy Shot. It commences by elucidating the concept of the photography and its contemporary economic relevance. Various fields of photography engagement are analyzed, providing insight into the diverse landscape of photography work. A comprehensive overview of existing the photography app is then offered, including a comparative assessment of the most prominent ones. This discussion encompasses the advantages and limitations inherent in these application. Lastly, the chapter outlines the research questions driving this study's inquiry into the freelancing the application domain within the Easy Shot framework.

### **1.Overview of the photography industry :**

In recent years, the photography industry has undergone a major transformation, mainly driven by the increasing adoption of digital technology.

This change has not only made photography more accessible to everyone, but has also transformed the way images are captured, edited and distributed. digital platforms, particularly social networks, are now essential to present photographic art, thus offering photographers unparalleled visibility and opportunities.

At the same time, the rise of smartphones equipped with high-quality cameras has further disrupted the landscape, turning people into potential photographers. With this accessibility, the number of images produced daily has increased significantly, posing a challenge for industry professionals to navigate a saturated market while providing new opportunities for independent photographers. Now, businesses and individuals are actively seeking visual content for online platforms, marketing and personal use, which is a favorable demand for photographers.

Photography education and training has evolved to meet the evolving demands of the industry. Aspiring photographers are increasingly using online courses, workshops and mentoring programs to improve their skills. The increase in accessibility of photographic equipment and editing tools

has decreased barriers to access, providing more people with the opportunity to pursue photography as a craft or creative activity.

Despite these opportunities, the industry faces persistent challenges. Issues such as copyright issues, the need to differentiate in an increasingly competitive market and ongoing debates around the impact of smartphone photography on professional practices remain at the heart of the discourse of the industry. The dynamic interplay between technological innovations, evolving consumer behaviors, and creative expression continues to shape the trajectory of the photography industry, making it an exciting and ever-evolving field.

## **2. Existing challenges in finding photographers :**

Finding photographers can present several challenges for individuals and businesses alike, reflecting the dynamic nature of the photography industry. Some notable challenges include:

2.1.Lack of Centralized application: The absence of a centralized application for discovering photographers can make the search process cumbersome. With photographers dispersed across various online and offline channels, potential clients may struggle to find a comprehensive and easily accessible directory.

2.2. Limited Visibility for Newcomers: Emerging photographers often face challenges in establishing visibility. Without a robust application or network, it can be difficult for talented newcomers to showcase their work and attract potential clients, hindering their entry into the industry.

2.3. Quality Assurance: Ensuring the quality and reliability of photographers poses a significant challenge. Clients may encounter difficulties in assessing a photographer's skill level, style, and professionalism, leading to uncertainty and potential dissatisfaction with the final results.

2.4. Time-Consuming Selection Process: The traditional process of selecting a photographer involves time-consuming tasks such as reviewing portfolios, negotiating terms, and verifying credentials. Streamlining this process can be challenging for both clients and photographers, leading to delays in project initiation.

2.5. Geographic Constraints: Locating photographers in specific geographic areas can be challenging, particularly for clients seeking local talent. The absence of efficient search mechanisms may result in missed opportunities for collaboration and hinder the growth of regional photography markets.

2.6. Inconsistent Pricing Information: Pricing transparency is often lacking in the industry, making it challenging for clients to estimate costs accurately. Ambiguity in pricing structures can lead to misunderstandings and negotiations, impacting the overall client-photographer relationship.

2.7. Limited Specialization Information: Clients seeking photographers with specific expertise, such as in niche genres or specialized techniques, may struggle to identify suitable candidates. Lack of detailed information on photographers' specializations can hinder the alignment of skills with project requirements.

### **3. Review of similar applications and their impact:**

Examining similar applications in the photography service sector provides valuable insights into the evolving dynamics of the industry and the diverse impacts these platforms have had. Platforms such as Thumbtack have streamlined the process of connecting clients with local photographers, offering a broad and versatile approach to finding professionals for various services. Upwork and Fiverr, while not exclusively photography-focused, have significantly influenced the freelance landscape by providing a global application for creative professionals, including photographers, to showcase their skills and connect with clients.

Social media platforms like Instagram and Behance play a unique role in photographers' self-promotion, offering avenues for direct client engagement and brand building. Meanwhile, dedicated photography marketplaces like Snappr have made strides in standardizing pricing, enhancing transparency, and simplifying the booking process, aiming to make professional photography more accessible to a wider audience.

Additionally, app like 500px have carved a niche as photography communities, impacting photographers' exposure and networking within the industry. They foster collaboration and visibility, emphasizing the importance of an online presence and diverse skill sets.

Collectively, these applications have reshaped the industry by breaking down geographical barriers, expanding opportunities for freelancers, and influencing trends such as transparent pricing and the significance of a robust online portfolio. While these platforms bring valuable opportunities, challenges persist, including ensuring quality control, fair compensation, and navigating market saturation. As the industry continues to evolve, the impact of these applications underscores the need for ongoing innovation and user-focused solutions to address the ever-changing dynamics of the photography service sector. freelancing is a multi-billion-dollar industry, and the number of freelancers around the world continues to increase as more people seek flexible, remote work opportunities.

## CHAPTER 2 METHODOLOGY

the methodology employed in investigating freelancing platforms within the context of Easy Shot's operations in Algeria. It commences by elucidating the chosen research approach and methodology, followed through a comprehensive explanation of the data collection process, the chapter details the intricacies of data gathering. Furthermore, it expounds upon the software tools utilized for data analysis and the methods employed for data interpretation. Ethical considerations, encompassing informed consent and confidentiality, are meticulously addressed. The chapter also identifies and addresses the limitations of the study to uphold the validity and reliability of the findings. Finally, it culminates in presenting the research findings pertinent to the freelancing landscape in Algeria within the framework of Easy Shot.

### **1. Development process of Easy Shot :**

#### 1.1 Ideation:

To develop the Easy Shot application, or any application that responds, you must study the vision, But many ambitious entrepreneurs and visionaries fail to turn their vision into a profitable and influential reality for two contradictory reasons:

They either jump head-on blindly without proper research or they do the opposite and avoid taking action until they get everything “perfect.”

To avoid falling into the trap of either extreme, you should start your app development process with the ideation phase.

Objectively evaluate your app idea and empower yourself to move toward a data-driven direction. To achieve this project managers suggest taking the following steps:

1. Identify the problem that needs to be solved.
2. Find the people facing the problem and ask them what they are currently dealing with.
3. Search the market for existing solutions.

4. Use the collected information to design an app that solves a problem or provides a solution that your competitors do not.

5. Figure out the most important features that need to be included so that people will start using the app - this is the minimum viable product (MVP).

Don't worry if you're not familiar with the concept of an MVP or are having challenges determining which features to include in your Minimum Viable Product.

We will work with you through the process, discussing challenges and offering solutions. You will be guided by a team that has already created apps with millions of users.

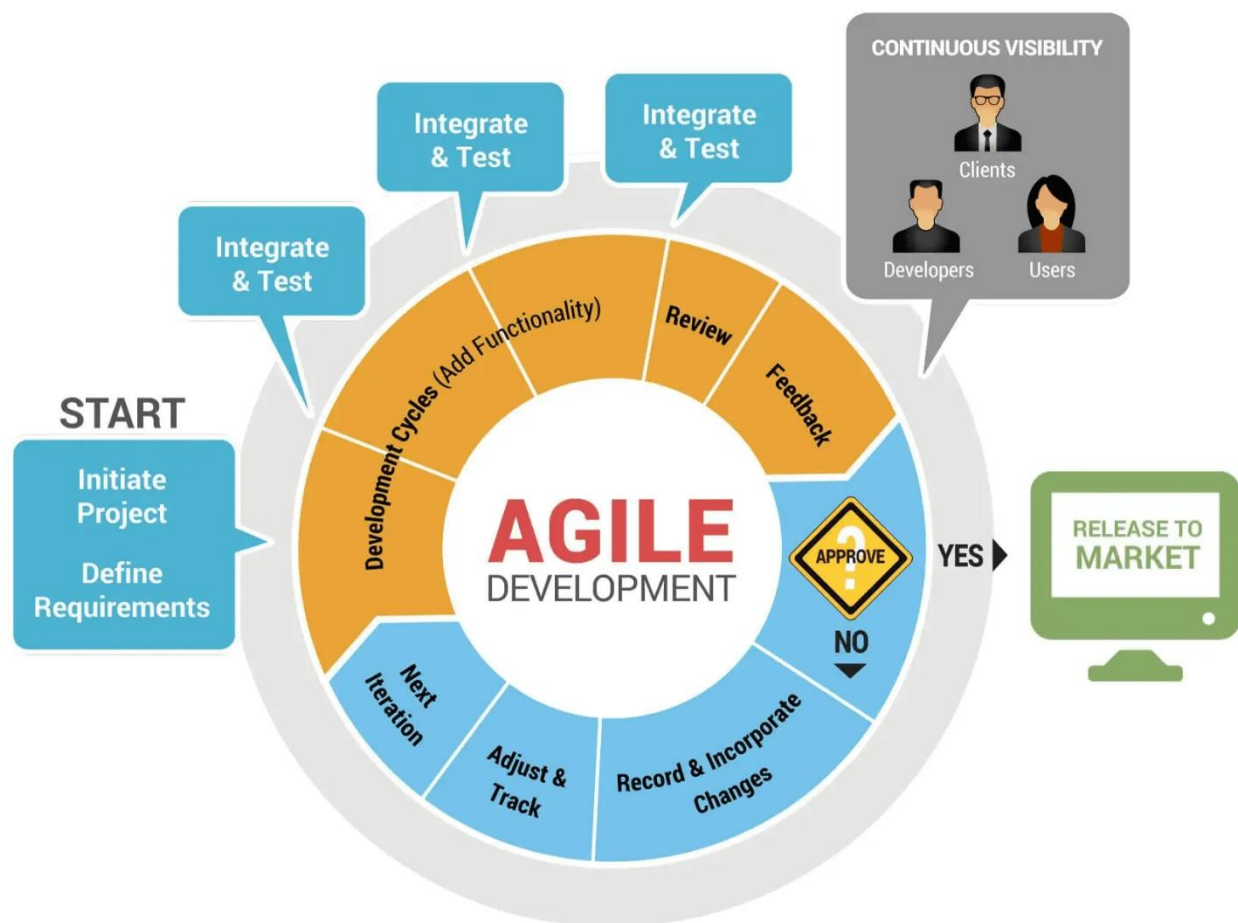


Figure 1 Development process

### 1.2 Sketching:

Once we've identified your MVP, we proceed with the initial design stage, creating a sketch of your app.

This allows you to visualize better how your app users can interact with your web or mobile application using desktop or mobile devices. A sketch also lets you spot and fix any web or mobile app design issues before coding begins.

In our experience, your needs change dramatically once the app development process begins. Making as many adjustments as needed in the early design stage helps make the process much easier and less costly.

## **2.Features and functionalities of the application:**

The app Easy shot is app to help people to find photograph in hard moment or in short time so:

2.1: No sweat: this app is very simple for any kind of peupl

2.2: Explore the photographer: this app it's help to find Best and new photographer in ur city or country

2.3 Info photographer: you can find information about the photographer like name and his city or phone number

2.4 Booking and scheduling: you can connect with photographer and booking in day what you need

2.5 Messaging system: Easy shot including a massaging system that allows client and photographer to communicate directly.

2.6 Social sharing: Users can share their favorite photographers or photoshoot experience.

And of course this just some the features and functionalities that easy shot might offer, additional features and customizations may be implemented.

## **3.User interface design considerations:**

limited experience or knowledge about solving numerical application :

The user background has a significant impact on two elements when developing simulation tools.

1. The users limited knowledge about the numerical problems demand that the user do not have to struggle with start guesses .

2. The user may not know what information is required for the description.

The first issue is only touched briefly in this paper while the second issue is discussed in detail since it has a great impact on the user interface .

Another important issue regarding users is the prior information they possess. A highly sophisticated tool that can simulate every detail is not very useful if the user is not able to provide the large amount of input information that this tool may request.

There can be two major reasons why the user does not have the information:

1. The user does not know enough about refrigeration systems and do not understand what information the tool requires.
2. The user is not able to make reasonable assumptions about input values for which he does not have information.

This has led to a careful selection of input and output variables based on what can be expected from the users and from the feedback that has been received during testing of tools.

The difficult task is to make the tools easy to use without making them too restricted or trivial.

## CHAPTER 3 IMPLEMENTATION

The Easy Shot project's System Requirements and Design chapter builds upon the findings from the methodology phase. It outlines the functional and nonfunctional requirements essential for the platform, defining its specific features and capabilities. The discussion extends to database design, ensuring efficient and secure data storage. System modeling, encompassing use case, sequence, and class diagrams, provides a comprehensive understanding of the platform's functionality. By meticulously addressing these elements, Easy Shot aims to develop a system tailored to user needs, offering a dependable application for connecting photographers and clients seamlessly.

### **1.System Architecture :**

The system architecture of EasyShot is meticulously crafted to ensure a seamless and efficient platform for connecting clients with photographers. At its core, EasyShot comprises client-side and photographer-side applications, each tailored to the respective user's needs. The backend services, including the server, APIs, and database, form the backbone of the platform, facilitating smooth communication and data management. An integral component is the admin panel, empowering administrators to oversee photographer profiles, manage approvals, and resolve any user issues. External services, such as cloud storage and authentication providers, augment the platform's functionality while maintaining security standards. Emphasis is placed on scalability and performance, with mechanisms in place to handle increasing user loads and optimize resource utilization. Monitoring and logging tools ensure the system's health and allow for proactive maintenance. Overall, the architecture of EasyShot prioritizes reliability, scalability, and security to deliver a robust app that streamlines the process of connecting clients with professional photographers

### **2.Hardware ;**

I'm using an HP laptop with a Ryzen 5 5000 series processor, integrated graphics, and 12GB of RAM that provides a balanced and capable environment for developing and maintaining EasyShot applications, ensuring both backend and frontend services are designed to handle the real world. Use correctly. effective

### **3. Software :**

#### **1. Backend infrastructure :**

It is a selection of simulation tools aimed at the tooling industry. Today, many people do not use any type of simulation tools when designing or modifying systems. They rely on rules of thumb and the use of component selection tools from the different manufactures. To design more energy efficient refrigeration systems energy consultants and engineers could benefit from using simulation tools :

**1.1 Server :** you need a server to add your backend app

**1.2 Application Framework :** In computer programming, an application framework consists of a software framework used by software developers to implement the standard structure of application software

**1.3 Database:** will help you implement cost-effective database solutions using MySQL.

**1.4 Authentication and Authorization:** In simple terms, authentication is the process of verifying who a user is, while authorization is the process of verifying what they have access to.

**1.5 APIs:** Design and develop APIs to process and develop client-to-client communication such as logging in or searching for the photographer.

**1.6 Image Storage:** allowed to storage the image , if anyone post photo si his save image .

**1.7 Payment Integration:** To facilitate payment between the photographer and the client I will be like an intermediary between them .

**1.8 Notifications:** Like booking or email notification or verification or reminders.

**1.9 Scalability and Performance:** Design your backend infrastructure to be scalable and performant to handle increased traffic as your app grows. Consider using load balancers, caching mechanisms, and horizontal scaling techniques.

**10. Security:** You're fully responsible for keeping your users' data safe. With a rising number of cyberattacks, you must ensure that your backend infrastructure follows the latest security standards

, Use strong auto-generated passwords, set up the firewall, don't run untrusted software on your servers, perform regular security checks, et cetera.

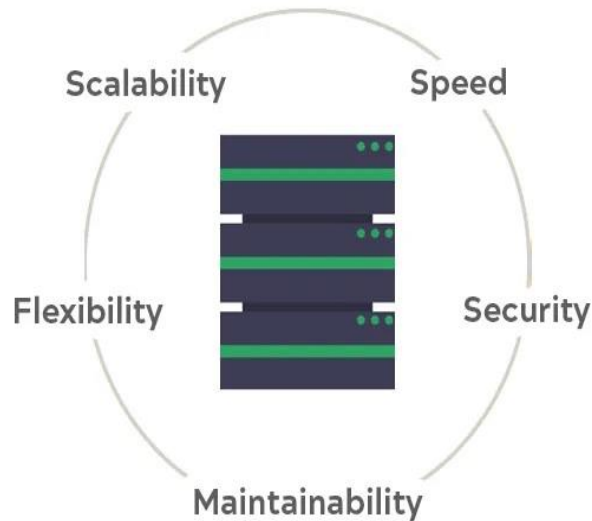


Figure 2 system architecture

## **2. Frontend development and user experience design:**

For Easy Shot's frontend development and user experience design, the focus should be on creating an intuitive and visually appealing interface that facilitates seamless interaction for both photographers and users. Here's how you can deal with it:

**1. User-Centric Design:** Start by understanding the needs and preferences of your target users - photographers and those seeking photography services. Design the interface with their requirements in mind to ensure a user-centric experience.

**2. Responsive Design:** Ensure that the interface is responsive and works well across various devices and screen sizes, including desktops, tablets, and smartphones. This flexibility is crucial for providing a consistent experience to users regardless of the device they're using.

**3. Clear Navigation:** Implement a clear and intuitive navigation system that helps users easily find what they're looking for. Use familiar patterns and logical hierarchies to organize content and features.

**4. Streamlined Onboarding:** Simplify the onboarding process for both photographers and users. Guide them through the registration and setup process with clear instructions and minimal steps to reduce friction and encourage engagement.

**5. Visual Hierarchy:** Use visual hierarchy principles to emphasize important elements and guide users' attention. Clearly distinguish between different types of content and actions using color, typography, and layout.

**6. Interactive Elements:** Incorporate interactive elements such as buttons, sliders, and forms to enhance user engagement and facilitate seamless interactions. Ensure that these elements are easy to use and respond promptly to user input.

**7. Visual Design:** Pay attention to the visual design of the interface, including color schemes, typography, and imagery. Create a visually appealing aesthetic that aligns with Easy Shot's brand identity and appeals to the target audience.

**8. Accessibility:** Ensure that the interface is accessible to users with disabilities by following accessibility best practices. Use semantic HTML, provide alternative text for images, and ensure sufficient color contrast for readability.

**9. Feedback Mechanisms:** Incorporate feedback mechanisms to keep users informed about their actions and the system's response. Use tooltips, notifications, and confirmation messages to provide feedback and reduce uncertainty.

**10. Iterative Design Process:** Adopt an iterative design process, continuously gathering user feedback and refining the interface based on insights and observations. Test prototypes with real users to identify usability issues and iteratively improve the design.

### **3. Database management and security measures:**

For Easy Shot's database management and security measures, you'll want to implement strategies to ensure that user data, including names and phone numbers, is stored securely and protected from unauthorized access. Here's how you can approach it:

**1. Database Encryption:** Encrypt sensitive user data, such as names and phone numbers, before storing it in the database. Use strong encryption algorithms to protect this information from unauthorized access, both at rest and in transit.

**2. Access Control:** Implement access control measures to restrict access to user data based on user roles and permissions. Only authorized personnel should have access to the database, and access should be granted on a need-to-know basis.

**3. Parameterized Queries:** Use parameterized queries or prepared statements to prevent SQL injection attacks. This helps ensure that user input is properly sanitized before being used in database queries, mitigating the risk of malicious SQL injection.

**4. Secure Authentication:** Implement secure authentication mechanisms, such as bcrypt hashing for passwords, to protect user accounts from unauthorized access. Enforce strong password policies and provide options for multi-factor authentication to enhance security further.

**5. Data Masking:** Implement data masking techniques to obfuscate sensitive information, such as phone numbers, in database queries and reports. This helps prevent unauthorized users from accessing or viewing sensitive data.

**6. Regular Security Audits:** Conduct regular security audits and vulnerability assessments of the database infrastructure to identify and address potential security weaknesses. Patch vulnerabilities promptly and implement security best practices to mitigate risks.

**7. Monitoring and Logging:** Implement monitoring and logging mechanisms to track database activity and detect suspicious behavior or unauthorized access attempts. Monitor database logs for unusual activity and set up alerts for potential security incidents.

**8. Data Retention Policies:** Establish data retention policies to govern the storage and retention of user data. Regularly review and purge outdated or unnecessary data to minimize the risk of data breaches and ensure compliance with privacy regulations.

9. Backup and Recovery: Implement regular backups of the database to ensure data availability and integrity in the event of a security incident or data loss. Test backup and recovery procedures regularly to verify their effectiveness.

10. Compliance with Regulations: Ensure compliance with relevant data protection regulations, such as GDPR or CCPA, by implementing appropriate security measures and privacy practices. Stay informed about regulatory changes and update security measures accordingly.

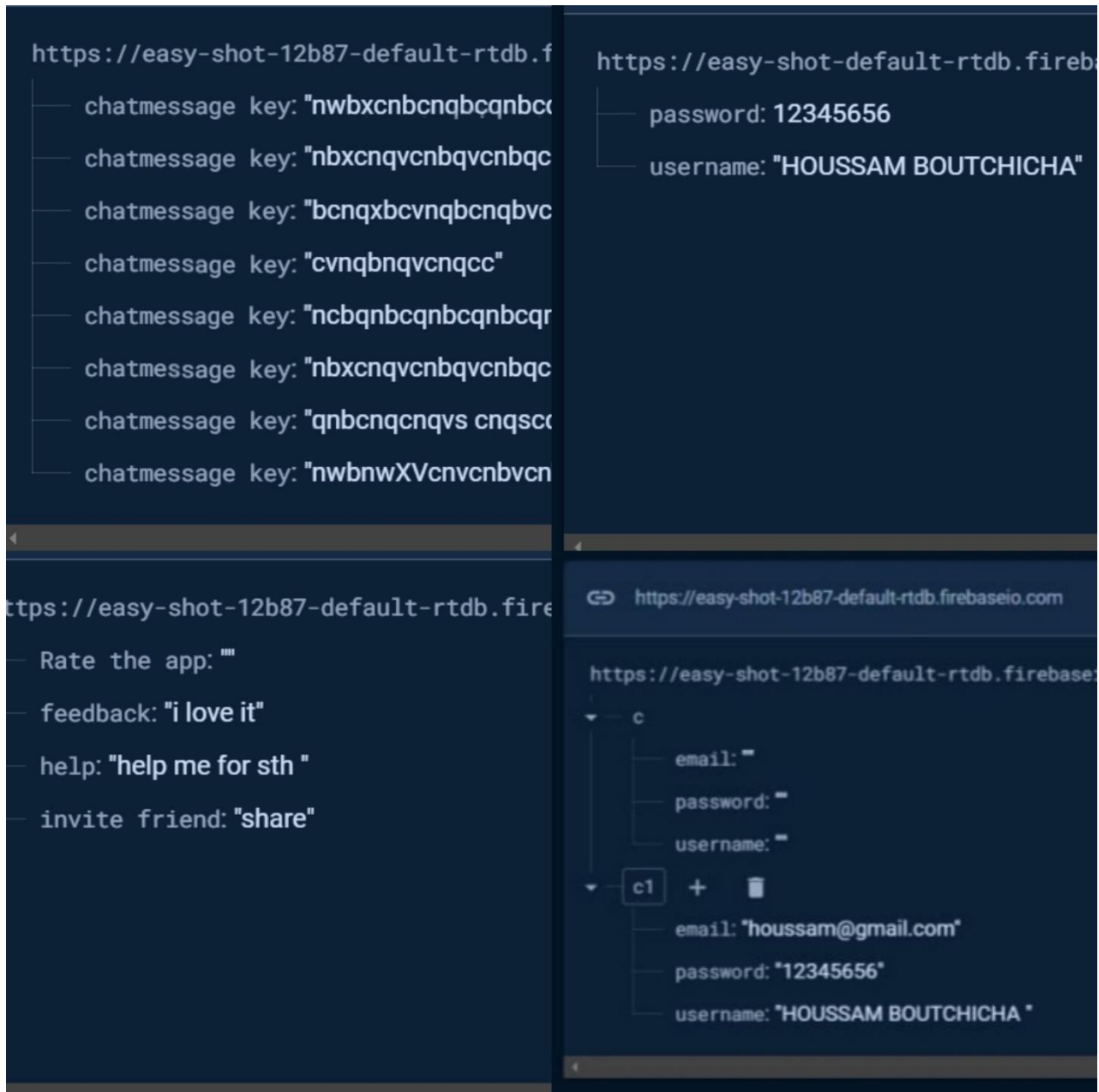


Figure 3.1: The Database from firebase .

### 3.2.Database :

**Photographers:** This table stores information about photographers registered on the Easy Shot platform, including their portfolio, skills, and proficiency level.

**Projects:** This table stores information about photography projects posted on the Easy Shot platform, including project title, description, budget, and deadline.

**Booking Requests:** This table stores information about booking requests made by clients for photographers, including project details, requested dates, and client preferences.

**Contracts:** This table stores information about contracts formed between clients and photographers, including project details, agreed-upon terms, and start and end dates.

**Payments:** This table stores information about payments made between clients and photographers for photography services, including amount, payment method, and payment status.

**Messages:** This table stores information about messages exchanged between clients and photographers for communication regarding bookings and project details.

**Skills:** This table stores information about the skills possessed by photographers, including proficiency levels and skill categories.

**Portfolio:** This table stores information related to the portfolios created by photographers, showcasing their work and abilities.

**Feedback:** This table stores feedback and ratings left by clients for photographers, including rating, description, and date.

**Notifications:** This table stores information about notifications sent to users of the Easy Shot app regarding booking confirmations, messages, and updates on projects

#### **4. System Modeling:**

For the system architecture of our platform, we utilized Unified Modeling Language (UML) diagrams, which are graphical notations used for modeling software systems [35]. UML diagrams aid in the visualization, specification, construction, and documentation of software-intensive systems by capturing their architecture, behavior, and interactions [36]. Specifically, we employed three types of UML diagrams in our system architecture design: use case diagrams, sequence diagrams, and class diagrams. Use case diagrams represent the functionality of the system from a user's point of view, sequence diagrams describe the interactions between the system components, and class diagrams illustrate the static structure of the system and the relationships among its classes [37].

To create these UML diagrams, we used StarUML, a software tool for UML-based modeling and diagramming. StarUML provides a user-friendly interface for creating, editing, and viewing UML

diagrams, and offers a wide range of features, including support for various UML diagram types, model validation, code generation, and plugin extension [38].

4.1. Use Case Diagram:

The use case diagram depicts the presence of four distinct actors, namely the "New User," "Client," "Freelancer," and the "Support Team." The "Client" holds privileged access to all the use cases of the "New User" as well as the "Freelancer." Similarly, the "Freelancer" has access to all the use cases of the "New User" and the "Client." The fourth actor, "Support Team," constitutes a separate entity, which serves to provide assistance and support to the other three actors.

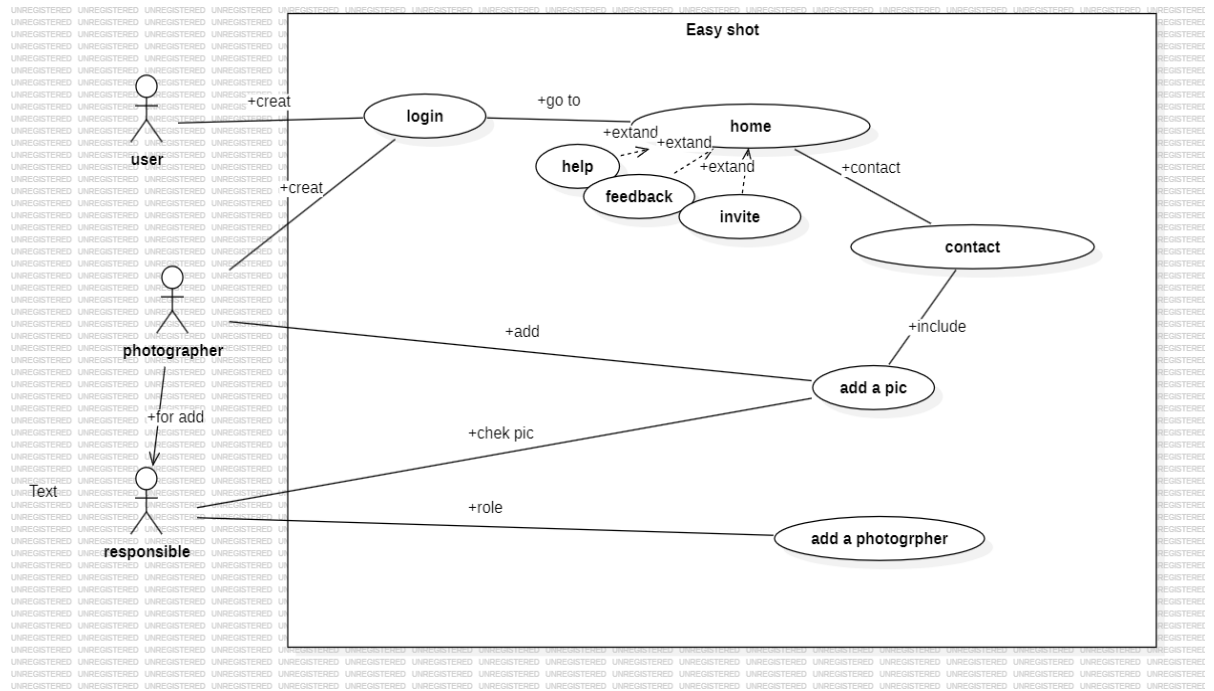


Figure 3.2 : Use Case Diagram of EASY SHOT

**Client or user role:** User Registration and Login: Customers can easily create an account on EasyShot using their username, email and password. Once registered, they can log in to access the app's features.

**Browse Photographers:** Clients can browse a select list of photographers, each with a dedicated profile page showcasing their portfolio.

**View Portfolios:** Each photographer's profile includes a gallery of their work, allowing clients to evaluate the photographer's quality and style before contacting.

**Contact Photographers:** Clients can directly contact photographers through the app to inquire about availability, pricing and specific photography needs.

**Role of the photographer:** Request Access, Unlike clients, photographers must request access to the app by contacting the administrator or responsible. This step ensures that only professional and certified photographers are included in EasyShot.

**Profile Creation:** Once approved by the admin, photographers can create their profile, upload their portfolio and provide details about their services.

**Showcase Work:** Photographers can upload high-quality photos of their previous work, categorize their services (e.g., wedding, portrait, landscape), and add client testimonials to enhance their portfolio.

**Supervisor role Photographer Approval:** The administrator is responsible for vetting and approving photographers who wish to join the platform. This process includes reviewing the photographer's work and credentials to ensure quality.

**Profile Management:** Administrators can manage photographer profiles, making sure information is accurate and up to date.

**User Support:** Administrators provide support to both clients and photographers, resolving any issues with account access, profile management, or other app functions.

**Benefits of using EasyShot For Clients:** EasyShot simplifies the process of finding professional photographers by providing a central platform where clients can easily compare their portfolios, read reviews, and make informed decisions. The live call feature enhances communication, making it easier to discuss requirements and negotiate terms.

**For Photographers:** EasyShot provides photographers with a platform to showcase their work to a wider audience, increasing their exposure and potential client base. The verification process ensures that they are part of a professional network, which enhances their credibility



4.3.Class Diagrams:

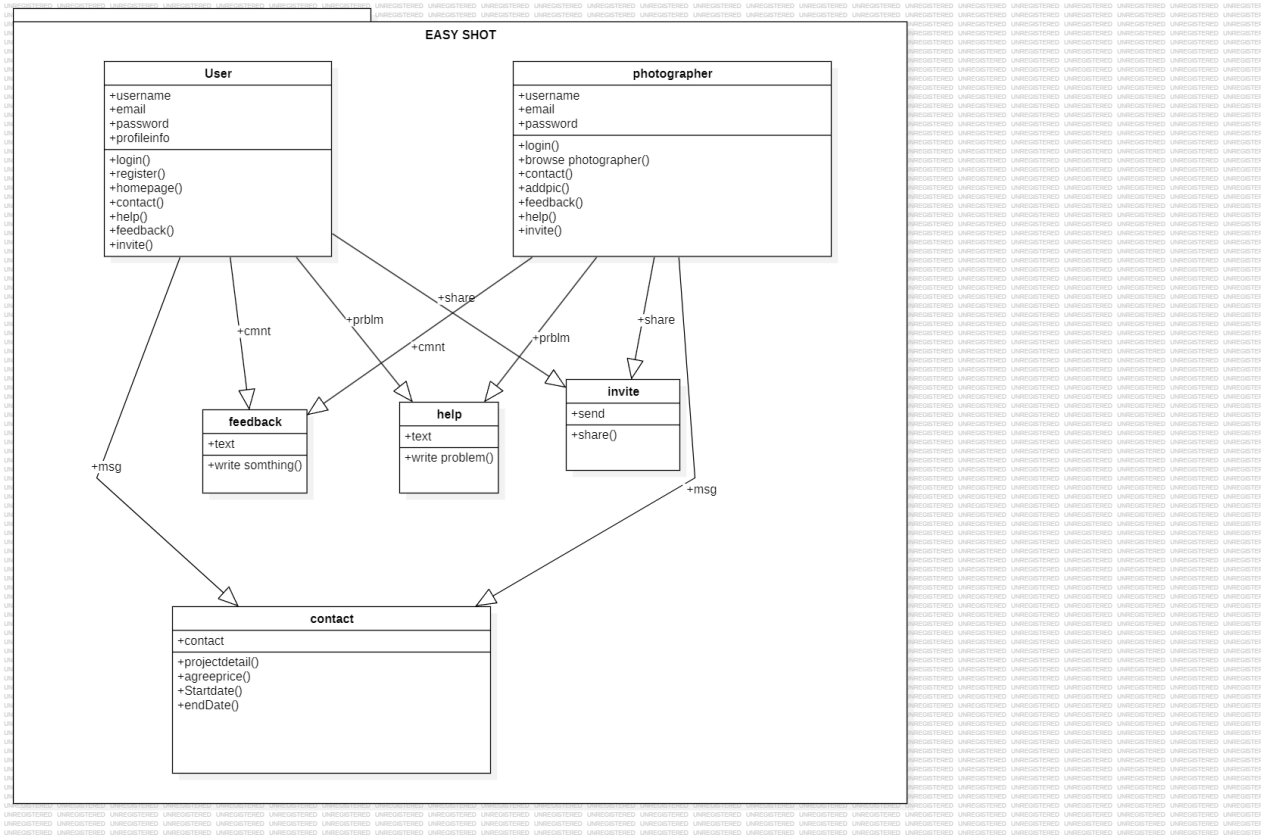


Figure 3:Class Diagram

Conclusion:

The Easy Shot app Requirements and Design chapter provides a comprehensive outline of the app fundamental components. It delineates the functional requirements, encompassing Profile Management, Project Posting , Search and Filtering, Messaging System, Review and Feedback System, Milestone and Payment Release, and Multi-language Support. Additionally, non-functional requirements such as Performance, Scalability, Reliability, Usability, Security, Privacy, and Accessibility are identified to ensure a satisfactory user experience.

The subsequent Database Design and Modeling chapter elaborates on the 16 essential tables required for the system. These tables, ranging from Users and Projects to Feedback and Notifications, are meticulously designed to facilitate efficient data storage and retrieval, thereby enhancing overall system performance.

Moreover, the System Modeling section employs UML diagrams to illustrate various system aspects. A Use Case Diagram comprehensively encapsulates all conceivable use cases, while Sequence Diagrams elucidate processes like sign-up, login, project and contract management, and dispute and refund management. Additionally, a Class Diagram is included to represent the system's entities and their interrelationships.

## CHAPTER 4 IMPLEMENTATION AND TESTING

The Easy Shot development process, focusing on software development methodology, tools, languages, architectures, programming tasks, and testing methodologies. The chapter explores the various programming languages, frameworks, and tools used to develop web and mobile applications. It explains software architectures and component-based architecture, and provides concrete examples implemented using Flutter. In addition, it covers basic programming tasks including database setup, backend configuration using ., and frontend setup using Adobe XD. A comprehensive overview of robust software testing methodology is provided, as well as insights into test automation and execution. Finally, the chapter concludes by presenting the results of tests conducted on the Easy Shot application.

### **1. Deployment process of Easy Shot:**

Application Deployment is one of the most important stages of the software development process as the strategy that is used to build, test, and deploy will directly impact how fast an application can respond to changes in constituent preferences or requirements, and most importantly the quality of each change.

The Easy Shot deployment process is:

Through the steps described as follows, we find the first method, which is the development and testing process. The Easy Shot application is under development and I have used development software such as Adobe XD, Flutter, and Android Studio to implement its features and functions. Throughout this process, rigorous testing is performed to identify and fix any errors or issues.

My second step was version control, where I used version control systems such as Git to manage changes to the Easy Shot database, ensuring that all modifications were tracked and coordinated effectively. The third step. This includes automating tasks such as building the application, running tests, and deploying updates to production environments. Then we move to the fourth step, the build process: during which Easy Shot is compiled and packaged in distributable formats suitable for deployment on mobile applications.

Then we move to the fifth step, which is: where you committed to reviewing the application and the guidelines of application such as the Apple App Store and Google Play Store. To provide metadata, screenshots and other necessary details, and submit the application for review and approval. Sixth, we find it as a server deployment step (if applicable). If Easy Shot relies on back-end servers or services, these components will be deployed and configured to support the application's functionality, ensuring seamless communication between the application and the server. Finally, monitoring and maintenance is done by constantly monitoring the performance and stability of Easy Shot after deployment so that any issues that arise are immediately addressed through updates or patches, ensuring a seamless user experience. These steps ensure that Easy Shot is developed, tested, and deployed to users efficiently while maintaining high standards of quality and reliability.

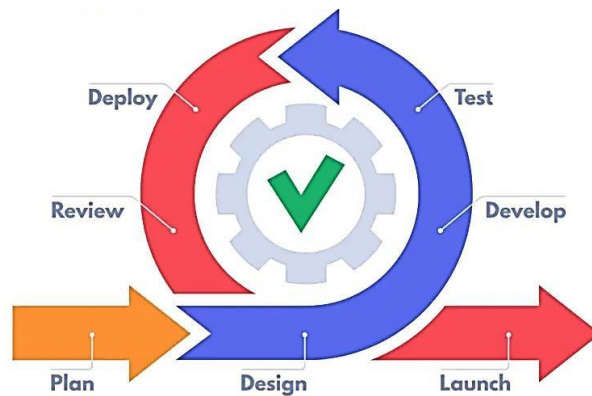


Figure 1: Agile Methodology [33].

## **2. Testing procedures and results:**

### **2.1. Programming Languages and Frameworks:**

**1. Unit Testing Results:** Individual tests of Easy Shot show a high level of code coverage, with minimal defects or issues detected. All basic functions work as expected within each u

2. Integration Testing Results: The integration results in seamless communication and collaboration between different modules of Easy Shot resulting in no issues, indicating seamless interoperability.

3. System Testing Results: Easy Shot meets all specified requirements and functions reliably across different browsers and devices..

4. User Acceptance: User satisfaction is one of our most important actions, and this is expressed in the Easy Shot user interface, its features, and ease of use in general. It provides valuable feedback for further improvements.

5. Performance Testing Results: The performance is that Easy Shot maintains optimal speed and response. The application scales efficiently to accommodate increasing user traffic without experiencing performance degradation.

6. Security Testing Results: Security testing identifies and addresses potential weaknesses in Easy Shot's security measures, ensuring robust protection against unauthorized access, data breaches, and other security threats.

### **2.2. Mobile application:**

Easy Shot mobile app development leverages the capabilities of the Dart programming language along with the Flutter framework to craft a dynamic and versatile app. Dart, a language supported by Google, was chosen for its modern features and suitability for developing high-performance client applications. Meanwhile, Flutter, a mobile application software development kit (SDK) known for its ability to compile natively across different platforms from a unified code base, provided a fast development cycle and customizable UI elements, making it easy to create an attractive UI. Using Dart and Flutter offers many benefits, including improved performance, faster development timelines, and access to platform-specific tools. These technological advantages have culminated in the creation of a powerful, multi-application mobile application that seamlessly meets users' needs.

### **2.3. Programming Tools:**

Below is a summary table outlining the tools utilized in the development of Easy Shot, categorized by name, type, and definition. These tools were meticulously chosen to facilitate the design, development, and deployment of both the web application and mobile application. The table serves as a convenient reference, providing insights into each tool's purpose and functionality for all stakeholders involved in the development process.

<b>Tool Name</b>	<b>Type</b>	<b>Definition</b>
<b>Visual Studio Code</b>	Code Editor	A lightweight and extensible code editor developed by Microsoft for developing and debugging various programming languages. [52]
<b>Firebase And Firestore</b>	Managing apps	A visual database design and management tool that allows developers to design, document, and manage databases. [54]

<b>Adobe xd</b>	Powerful Design	A vector-based tool developed and published by Adobe for web design and user experience design, for web and mobile applications. [55]
<b>GitHub</b>	Git Hosting Platform	A web-based Git repository hosting service that provides a platform for code collaboration, version control, and project management. [56]
<b>Android Studio</b>	Integrated Development Environment	An integrated development environment for developing Android mobile applications that provides tools for designing, developing, and debugging Android apps. [58]

**Table 4.1: Tools Used in Developing the easy shot application .**

### **3. User feedback and improvements :**

To collect user feedback about Easy Shot and have made some of the following improvements:

**1. Feedback Channels:** I have provided various channels to users at the user interface to allow comments to be submitted, which are delivered to my email.

**2. Surveys :** I conducted periodic surveys to collect structured feedback on specific aspects of the app, such as ease of use, features, and overall satisfaction.

**3. Reviews and Ratings:** Easy Shot allows users to leave reviews and ratings in app stores.

**4. User Interviews:** Contact a sample of users to conduct individual interviews in order to delve deeper into their experiences and see their needs, weaknesses, and suggestions for improvement.

**5. Analytics:** Analytics tools were used to track user behavior within the application. I analyzed the data to identify areas of the app that were underutilized or where users faced barriers

6. Feature Requests: Provide a feature request mechanism where users can suggest new features or improvements.

7. Bug Reporting: Implement a bug reporting system within the app to allow users to easily report any issues they encounter. Ensure prompt resolution of reported errors.

8. Usability Testing: He can share the application with his friends and relatives.

9. Feedback Response: Keep users informed of updates and improvements resulting from their comments.

10. Continuous Iteration: Work to release updates to the application regularly based on user feedback and data analysis. Implement incremental changes to continually improve user experience.

## CHAPTER 5 Applicatin Interfaces

Provides an evaluation of Easy Shot, emphasizing its final appearance, system evaluation, identified limitations, and future aspirations. The platform's final aesthetic presents a visually enticing and user-friendly interface, accentuated by the seamless integration of core functionalities. System evaluation encompasses a comprehensive assessment of functionality, performance, and user satisfaction, achieved through rigorous testing and observation. Acknowledged limitations include concerns regarding scalability and dependencies on external services. Future aspirations encompass endeavors to enhance scalability, broaden feature sets, and fortify security measures.

### **1. work for user engagement and satisfaction in future :**

To analyze user engagement and satisfaction with Easy Shot, a multifaceted approach is taken, incorporating both quantitative and qualitative measures. First, leveraging app analytics tools provides essential quantitative data on user behavior, such as daily and monthly active users, session duration, and feature usage. This information provides a clear picture of how users interact with the app over time and which features interest them most.

Loyalty rates play a vital role in measuring user satisfaction, with high rates indicating satisfaction and loyalty. Additionally, using Net Promoter Score (NPS) surveys helps gauge overall satisfaction and loyalty by looking at how likely users are to recommend the app to others. Quantitative data combined with qualitative feedback collected through in-app surveys, app store reviews, and social media reviews provides deeper insights into customer emotions, preferences, and issues. users.

Studying in-app user behavior uncovers valuable data about how users move through various features and content, highlighting points of conflict or abandonment in their journey. Responding to comments on the App Store and communicating publicly with users demonstrates its commitment to addressing their concerns and promoting positive relationships.

Users can provide additional qualitative information through regular surveys, allowing them to express their opinions and suggestions in-depth. Examining Easy Shot's results in comparison to industry standards and competitor metrics provides a valuable framework for understanding where it stands when it comes to user engagement and satisfaction.

Finally, by using A/B testing methods, it is possible to experiment with different features, designs and content variations to spot improvements that attract more user attention and satisfaction. By incorporating these methods, Easy Shot has the ability to constantly refine its offering to better satisfy user needs and expectations, which promotes a more satisfying user experience

### 1. Impact on the photography industry:

Easy Shot has studied all the effects that can be significantly affected, including:

**1. Facilitating access:** We have made it easier for the user in various ways in order to provide communication and find photographers easily, together with the possibility of expanding on a larger scale.

**2. Expanding the market:** Contacts between photographers and clients help spread awareness and photography services

**3. The existence of competition:** The presence of a special application for photographers creates some competition between photographers, as each photographer wants to prove himself among the photographers and achieve huge offers and commercial transactions between them.

**4. Support and development:** Easy Shot encourages photographers to constantly improve their skills and services to remain competitive, which motivates them to maintain high standards of quality and customer service.

**5. Industry standards:** Easy Shot indirectly contributes to setting industry standards. Clients expect certain levels of professionalism and quality when hiring photographers through the platform, which prompts them to adhere to laws in order to remain competitive.

**6. Technological innovation:** The development and success of Easy Shot is considered a future that inspires technological innovation in the photography industry, as every photographer searches for new tools or services to enhance their experience to distinguish themselves.

**7. Communication and cooperation:** Communication and cooperation are a basic principle of the Easy Shot application, as it allows photographers to exchange knowledge and new ideas.

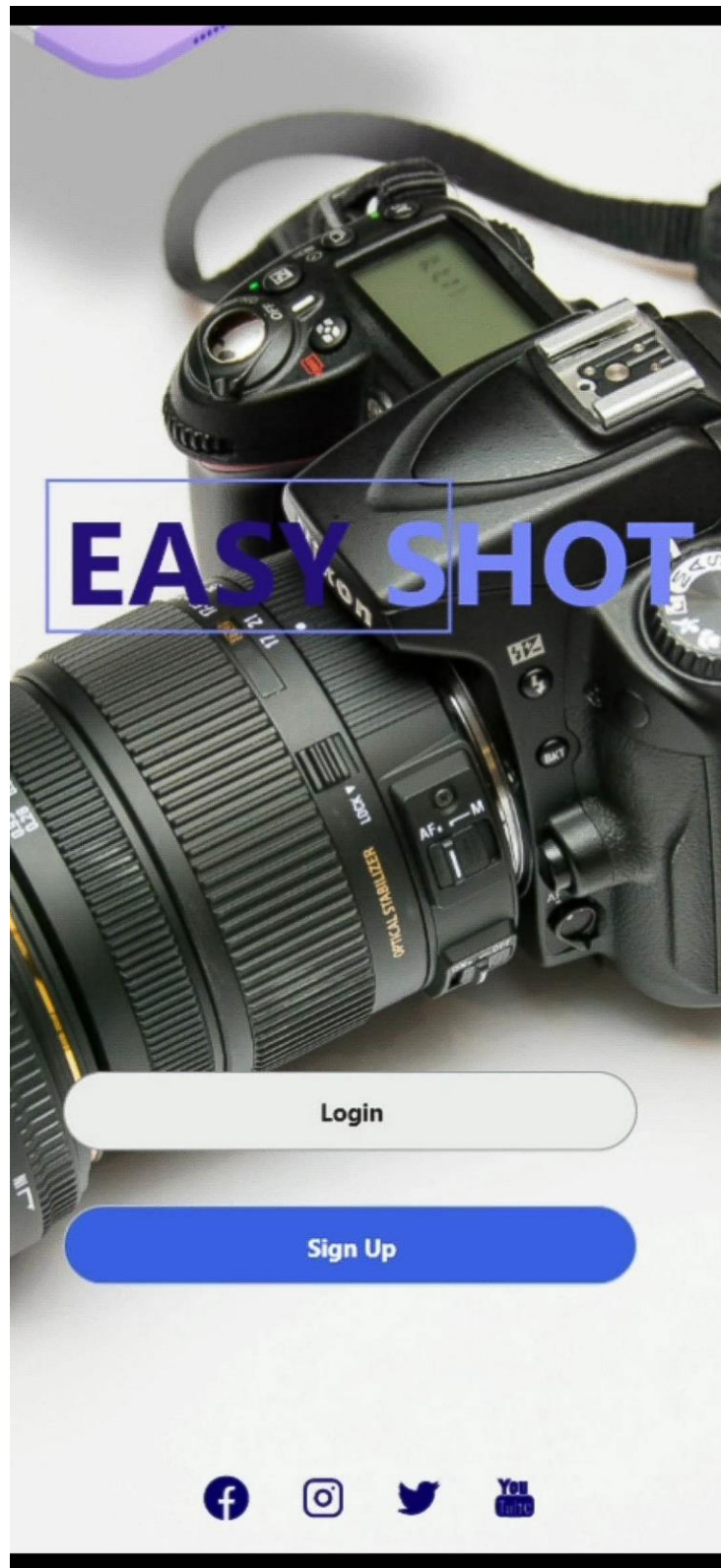




Figure 4: the interface

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## Login

login to your account

Don't have an account? [Sign in here.](#)

Login

---

Figure 5 : login page

The image shows a mobile application sign-up screen. At the top, the text "Easy shot" is displayed in a large, grey font. Below it, the heading "Sign Up" is centered in a bold, black font, with the subtext "Create an account, it's free" underneath in a smaller, grey font. The form consists of four rounded rectangular input fields stacked vertically. The first field is labeled "Username". The second field is labeled "Email" and includes a small envelope icon on the right side. The third field is labeled "Password" and includes a small eye icon on the right side. The fourth field is labeled "Confirm Password" and also includes a small eye icon on the right side. Below the input fields is a prominent blue button with the text "Sign Up" in white. At the bottom of the screen, there is a link that says "Already have an account? [login here.](#)" in a grey font.

Figure 6 :sign up page

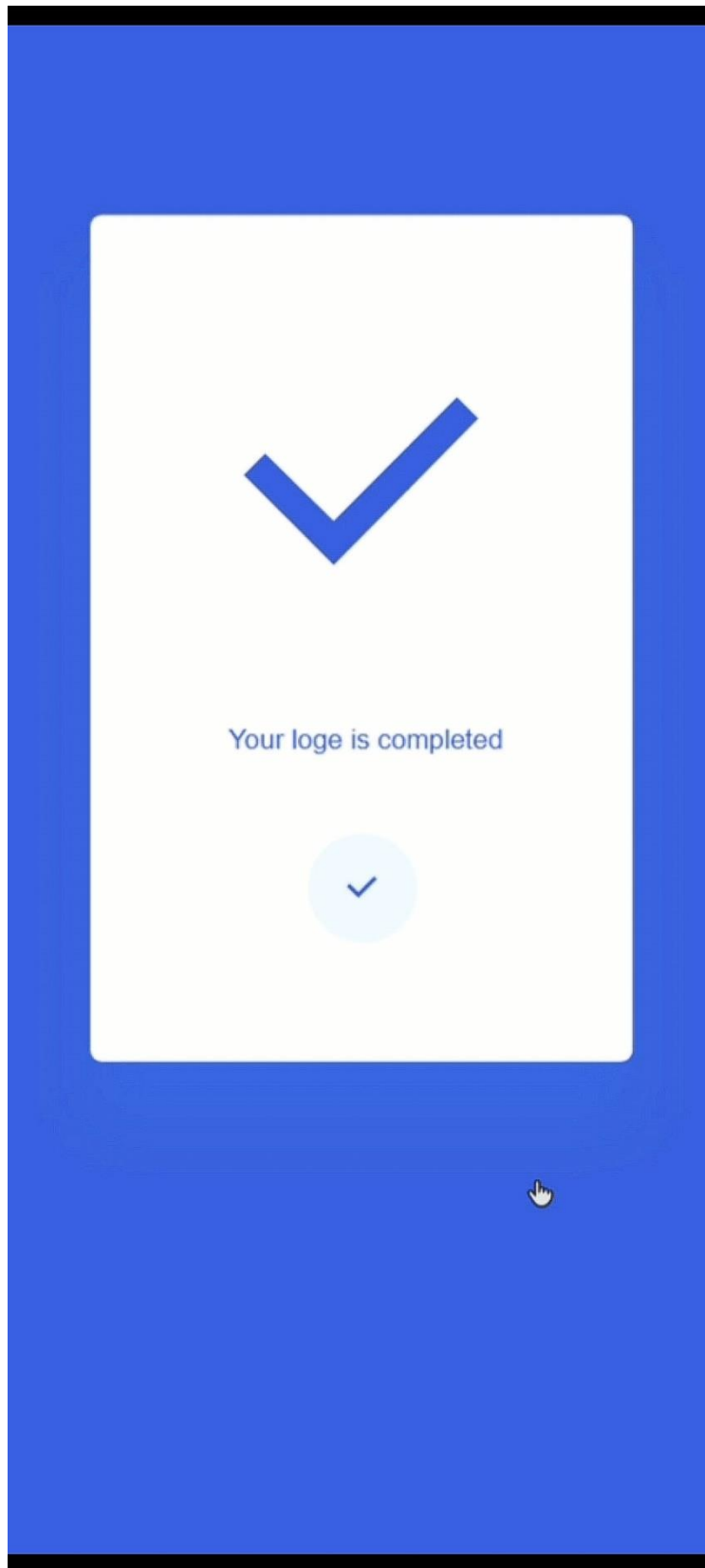


Figure 7 : check

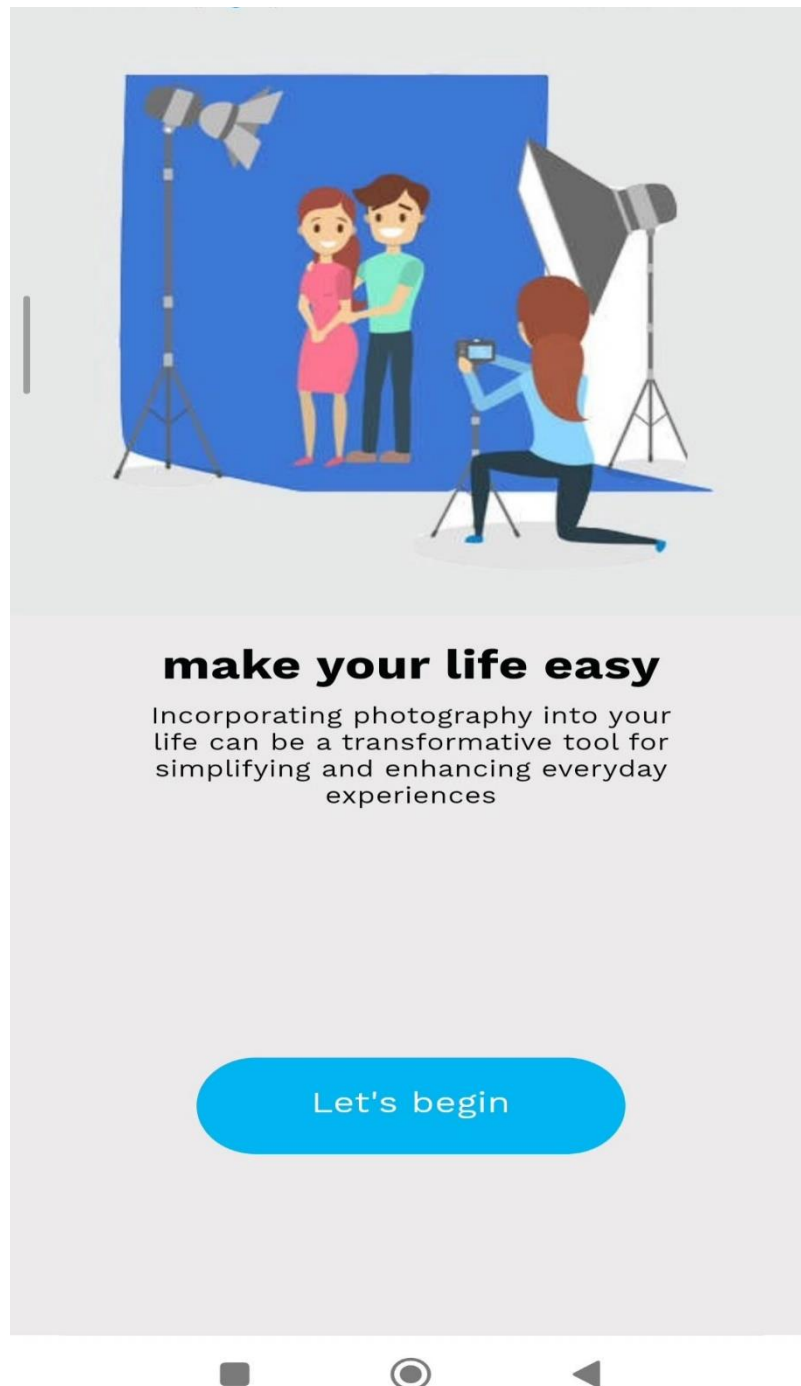


Figure 8: when you login

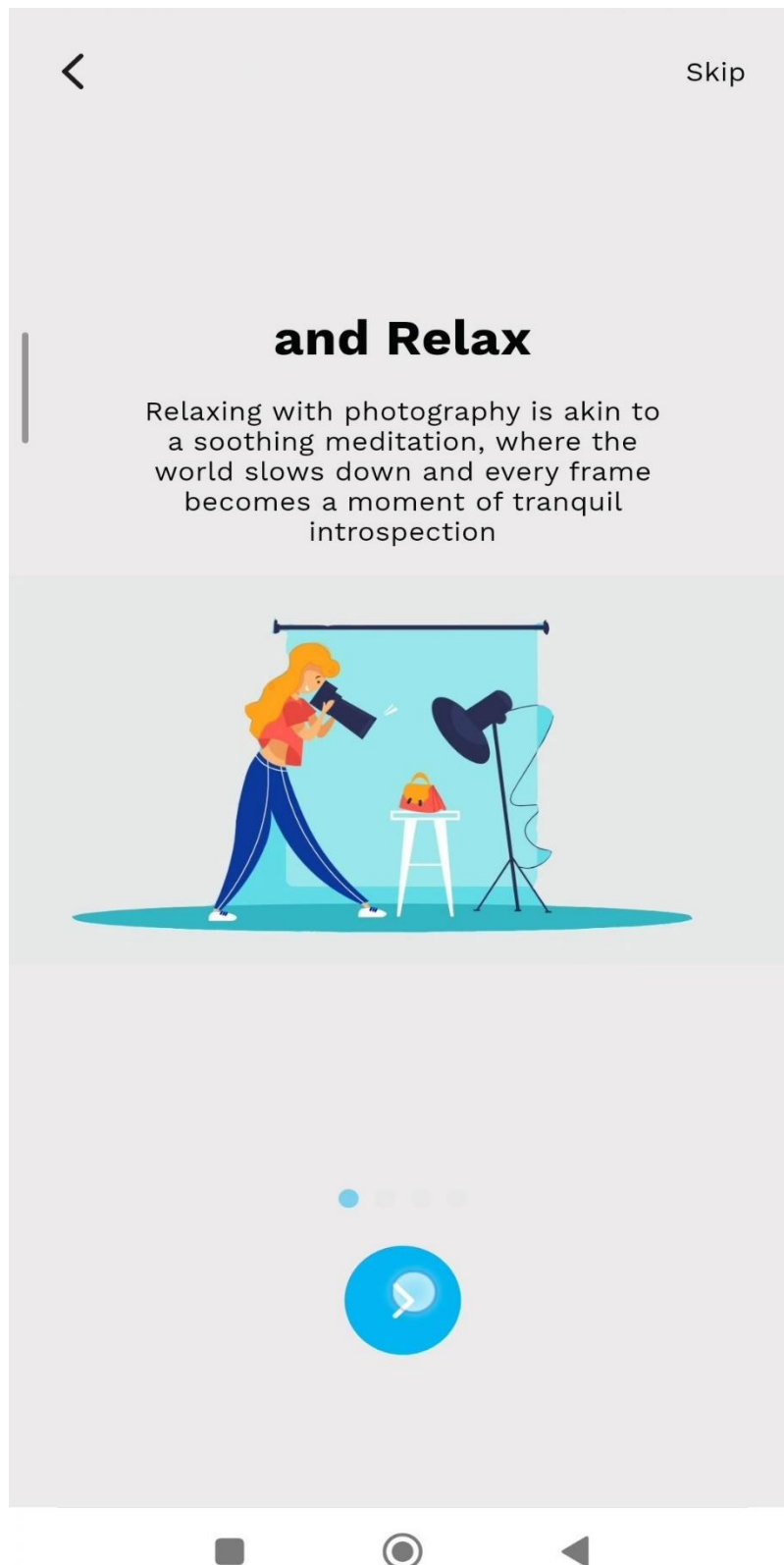


Figure 9 identification app

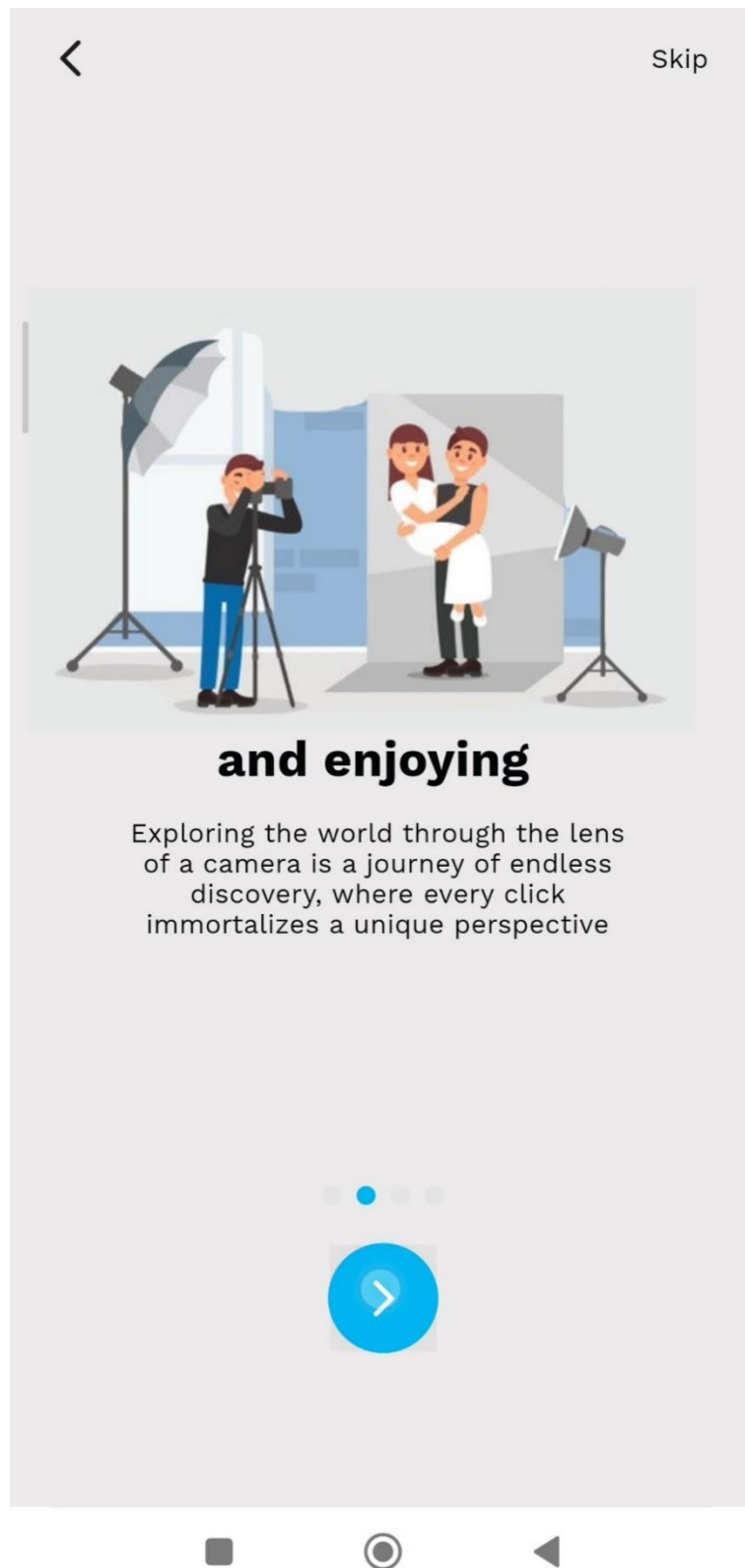


Figure 10 : Define types

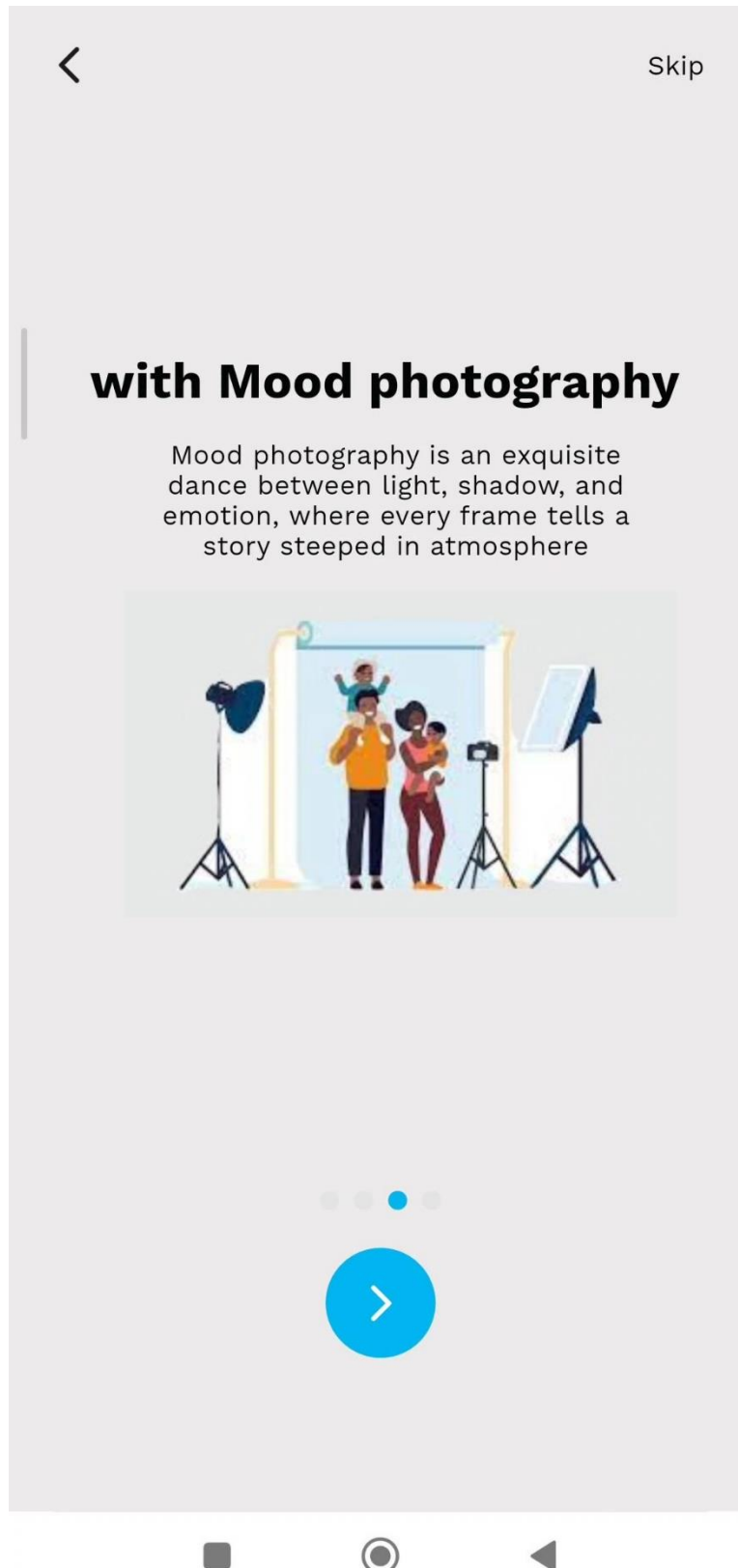


Figure 11: Next

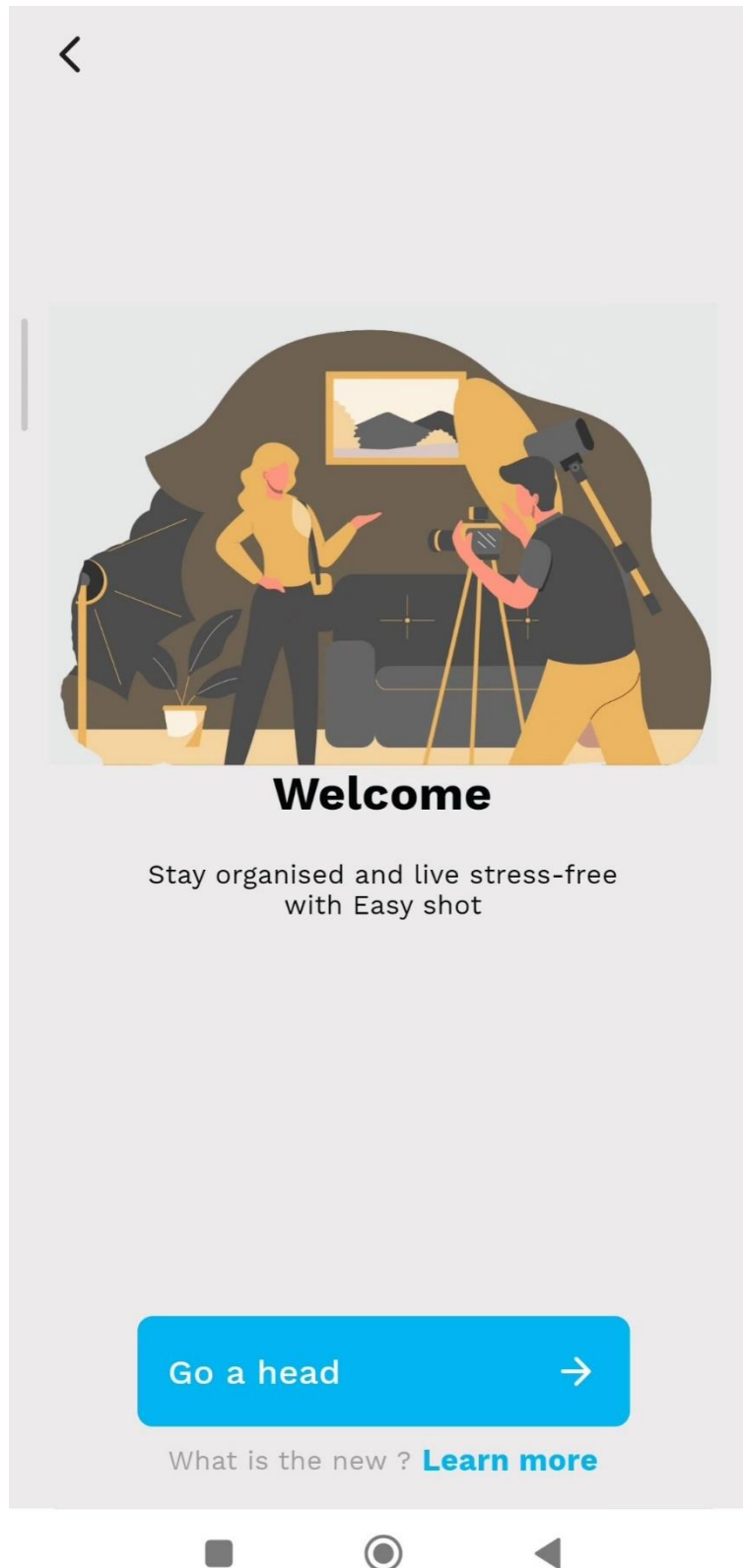


Figure 12 :go a head for next page

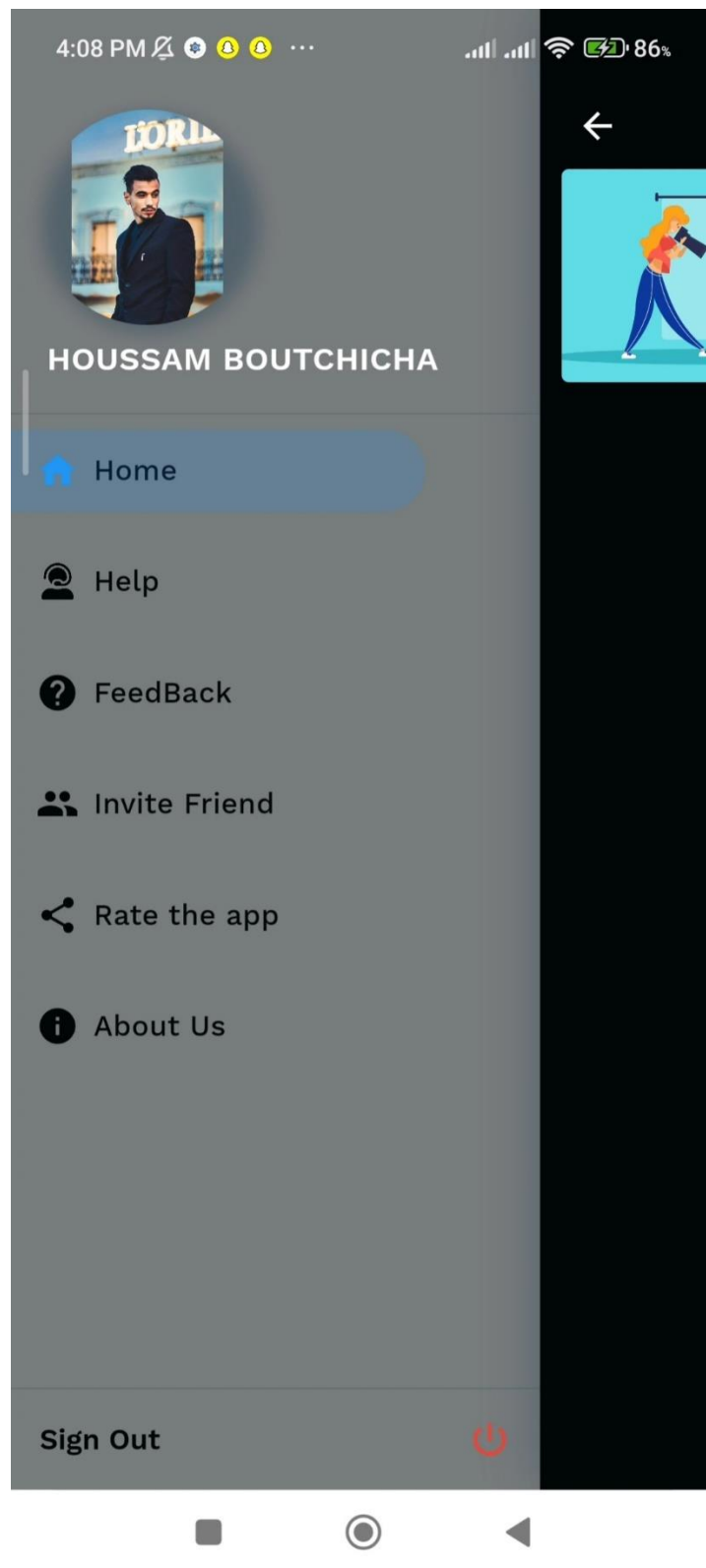


Figure 13 home page

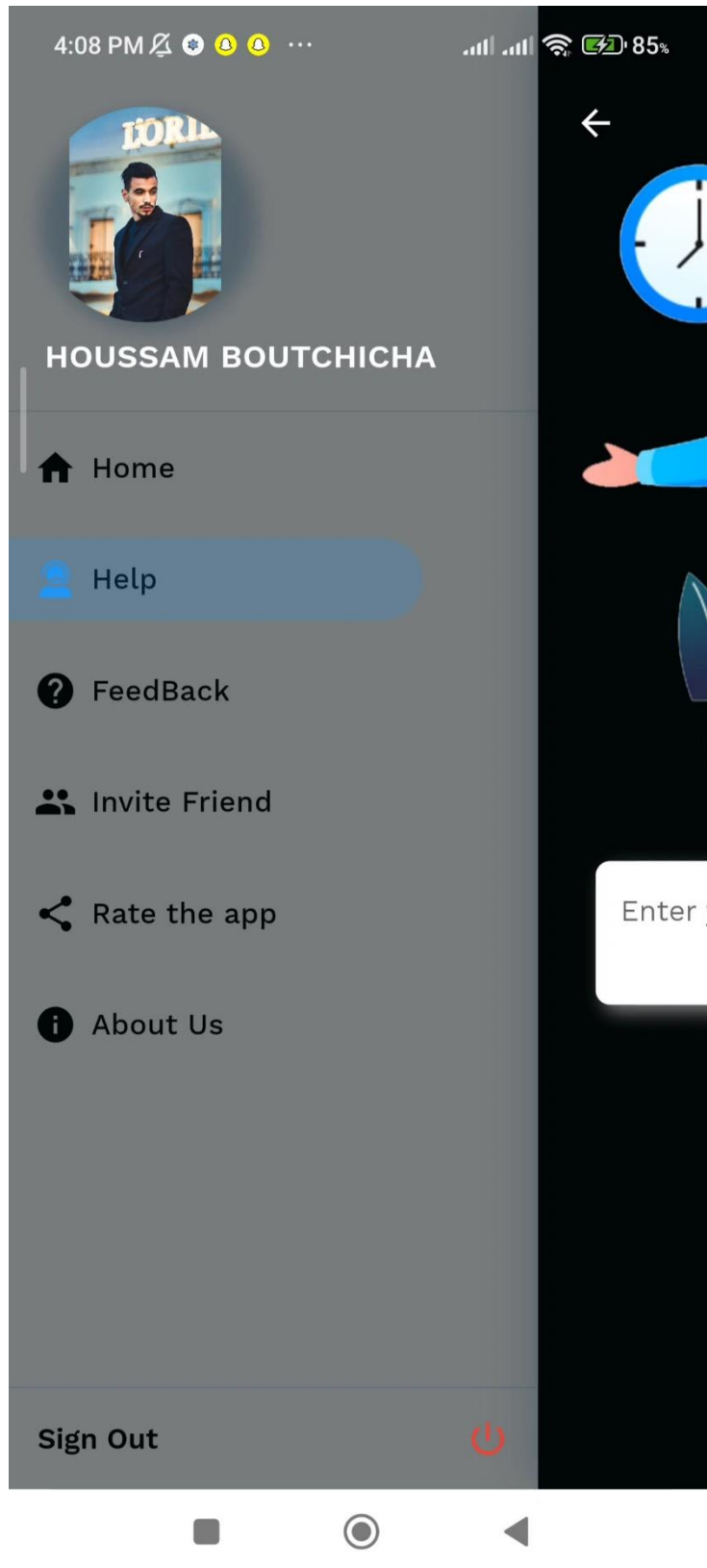


Figure 14 :for help

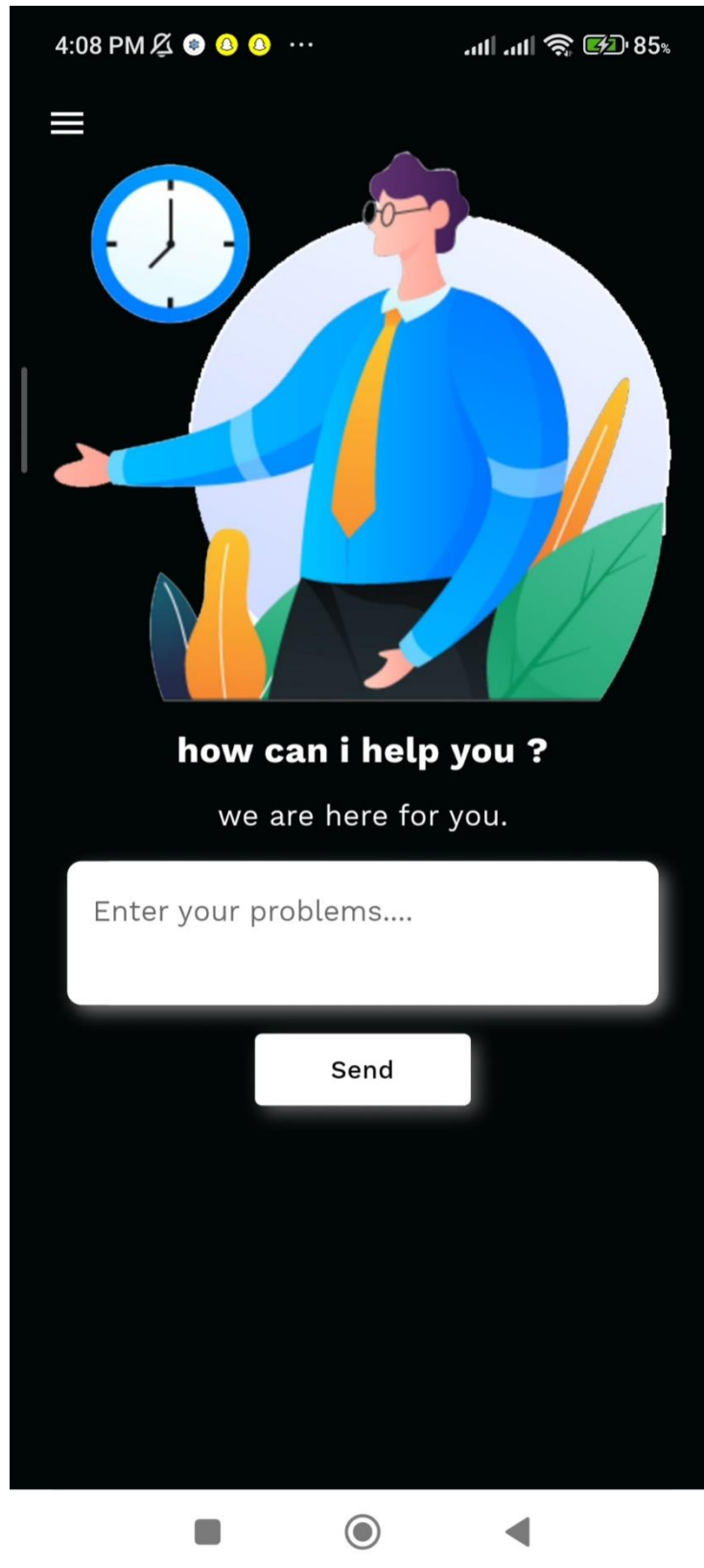


Figure 15 :help

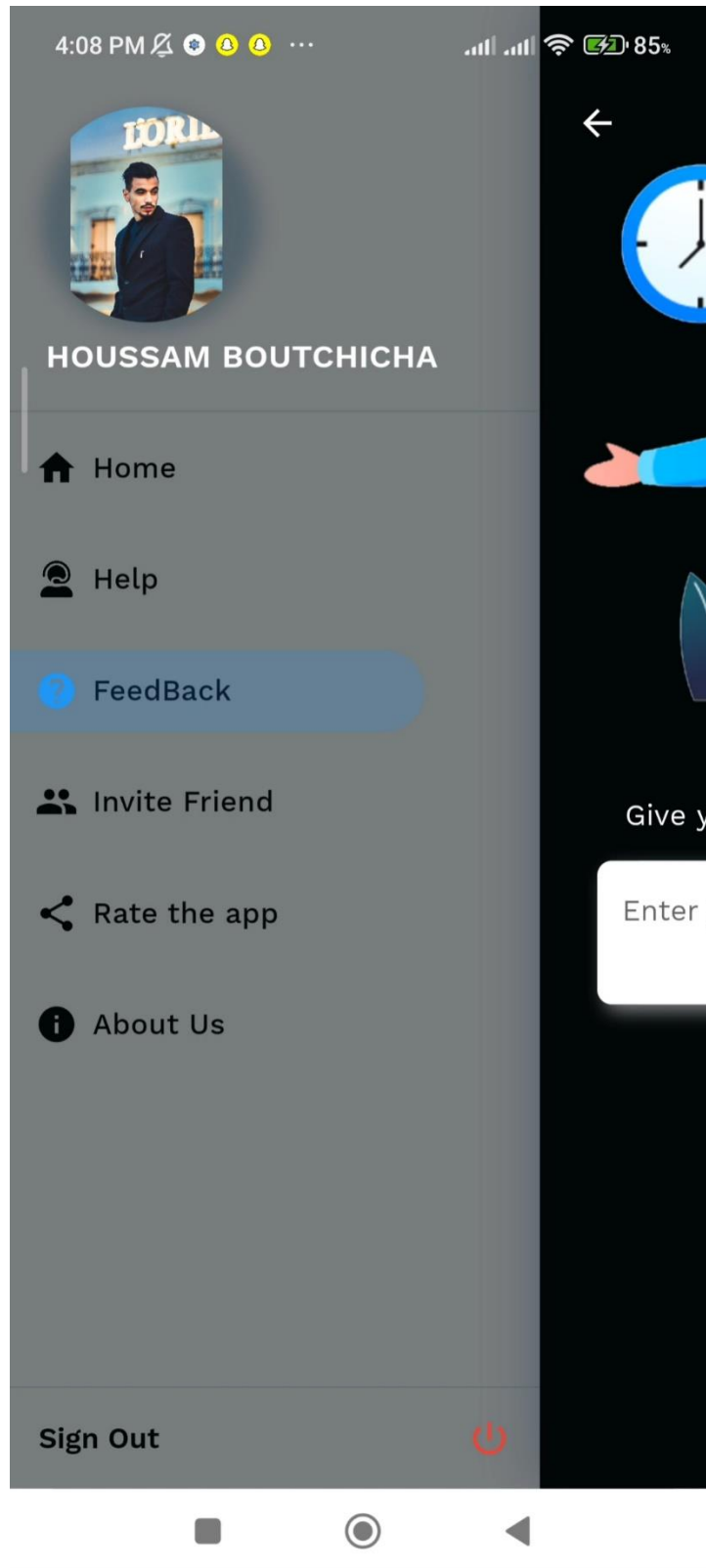


Figure 16 :for feedback

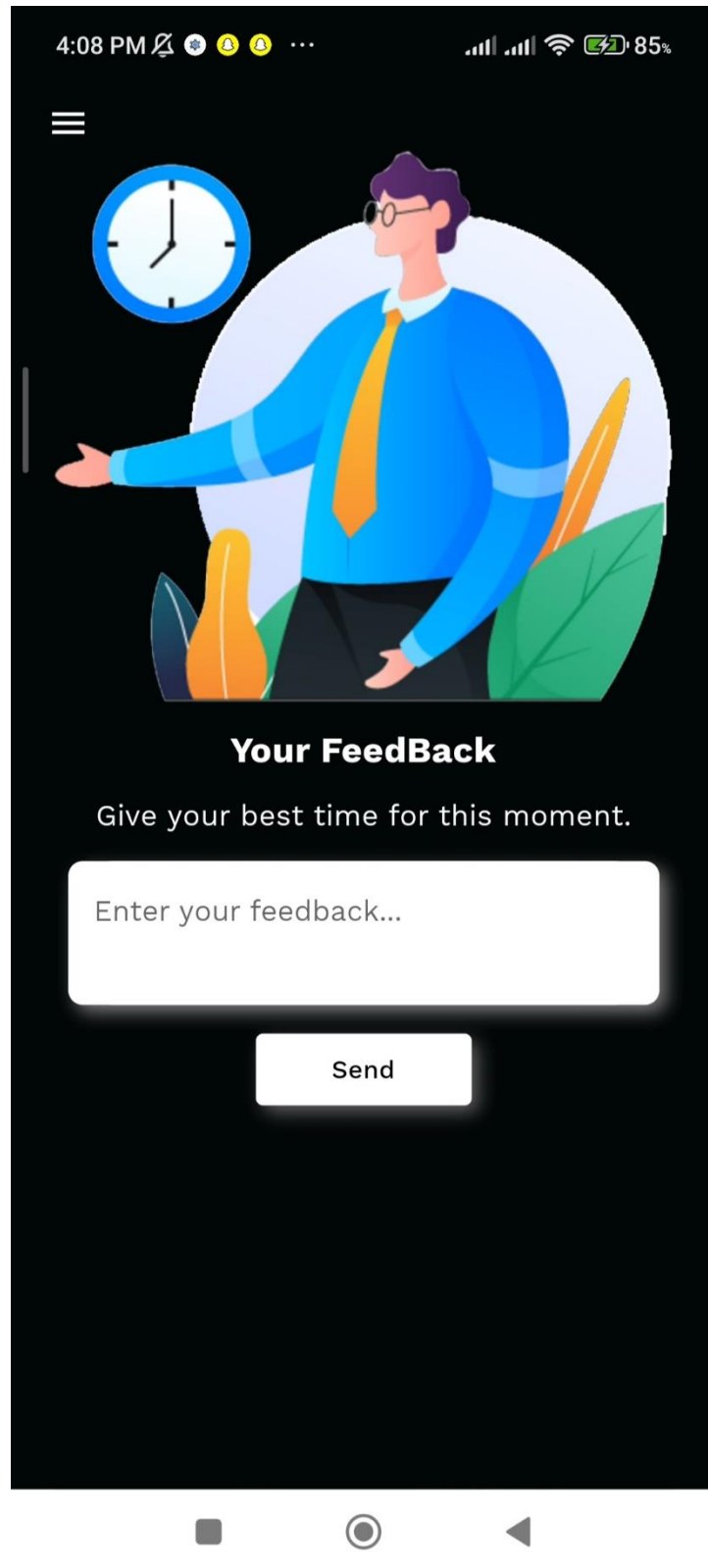


Figure 17 : feedback

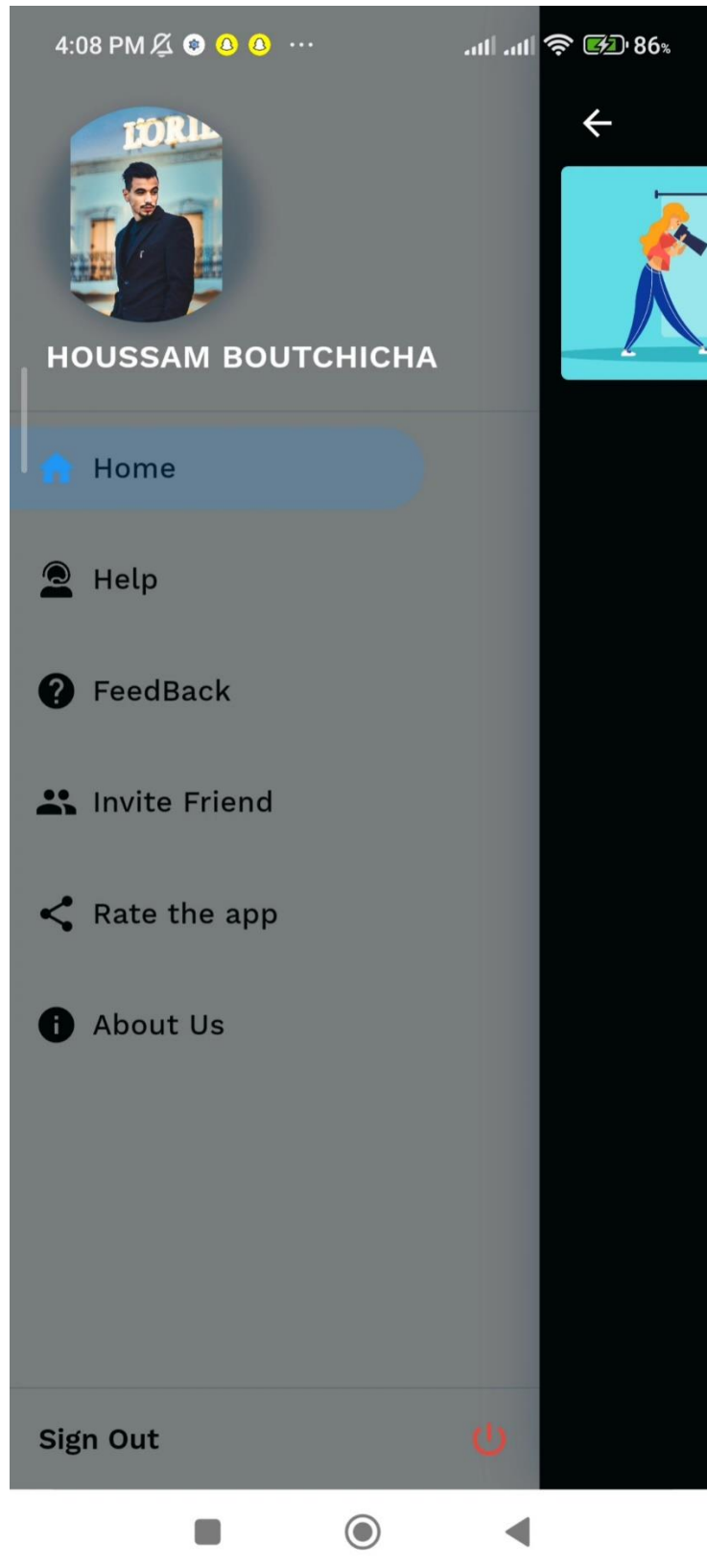


Figure 18: back

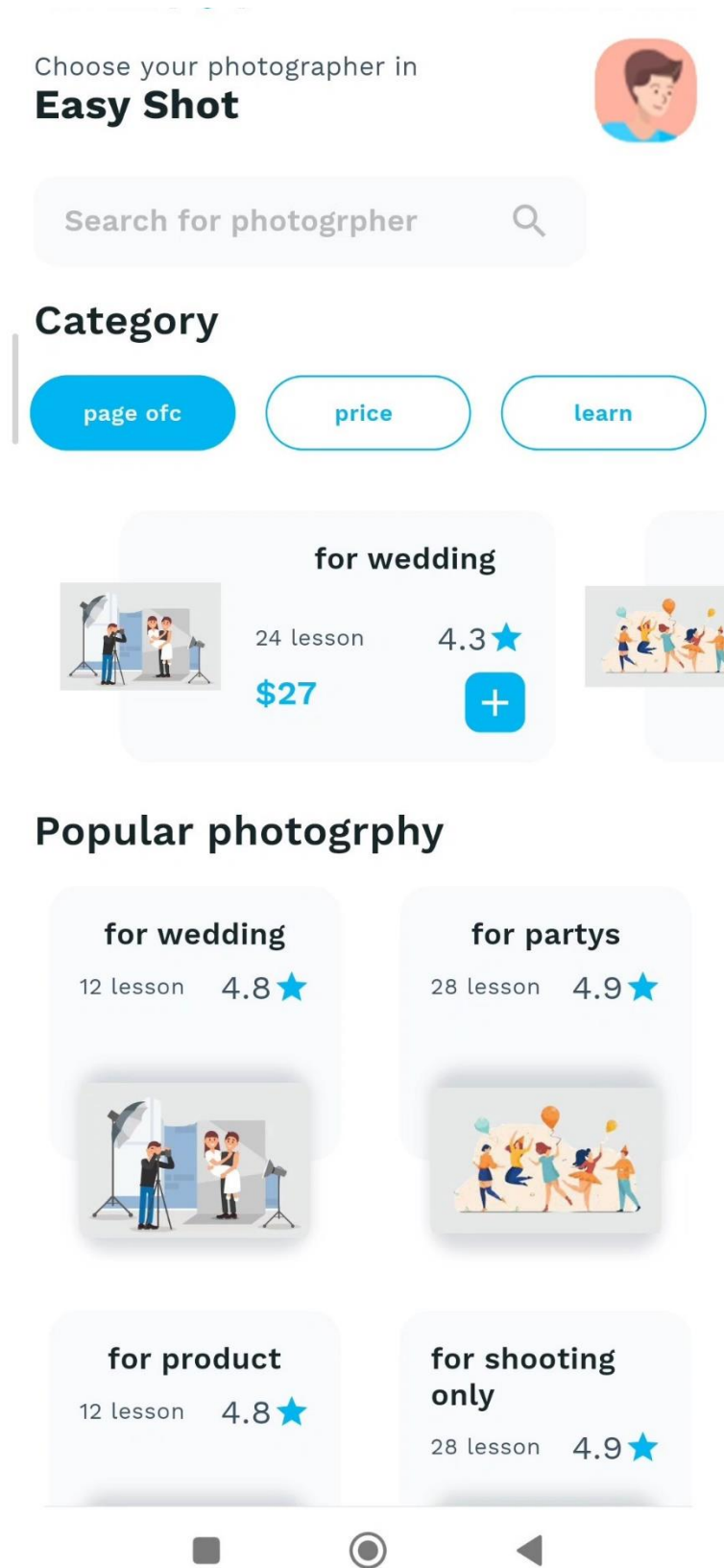


Figure 19 : home page

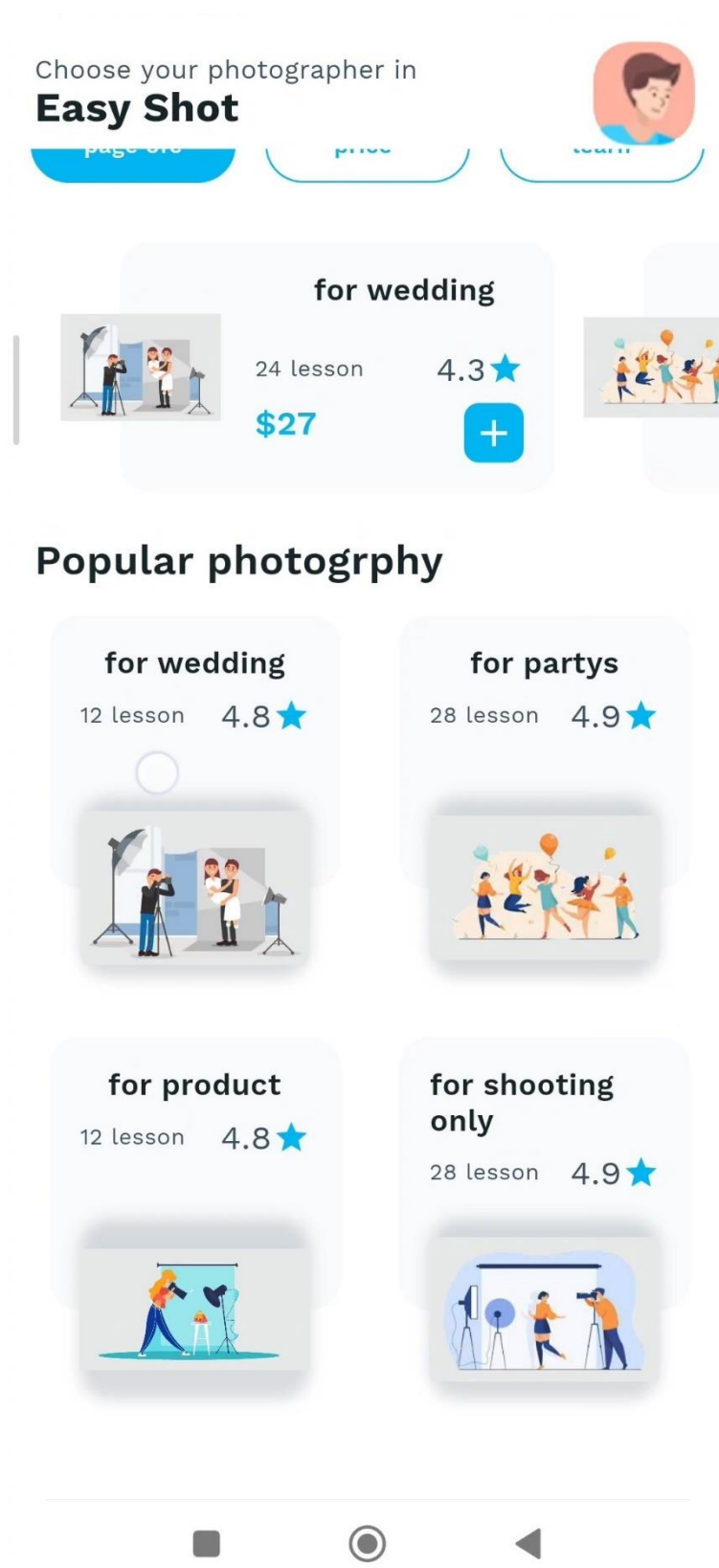


Figure 20 : kinds

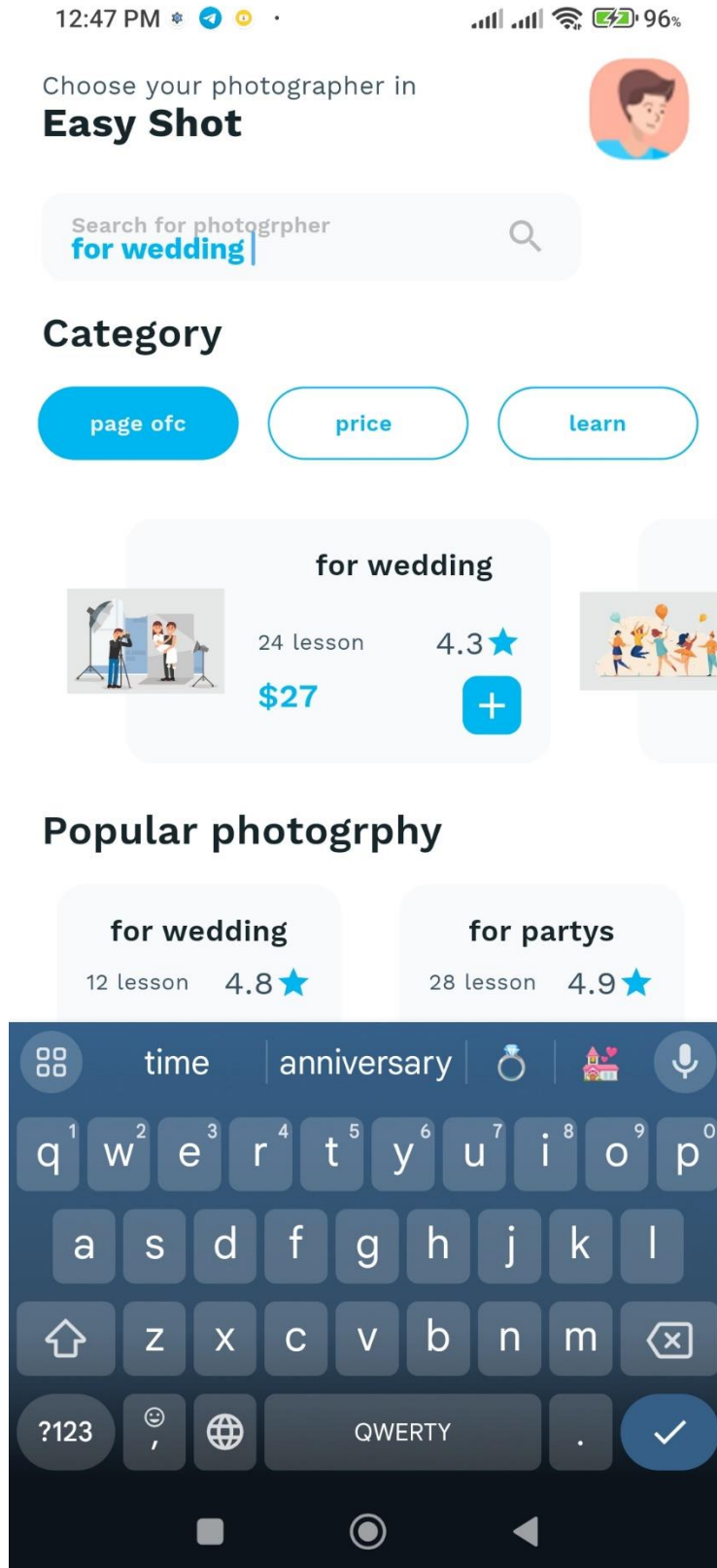


Figure 14: looking for weeding

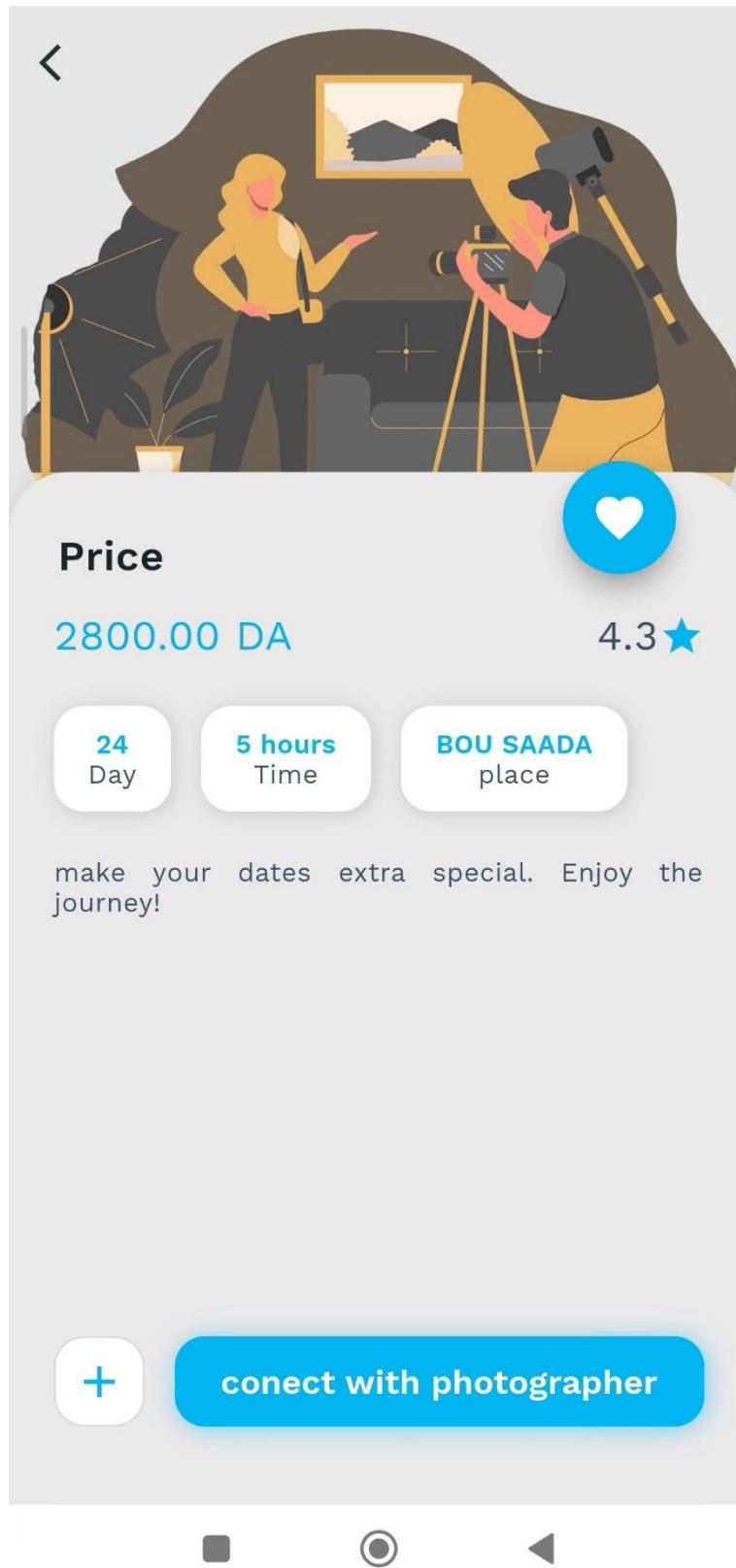


Figure 21: for connect with photographer

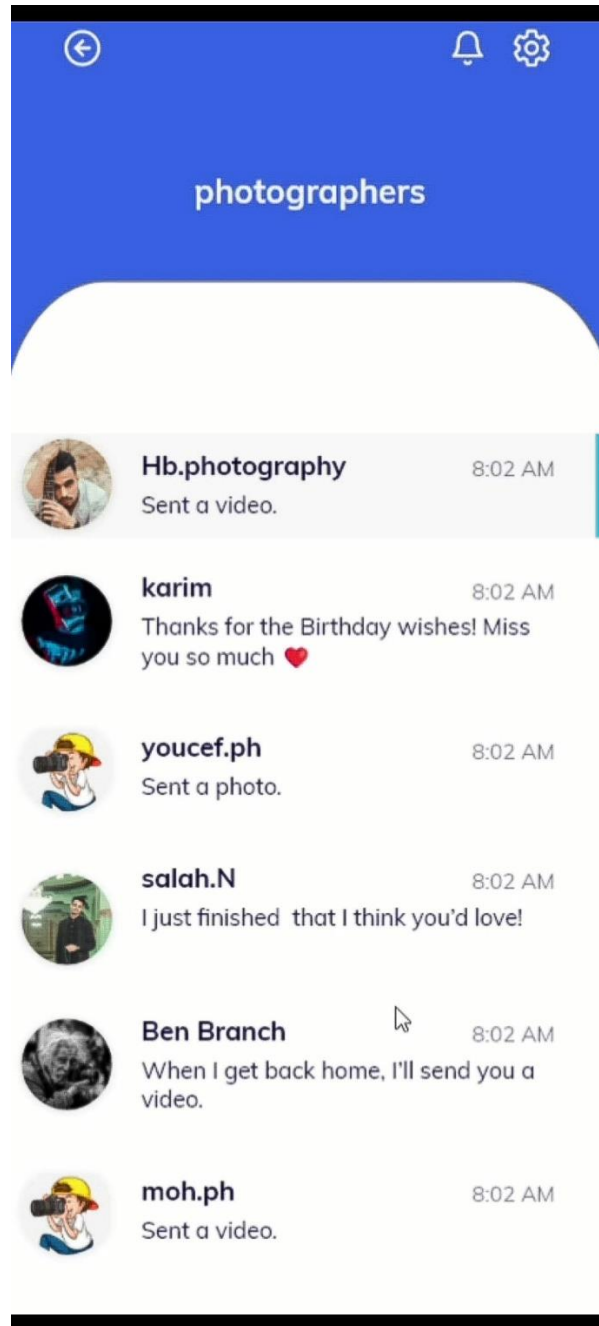


Figure 22 : photograpahers

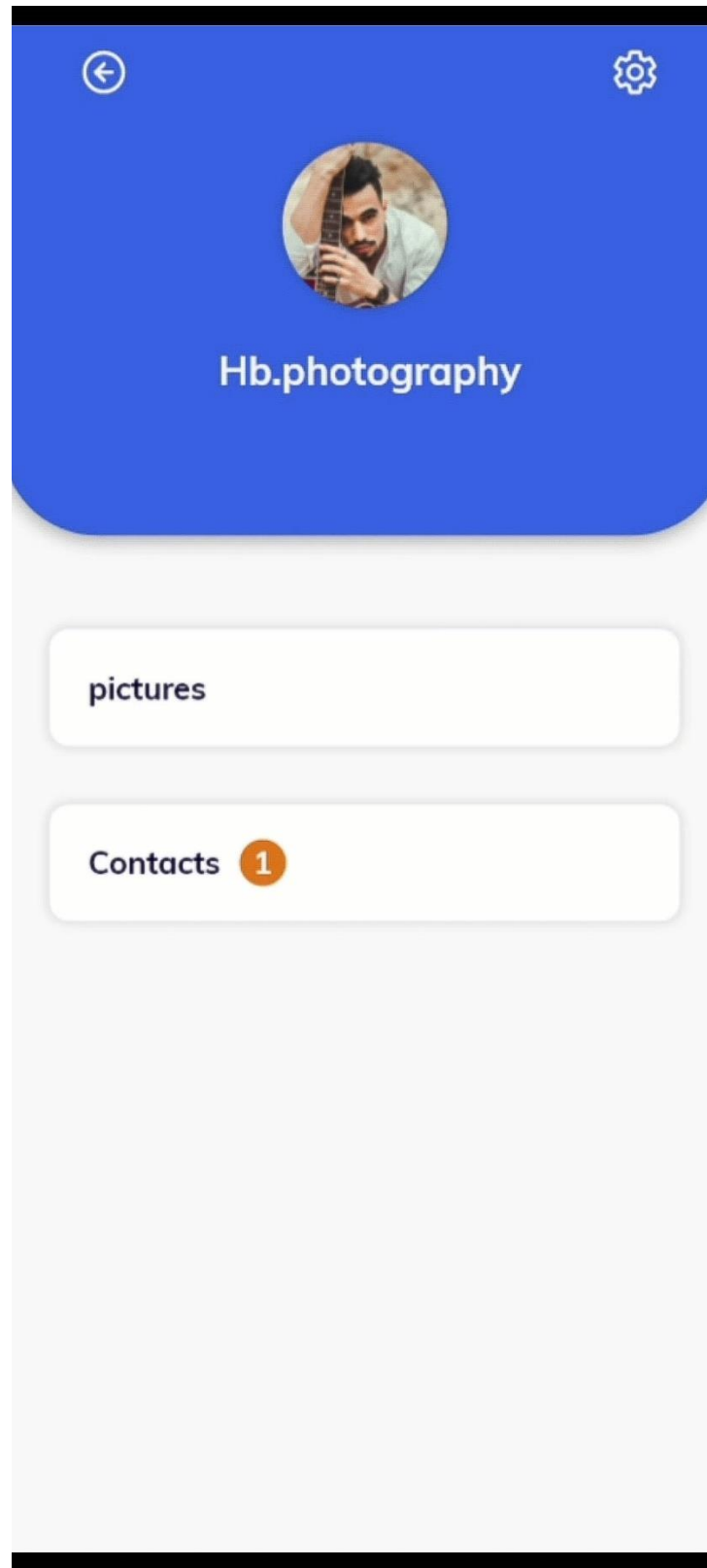


Figure 23 : photographer page

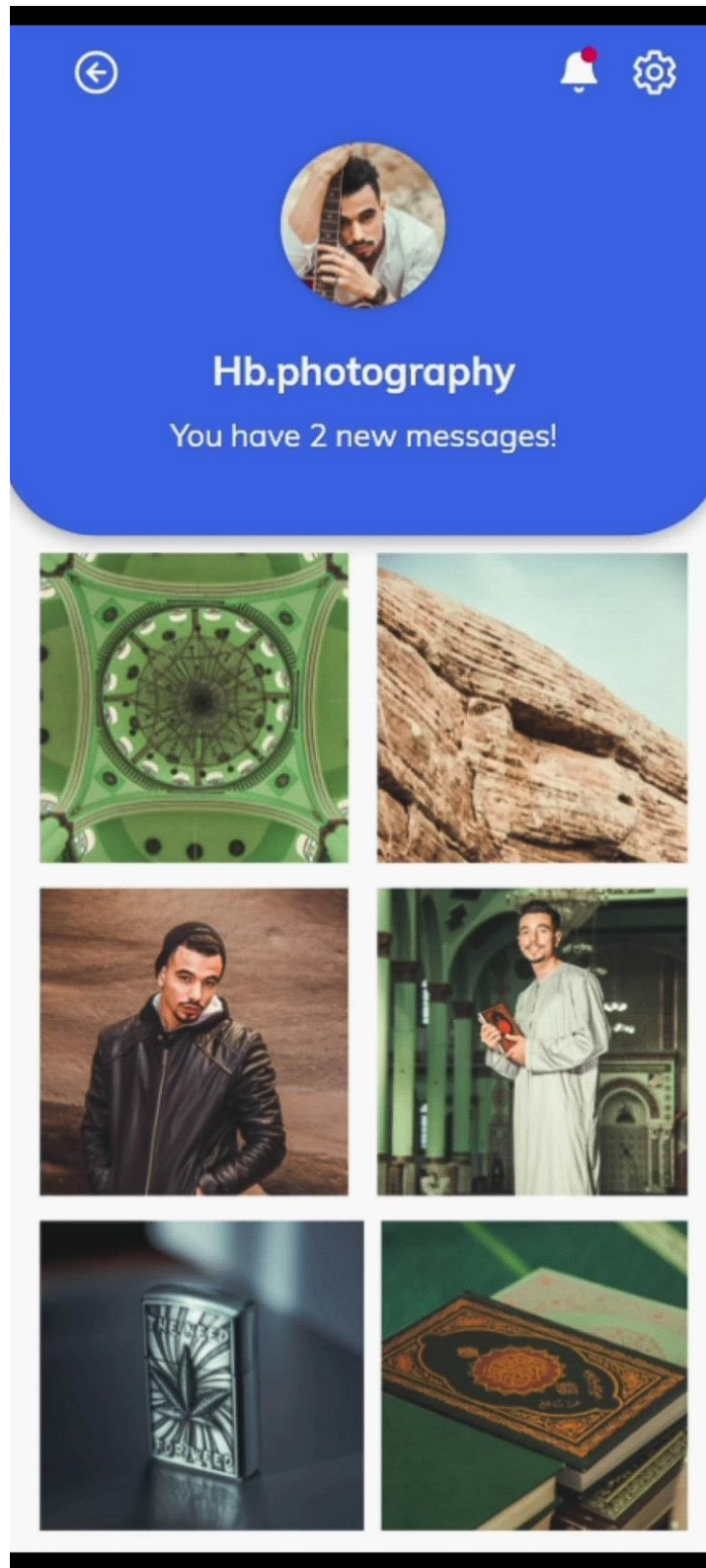


Figure 24 : his work

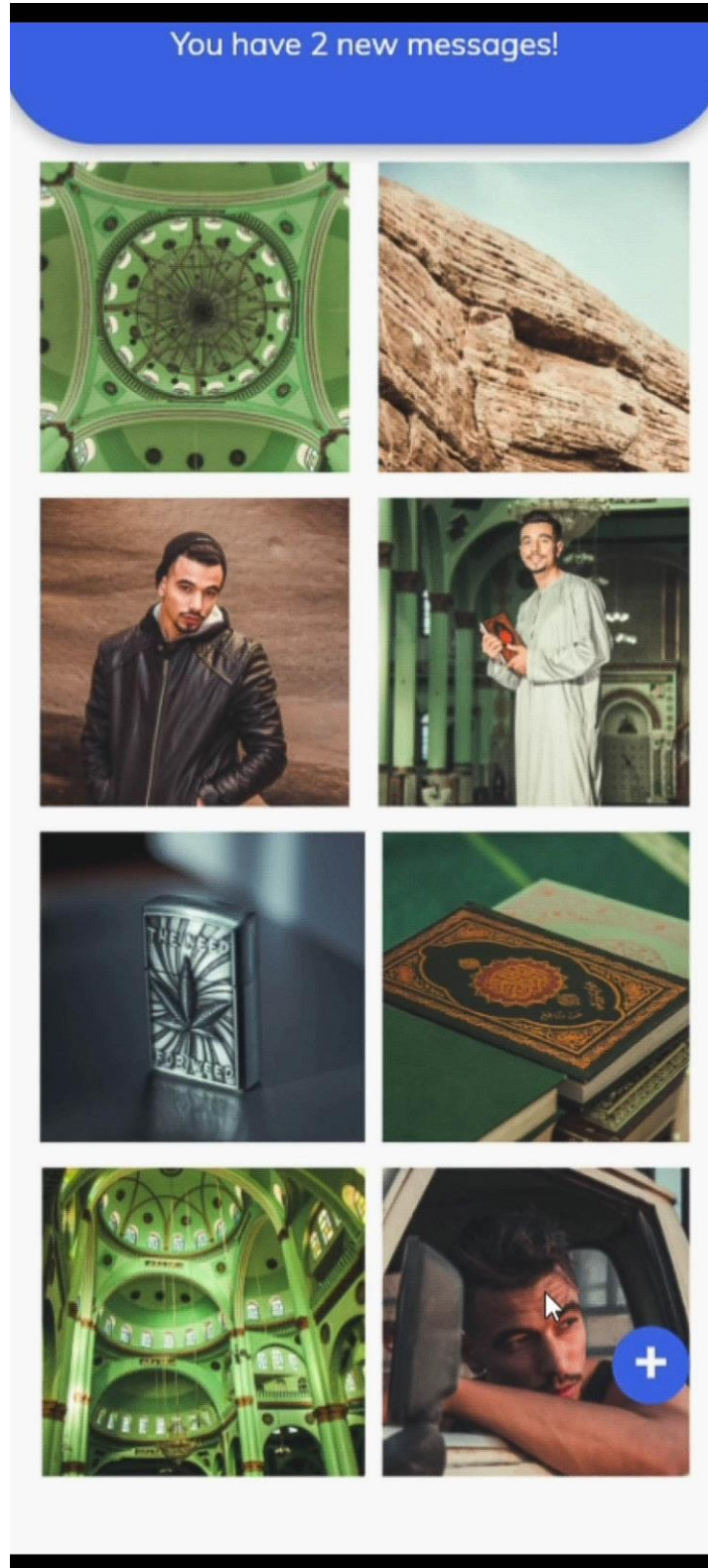


Figure 25 : continued..

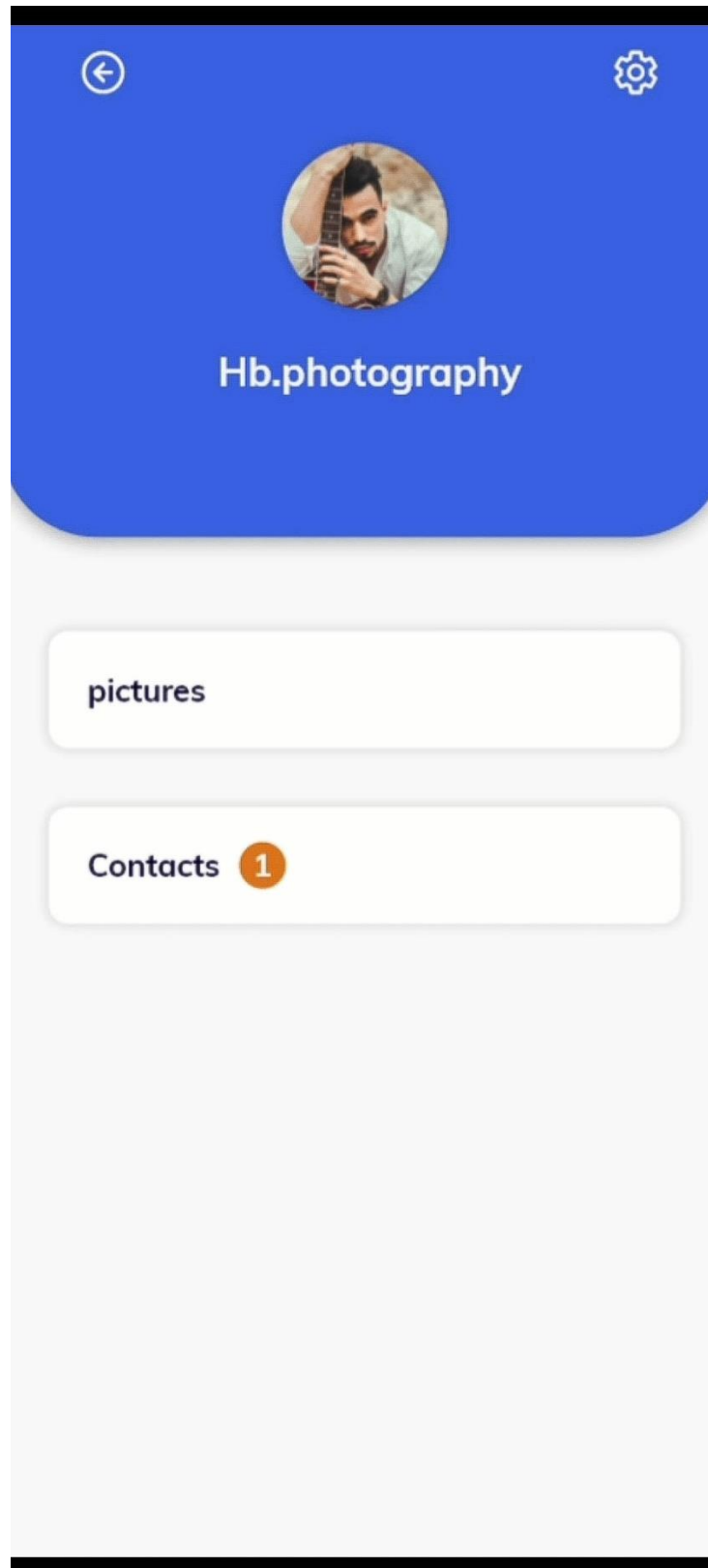


Figure 26 : for contacts page

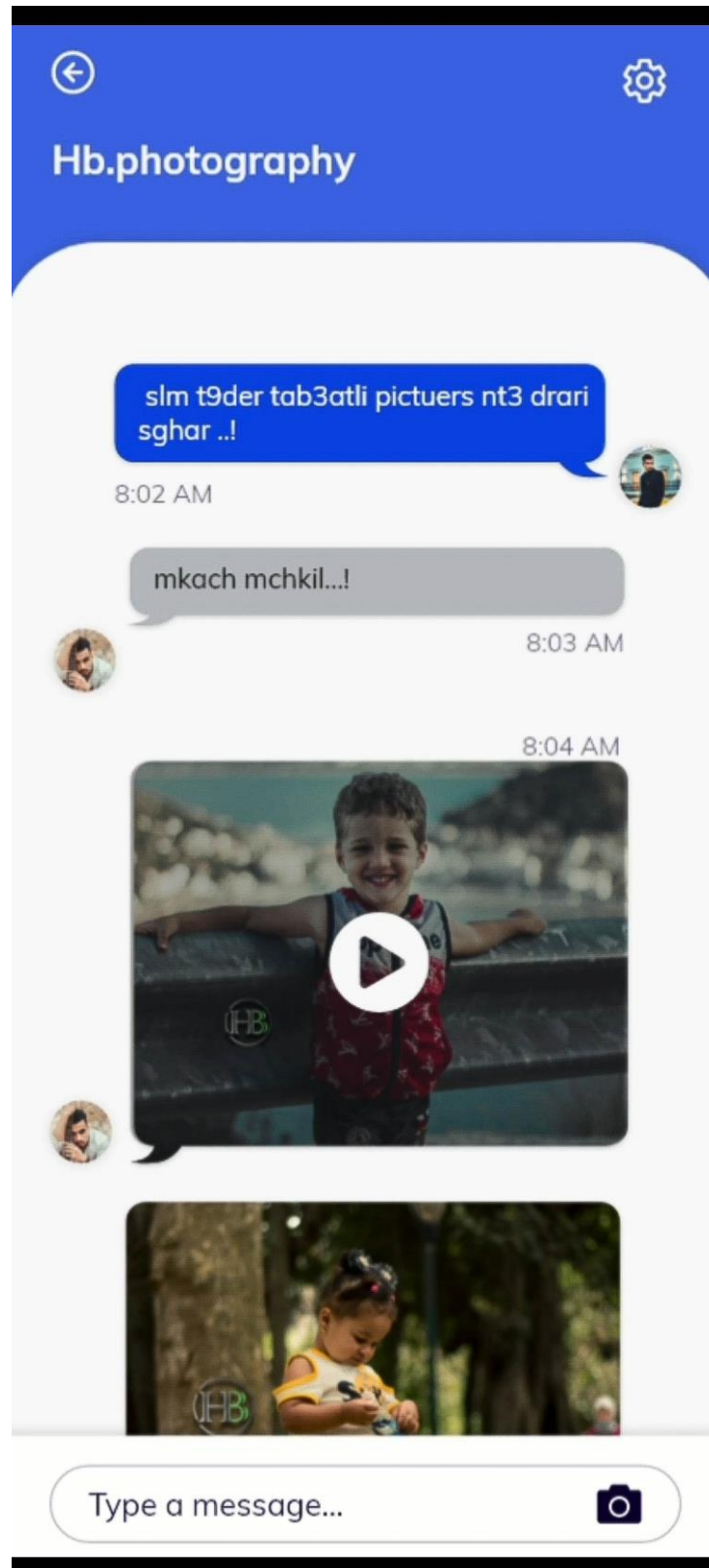


Figure 27 : messages between the photographer

## CHAPTER 6 Conclusion and Future Work

System evaluation is a crucial aspect of assessing the performance, functionality, and effectiveness of a software system. In this chapter, the evaluation of the developed freelancing application is conducted to measure its success in meeting the desired objectives and requirements. Various evaluation techniques, such as testing, user feedback, and performance analysis, are employed to provide a comprehensive assessment of the system. The evaluation process involves analyzing the app's features, usability, reliability, security, and scalability. The findings from the evaluation are presented, highlighting the strengths and weaknesses of the system and providing insights for potential improvements.

### **1. Implementation summary:**

The new Easy Shot version is a challenge for me due to facing many problems and at the same time not having enough time to implement all the planned features. The wide scope and complexity of the project restricted the ability to achieve all the desired goals during the framework. The timeframe is specified. Among the important restrictions which relate to electronic payments. Specifically, the use of the Algerian dinar in transactions was not possible due to the unavailability of the remote payment application programming interface (API) from Algeria Post. Obtaining this API requires fulfilling some basic requirements, such as having a commercial register for e-commerce [90]. However, the requirements for accessing the remote payment API were not met during the project duration, resulting in the Algerian dinar electronic payment functionality being unavailable. These limitations indicate the challenges encountered during the application development process.

### **2. Recommendations for further enhancements:**

Easy Shot represents the first application specifically in Algeria. Future aspirations include distinct additions such as buying and selling photography equipment, addressing specific limitations, and integrating necessary requirements. An app will be developed to increase accessibility and tap into a wider user base, and is also expected to expand beyond borders. National, and these aspirations are consistent with the goal of creating a

prosperous environment for freelancing in Algeria, empowering freelancers and providing high-quality services to customers, in addition to adding a Google Maps factor where you can see the depicted people surrounding you. The application seeks to flourish, create job opportunities, and connect freelancers with better opportunities, Which provides clients with access to talented professionals. Through continuous improvement and expansion, the application aims to contribute to the growth and success of freelancers and clients in the field of freelancing in Algeria .

### **3.Challenges faced and lessons learned:**

Easy Shot's journey has been marked by numerous challenges, each providing valuable lessons in growth and improvement. Here are some key challenges encountered and the lessons learned:

**1. Application Development Challenges:** Building an easy-to-use and powerful application like Easy Shot involves overcoming technical hurdles such as programming complexity, feature integration, and cross-device compatibility. The key lesson here is the importance of careful planning, regular testing, and being adaptable to unexpected technical issues.

**2. User Acquisition and Retention:** Attracting and retaining both photographers and clients has been a significant challenge. Effective marketing strategies, clear communication of value propositions, and enhancing user engagement are crucial. This highlights that user acquisition and retention require a comprehensive strategy, including targeted marketing campaigns, referral programs, and personalized user experiences.

**3. Balancing Supply and Demand:** Managing the balance between the number of photographers and client requests can be particularly challenging, especially in the early stages. Ensuring neither a surplus of photographers nor a shortage of demand is essential. Continuous monitoring and adjustment of supply and demand dynamics using incentives, pricing strategies, and matching algorithms are necessary.

**4. Quality Control and Reputation Management:** Maintaining the quality and reliability of photographers on the platform is critical for user trust and satisfaction. This involves verifying qualifications, handling negative feedback, and managing reputational risks. Robust selection processes, transparent communication, and swift dispute resolution are key to maintaining the platform's credibility.

**5. Scalability and Infrastructure:** As Easy Shot has grown, scalability has become a major concern. Adapting to increased traffic, transactions, and data storage requires careful planning and investment in scalable technologies. Developing a scalable architecture from the beginning, leveraging cloud services, and continuously improving performance are essential to meet growing demand effectively.

**6. Regulatory and Legal Compliance:** Complying with regulatory requirements and legal obligations, such as data privacy laws and consumer protection regulations, is a constant challenge. Staying informed about evolving legal frameworks, implementing strong data protection measures, and maintaining transparency in terms of service and privacy policies are crucial. Consulting legal counsel and fostering a culture of transparency and accountability are important for ensuring compliance.

### **5. Potential future developments for Easy Shot:**

In conclusion, this chapter has provided a final look at the developed freelancing platform, highlighting its intuitive user interface and functionality. The evaluation of the system was discussed and the importance of evaluating its performance and effectiveness was emphasized. Although no specific evaluation results are provided, the evaluation process typically involves measuring the system's performance, functionality, usability, reliability, security, and scalability, providing valuable insights for future improvements. Several system limitations were identified, including time constraints and regulatory hurdles that affected the completeness of project features and restricted the implementation of specific payment methods.

Looking to the future, the project has aspirations for the future. This includes obtaining a startup label from the Algerian Ministry of Startups to enhance the platform's credibility and visibility. The application will continue to be developed, addressing identified limitations and integrating requirements identified during the research process. A critical step for future growth includes developing a mobile app to increase accessibility and tap into a broader user base. Furthermore, expanding internationally by opening a branch outside Algeria aims to facilitate banking transactions for application users and enable potential international cooperation. Overall, these aspirations align with the goal of creating a thriving freelance ecosystem in Algeria, empowering freelancers and providing high-quality services to clients.

## **CONCLUSION**

In conclusion, this thesis addressed the Easy Shot application landscape and aims to contribute to the development of an effective application specifically designed for photographers. Through a comprehensive review of the literature, the importance of this application in contemporary economics was highlighted, along with the advantages and limitations of this application. The methodology used online surveys, interviews and sampling techniques to collect data, revealing the challenges faced by clients and photographers in Algeria, such as communication problems and high competition. This application is considered an optimal solution among the proposed solutions.

Based on the research results, the application requirements were identified and designed. System requirements include functional and non-functional aspects to ensure user satisfaction. Database design and modeling ensures efficient data storage and retrieval.

An implementation and testing phase followed, using different programming languages and frameworks.

The evaluation showed the app's attractive interface and ease of use, without providing specific evaluation results. Constraints such as time constraints and regulatory hurdles were acknowledged, along with aspirations for future improvements. These aspirations included obtaining a startup label, developing mobile applications, and expanding globally.

This thesis provided valuable insights into the landscape of facilitating communication between photographers and clients in Algeria. By addressing challenges and focusing on user satisfaction, the app aims to empower freelancers and provide high-quality services to customers. My goal is for these efforts to lead to a successful scale, and also thrive in the competitive market. Further research, development, and continuous improvements based on user feedback will be crucial for achieving this aspiration and ensuring the long-term success of the startup.

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## Abstract:

This thesis explores the landscape of the Easy Shot photography app, the first one app in Algeria. The paper provides a comprehensive review of the literature on Easy shot, identifies its advantages and limitations, and proposes solutions to address the challenges faced by photographers and clients. The methodology includes data collection and analysis, based on the results, application requirements are defined and designed, followed by implementation and testing of the application. The evaluation highlights the final appearance of the application, system performance, limitations and future aspirations. The study contributes to the development of a thriving ecosystem for photographers and a successful startup in the Algerian market, benefiting photographers and clients alike.

**Keywords :** Easy Shot , photography app , Algeria , solutions , application requirements.

## الملخص:

تستكشف هذه الأطروحة مشهد تطبيق التصوير الفوتوغرافي Easy Shot، التطبيق الأول في الجزائر. تقدم هذه الورقة مراجعة شاملة للأدبيات المتعلقة ببرنامج Easy shot، وتحدد مزاياها وقيودها، وتقترح حلولاً لمواجهة التحديات التي يواجهها المصورون والعملاء. تتضمن المنهجية جمع البيانات وتحليلها، وبناء على النتائج، يتم تحديد وتصميم متطلبات التطبيق، يليها تنفيذ واختبار التطبيق. ويسلط التقييم الضوء على المظهر النهائي للتطبيق وأداء النظام والقيود والتطلعات المستقبلية. وتساهم الدراسة في تطوير نظام بيئي مزدهر للمصورين وبدء شركة ناشئة ناجحة في السوق الجزائرية، مما يفيد المصورين والعملاء على حد سواء.

**الكلمات المفتاحية :** Easy Shot، تطبيق التصوير الفوتوغرافي ، الجزائر، الحلول، متطلبات التطبيق .