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# **Software Requirements Specification**

**for**  
**Gam3ya**

**Version 1.1 approved**

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**11 April 2022**

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## Revision History

Name	Date	Reason For Changes	Version
Gam3ya SRS	11/4/2022	Grammatical Mistakes	1.0
Gam3ya SRS	17/4/2022	Update Use Case Diagrams	1.1

# 1. Introduction

## Purpose

The product is an online interactive money-lending application that is based on peer-to-peer lending (Gam3ya in Egyptian terms) in a secure, modern, attractive way to a large number of users who form a group. It also enables a variety of social interactions, including text chatting, voice, and video calls. Following the examination of this SRS, the developing team should have a clear knowledge of how the system should look and what features should be implemented, as well as an understanding of the functional and non-functional requirements.

## Document Conventions

This SRS document is mainly consisted of 3 level priorities. The first level priority is the titles in whole numbers, such as (1,2,3), for example number 1 is referred for the introduction, number 2 is referred for the overall description etc...., the titles font is 18 and bolded. The subtitles are the second priority and they are the ones prescribed by decimal numbers, such as (1.1, 1.2, 1.3), for example 1.1 is for the purpose, 1.2 is for the document conventions etc...., the subtitles font is 14 and bolded. For the third and last level priority, it is the statement of each subtitle, for example number 1.1 which is the purpose, has its statement description beneath the subtitle. It is written in 12 font size.

## Intended Audience and Reading Suggestions

The document is to be submitted to different stakeholders who can be categorized or divided into two main groups. The first group is concerned with the technicalities of the product, such as software developers and testers. Their goal is to implement the specified requirements and to test and validate the product's functionality and desired outcomes. This group is to be concerned with sections (2, 3, 4, 6). The second group is related to the management aspect; it includes the owners of Gam3ya company, managers, and project managers. Their goal is to verify the documented product's purpose, scope, and requirements, functional and non-functional. This group is to be concerned with sections (1, 5).

## Project Scope

The product aims to allow peer-to-peer lending securely and efficiently to a large scale of users at the same time. The purpose of this product is to help members who are in some need financially with small funding, especially those who need additional income sources and don't have the ability to open a bank account and have the internet on their savings. Gam3ya's vision, in the long term,

is to gradually replace the Egyptian traditional gam3ya with an online and cashless way, providing accessibility, ease, and security to its users. It also aims to be an interactive social platform, like forums, through supporting text chat, voice, and video calls.

## 2. Overall Description

### Product Perspective

It happens that people need to buy a product or service that they don't have enough money for. To solve this problem, Egyptians have invented the concept of "Gam3ya", in which a group of people decides to collect a monthly amount of money from each member. Each month, a single member of the group takes this money to fund his spending. Our product is designed to digitalize the whole process; it will digitalize the payment, creation, and money collection processes. This will provide the users with more security flexibility and availability. Gam3ya will make use of current local payment service providers to make the process easier than ever.

### Product Features

The major and basic features the Gam`3ya application will support are the following:

1. **Registration:** create user account by setting user information and passing user verification.
2. **Modify account:** user can modify or update his profile settings.
3. **Sign in/out:** Allow the users to access/quit their accounts using their credentials
4. **Create gam3ya:** user can create a gam3ya and let other users join
5. **Modify gam3ya:** leader can modify or update some gam3ya attributes
6. **Search for gam3ya:** allow users to search for a suitable gam3ya to join with the ability to use multiple filters.
7. **Join:** users can send a request to join a gam3ya
8. **Accept/reject:** a gam3ya leader can reply with an approval or rejection to join requests.
9. **Payment:** user can make their payments through the desired payment method
10. **Withdrawal:** user can withdraw from their balance through the chosen method
11. **Convert currency:** user can choose the currency in which the money amounts are displayed.
12. **Add friends:** user can send an add request to other users.
13. **Notifications:** user will be notified whenever one of their friends create a gam3ya.
14. **Chatting:** users can contact each other via texting, voice, or video calls
15. **Report:** gam3ya leader can report about misbehaviours or payment delays.
16. **Customer service:** users can contact customer service for inquiries, complaints, or help.
17. **Technical support:** user can contact technical support to report technical issues.

## User Classes and Characteristics

The end users of Gam3ya can be categorized into different categories and each one has its own unique characteristics and functions. The categories are as follows:

- 1) Participants: They are the main group of people whom the application targets; they are the ones who lend each other a fixed amount of money in specified turns, monthly. They can create accounts, sign in using their credentials, search for a gam3ya, request to join a gam3ya, pay their monthly due amount (through one of the provided payment services), make withdrawals, socialize with other participants (text chats, voice, video calls), and report other participants if they made any inappropriate actions.
- 2) Leader Participants: they are also participants with the same privileges but with extra ones which are accepting or rejecting other participants' requests to join the gam3ya, sending warnings to users who are delayed to pay, or reporting them.
- 3) Administrators: responsible for reviewing the leaders' and participants' reports, and removing people (who failed more than once to meet the due date of their monthly payment or have been reported against for any inappropriate interactions) from gam3ya.
- 4) Customer service agents: Responsible for answering any questions and inquiries from the users related to the application or the groups.
- 5) Technical support team: Responsible for solving any technical problems that face any of the users by reviewing and answering any complaints from them.

## Operating Environment

The application would support two versions one on IOS and the other on Android and can be downloaded through the App Store and Google Play. Also, the application will be available as a web-based for users who don't have smartphones. The backend will be stored and accessed through the company's server. The application will also use other software programs which are used for the payment methods like (Fawry, VF cash,...etc).

## Design and Implementation Constraints

The design of the application is the main reason for making the application simple to be implemented and legally feasible so it will not face any conflicts in the Egyptian community standard rules, however it may still face some constraints such as:

- The development team should design and test the application within a limited amount of time (time constraint).
- The system should support the native language of country which is the Egyptian language (language constraint).
- Users should be able to add a valid and clear photo of their ID (technology constraint).
- There must be an efficient way to store all the data regarding the transactions of the users and the data of the users themselves (memory constraint).
- There must be an efficient way to secure all the data and all the payment transactions (security constraint).
- Making sure that every user's information is 100% true and reliable (integrity constraint).

## User Documentation

Two documentation will be required:

1. User manual is to be delivered to the users of the application to guide them through their first times using the application.
2. Terms and conditions agreement to be signed of the users agreeing to the conditions the Gam3ya company set in order to be legally binding.
3. A penalty clause agreement which is a contractual clause that imposes liquidated damages that are unreasonably high and represent a punishment for breach (delayed due payments). This document needs to be signed by each user at the start of each gam3ya they join to ensure that if ,for any reason, they left the gam3ya or being forced to leave due to any misbehaviours or delayed payment, other users in the gam3ya won't be affected and will receive their full payment on time.

## Assumptions and Dependencies

- Users will have the option to either create a gam3ya or join an existing one.
- In case users will join an existing gam3ya, they have to wait for the approval of the leader of this gam3ya to join.
- Users should be able to send messages, chat, and interact with each other.
- Users have the option to pay through online payment(ex: credit card), or through existing payment service providers (ex: Fawry).
- Once transactions occurred, they cannot be changed by manipulated fraudulent.
- The application is assumed to be available in Arabic and English languages.
- The application will only run on mobile devices or web browsers.

### 3. System Features

#### 4.1 Registration (including verification)

System feature	Registration
Description	User will create an account and provide the following information: Name, age, nation ID, address, phone number, password, and payment methods.
Use case reference	section 6.2 - figure5
Actor	User (Participant, leader participant)
Precondition	User opens the application and go to create account page.
Response sequence (main)	<ol style="list-style-type: none"> <li>1. Open the application, then press “create account”</li> <li>2. Enter user’s name. (required)</li> <li>3. Enter national id (required)</li> <li>4. Scan of the national id. (required)</li> <li>5. Enter address (required)</li> <li>6. Enter age (required)</li> <li>7. Enter phone number. (required)</li> <li>8. Enter email address. (required)</li> <li>9. Select preferred payment methods, with its required information. (optional)</li> <li>10. Enter a password (required)</li> <li>11. Select default currency (optional)</li> <li>12. Specify the range of payment (optional)</li> <li>13. Check on “Terms &amp; Conditions” (required)</li> <li>14. Press “Create the Account”</li> <li>15. System will check for invalid input information.</li> <li>16. System will extract the national id, age from the scan, and match it with the entered national id, age.</li> <li>17. System will send an OTP to the specified phone number and wait for 1 minute for the user to enter the receiver OTP.</li> <li>18. If verified and no invalid information exist, an account will be created, information will be added to the data base.</li> <li>19. User is directed to their account.</li> </ol>
Response sequence (Alternative)	<ul style="list-style-type: none"> <li>• Invalid information will cause an error and redirect the user to re-enter them.</li> <li>• Not matched entered national ID, age with those auto detected from the scanned copy, will cause an error, and redirect the user to re-enter them.</li> <li>• Not verified phone number, using an OTP, will cause an error and redirect the user to re-enter the phone number.</li> </ul>
Postcondition	User is directed to the newly created account.
Functional Requirements	REQ-1: The user should have access to the application and internet

## 4.2 Modify Account

<b>System feature</b>	Modify Account
<b>Description</b>	User can edit the information in their account. They can modify only the modifiable information. Other information cannot be modified.
<b>Use case reference</b>	section 6.2 - figure5
<b>Actor</b>	User (Participant, leader participant)
<b>Precondition</b>	User opens own profile.
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Go to own profile</li> <li>2. Press “edit profile”</li> <li>3. There will be modifiable (active) and non-modifiable (inactive) information.</li> <li>4. Modifiable information (address, phone number, payment methods, password, email).</li> <li>5. Non-modifiable information (national id, age, name)</li> <li>6. Modify the intended information.</li> <li>7. Press “save”</li> </ol>
<b>Response sequence (Alternative)</b>	<ol style="list-style-type: none"> <li>1. If “delete account” is presses, check that the account is settled.</li> <li>2. If not settled, pop “Action Denied”</li> <li>3. If settled, proceed. Update data base. <ul style="list-style-type: none"> <li>• Invalid modifications will redirect the user to re-enter them</li> </ul> </li> </ol>
<b>Postcondition</b>	Pop a modifications success message.
<b>Functional Requirements</b>	REQ-2: There must be an account logged in.

#### 4.3 Create Gam3ya

<b>System feature</b>	Create gam3ya
<b>Description</b>	User can create a new gam3ya and provide the initial attributes needed.
<b>Use case reference</b>	section 6.2 - figure2
<b>Actor</b>	User (Participant, leader participant)
<b>Precondition</b>	User opens application and go to the main tab.
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Press “create a gam3ya”</li> <li>2. Enter name for the gam3ya (required)</li> <li>3. Enter number of cycles (default 1)</li> <li>4. Select the frequency (weekly, monthly, etc)</li> <li>5. Specifying 2 of (total gma3ya value <b>T</b>, amount due <b>P</b>, number of participants <b>N</b>) is required and enough according to equation <b>T = P*(N-1)</b></li> <li>6. Select maximum number of participants.</li> <li>7. Select a range for the total gam3ya value.</li> <li>8. Select amount due for each participant.</li> <li>9. Specify the start date (required)</li> <li>10. Check on “Terms &amp; Conditions” (required)</li> <li>11. Press “Start the Gam3ya”</li> <li>12. System checks for invalid input.</li> <li>13. If no invalid input exists, a gam3ya will be created and information will be added to the data base.</li> <li>14. Direct the user to the newly created gam3ya.</li> </ol>
<b>Response sequence (Alternative)</b>	<ul style="list-style-type: none"> <li>• Invalid entered attributes will cause an error and redirect the user to re-enter them.</li> </ul>
<b>Postcondition</b>	<ul style="list-style-type: none"> <li>• Data is added to the data base.</li> <li>• User is directed to the newly created gam3ya page.</li> </ul>
<b>Functional Requirements</b>	REQ-2: There must be an account logged in.

#### 4.4 Modify Gam3ya

<b>System feature</b>	Modify gam3ya
<b>Description</b>	User can modify a created gam3ya and change the set attributes (maximum number of participants, duration, ...)
<b>Use case reference</b>	section 6.2 - figure2
<b>Actor</b>	leader participant
<b>Precondition</b>	User has accessed own profile, navigated to the intended gam3ya.
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Go to own profile</li> <li>2. Select the intended gam3ya</li> <li>3. Press “edit gma3ya”</li> <li>4. Modify the intended attributes.</li> <li>5. System checks for invalid input.</li> <li>6. If no invalid input exists, data will be updated in the data base.</li> </ol>
<b>Response sequence (Alternative)</b>	<ol style="list-style-type: none"> <li>1. If “delete Gam3ya” is presses, check that the gam3ya is completed.</li> <li>2. If not completed, pop “Action Denied”</li> <li>3. If completed, proceed. Update data base. <ul style="list-style-type: none"> <li>• Invalid entered attributes will cause an error and redirect the user to re-enter them.</li> </ul> </li> </ol>
<b>Postcondition</b>	<ul style="list-style-type: none"> <li>• Data is updated in the data base.</li> <li>• Pop a modification success message.</li> </ul>
<b>Functional Requirements</b>	<p>REQ-2: There must be an account logged in.      REQ-3: There must be a created gam3ya owned by the user.</p>

#### 4.5 Search for gam3ya

<b>System feature</b>	Search for gam3ya
<b>Description</b>	User can search for a gam3ya to join and take advantage of the available filters.
<b>Use case reference</b>	section 6.2 - figure1
<b>Actor</b>	User (Participant, leader participant)
<b>Precondition</b>	User accesses the search tab.
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Go to the search tab.</li> <li>2. Apply filters</li> <li>3. Choosing 2 of (total gma3ya value <b>T</b>, amount due <b>P</b>, number of participants <b>N</b>) is required and enough according to equation <b>T = P*(N-1)</b></li> <li>4. Specify total gma3ya value range</li> <li>5. select the frequency (default: monthly)</li> <li>6. Specify the range for number of participants (default: 1- <math>\infty</math>)</li> <li>7. Specify a starting date for the search (default: current day)</li> <li>8. Specify range for the amount to pay.</li> <li>9. Select currency (default: USD)</li> <li>10. Press “Apply filters”</li> <li>11. System searches for matched gam3yas, which are of status “open”.</li> <li>12. If any found, display them on the screen.</li> </ol>
<b>Response sequence (Alternative)</b>	<ul style="list-style-type: none"> <li>• Invalid entered filters will cause an error and redirect the user to re-enter them.</li> <li>• If no ma3yas found, display a “no results” message.</li> </ul>
<b>Postcondition</b>	List of matched gam3yas are displayed on the screen.
<b>Functional Requirements</b>	REQ-2: There must be an account logged in.

#### 4.6 Join Request

<b>System feature</b>	Join request
<b>Description</b>	User can request to join a created gam3ya
<b>Use case reference</b>	section 6.2 - figure1
<b>Actor</b>	User (Participant, leader participant)
<b>Precondition</b>	User navigated to a gam3ya's page
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Search for a gam3ya and select it.</li> <li>2. Press "join"</li> </ol>
<b>Response sequence (Alternative)</b>	None
<b>Postcondition</b>	Pop a "Request sent. Waiting for approval" message
<b>Functional Requirements</b>	REQ-2: There must be an account logged in.

#### 4.7 Send approval/rejection

<b>System feature</b>	Send approval/rejection
<b>Description</b>	Gam3ya leader can respond to join requests by approval or rejection
<b>Use case reference</b>	section 6.2 - figure1
<b>Actor</b>	leader participant
<b>Precondition</b>	Leader has received join requests.
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Open own profile</li> <li>2. Select a gam3ya</li> <li>3. Display received requests</li> <li>4. Press "approve" or "reject"</li> <li>5. If "approve" is presses, the request sender will be added to the gam3ya's participants list, update gam3ya's attributes.</li> <li>6. If "reject" is presses, nothing is updated.</li> </ol>
<b>Response sequence (Alternative)</b>	None
<b>Postcondition</b>	Pop "Response sent" message
<b>Functional Requirements</b>	REQ-2: There must be an account logged in. REQ-3: There must be a created gam3ya owned by the user.

#### 4.8 Login (including authentication)

<b>System feature</b>	Login
<b>Description</b>	User can login using their pre-set credentials (email, password)
<b>Use case reference</b>	section 6.2 - figure5
<b>Actor</b>	User (participant, leader participant)
<b>Precondition</b>	User opened the login page
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Open application</li> <li>2. Enter own credentials.</li> <li>3. Press “login”</li> <li>4. System checks entered credentials against data stored in the data base.</li> <li>5. If there is a match, user will be directed to their account.</li> </ol>
<b>Response sequence (Alternative)</b>	<ul style="list-style-type: none"> <li>• Invalid input will cause an error and redirect the user to re-enter them.</li> <li>• Not matched credentials will redirect the user to enter their credentials.</li> </ul>
<b>Postcondition</b>	<ul style="list-style-type: none"> <li>• If there is a match, user is directed to own profile page.</li> <li>• If there isn't a match, pop “There is no such user” message.</li> </ul>
<b>Functional Requirements</b>	<p>REQ-1: The user should have access to the application and internet.      REQ-2: There must be a registered account.</p>

#### 4.9 Payment

<b>System feature</b>	Payment
<b>Description</b>	User can choose how to pay their due amounts.
<b>Use case reference</b>	section 6.2 - figure6
<b>Actor</b>	User (participant, leader participant)
<b>Precondition</b>	User opened a mag3ya's page or the due amounts page.
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Select existing payment method.</li> <li>2. If “visa/credit card” chosen, ask for ccv and directly withdraw the due from their bank account.</li> <li>3. If “fawry” chosen, generate a unique payment code and display it.</li> <li>4. Update data base after payment, update due amounts.</li> </ol>
<b>Response sequence (Alternative)</b>	<ol style="list-style-type: none"> <li>1. Add new payment method, with its related information.</li> <li>2. System checks for invalid input.</li> <li>3. If no invalid input exists, update data base.</li> <li>• Invalid input will cause an error and redirect the user to re-enter them.</li> </ol>

<b>Postcondition</b>	<ul style="list-style-type: none"> <li>• Data base is updated.</li> <li>• If “visa/credit card” chosen, pop “Successful payment” message.</li> <li>• If “fawry” chosen, pop the generated payment code.</li> </ul>
<b>Functional Requirements</b>	<p>REQ-1: The user should have access to the application and internet.      REQ-2: There must be a registered account.      REQ-6: User must be in at least one gam3ya</p>

#### 4.10 Withdrawal

<b>System feature</b>	Withdrawal
<b>Description</b>	User receiving money in their own turn in a gam3ya.
<b>Use case reference</b>	section 6.2 - figure6
<b>Actor</b>	User (participant, leader participant)
<b>Precondition</b>	User accesses balance page.
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Select the withdrawal method</li> <li>2. If “visa/credit card” is chosen, transfer the amount to their bank account.</li> <li>3. If “fawry” is chosen, generate a unique withdrawal code and display it.</li> <li>4. Update the data base, balance.</li> </ol>
<b>Response sequence (Alternative)</b>	None
<b>Postcondition</b>	<ul style="list-style-type: none"> <li>• Data base is updated.</li> <li>• Pop “Successful” message.</li> </ul>
<b>Functional Requirements</b>	<p>REQ-2: There must be a registered account.      REQ-4: A positive amount must be in the balance.      REQ-6: User must be in at least one gam3ya</p>

#### 4.11 Chat

<b>System feature</b>	Chat
<b>Description</b>	User can chat with their friends by texting, voice, or video calls.
<b>Use case reference</b>	section 6.2 - figure3
<b>Actor</b>	User (participant, leader participant)
<b>Precondition</b>	User accesses the chat tab.
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Open chat tab.</li> <li>2. select friend to chat with.</li> <li>3. If texting, directly sent messages from the messages filed.</li> <li>4. If voice call, press voice call icon.</li> <li>5. If video call, press video call icon.</li> <li>6. Ask for permission if it is first time to use.</li> <li>7. System tries to connect to the addressed user (friend).</li> </ol>
<b>Response sequence (Alternative)</b>	<ol style="list-style-type: none"> <li>1. Receiving a chatting request.</li> <li>2. If texting, directly reply from the messages field.</li> <li>3. If voice or video call, press “accept” or “decline”.</li> <li>4. If “accept” is pressed, establish a connection.</li> <li>5. If “decline” is pressed, return a “call cancelled” message to the sender.</li> </ol>
<b>Postcondition</b>	User is chatting with another user.
<b>Functional Requirements</b>	<p>REQ-1: The user must have access to the application and internet.      REQ-2: There must be a registered account.      REQ-5: Access permissions must be accepted.</p>

#### 4.12 Add Friend

<b>System feature</b>	Add friend
<b>Description</b>	User can send add request to other users
<b>Use case reference</b>	section 6.2 - figure3
<b>Actor</b>	User (participant, leader participant)
<b>Precondition</b>	User accesses another user's account
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Sending an add request.</li> <li>2. Open another user's account.</li> <li>3. Press "Add friend"</li> <li>4. System sends a request to the other user.</li> </ol>
<b>Response sequence (Alternative)</b>	<ol style="list-style-type: none"> <li>1. Receiving an add request.</li> <li>2. Open the request</li> <li>3. If presses "accept", add user to own friends list, update data base.</li> <li>4. If presses "reject", send "request rejected" message to sender.</li> </ol>
<b>Postcondition</b>	<ul style="list-style-type: none"> <li>• Data base is updated.</li> <li>• If accepted coming request, new friend is added.</li> </ul>
<b>Functional Requirements</b>	<p>REQ-1: The user must have access to the application and internet.      REQ-2: There must be a registered account.</p>

#### 4.13 Customer Service

<b>System feature</b>	Customer service
<b>Description</b>	User can contact customer service for help.
<b>Use case reference</b>	section 6.2 - figure4
<b>Actor</b>	User (participant, leader participant)
<b>Precondition</b>	Access customer service page
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Choose contact method.</li> <li>2. If texting, user can send a message from the messages field, then system tries to connect to one of the customer service members.</li> <li>3. If voice call, press the voice call icon, direct user to dial-up</li> </ol>
<b>Response sequence (Alternative)</b>	None
<b>Postcondition</b>	Connect to customer service member.

<b>Functional Requirements</b>	REQ-1: The user should have access to the application and internet.
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#### 4.14 Technical Support

System feature	Technical support
<b>Description</b>	User can contact technical support to report technical issues.
<b>Use case reference</b>	section 6.2 - figure4
<b>Actor</b>	User (participant, leader participant)
<b>Precondition</b>	Access technical support page
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Choose contact method.</li> <li>2. If texting, user can send a message from the messages field, then system tries to connect to one of the technical support desk members.</li> <li>3. If voice call, press the voice call icon, direct user to dial-up</li> <li>4. State own technical issue</li> </ol>
<b>Response sequence (Alternative)</b>	None
<b>Postcondition</b>	Connect to technical support desk.
<b>Functional Requirements</b>	REQ-1: The user should have access to the application and internet.

#### 4.15 Convert Currency

System feature	Convert currency
<b>Description</b>	User can choose the currency in which the money amounts are displayed from a drop-down list.
<b>Use case reference</b>	section 6.2 - figure6
<b>Actor</b>	User (participant, leader participant)
<b>Precondition</b>	User accesses a gam3ya's page
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Press on a drop-down list named "Currency"</li> <li>2. Choose preferred currency</li> <li>3. System checks for the multiply factor from the original currency to the chosen currency.</li> <li>4. System updates the displayed amounts in the chosen currency.</li> </ol>

<b>Response sequence (Alternative)</b>	None
<b>Postcondition</b>	Currencies are displayed in the chosen currency
<b>Functional Requirements</b>	REQ-1: The user should have access to the application and internet. REQ-2: There must be a registered account.

#### 4.16 File a Complaint

<b>System feature</b>	File a Complaint
<b>Description</b>	Leader participant can report about delays and misbehaviours from other participants.
<b>Use case reference</b>	section 6.2 - figure4
<b>Actor</b>	leader participant
<b>Precondition</b>	Access “File a complaint” page
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Choose the type of the complaint.</li> <li>2. Describe the complaint.</li> <li>3. Provide a screenshot illustrating the complaint.</li> <li>4. Press “submit the complaint”</li> <li>5. Complaint is sent to the customer service desk.</li> </ol>
<b>Response sequence (Alternative)</b>	None
<b>Postcondition</b>	Pop “your complaint sent successfully”
<b>Functional Requirements</b>	REQ-1: The user should have access to the application and internet. REQ-2: There must be a registered account.

#### 4.17 Notifications

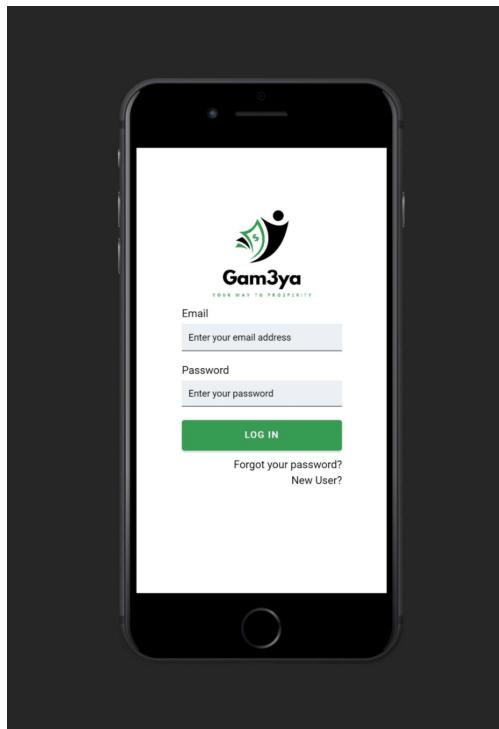
<b>System feature</b>	Open notifications
<b>Description</b>	User receives notifications about own friends creating new gam3yas or notifications about due dates.
<b>Use case reference</b>	section 6.2 - figure3
<b>Actor</b>	User (participant, leader participant)
<b>Precondition</b>	User accesses notification bar
<b>Response sequence (main)</b>	<ol style="list-style-type: none"> <li>1. Press the notification icon.</li> <li>2. Display latest news (gam3yas created, due date reminders)</li> </ol>
<b>Response sequence (Alternative)</b>	None
<b>Postcondition</b>	Display latest news (gam3yas created, due date reminders)
<b>Functional Requirements</b>	REQ-1: The user should have access to the application and internet. REQ-2: There must be a registered account.

## 4. External Interface Requirements

### User Interfaces

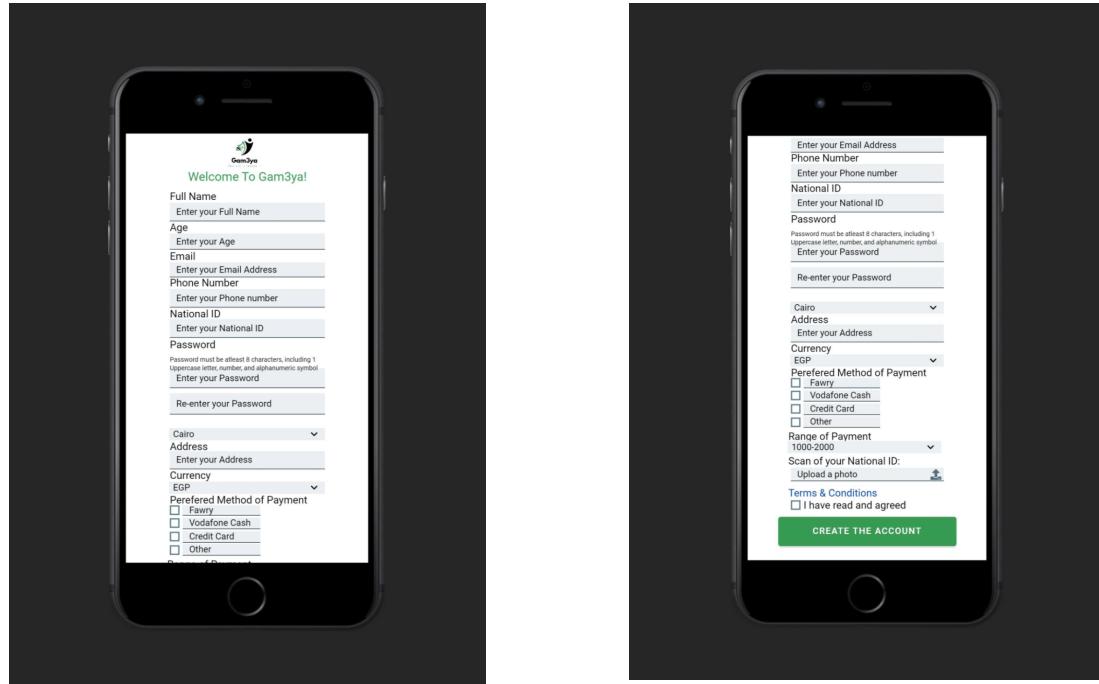
The user interface consists of multiple of consecutive screens that are linked together through the buttons on each screen. There are more than 20 screens to cover all the screens that the application consists of but we provided screenshots for the most important ten (10) screens. And in the next subsections, we will provide the detailed description of each one of them and the functionality they represent.

#### 4.1.1 Login Screen



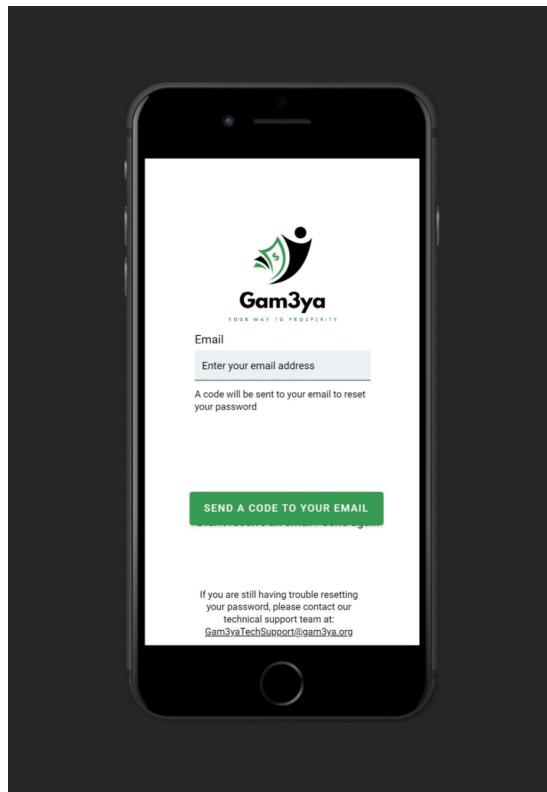
The login screen is the first screen any user will see when using the application. It's very simple; it contains the application's logo and slogan (Your way to prosperity) which is included in all other screens. And it asks for the user's login credentials (Email and Password) then pressing "LOG IN" button to check the validity of the provided email and password. If correct, the user is moved to the Home screen and if not, a message "the entered credentials are not correct, please write them correctly" will appear to the user until they provide correct ones. It also provided the options of forgetting the password or being a new user to create a new account. To access these two features' screens, the user has just to click on the "Forget your password?" or "New User?" buttons to move to the next screens.

#### 4.1.2 New User (account creation) Screen



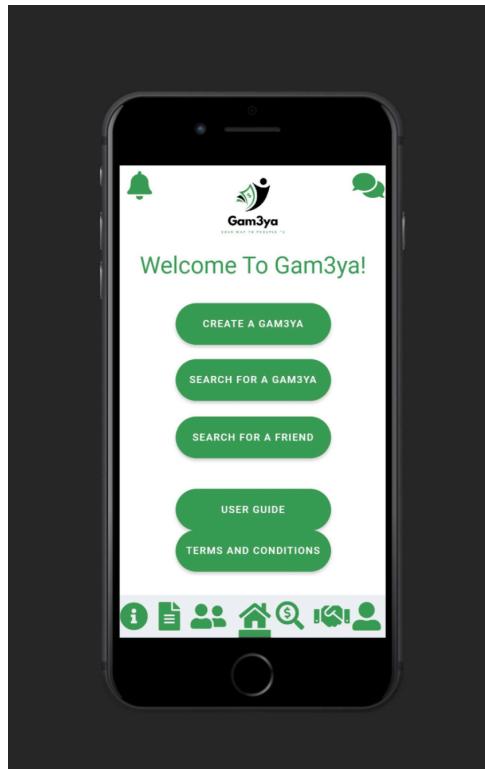
This screen is the next one when pressing the button “New User?” provided on the last “Login” screen. It is the screen responsible for creating a new account for the new users. It is like an application form that asks the user to provide some basic information about themselves and checks their credibility. First, the full name is required and then the user is required to input their age to check if they are above the age of 18, in order to be legally clear to enter those gam3ya's. Then the user is to provide their email address and phone number as the main means of communication between the Gam3ya's team and the user. Then their National ID is needed to be provided to recheck their age and credibility and this is done by comparing the provided National ID with the scan of it (required below) and by also comparing the provided age with the one on their National ID as it's the most credible document we can get from the user to verify the basic enough they provide. Then user is asked to choose a password with some constraints (at least 8 characters, at least 1 uppercase letter, and at least 1 alphanumeric symbol like @,#,...etc) and to re-enter it to make sure they typed the one they meant without any spelling mistakes. Then the user is to provide their city, address, currency they would like to deal with, the preferred payment method (it allows more than one like Fawry, VF cash, credit card,...etc), and the initial range the user is willing to pay in any gam3ya (this is used to show initial suggestions for gam3yas to the user when they first search for a gam3ya). Lastly, a hyperlink to the terms and conditions agreement is provided for the user to check and read carefully, then their consent is required to create their account. After filling all the required info and agreeing to the terms and conditions, the user should press “Create The Account” button for the creation of new account and they will be redirected to the “Home” screen of the application.

#### 4.1.3 Forget Password Screen



This screen is the next one when pressing the button “Forgot your password?” provided on the “Login” screen. It is the screen responsible for helping the user to reset their password. It asks the user to enter their email address and then an OTP will be sent to their email address which the user is required to enter in the space provided that will appear after pressing the “sent a code to your email” button. And the system checks if the written code by user matches the one sent to their email to proceed to a screen where they are to choose new password for their account. This screen also provides the option to resend the OTP to the user’s email address if, for any reason, they didn’t receive it. At the bottom, there is information about the technical support contact if the user still needs further assistance.

#### 4.1.4 Home Screen



The home screen is the most essential part of the application. It provides several buttons which will navigate the user through all of the program and represents the core functionality. In the middle, there are 5 main buttons, “Create a Gam3ya”, “Search for a Gam3ya”, “Search for a friend”, “User Guide”, and “Terms and Conditions”.

“Create a Gam3ya” button is the button that will redirect the user to the gam3ya creation screen where the user is to provide all the necessary information to begin a new gam3ya.

“Search for a Gam3ya” button is the responsible for moving the user to the searching for gam3ya screen where they will be able to search for a gam3ya to request joinin into through applying some specific search criteria (filters) that will enable the user to find the most suitable gam3ya for themselves.

“Search for a friend” button is responsible for enabling the user to search for other user and send them a friend request to be able contact them or to chat with them.

“User Guide” and “Terms and Conditions” button are both hyperlinks to two PDF two (2) documents. The user guide document is made to be like a tour guide for any user to help them navigate through the application and know all of its features. The terms and conditions document is the document provided by Gam3ya company to clarify the terms and conditions that represent a legal contract between them and the application’s users.

At the bottom of this screen, there are 7 icons that represent the main 7 screens. From right to left, profile icon, my gam3ya icon, searching for gam3ya icon, home screen icon, my friends icon, filling a complaint/report icon, information icon.

Each icon, when pressed, takes the users to a different screen.

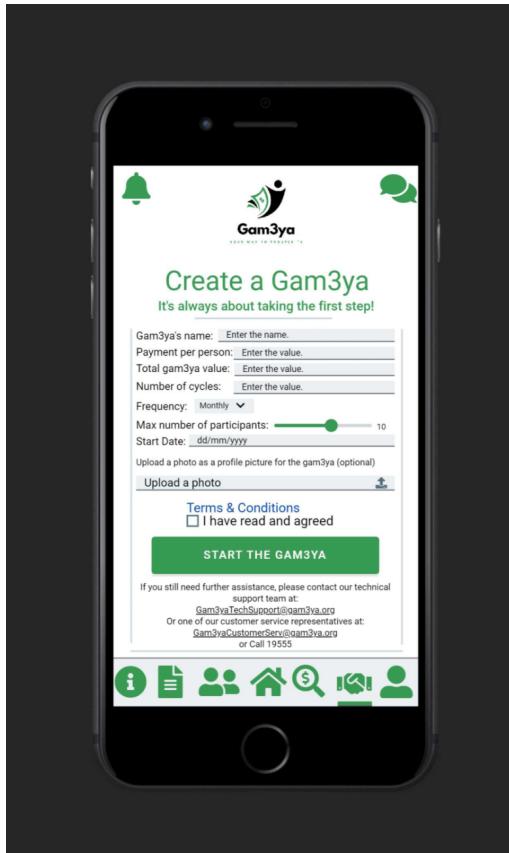
info icon is to take the user to a screen where there is information about the application and its documentations. There are also copyright information and info about the Gam3ya company. Finally, some information about our company (the developer) and some important contacts.

Other screens by the remaining screen is to be described shortly in the next subsections.

At the top left of the screen, there is a notification icon which takes the user, when pressed, to the notifications screen where they are able to see the newest and up to date notifications, reminders about due payments, or warnings about delayed ones.

At the top right of the screen, there is a chat icon which enables users to go to their chats with their friends. This is where users go to continue their conversation with people they added on their accounts as friends.

#### 4.1.5 Create Gam3ya Screen



This screen is to enables users to be the leader of a gam3ya by creating it based on some specified info provided by the user.

First, the user needs to choose a meaningful name for the gam3ya, then they need to choose 2 of 3 important parameters of the gam3ya:

1-the amount which each participant will pay

2-the total amount of gam3ya value

3-the max number of participants

deciding on 2 of the above 3 parameters is enough to deduce the third one as:

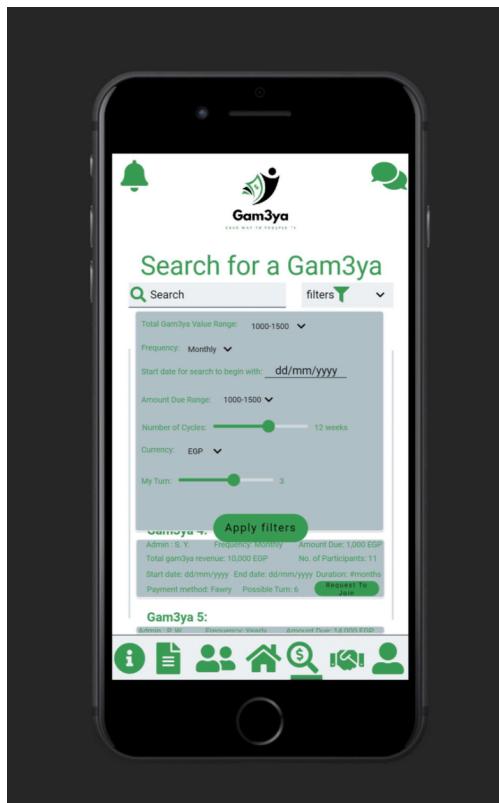
Total value of the gam3ya = (max number of participants - 1) \* the amount paid by each user

The user needs also to specify the frequency of the gam3ya (weekly, monthly, yearly,...etc) and the number of cycles that gam3ya will be running to determine the total duration of this gam3ya.

Then the user needs to set a starting date for the gam3ya and this date needs to be at least after 1 week after the creation date to ensure that the gam3ya contains the required number of participants. There is an option to upload a photo to represent this gam3ya and to appear when searching for gam3ya. Lastly, the user needs to read and agree to the terms and conditions (hyperlink provided) concerning the creation and moderarting a gam3ya. Then they should press the “Create the gam3ya button” and they are done.

At the bottom, some info regarding getting technical support is provided to help the user if needed help or faced any problems while creating the new gam3ya.

#### 4.1.6 Search for a Gam3ya Screen

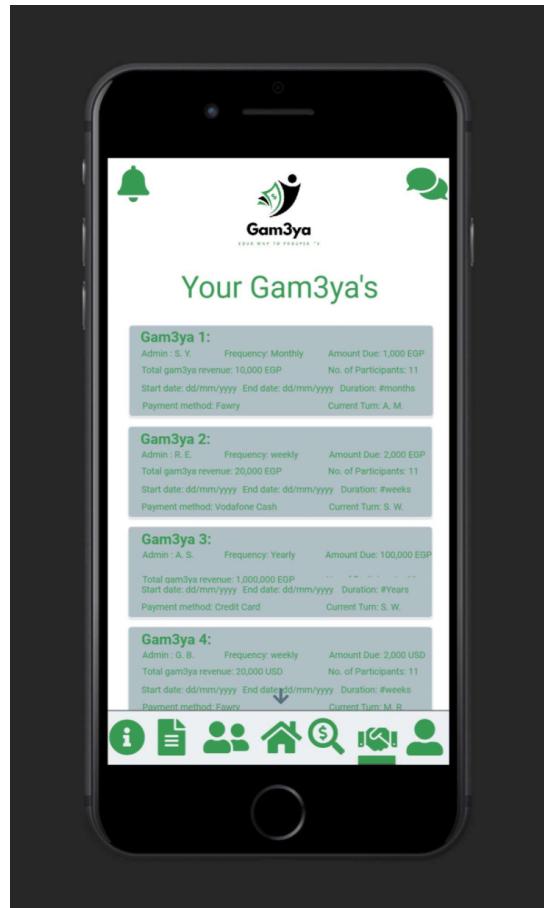


This screen is mainly for users who don't want to be the leaders (user who start a new gam3ya) of the gam3ya. This is where users can search for a suitable gam3ya which will provide their needs by applying some specific filters to enhance the search and get the best results.

The filters consist of selecting a range value of the gam3ya filter, choosing the frequency, choosing an initial start date (the results will be gam3ya starting from that date and after it), number of cycles, the currency of the gam3ya, and the initial turn (for example, you are the 4th user to join the gam3ya, then you are the 4th in turns). Then the user apply the filters by pressing "Apply Filters button". Behind the filters popup window, there are initial gam3ya suggestions by the application which will be replaced with the search results after applying the filters.

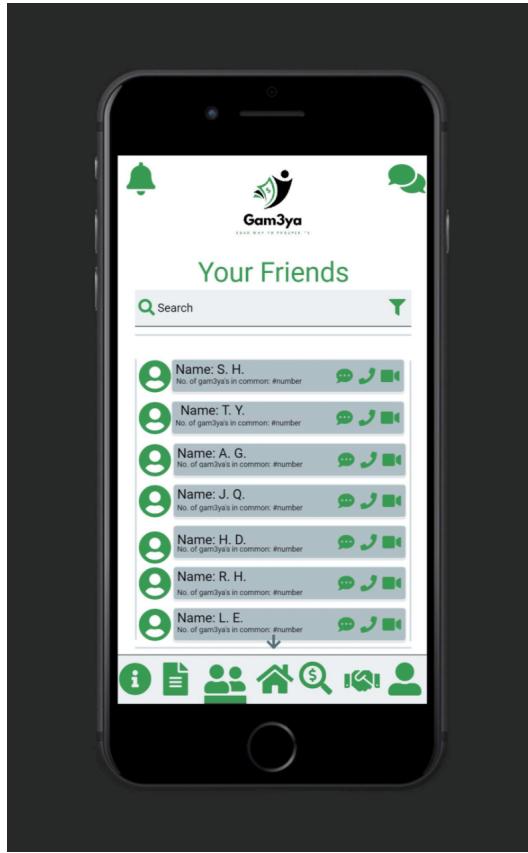
The results contains the name of gam3ya, gam3ya value, frequency, number of participants, start date, end date, and other important parameters shown in the screenshot. Then the user decided whether this gam3ya suits them or not. If yes, they can apply to join and waits for the leader's approval or rejection.

#### 4.1.7 My Gam3ya's Screen



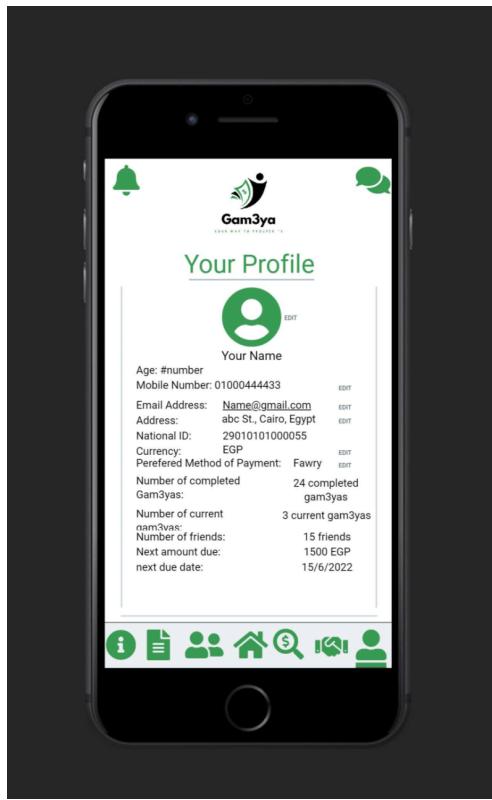
This screen shows all the gam3yas the user is a participant of. It doesn't include any new information; it's just a quick summary and the user can click on any of them to see a more detailed and specific information about that gam3ya clicked on.

#### 4.1.8 Friends Screen



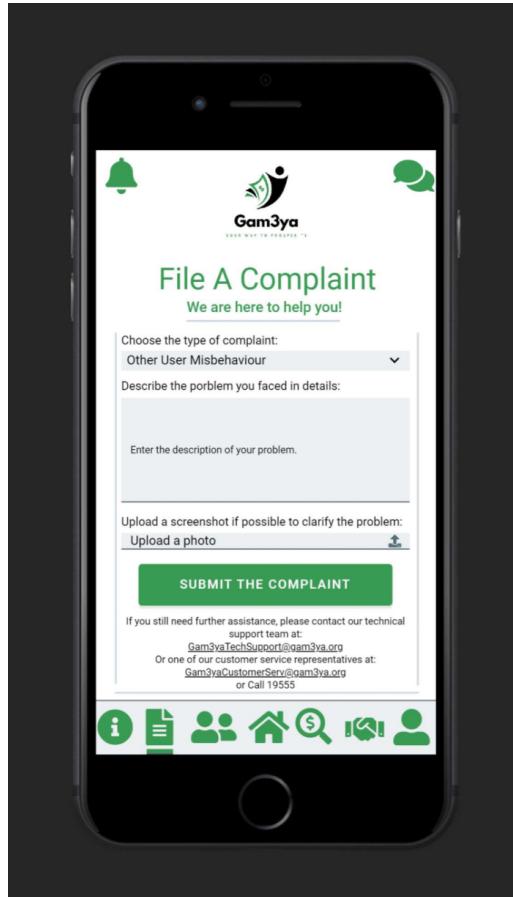
This screen shows all the friends of the user. It includes few information about those friends, the name, and number of gam3ya in common between the user and that one friend. It also includes 3 buttons to enable 3 different ways of communication (text chatting, voice call, and video call) between the user and any of their friends. The user also can use the search bar to search through the existing friends to find new friends by applying some specific filters.

#### 4.1.9 My Profile Screen



This is the user's profile screen. This screen provides the user with the information about themselves, the info they entered when registering. Some of those information can be modified by pressing the edit button next to them (exists if applicable for this piece of information). There is a photo for the user (optional), Age, mobile number, email address, national ID, currency, preferred method of payment, number of completed gam3yas, number of current gam3yas, number of friends, next amount due, and its date.

#### 4.1.10 Complaint/Report Screen



This screen is the place where the user can file a complaint against for any problem they face whether it's from other users, or from the application itself (this is the function of the first dropdown menu, to choose the type of problem the user face). Then the user is asked to describe the problem in details and to provide a screenshot for it if possible. Then they can submit the complaint and they will be contacted by customer service or technical support team on their email or mobile phones if needed. At the bottom, there are contact info for the technical support and customer service if the user still needs further assistance.

## Software Interfaces

- This app will be using a built in communication system to allow users to chat and interact with each other
- This app will be linked to a document reader to allow users to upload their ID and scan it
- It will be linked to the banking system to make it more easy for users to pay online via their credit cards
- It will also be linked to systems that has the availability of paying in physical cash, such as Fawry, Vodafone Cash,...etc.
- The app will be linked with an interface from the civil affairs to check that the users IDs are 100% true and reliable

## Communications Interfaces

Since the security of user's information is the highest priority, HTTPS protocol will be implemented to provide the level of security and encryption to keep user's personal and financial information safe and secure. Otherwise, there is no restrictions on the users' emails domain or on the web browser to be used to visit the application's website if the user doesn't use his mobile phone to use the application.

## 5. Other Nonfunctional Requirements

### Performance Requirements

Due to the high population of Egypt, we need large and reliable servers to be able to process all the users' requests and inquiries simultaneously. We need to make sure that no errors or delays affect the user experience. The most important process that we need to maintain is the payment transactions, in which we need to ensure that the connection between the payment providers and our application is stable and uninterrupted. Given how critical and sensitive these processes are, then we need to choose the servers wisely and concisely. Also, we will have a backup server to handle any disturbance in the main server.

### Safety Requirements

Once a new member joins "Gam3ya", their identity will be validated using their national IDs; this will eliminate any possibility of fake identities that may lead to fraud. Furthermore, We will make all the measures to ensure that "Gam3ya" community is a safe and healthy environment for all the users. To achieve this, we will ensure that the user interactions are aligned with the community standards. There will be an option to report any violations of these standards. Also, users may choose to stay anonymous; this will be useful for users who are not comfortable with sharing their identity with other members.

## Security Requirements

For the following reasons, security is the most important aspect of the product:

1. Ensure that the data and information are secure and protected from unauthorized access.
2. Users should be authenticated using their national IDs to be able to use the service.
3. Payments must be conducted in a totally secure environment where no unauthorized people may steal important information.
4. Users can not access each others' private information and payment history.
5. Administrators must be able to view and monitor the different Gam3yas and attend to any violation immediately.
6. To handle data, blockchain technology should be enforced.

## Software Quality Attributes

Satisfaction of these quality characteristics will ease the user experience:

1. Reliability: All features of the application should be functioning properly with no disturbances.
3. Correctness: The software should be able to make accurate and correct calculations.
2. Usability: The application should be user-friendly and as smooth as possible.
4. Availability: the server under no circumstances should go down or slow down.
6. Robustness: The application should be able to endure the load on it during rush hours.
5. Flexibility: The application should be able to adapt to different platforms with the same quality.

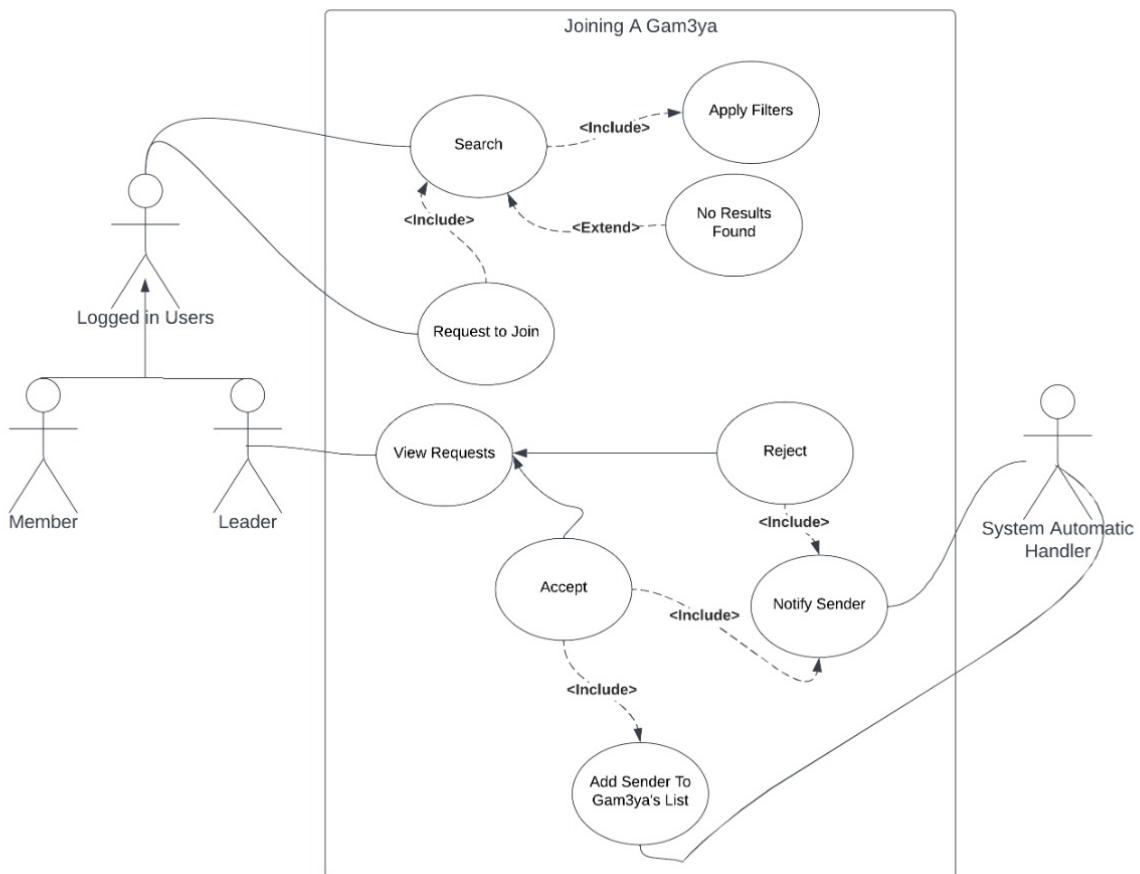
Regular maintenance should be performed on a regular basis, and administrators should be vigilant in monitoring product usage to avoid any infractions.

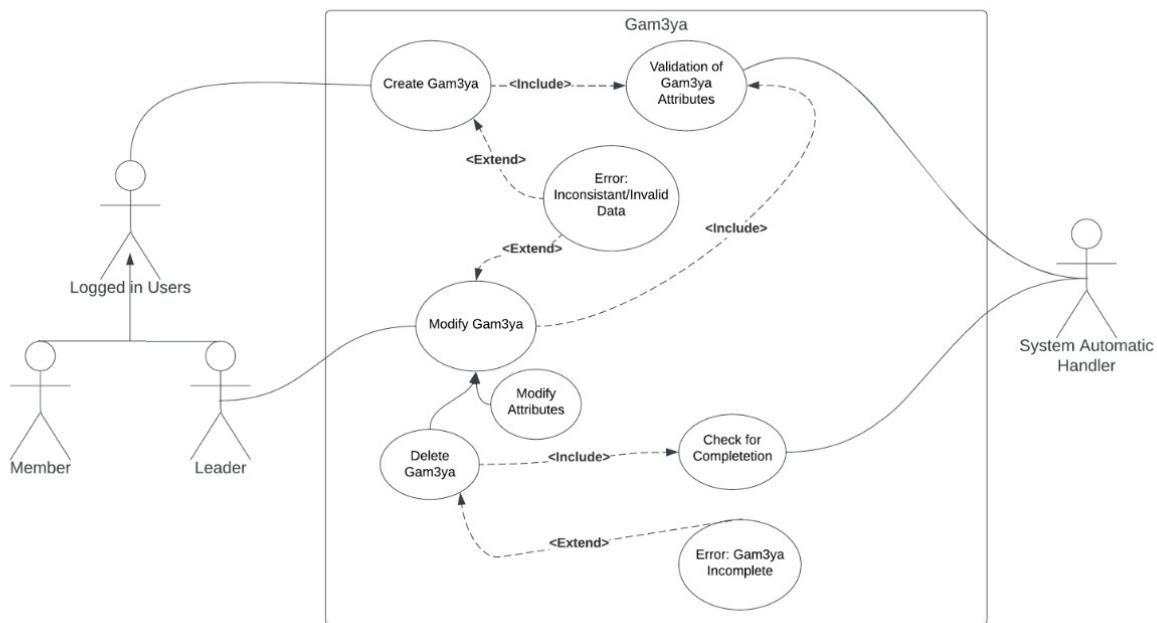
## 6. Other Requirements

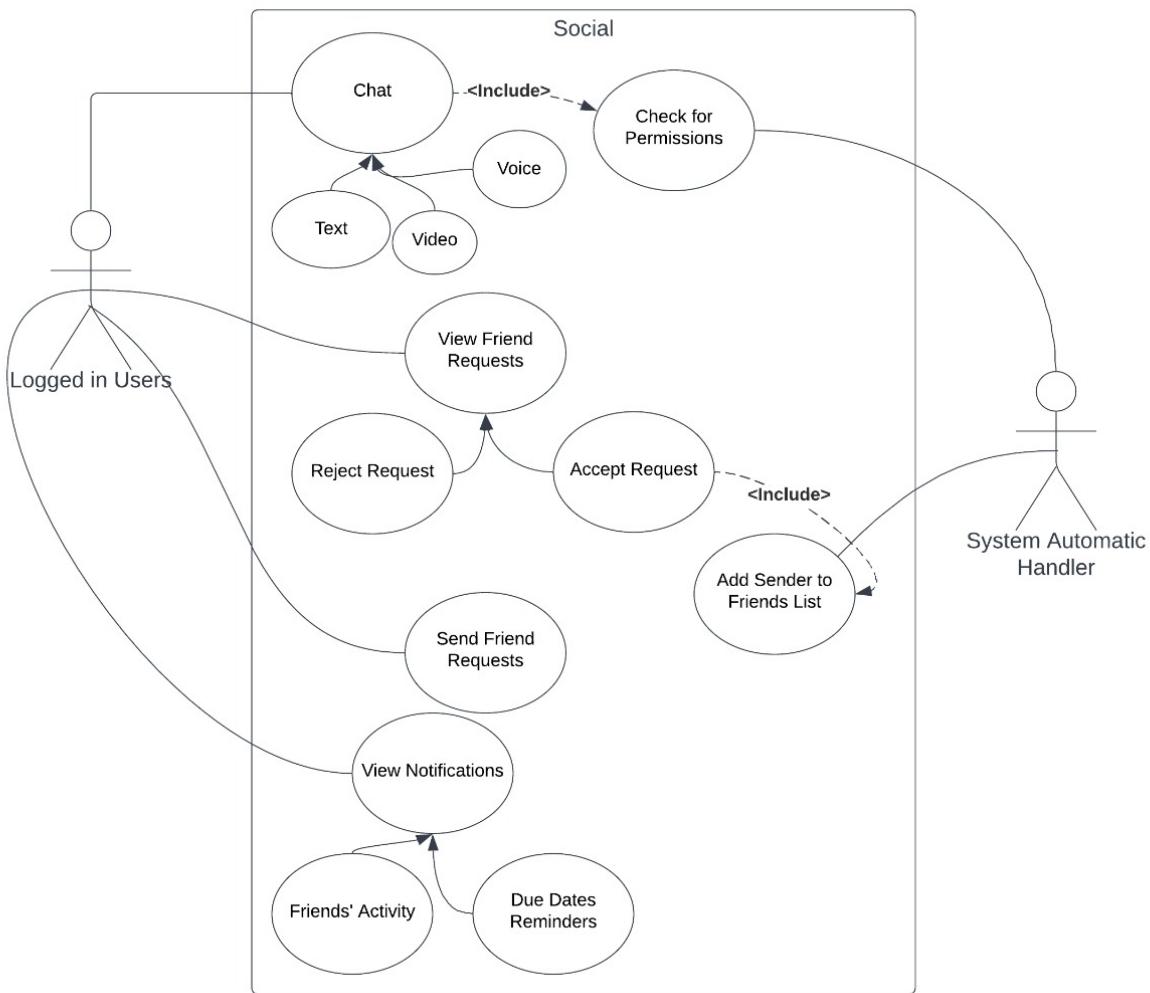
The System shall have strict security protocols, and authorization rules to protect the privacy of the data of the users. These protocols will be revised by the responsible legislative entities to ensure that they are up to par at all times.

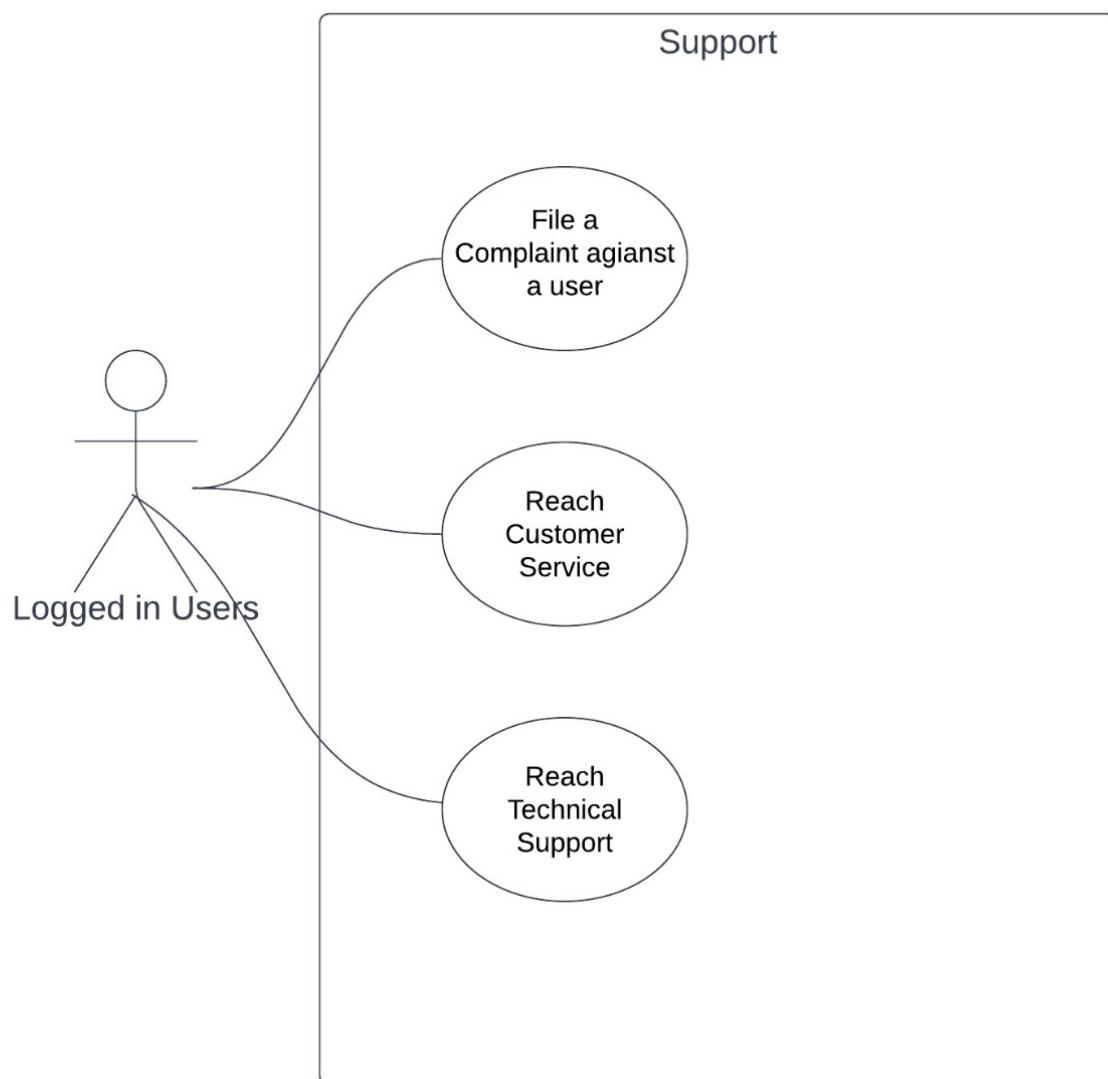
## Appendix A: Analysis Models

**figure1:**



**figure2:**

**figure3:**

**figure4:**

**figure5:**



**figure6:**