

# User Management & Authentication

## 1. Sign up - MARA

### Description:

The system shall allow users to create an account. The application shall display a sign-up form on the home page. The user interface must present a clean and intuitive layout with the following components: five clearly labeled input fields: **Username:** The user must input their desired username (username must be *unique*). **Email Address:** The user must input their desired email address; **Password:** The user must input a secure password that meets the security criteria; **Phone Number:** The user must input their phone number for account recovery or authentication purposes; **Type of user** field that has only 2 options: seller or buyer; a **'Submit' Button** to submit the registration details. All input fields should be properly labeled for accessibility, using clear and concise text, such as "Email Address," "Password," and "Phone Number".

The sign-up form must ensure that the user's input is valid and correct before submission for: **Usernames:** ensure that usernames are unique and at least 4 characters long; **Email Validation:** ensure that the email input field is not empty; validate the email format using a regular expression to ensure it follows a standard email pattern; display an error message if the email format is invalid, e.g., "Please enter a valid email address."; check if the email is already in use and display an appropriate message, e.g., "This email is already registered.". If an account with the same email already exists, the system must not allow duplicate registration. **Password Validation:** ensure the password field is not empty; enforce a password policy that requires a minimum of 8 characters, at least one uppercase letter, at least one number, at least one special character. Display an error message if the password does not meet the criteria, e.g., "Password must be at least 8 characters long and include an uppercase letter, a number, and a special character.". **Phone Number Validation:** ensure the phone number is in a valid format (the phone number should have the +40 prefix (romania area code), followed by 9 numerical characters); display an error message if an invalid format is entered, e.g., "Please enter a valid phone number.". **Type of User validation:** ensure that the user chooses one of the two types (buyer/seller). **Submission:** the system shall validate the input data, show error messages for the fields that are invalid. The system shall proceed with the storing of the data only after all the validations are made.

The registration system must be feasible to implement within the given resources and technology constraints: the registration functionality must be able to handle up to **10 concurrent users** without performance degradation, the system must complete authentication requests within **2 seconds**, the email validation and uniqueness checks must be optimized to minimize delays, the system must securely store user data with **hashed passwords**.

After a successful sign-up, the user gets redirected to the login page.

## 2. Log in - ARIANA

### Description:

#### Secure Authentication System

##### Login Task Description

The secure authentication system must provide a login functionality that is clear and unambiguous. The user interface should present a clean and intuitive layout with three clearly labeled input fields: one for the email address, where the user must input their registered email, another for the password, which should correspond to the entered email address, and a third for the CAPTCHA text that was generated. A CAPTCHA mechanism is requiring the user to enter the correct text before submitting their credentials. A LogIN button must be included to allow users to proceed with their login attempt, along with a sign-up button that redirects them to the registration page. A SignUp button should be displayed, which will redirect the users that do not have an account yet to the Sign up page. All input fields should be properly labeled to ensure accessibility, using clear and concise text such as "Email Address," "Password," and "Enter CAPTCHA.", ""Don t have an account yet? Click here!"

To ensure validity and correctness, the login form must check that the user's input is properly formatted before submission. The email input field should not be empty, and its format must be validated using a regular expression to confirm it follows a standard email pattern. If the format is invalid, an error message such as "Please enter a valid email address" must be displayed. Similarly, the password field should not be empty, and an appropriate error message like "Password cannot be empty" should be shown if left blank. The CAPTCHA field must also be filled, and the text entered by the user must match the generated CAPTCHA. If the user fails to provide the correct CAPTCHA, an error message such as "CAPTCHA verification failed" must be displayed. When the submit button(LogIn) is clicked, all necessary field validations must be performed, and any errors should be clearly displayed to the user. Moreover it should open the correct page(for buyer/seller)

The login system must comprehensively handle all relevant use cases and validations to ensure completeness. A registered user should be able to log in by entering a valid email address and password, along with the correct CAPTCHA text. If the login attempt fails due to incorrect credentials, an error message such as "Invalid email or password" must be displayed. To enhance security, the CAPTCHA mechanism must always be required to ensure that login attempts are performed by a real user rather than an automated script. Additionally, the system should implement an account-locking feature that temporarily disables login attempts after a user exceeds a predefined number of failed attempts, such as five. In such cases, the system should display a message informing the user, stating, "Too many failed login attempts. Please try again later."

For the login process to be verifiable, the backend system must accurately verify the email, password, and CAPTCHA text entered by the user. This should be achieved by comparing the provided credentials against those stored securely in the Users table. Passwords must be stored using a secure hashing algorithm, ensuring that the system verifies hashed passwords rather than plain-text credentials. The CAPTCHA system must generate distorted text and require the user to input the correct characters before allowing login attempts to proceed. Additionally, failed login attempts should be tracked in the database, and if the limit of five attempts is exceeded, the account must be locked for a predefined duration. Once the lockout period expires, the failed attempt counter should reset, allowing the user to attempt logging in again. If incorrect credentials are provided, the system must display a clear and specific error message, such as "Incorrect password" or "Invalid email."

The login system must be feasible to implement within the available resources and technology constraints. It should be capable of handling up to 100 concurrent users efficiently. The database should be optimized for quick lookups, ensuring that searches for matching credentials are performed using secure password hashing techniques and indexing methods to enhance performance.

All components of the login system must be seamlessly integrated to provide a complete and secure user experience. The frontend must feature a clean and responsive login page with proper form validation for email, password, and CAPTCHA input fields. The backend should effectively handle login requests, verify credentials, and manage user sessions while using secure password hashing techniques. The database should securely store user information, ensuring that passwords are hashed and fields are indexed for optimal search performance. The CAPTCHA system must be incorporated into the login process and always required for successful authentication to prevent automated attacks. The system must also include an account lockout mechanism that temporarily blocks a user's account after excessive failed login attempts, providing an additional layer of security. Finally, clear and specific error messages must be displayed whenever authentication issues arise, ensuring that users receive precise feedback if they enter invalid credentials, fail the CAPTCHA, or reach the account lockout threshold.

### **3. Buyer Profile & Settings - EDI**

#### **Description:**

The system shall allow buyers to manage their profile, wishlist while tracking their loyalty and benefits through a badge system. Buyers will have access to a dedicated profile page where they can update personal information, add addresses for shipping and billing and choose the default address. Also they will be able to sync wishlists and merge their badge progress. The system shall ensure security, validation, and a seamless user experience, while supporting at least **10 concurrent users** and ensuring that all functionalities execute within **2 seconds**.

#### **Functional Requirements:**

##### **1. Profile Management**

The system will provide a profile page with sections dedicated to managing personal details. Upon the first login, buyers will have limited access to the system, with the ability to save only their basic information, including First Name, Last Name, and billing and shipping addresses. An address consists of a Street Line, City, Country, and Postal Code. These fields will be validated only to ensure they are not empty. Once the basic information is successfully saved, the buyer will gain full access to all system features. Buyers will be able to update their personal information by editing the possible sections, including their first name, last name, phone number, and shipping and billing addresses. These changes will take effect immediately upon saving, ensuring that all transactions and communications use the most up-to-date information. The system will apply the same validation rules as during the sign-up process to verify the accuracy of the phone number. If a validation error occurs, a message will prompt the user to correct the input. Additionally, buyers can manage separate billing and shipping addresses or choose to use the same address for both. If the "Same address as billing" option is unchecked, the system will default to using the most recently registered shipping address as the billing address. All updates to the profile will be reflected in real-time, ensuring seamless synchronization across the platform.

---

## 2. Wishlist Functionality

The system shall display a **"Manage Wishlist"** section within the buyer's profile. The wishlist shall present a **clear and visually structured layout**, displaying product names, description, images, and prices. Each wishlist item shall have a **"Remove" button**, allowing buyers to delete individual products. Buyers shall be able to transfer items from the wishlist to the shopping cart using a **"Move to Cart" button**. If a product is successfully added to the cart, it shall be **automatically removed from the wishlist**. Wishlist updates shall be reflected in real-time. Buyers shall be able to **organize their wishlist using sorting and searching options**: **Sort By**: Price (Low to High/High to Low) **and** Search by name, having real time updated entries corresponding to entries in the wishlist

## 3. Badge System & Discounts

The system will feature a badge system that rewards buyers based on their **Total Spending** and **Number of Purchases**. The badge level is determined using the following formula:

$$\text{Badge Level} = \min(1.0, ((\text{Total Spending} / 1000) * 0.8 + (\text{Number of Purchases} / 100) * 0.2)) * 100$$

The badge level will correspond to a discount based on the following ranges:

- A score from 0 to 25 will result in a **Bronze** badge, offering a 5% discount.
- A score from 25 to 50 will result in a **Silver** badge, offering a 10% discount.
- A score from 50 to 75 will result in a **Gold** badge, offering a 15% discount.
- A score from 75 to 100 will result in a **Platinum** badge, offering a 20% discount.

On the **Profile Page**, the buyer's current badge level and the associated discount will be displayed in the right corner, along with a progress tracker that shows their standing toward the next badge level and the current discount . The system will automatically apply the discount on each purchase, with the percentage based on the buyer's current badge level at the time of the transaction and the badge status will be updated after each purchase with the latest purchase information. This information will be stored in the database to ensure rewards grow with the buyer's ongoing engagement.

#### 4. "Family Sync" Functionality

The system will allow buyers to synchronize their profiles with other accounts sharing the same shipping address through a feature called "**Family Sync**." This functionality enables buyers to merge their wishlists into a single unified list by toggling a switch next to the **Manage Wishlist** section. When enabled, all wishlist operations (such as sorting and searching) will apply to the combined wishlist. Turning off the switch will revert to displaying only the buyer's personal wishlist. On the buyer's profile page, there will be displayed a list of all eligible accounts based on the current shipping address for synchronization, with the following actions depending on the scenario:

If another account shares the same shipping address, only the account's initials will be shown, with the rest of the name censored. The current buyer can click "**Request Sync**," putting the request in a pending state and offering the option to "**Unsync**" (cancel the request). The account requesting sync remains in this pending state until the other account either accepts or denies the request.

The receiving account will see the full name of the requesting buyer, with two options: "**Accept**" or "**Decline**". If the request is accepted, the two accounts will be synchronized, and the wishlists will merge when the sync switch is turned on. This change will be reflected on both accounts, ensuring no duplicate items are displayed. The buyer can only remove items that belong to them. If the request is declined, the initial list of available accounts for merging will remain unchanged.

Once the two accounts are synced, either of the buyers can press the "**Unsync**" button at any time to revert the sync, returning both accounts to the eligible state. This will separate the wishlists again.

This "Family Sync" feature ensures seamless wishlist integration while allowing users to maintain control over account synchronization. After syncing, the wishlist will immediately update, consolidating all items saved across the synced profiles.

## 4. Seller profile + change settings - PATRI

### Description:

The system shall allow sellers to manage their listed products and update their profile information. Sellers will have access to a dedicated dashboard where they can view their

product listings, edit their business information, and track their reliability through a **user score** metric. The system shall ensure security, validation, and a seamless user experience.

## Functional Requirements:

- Implement a **dashboard** where sellers can view their listed products.
- Implement a **user score system** based on sales history, reviews, and reliability.
- Allow sellers to **update their business information** (e.g., store name, contact info).
- User should have a followers count (not a list, just a number).

### 1. Seller Dashboard & Product Management

The system shall provide a **dashboard** where sellers can view all their listed products with essential details (name, price, stock quantity). Sellers shall have options to **search, and sort** their products based on price (ascending). Profile and product update operations shall **complete within 2 seconds** on a broadband connection (minimum 25 Mbps).

### 2. Profile & Business Information Updates

Sellers shall be able to update their **business profile** information, including: Store Name, Business Email, Business Phone Number, Business Address, Store Description. The system shall enforce **input validation**, ensuring:

- The email follows a valid format (example@domain.com).
- The phone number contains only digits and follows a valid format.
- Required fields (store name, business email, business address) are not left empty.

If incorrect information is entered, an error message shall be displayed next to the affected field. The system shall handle up to **10 concurrent sellers** updating their profiles without degradation in performance.

### 3. User Score System

Each seller shall have a **user score** based on all reviews of all products of a specific user. This is the average of all reviews that the seller received. For example, for a seller with product listings with **x** total reviews. When adding all scores together we get **y**. Therefore, the user score will be  **$z = y / x$** . The user score shall be a **read-only field** displayed on the seller's profile (format **z / 5**). The score shall be updated automatically based on predefined criteria.

## 5. Admin profile - COSMIN

Description:

The system shall provide an admin dashboard that enables administrators to efficiently manage users, sellers and new admins while ensuring security and access control. The dashboard will allow admins to create new admin accounts, enforce user bans or suspensions in cases of fraudulent activity, and generate reports on platform activity. To maintain security, an authentication system will be implemented, initially using hardcoded data until the login functionality is fully integrated. Middleware will restrict dashboard access based on roles, and API endpoints will be secured to ensure that only authorized admins can access sensitive data.

For user management, the system will include functionality to track banned users by storing their ban status in the database. The admin panel will provide a user interface for suspending users and preventing banned users from logging in. Additionally, admins will have the ability to reverse bans and restore user access when necessary.

The dashboard will also feature analytics and reporting capabilities, displaying insights through charts and graphs. It will provide a summary of total users, as well as a breakdown of buyers and sellers, enabling easy comparison of user types. The system will retrieve this data through database queries and dynamically visualize trends using pie charts and other graphical elements. The dashboard's operations will be optimized to ensure that all functionalities complete within two seconds on a broadband connection, maintaining a smooth user experience for administrators.

## 6. My Market - ARIS

### Description:

The **"My Market"** feature enhances the user experience by allowing buyers to view detailed seller profiles, follow sellers, search products, and sellers will receive notifications for reaching follower goals. The system efficiently handles buyer-seller relationships, supports real-time updates, and ensures users can manage their followed sellers seamlessly. This comprehensive, user-friendly, and efficient functionality offers an enjoyable shopping experience while maintaining system integrity and reliability.

**Buyers** can access a dedicated **Seller Profile** page that provides key information about a seller and their products. The profile includes the seller's name, logo, e-mail, address, phone number, number of followers, user score and a list of available products. A prominently displayed **"Follow Seller"** button allows buyers to follow or unfollow the seller instantly, with changes being updated in real time in the database. The profile page is designed to align with the marketplace's UI guidelines, ensuring a clear and structured layout. Buyers can also search for the seller's products within the profile page for easier navigation, and the profile loads within 2 seconds under standard network conditions to provide a seamless user experience.

Buyers have access to a dedicated section called **My Market**, which contains both the My Market Feed and a list of followed sellers alongside management tools for viewing profiles.



The **My Market Feed** displays products exclusively from followed sellers and is sorted based on the most recent updates, ensuring buyers receive relevant information. The feed remains consistently updated with the latest product offerings.

**My Market** contains a button that keeps track of the number of sellers the buyer follows. By pressing this button a **vertical sidebar menu** comes on the screen containing a search bar allowing users to search a seller and a list containing all the followed sellers of the buyer. Each list item contains the logo of the seller and the name of the seller. The buyer is able to view profiles of sellers by pressing their logo. Changes made in this section are immediately reflected in the database, ensuring real-time updates while maintaining a smooth and efficient user experience. The layout and interactions in My Market follow UI principles to provide intuitive navigation and seamless usability.

**Sellers** receive notifications related to their follower count, including alerts when they gain a new follower or reach a predefined milestone such as 100, 500, or 1,000 followers. These notifications appear when sellers access the notifications section within their account, keeping them informed about their follower growth in an organized manner. The notifications section is designed following UI standards to ensure clarity and ease of access.