**GUI Design Document: Blood Bank Login Page**

**1. Purpose**

The **login page** acts as the **entry point** to the Blood Bank System, where users (donors, staff, hospitals) authenticate themselves before gaining access to their respective features. The purpose of this page is threefold:

* **Authentication**: Ensures that only authorized users are able to access the system and prevents unauthorized access.
* **Accessibility**: The design should cater to all users, including those with disabilities or limited technical skills, making it easy for them to use the platform.
* **Simplicity**: The login page should have a clean and straightforward design, avoiding any unnecessary complexity that could confuse the user.

This page is essential for keeping sensitive data secure, especially when it involves medical information and donations.

**2. Target Audience**

The **target audience** includes:

* **Donors**: Individuals who wish to donate blood. They can log in to view donation history, schedule donations, and update personal details.
* **Blood Bank Staff**: Admins or coordinators who manage the inventory of blood donations, track donation schedules, and interact with hospitals requesting blood.
* **Hospitals/Clinics**: Healthcare institutions that need to request blood for patients in need. They will access the system to make requests for blood based on type and quantity.

Since the system is used across various roles, the design should be intuitive for all, regardless of the user's technical proficiency. Additionally, it should be accessible across different devices, such as desktops and mobiles, to ensure convenience for all users.

**3. Functional Requirements**

**3.1. User Input Fields**

* **Username/Email**: This field allows users to enter either a username or email address that has been registered in the system. A valid input is required to proceed.
* **Password**: The password input field will allow users to enter their password securely. The input is masked to protect sensitive data.

**3.2. Buttons**

* **Login**: The primary button for submitting the entered username/email and password for validation. When clicked, it checks the entered credentials against the database and grants access to the user based on validity.
* **Forgot Password**: A link that redirects the user to a password recovery page where they can enter their registered email to receive a reset link.
* **Sign Up (Optional)**: This link allows new users (such as first-time donors or hospitals) to create an account. This is optional, as some users may already have accounts.

**3.3. Checkboxes**

* **Remember Me**: A checkbox allowing users to save their login credentials on the device for future use. This is optional and increases convenience for regular users.

**3.4. Error Messaging**

* The system will dynamically display error messages if:
  + **Invalid Credentials**: If the entered username/email or password doesn’t match the system's records.
  + **Empty Fields**: If any required field is left blank, an error message will prompt the user to fill it.
  + **Server Errors**: In case of network issues or server downtime, the system will display a relevant message.

**3.5. Multi-Factor Authentication (Optional)**

* To enhance security, multi-factor authentication (MFA) can be implemented. Users will receive a one-time code via SMS or email, which they will need to enter in addition to their password before being granted access.

**3.6. Localization Support**

* This feature ensures the application supports multiple languages, allowing users from different regions to view the login page in their preferred language (e.g., English, regional languages). It can be set automatically based on the user’s location or manually selected from a language dropdown.

**4. Design Specifications**

**4.1. Layout**

* **Centered Form**: The login form should be positioned at the center of the page, with clear and sufficient margins to provide a clean look.
* **Responsive Design**: The form should adapt to different screen sizes. On **desktop** displays, the form should have a wider layout with the elements spaced out, while on **mobile devices**, the layout should be stacked vertically for better touch interaction.
* The login page must be **mobile-first**, ensuring a seamless experience across smartphones, tablets, and desktops.

**4.2. Color Scheme**

* **Primary Color**: Red will be used prominently for primary actions like the login button. This color is symbolic of blood and ties directly into the Blood Bank’s theme.
* **Secondary Color**: Gray or white can be used for secondary links like "Forgot Password" and "Sign Up". These colors provide subtle contrast without drawing too much attention away from the main action.
* **Error Color**: Red (#FF0000) is used for error messages to grab attention and indicate something went wrong (e.g., invalid credentials).

**4.3. Typography**

* **Font Family**: Choose a modern and clean font like **Roboto** or **Arial** to maintain readability and professional appearance.
* **Font Sizes**:
  + **Headline ("Welcome Back to the Blood Bank")**: 24px to make the welcome message stand out.
  + **Labels (e.g., "Username")**: 14px for readability without overwhelming the user.
  + **Input Text**: 16px for easy reading during input.
  + **Error Messages**: 12px in **red** to highlight issues and maintain clarity.

**4.4. Spacing**

* Ensure there is adequate spacing between the input fields and buttons (around **16px**) to prevent a cluttered appearance.
* The **padding** inside input fields and buttons should be comfortable (around **10px**) to ensure ease of interaction and readability.

**4.5. Icons**

* **Eye Icon**: Provide an optional **eye icon** next to the password input field, allowing the user to toggle the visibility of the password when entering it.
* **Validation Icons**: Use icons like **checkmarks** or **error symbols** near the input fields for visual feedback (e.g., green for valid inputs, red for errors).

**4.6. Accessibility**

* **ARIA Labels**: Use ARIA labels to ensure the page is compatible with screen readers for visually impaired users.
* **High-Contrast Text**: For users with color blindness or vision impairments, the text should be in high contrast with the background for readability.
* **Keyboard Navigation**: Ensure the design supports easy navigation via the keyboard (for users who cannot use a mouse) by allowing users to tab through the fields and buttons in a logical order.

**5. User Interaction Flow**

**5.1. Initial State**

* The login page will display with **empty fields** for username/email and password.
* The **Login button** will be **disabled** until both fields are filled to ensure the user does not submit an incomplete form.

**5.2. User Inputs Credentials**

* As the user types:
  + If the username/email and password match valid records, the **Login button** will become active.
  + If invalid, error messages will dynamically appear next to the respective field (e.g., "Invalid username or password").

**5.3. Successful Login**

* After a successful login, the user is redirected to their **dashboard**.
  + **Donor**: Can view their donation history and manage future donations.
  + **Staff**: Access to the blood inventory, ongoing donation campaigns, and reports.
  + **Hospital**: Ability to search for and request blood from the bank.

**5.4. Unsuccessful Login**

* If the login is unsuccessful, the page will display a message: "Invalid credentials. Please try again."
* The user can try again or reset their password using the "Forgot Password" link.

**5.5. Forgot Password Flow**

* When the user clicks "Forgot Password," they are redirected to a password recovery page where they can enter their email. If the email is registered, they will receive a link to reset their password.

**5.6. Responsive Design**

* For **Mobile**: The layout adapts by stacking the form fields and buttons vertically. Buttons and inputs should be large enough for easy touch interaction.
* For **Desktop**: The form remains centered, and the button sizes and layout are optimized for mouse clicks.

**6. Validation and Error Handling**

**6.1. Validation Rules**

* **Username/Email**: Must match a valid email format or a registered username.
* **Password**: Must meet a minimum of 8 characters, including at least one number and one special character.

**6.2. Error Messages**

* **Username/Email**: "Please enter a valid email or username."
* **Password**: "Password must be at least 8 characters."
* **General**: "Invalid credentials. Please try again."

**7. Tools and Technologies**

* **Frontend Framework**: React, Angular, or Vanilla JS.
* **Styling**: CSS, TailwindCSS, or Bootstrap for responsive and clean design.
* **Icons**: FontAwesome or Material Icons for adding icons like the **eye icon** for password visibility toggle.
* **Backend Integration**: RESTful APIs for integrating user authentication, session management, and password recovery.

**8. Implementation Timeline**

| **Task** | **Estimated Time** |
| --- | --- |
| Design Mockups | 2 days |
| Frontend Development | 3 days |
| Backend API Integration | 2 days |
| Testing and Debugging | 2 days |