**Face Payment**

**EXISTING SYSTEM**

**Challenges:**

* Traditional payment methods require manual card entries or cash handling, leading to delays.
* Fraud risks due to stolen card information or identity theft.
* Lack of biometric authentication, making transactions less secure.
* Inefficient user verification processes during checkout.
* No streamlined solution to link user profiles with payment validation.

**PROPOSED SYSTEM**

**Key Features:**

* **Face Recognition-Based Payment System:**
  + Users register their accounts along with facial recognition data using the face-api.js library.
* **User Registration Module:**
  + Captures user details, including name, email, phone, and facial recognition data.
* **Product Management Module:**
  + Lists available products with details like name, category, description, and image.
* **Payment Verification Module:**
  + Verifies the user's face during checkout to approve or reject transactions.
* **Role-Based Access Control:**
  + Admin: Manages users, products, and transactions.
  + User: Registers, browses products, and makes payments.

**TABLE DESIGN (DATABASE SCHEMA)**

**1. USERS TABLE**

|  |  |  |
| --- | --- | --- |
| **Column Name** | **Data Type** | **Description** |
| \_id | ObjectId (PK) | Unique user ID |
| fullname | VARCHAR(255) | Full name of the user |
| username | VARCHAR(255) | Unique username |
| email | VARCHAR(255) | User's email address |
| phone | VARCHAR(15) | Contact number |
| password | VARCHAR(255) | Encrypted password |
| face\_data | JSON | Facial recognition data for authentication |

**2. PRODUCTS TABLE**

|  |  |  |
| --- | --- | --- |
| **Column Name** | **Data Type** | **Description** |
| \_id | ObjectId (PK) | Unique product ID |
| name | VARCHAR(255) | Product name |
| price | FLOAT | Product price |
| description | TEXT | Product details |
| category | VARCHAR(255) | Product category |
| image | VARCHAR(255) | Image path for the product |

**3. TRANSACTIONS TABLE**

|  |  |  |
| --- | --- | --- |
| **Column Name** | **Data Type** | **Description** |
| \_id | ObjectId (PK) | Unique transaction ID |
| user\_id | ObjectId (FK) | Reference to Users Table |
| product\_id | ObjectId (FK) | Reference to Products Table |
| amount | FLOAT | Transaction amount |
| status | ENUM('Success', 'Failed') | Transaction result |
| date | DATE | Transaction date |

**TECHNOLOGY STACK**

* **Frontend:** HTML, CSS, JavaScript
* **Backend:** Node.js, Express.js
* **Database:** MongoDB
* **Face Recognition Library:** face-api.js