Crypto Dashboard with Virtual Investment -

# Core Features:

**🔐 User Authentication System**

**Secure User Registration and Login**

* Users can **sign up** with email and password.
* Login returns a security-pin used for accessing protected endpoints.
* Session management and logout supported on frontend.

# 🪙 Live Crypto Data Integration

* Real-time cryptocurrency data from Coinpaprika API
* Homepage shows a list of top coins with: Coin name and Current price (USD)
* Users can click on any coin to view a dedicated details page, which includes:
* Market cap, 24h price change, circulating supply, symbol, rank, volume, and more
* 🔁 Currency Converter: Convert coin price between USD and INR

# 💰 Demo Wallet System

* Every user starts with a virtual wallet (e.g., $10,0000 USD)
* Balance updates as users buy or sell coins
* Mimics real wallet behavior without using real money

# 📈 Buy & Sell Simulation

* Users can simulate buying and selling coins using current market price
* Validated against demo balance and actual holdings
* Instant updates to portfolio and transaction history

# ❌ Prevent Over-Spending or Selling Unavailable Assets

The system includes strict validation rules to enforce realistic trading behavior:

* ❌ Cannot buy if demo balance is insufficient
* ❌ Cannot sell more than what the user holds in their portfolio
* ✅ Ensures trades behave like on real exchanges

Example:

* Balance: $1,000 → Cannot buy 1 BTC @ $50,000
* Holdings: 0.5 ETH → Cannot sell 1 ETH

# 📊 Portfolio Management

* Shows all current holdings with coin name, quantity, avg buy price
* Displays live price, current value, and profit/loss for each asset
* Continuously updated based on live market prices

# 🧾 Transaction History

* Complete log of all buy/sell transactions
* Includes coin name, amount, price, action type, and timestamp
* Helps users analyze trading patterns and strategies

# 🗂️ Wishlist Functionality

* Users can bookmark coins without investing
* Stored persistently in Supabase as a watchlist
* Helpful for monitoring price movements over time

# 📋 User Management

* Secure login/signup
* Each user has a separate wallet, portfolio, wishlist, and transaction log

# 📉 Analytics & Insights

* Portfolio performance
* Gain/loss breakdown by individual asset

**FastAPI Endpoint Structure:**

* **🧩 Authentication**

| * Method | * Endpoint | * Description |
| --- | --- | --- |
| * POST | * /register | * Register a new user and wallet |
| * POST | * /login | * Authenticate and return security-pin |

**🪙 Coin Data (via Coinpaprika API)**

| * **Method** | * **Endpoint** | * **Description** |
| --- | --- | --- |
| * GET | * /coins | * Get list of all coins with basic info (name, price) |
| * GET | * /coin/{coin\_id} | * Get full details of a specific coin |
| * GET | * /convert | * Convert coin price (e.g., USD ↔ INR) |

**💰 Demo Wallet & User**

| * **Method** | * **Endpoint** | * **Description** |
| --- | --- | --- |
| * POST | * /users | * Create a new user with demo wallet |
| * GET | * /users/{user\_id} | * Get user profile and wallet balance |

**📈 Portfolio Operations**

| * **Method** | * **Endpoint** | * **Description** |
| --- | --- | --- |
| * GET | * /portfolio/{user\_id} | * Get full portfolio of a user |
| * POST | * /portfolio/buy | * Buy a coin (validated, update balance & holdings) |
| * POST | * /portfolio/sell | * Sell a coin (validated, update balance & holdings) |

**🧾 Transactions**

| * **Method** | * **Endpoint** | * **Description** |
| --- | --- | --- |
| * GET | * /transactions/{user\_id} | * Get all transactions for the user |
| * GET | * /transactions/{user\_id}/{coin\_id} | * Filter transactions by coin |

**🗂️ Wishlist**

| * **Method** | * **Endpoint** | * **Description** |
| --- | --- | --- |
| * GET | * /wishlist/{user\_id} | * Get wishlist coins for a user |
| * POST | * /wishlist | * Add a coin to wishlist |
| * DELETE | * /wishlist/{wishlist\_id} | * Remove coin from wishlist |

**📉 Analytics & Insights**

| * **Method** | * **Endpoint** | * **Description** |
| --- | --- | --- |
| * GET | * /analytics/portfolio/{user\_id} | * Portfolio performance overview |
| * GET | * /analytics/gainloss/{user\_id} | * Gain/loss breakdown per coin |

**Streamlit tabs:**

* 📁 streamlit\_app/
* │
* ├── app.py ← Main app file
* │
* ├── Sidebar (Displayed in all pages)
* │ ├── 📊 Dashboard → dashboard\_view()
* │ ├── 💼 Portfolio → portfolio\_view()
* │ ├── ❤️ Wishlist → wishlist\_view()
* │ ├── 💸 Transactions → transactions\_view()

└── 👤 User Profile → profile\_view()

* backend/
* │
* ├── main.py # Uses @app and includes routers
* │
* ├── routes/
* │ └── user\_routes.py # Uses @router for user-related logic
* │
* ├── auth/

│ └── auth\_routes.py # Uses @router for login/register