Project Report: Cryptocurrency Management System

1. Introduction

Cryptocurrency has revolutionised the global financial system by offering decentralised digital currencies that allow for secure, peer-to-peer transactions without the need for intermediaries. Popular cryptocurrencies like **Bitcoin** and **Ethereum** have gained widespread attention as both investment assets and mediums for digital transactions.

Project Motive

The motive behind this project is to create a simple and educational platform for users to explore cryptocurrency management. By simulating the buying, selling, and tracking of digital assets, the **Cryptocurrency Management System** aims to help users understand how cryptocurrency trading works in a secure environment.

Inspiration for the Project

The idea for this project emerged in **2021**, when I became intrigued by Bitcoin's rapid growth and its media coverage. News about Bitcoin's rising value and its increasing adoption sparked my interest in cryptocurrency, leading me to develop a system where users could safely engage with and learn about cryptocurrency management.

Top 2 Cryptocurrencies and Their Current Value

1. **Bitcoin (BTC)**
    - **Overview**: Bitcoin is the first and most well-known cryptocurrency. It was created by an anonymous entity known as **Satoshi Nakamoto** in 2008 and released as open-source software in 2009. Bitcoin operates on a decentralised network that validates transactions via proof-of-work.
    - **Current Value (as of November 2024)**: **$27,979.40 USD** per Bitcoin.
2. **Ethereum (ETH)**
    - **Overview**: Ethereum is the second-largest cryptocurrency by market capitalization, created by **Vitalik Buterin** and launched in 2015. Ethereum allows developers to build decentralised applications (dApps) using smart contracts, which execute automatically when certain conditions are met.
    - **Current Value (as of November 2024)**: **$1,647.47 USD** per Ethereum.

These cryptocurrencies have not only gained widespread attention but have also sparked the development of numerous other digital currencies, decentralised finance (DeFi) platforms, and blockchain-based applications.

2. Background Study

Cryptocurrency has had a profound impact on the global financial landscape. The advent of Bitcoin in 2009 signalled a shift from traditional, centralised banking systems to decentralised and digital alternatives. Over the years, other cryptocurrencies such as **Ethereum**, **Ripple**, and **Litecoin** have joined the fray, each offering unique features and use cases.

Cryptocurrencies Growing Role Globally

The rise of cryptocurrency has disrupted traditional financial systems, enabling fast and secure cross-border transactions, increasing financial inclusion for the unbanked, and offering new investment opportunities. According to the **International Journal of Applied Science and Smart Technology**, cryptocurrencies have demonstrated potential for large-scale adoption, despite regulatory concerns and volatility.

While some countries have embraced digital currencies, others have taken a cautious approach due to concerns over their use in illegal activities such as money laundering or tax evasion. Countries like **El Salvador** have made Bitcoin legal tender, while others, such as **India** and **China**, have implemented bans or restrictions.

Article Resource

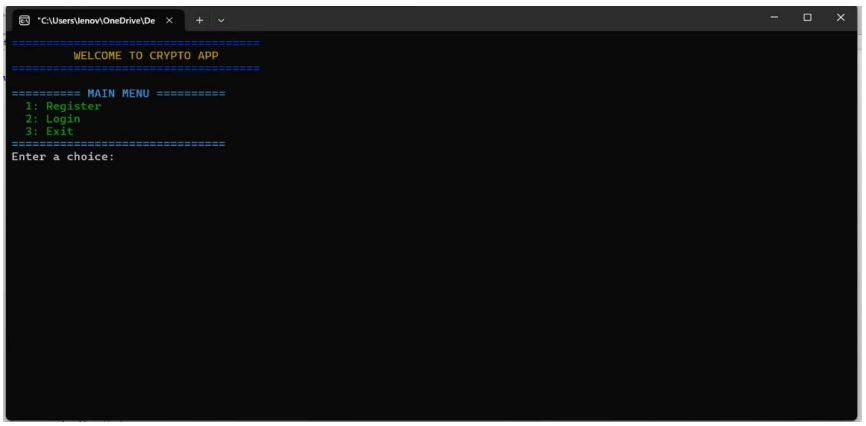
The information in this report is partially informed by research from the following article:

- **Qarouss, Z., et al.** (2023). "Cryptocurrency and its role in modern financial systems." *International Journal of Applied Science and Smart Technology*.

3. Features of the Cryptocurrency Management System

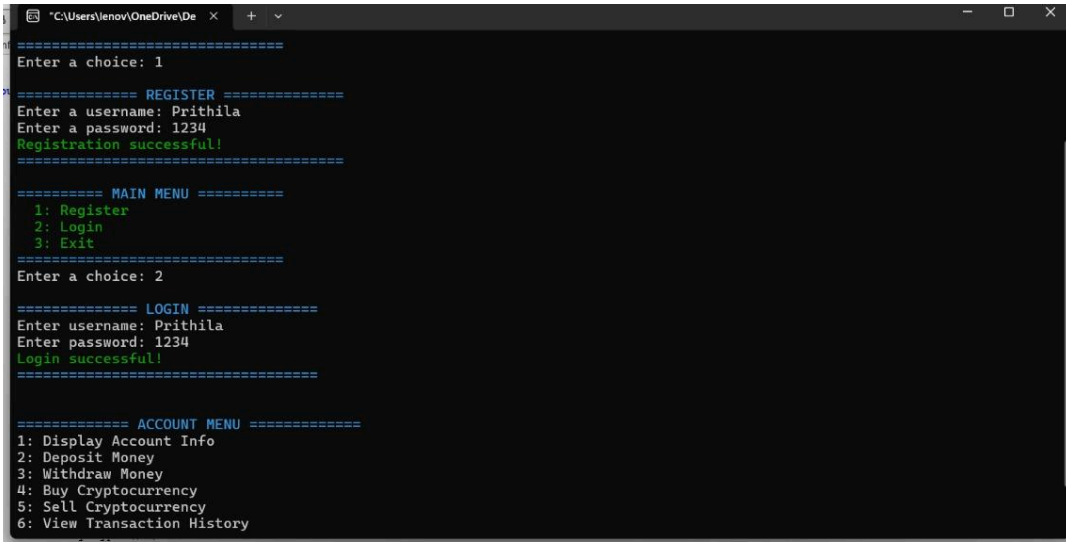
The **Cryptocurrency Management System** is designed with several core features that simulate a basic cryptocurrency trading and management platform. These features provide users with hands-on experience of managing digital assets.

3.1. User Registration and Login



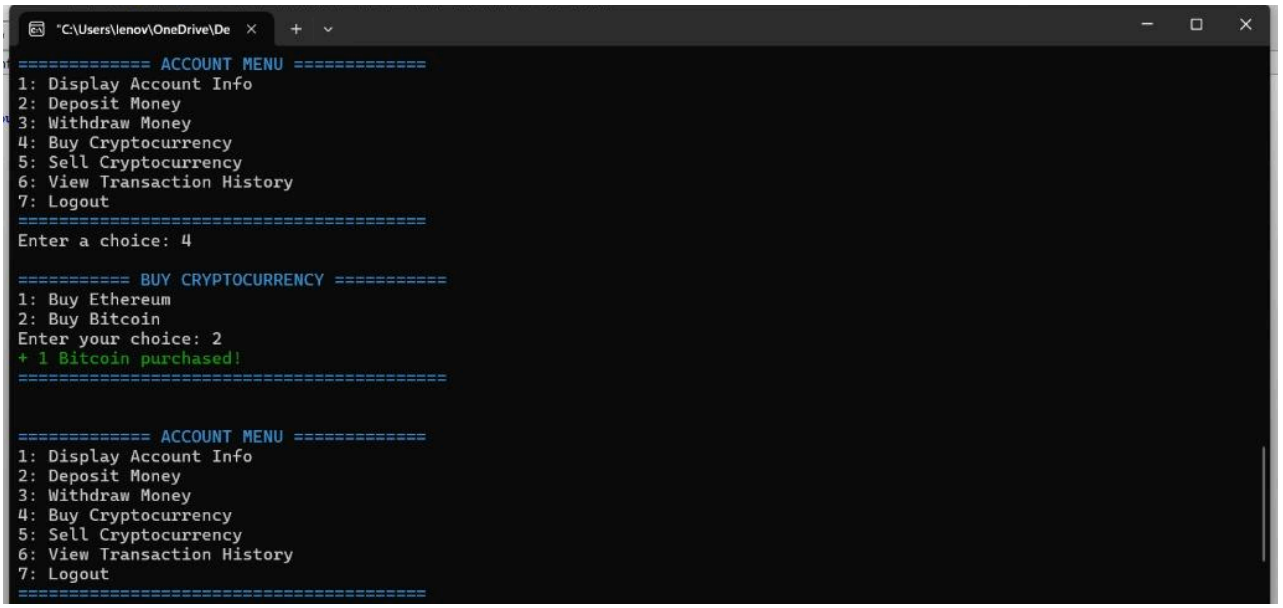
Users can create an account by choosing a unique username and password. This ensures that each user’s data and cryptocurrency holdings are private and secure.

3.2. Account Management



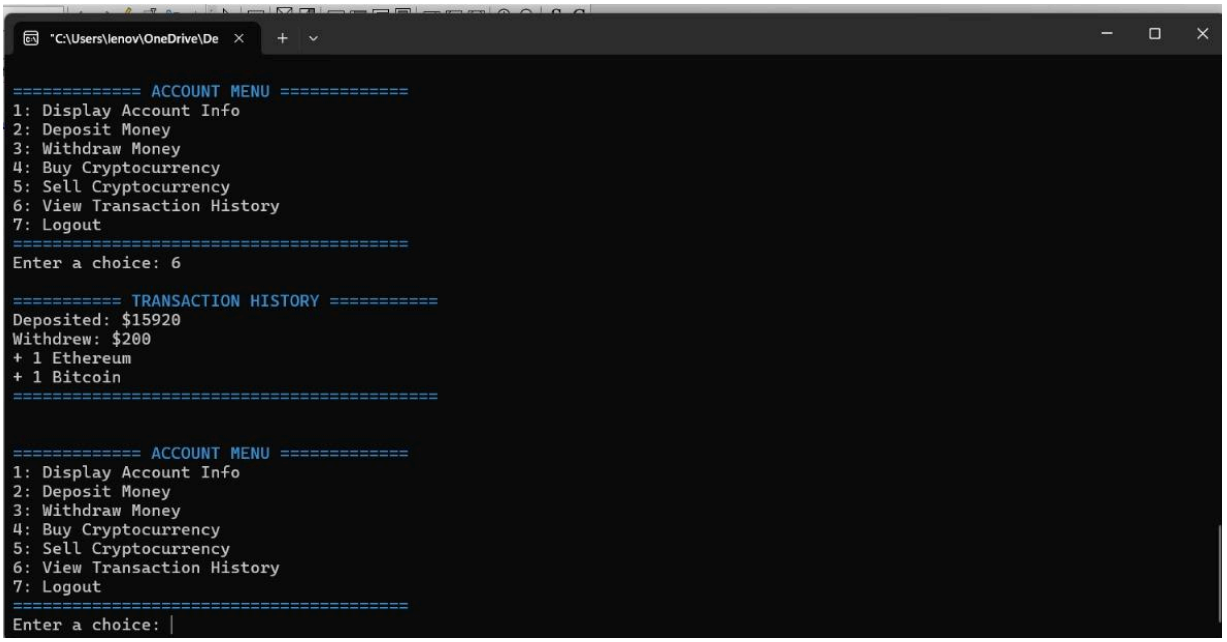
The system allows users to deposit and withdraw money, which simulates the interaction with traditional bank accounts. This feature provides users with control over their balance and ensures that transactions are conducted securely.

3.3. Cryptocurrency Trading (Buy and Sell)



Users can buy or sell **Ethereum** and **Bitcoin** at predefined prices. The system will deduct or add the appropriate amount to the user's balance depending on the trade.

3.4. Transaction History



All actions such as deposits, withdrawals, cryptocurrency purchases, and sales are logged into a transaction history, which is displayed to the user. This helps in tracking the user's financial activities within the system.

3.5. Real-Time Updates and Alerts (Future Feature)

In future versions of the system, the addition of real-time price updates will allow users to trade based on the current market values of cryptocurrencies.

4. Limitations of the Cryptocurrency Management System

While the system effectively simulates a basic cryptocurrency management platform, several limitations restrict its real-world use:

4.1. Fixed Cryptocurrency Prices

The prices of **Bitcoin** and **Ethereum** are hardcoded into the system and do not reflect real-time market fluctuations. This makes it difficult for users to engage in actual trading based on the current market.

4.2. Lack of Real-Time Market Data

The system does not integrate with real-world cryptocurrency exchanges (such as **Binance** or **Coinbase**) to fetch live price data. Without access to real-time data, users cannot fully experience the dynamic nature of cryptocurrency trading.

4.3. Security Concerns

As with many early-stage systems, the **Cryptocurrency Management System** stores user passwords in plain text. This lack of encryption or hashing leaves the system vulnerable to breaches.

4.4. Limited Cryptocurrency Support

Currently, the system supports only two cryptocurrencies: **Ethereum** and **Bitcoin**. The addition of other coins like **Ripple**, **Litecoin**, or **Dogecoin** could broaden the system's usability.

4.5. No GUI

The system operates on a **text-based interface**, which may not be user-friendly for everyone. A **Graphical User Interface (GUI)** would make the system more intuitive and accessible to non-technical users.

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5. Future Scope of the System

5.1. International Scope

The future scope of cryptocurrency management systems extends beyond simple portfolio tracking. As cryptocurrency adoption grows worldwide, several opportunities for system enhancement and expansion can be foreseen:

- **Integration with Real-Time Cryptocurrency Data**: By integrating live market data from cryptocurrency exchanges like **Binance** or **CoinMarketCap**, the system can allow users to trade cryptocurrencies at current market prices.
- **Multi-Currency Support**: Expanding the system to support a wider variety of cryptocurrencies and fiat currencies will cater to a global audience and enhance its utility.
- **Enhanced Security Features**: Implementing **two-factor authentication (2FA)** and **end-to-end encryption** will ensure that the system is secure and protected against cyber threats.
- **Regulatory Compliance**: As countries like **the United States**, **European Union**, and **Japan** develop clearer regulations on cryptocurrency trading, the system can be designed to comply with these regulations for international users.

5.2. Scope in Bangladesh

In Bangladesh, cryptocurrency adoption is still in its early stages. While the **Bangladesh Bank** has issued warnings against cryptocurrencies, the growing interest among the younger generation presents an opportunity for innovation in digital financial systems.

- **Government Stance**: If the **Bangladesh government** were to reconsider its position and create a regulatory framework for cryptocurrency trading, it could open up opportunities for legal exchanges and platforms within the country.

- **Integration with Mobile Banking**: With Bangladesh's high mobile penetration rate and the dominance of mobile banking platforms like **bKash**, future versions of this system could integrate cryptocurrency trading with mobile financial services, making it more accessible to a larger segment of the population.

6. Conclusion

The **Cryptocurrency Management System** provides an introductory platform for users to learn about cryptocurrency trading and account management. While the system is limited in its current form due to hardcoded prices and lack of real-time data, it offers a robust foundation for future enhancements. As cryptocurrency adoption grows globally and in Bangladesh, this system can evolve to incorporate real-time trading features, enhanced security, and better user interfaces.

The potential for cryptocurrency in Bangladesh is immense, and with proper regulatory frameworks and technological advancements, the country could become a key player in the cryptocurrency space.

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7. References

1. **Qarouss, Z., et al.** (2023). "Cryptocurrency and its role in modern financial systems." *International Journal of Applied Science and Smart Technology*.
2. **CoinMarketCap**. (2024). Current Cryptocurrency Prices. Retrieved from https://www.coinmarketcap.com.
3. Google
4. wikipedia
