

CryptoGram –

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Domain Analysis

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1. Glossary

Cryptocurrency – a digital payment system that is not reliant on any central authority, such as banks or governments

Custodial – a property of a wallet causing the user to not have full control and ownership of their assets, requires a degree of trust to the wallet provider

Fiat Currency – a traditional type of currency that is not backed up by a commodity, such as gold or silver, typically declared as legal tender, for example the British Pound

Remittance – a non-commercial transfer of money that is sent to another party, typically used with overseas payments by migrant workers

Volatility – a measure of how much the price of an asset has changed over time

Order – an instruction to buy or sell one cryptocurrency for another at the current market price

2. Introduction

Since the creation of Bitcoin and Ethereum, it became possible to seamlessly exchange value across borders and interact with web 3.0 applications that provide basic banking needs. Cryptocurrencies became popular in developing countries due to the lack of a cheap and efficient system of sending money abroad.^[1] Even 15% of USA residents used cryptocurrencies for remittance payments despite the established services like PayPal and Western Union.^[2] Some, like Turkish citizens, used it as a hedge against hyperinflation of their national currencies.

Additionally, in developed countries, cryptocurrencies became known for their price volatility. The offered high-reward and often overlooked, high-risk ratio appealed to many beginner investors. The number of verified crypto asset investors worldwide has risen by a magnitude of 6 just within 3 years although the actual number might be greater due to some countries having loose laws regarding KYC.^[3] As of June 2021 in Australia, 20% of citizens who don't invest in cryptocurrencies say that not knowing how to purchase it is the main reason.^[4]

While there is a range of different services available to buy and sell crypto assets, many of these apps are limited in their features or are quite confusing to use. Our solution will be designed so these limitations are addressed. This will attract a wide range of investors as well as those new to cryptocurrency. The user will be presented with the most established crypto assets. Moreover, trading against the fiat currency of the user's jurisdiction will be the only option to avoid any confusion.

The solution will be a website that allows users to trade and store their crypto assets. For convenience, a web or native smartphone application can also be developed later on. The target demographic is a new or recent investor. The product's main selling point will be the simplicity of trading that few applications offer already, as well as additional features such as portfolio tracking capabilities that most of them lack. This will allow the user to assess their past performance with a glance at generated graphs such as 'Net Worth' and 'Profits'.

To capture a wider user base and utilise the future infrastructure, the website will allow sending crypto assets between accounts using the receiver's nickname or phone number. Such a feature will allow the users to send money abroad as the received funds can be sold to their local currency immediately upon appearance in

their wallets. Additionally, this will increase the liquidity and offer lower slippage to the traders on the platform.

3. Customers and users

Administrator

An administrator is responsible for the smooth running of the system by helping specific users with any queries or issues they may have or helping all users by updating/fixing specific components of the system. Administrators are split into two types: developers and customer service agents.

Developer

A developer maintains the system by fixing any issues with it in the form of an update/patch. They may have been a part of the initial building of the system, allowing them to have a good understanding of how the system functions, and so a good understanding of how issues may occur and how they can be solved. This user has access to the whole system allowing for these important changes to be made.

Requirements of a developer include:

- Having an in-depth understanding of how the system functions
- The knowledge of the system code to make the specified changes

Customer Service Agent

A Customer Service Agent is responsible for assisting customers with any issues they are having. They will have access to a function where a user can open a chat box with any available agents and discuss their issue in order to have it solved.

An example of a customer's query could be that they cannot access their account due to a 'system failure'. Here the agent can inform the customer of when the failure should be solved and when the system should be up and running again.

Requirements of a customer service agent include:

- Having an in-depth understanding of how the system functions
- Having good communication skills

Customer

A customer may be someone interested in buying and storing cryptocurrencies. They may also be interested in sending currencies to family/friends. Customers may come from any background, with any level of communication skills, as this system is designed to be easy to use.

When a customer registers, they must enter a unique nickname and a valid phone number. This information can be used to send and receive currencies to and from other users' portfolios. The customer can deposit and withdraw fiat currencies and/or cryptocurrencies into their portfolio where it is stored. Their portfolio can be displayed graphically, showing trends in the currencies they own. This is important as cryptocurrency can be very volatile.

In the case that the customer has any issues, they can open a chat box to connect with a customer service agent who understands the system and can solve any problems as well as answer any questions.

A typical customer may be:

- Anyone wanting to buy and/or store cryptocurrencies
- Anyone wanting to send and/or receive currencies to/from other users

4. The environment

The software environment we have chosen is a web application in form of a website. The key factor which we need to ensure is maximum compatibility for both personal computers and mobile devices when it comes to formatting. The motivation behind this choice is that a successful app should be available for all devices.

Mobile device users will be very prevalent as most of them will want to use their finances on the go, and in addition to that in most developing countries where personal computers are not as widespread, mobile phones are the main means of accessing software, for example in Brazil 58% of the population can access the internet exclusively through a mobile device^[5], which means that this flexibility will be very beneficial in rapidly emerging markets.

Online shopping would be one of the main ways to use our app and studies show that personal computers are preferred for online shopping^[6]. In some countries, for example, the United States of America, more households have access to personal computers compared to handheld devices^[7]. There are also studies that show that smartphone penetration is more prevalent amongst younger people^[8], whilst it's quite poor among older users. This makes it crucial that our platform properly accommodates both mobile and PC users, which will be inevitably accomplished by a well-optimised web application.

Furthermore, using a web application will make the user interface very similar between platforms and familiarity with a UI has been shown to have an effect on satisfaction and adoption-likelihood^[9]. In addition to this, in the future, a mobile application would be easier to develop based on the existing web application. Furthermore, developing a mobile application in the future will become easier because some less frequently used features could be accessed through a web browser built into the application, in early versions of the mobile application.

Like our approach, most current cryptocurrency apps with trading capability are available as web apps such as Binance and Coinbase. This way of providing services was made popular by fiat currency-based apps like PayPal, which has been very successful^[10].

5. Tasks and procedures currently performed

Customer:

Create Account

To start using the application the user will have to create an account, their email address will need to be provided and verified, additionally phone number can be provided. Last step of this task is 'Know Your Customer' that is done through a third-party company, for example HooYu. This step is optional but until this step is done functionality is severely limited. The KYC process will provide us with all other necessary information.

Send/Receive

A customer in the system can both send and receive cryptocurrency. When sending, they specify how much and which currency, as well as whom they wish to send it to. They can do this by either entering a phone number or username. Or alternatively by approving a request sent by someone else. If there is an insufficient amount in their wallet then they get an alert which then prevents them from sending. In this situation for a user to send they must first deposit enough of that currency first. Once the payment is accepted, the amount is deducted from the user's wallet and it is added to the beneficiary.

Deposit/Withdraw

For depositing and withdrawing the user enters the amount and currency they wish to withdraw. The amount of cryptocurrency they get (when depositing) is shown based off of the current conversion rate. When withdrawing, the amount and currency that they receive is previewed. They then confirm and this amount is withdrawn from their bank account or received in their bank account (depending on whether they are depositing or withdrawing).

View Portfolio Data

Shows the user trends in the currencies they own in the form of a graph of total value of the portfolio over time and current value in a fiat currency of choice, in addition to this a pie chart of the value of the portfolio broken down based on the coins held.

Request

A user can request currency from another by entering the currency, amount and User ID or Mobile Number. This will alert the user and he will receive an option to “accept” the request which automatically create a new transfer based on the details inside the request.

Help/Chat with Customer Service Agent

If the user needs help, they have an option to chat with an agent (customer service agent). If they request this, they will be connected with an agent and can then get help or ask questions through a chat. There will also be a FAQ section to help reduce strain on the service, thereby reducing wait time in general.

Developer:

Update/Patch

A developer can make changes to the system by pushing an update/patch to add, remove or improve any given functionality.

Customer Service Agent:

Help/Chat with customer

Connects to a customer that needs assistance (has requested help through a chat box). The agent will try to assist the user. The agent can provide general information or more specific advice to the user by getting their account information.

Get customer account information

Allows the service agent to get all account details and transaction history of a customer given their account number, allowing them to diagnose any problem a customer may be having.

6. Competing software

Currently, there are hundreds of apps allowing you to trade and hold crypto assets, some being fully focused on cryptocurrency giving a wide range of features, and some simpler apps giving only the basic features. Of this wide range of apps, the main and biggest ones are Binance, Coinbase and Crypto.com which give users many trading features and options. On the other hand, PayPal and Revolut are some of the biggest apps that give only basic features to trade crypto assets. Each has different benefits and downsides, many of them being derived from balancing the number of features with simplicity. As well as those mentioned, there are other apps allowing you to hold cryptocurrencies, such as Trust Wallet and Metamask however these are not our competitors as they are non-custodial wallets compared to our custodial wallet.

Binance & Coinbase

Apps such as Coinbase and Binance are custodial cryptocurrency exchanges that allow users to trade cryptocurrencies. Binance, supporting trading for more than 500 coins, is the largest cryptocurrency exchange in the world as of January 2022^[11] based on trading volume, and offers user many other features such as staking, liquidity farming and dual investment. This is ideal for well researched users who have a good understanding of the complexities behind trading.

While offering a wide range of features, this can be quite complicated and overwhelming for the average investor and more so for those new to cryptocurrency as even something as simple as navigating around the app can get confusing. As well as that, sending assets to friends or just other wallets can be quite complex for new users as it is hidden among the many features. Binance is also only available from outside the US limiting the use, with an entire separate app (Binance.US) for those in the United States.

PayPal & Revolut

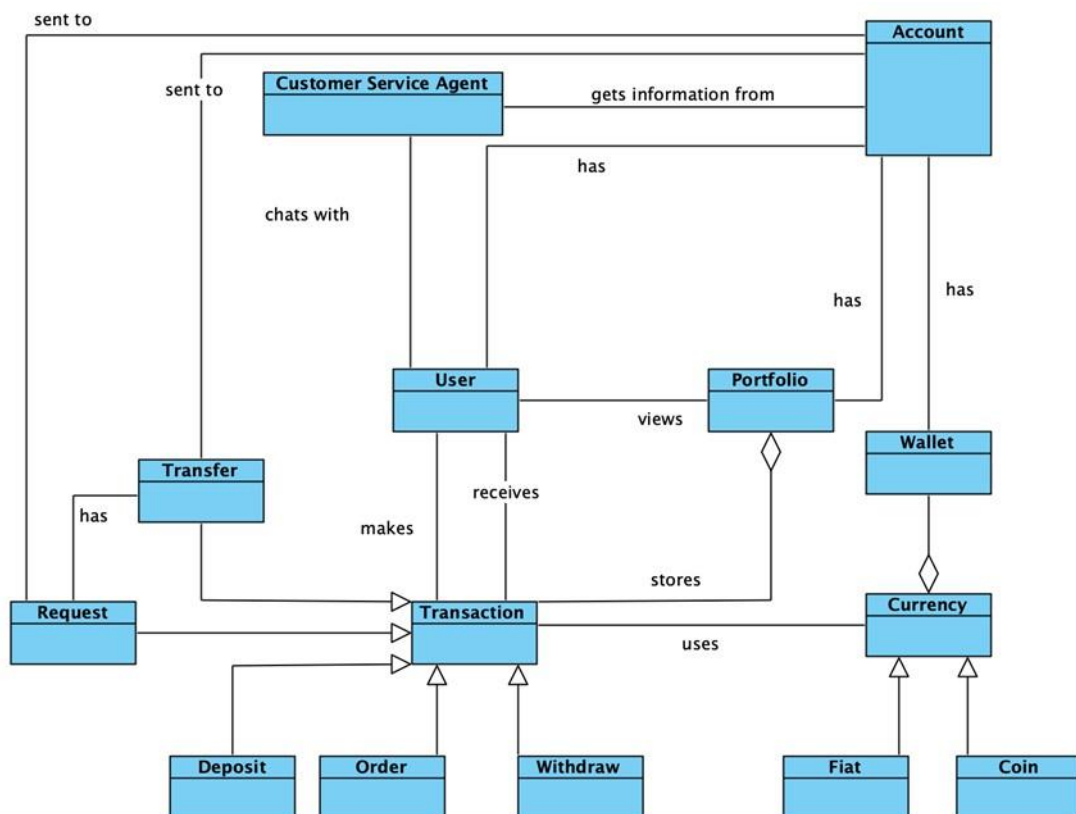
Other simpler, easier to use alternatives are PayPal and Revolut, which are very similar in their functionality. PayPal being the more popular app, is a multinational company operating an online payments system in most countries that support online money transfers. On 17th September 2021, all eligible PayPal account holders were able to buy, hold or sell cryptocurrency directly with PayPal^[12]. Displaying a basic view of your wallet and a few cryptocurrencies, PayPal provides users with a very easy to use and simple way of buying the select coins available. The simple UI is perfect for those new to buying crypto assets as it is not hard to understand.

However, with only four crypto coins available to purchase, the app limits users in their options. Also, a major downside to using PayPal for cryptocurrency is that you

cannot transfer crypto assets into or out of your PayPal account – you can only hold the cryptocurrency that you buy on PayPal and cannot transfer to other wallets. This can cause issues for users who would want to move their cryptocurrency to another wallet or for those who want to transfer their crypto assets into PayPal.

	<u>Binance & Coinbase</u>	<u>PayPal & Revolut</u>
<u>Functionality</u>	<ul style="list-style-type: none"> - Basic Features: - Buy/Sell Cryptocurrency - Transfer crypto assets into and out of wallet - Advanced Features: - Crypto Staking - Dual Investment - Liquidity Farming - Etc - Portfolio Tracking 	<ul style="list-style-type: none"> - Basic Features: - Buy/Sell Cryptocurrency
<u>Pros</u>	<ul style="list-style-type: none"> - Choice: Wide variety of coins available - Features: Many different trading techniques and features available 	<ul style="list-style-type: none"> - Usability: Very easy to use - Clear and simple UI - Functionality: Good functionality for some currencies - Accessibility: Available in most major countries
<u>Cons</u>	<ul style="list-style-type: none"> - Usability: Complicating for those new to cryptocurrency - Accessibility: Not full support for all countries (US) - Cost: Fees 	<ul style="list-style-type: none"> - Choice: Limited number of coins available - Features: Does not allow you to transfer in and out of wallet. Also lacks portfolio tracking

7. Domain Model



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