CryptoGram –

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Requirements Analysis

Contents

1. Changes

Before we begin, we would like to address some changes we have made based on the feedback we received and from our discussion to improve our system. Firstly, we no longer consider the developer as an actor in our system. Create Account has been renamed to Register Account. The use-case register was further broadened to accommodate important functionality about the account, and we have added 5 account related use-cases:

- Request personal data stored
- Delete Account
- Modify User information
- Edit Account information
- Add a Customer Service Agent

2. List of Requirements

The requirements are categorised according to the MoSCoW model, and the associated meaning can be seen in the below table. Most key functional requirements correspond to a use case and actor/s that will perform that function. Some requirements are system-wide and are marked as "-". Some requirements include "D", indicating that this requirement specifies data we will be storing. Data requirements (marked "D") in this table are associated with the use-cases where the data is received from, for example, the first name is received from the Register use case.

Priority	Abbreviation	Description
Must Have	M	The product must have this requirement to be called complete.
Should Have	S	The requirement is not vital but very desirable to have.
Could Have	C	The requirement would be beneficial to have but can be left out.
Won't Have	W	The requirement will not be added to the final product in this time frame.

ID	Functional Requirement	Priority	Actors	Use Case
1	The system must store the balance for each crypto asset for each registered user. "D"	M	Registered User	-

2	A registered user and Customer Service Agent must be able to use an interface to log in and log out.	M	Registered User & Customer Service Agent	-
3	System must store the user's username and password (hashed) for authentication “D”	M	Registered User	-
4	Any registered user could be able to export (.csv) files containing their trades.	W	Registered User	-

5	All cryptocurrencies could be categorised into DeFi, Web 3.0, Layer 1, Layer 2, GameFi.	W	User	-
6	The system should store a picture for every customer service agent. “D”	S	Customer service agent	Add a Customer Service Agent
7	An administrator must be able to add a new customer service agent.	S	Administrator	Add a Customer Service Agent
8	Any registered user must be able to cancel their buy order before it is executed.	M	Registered User	Buy Crypto

9	Any registered user must be able to buy a cryptocurrency for their local currency.	M	Registered User	Buy Crypto
10	A user should be able to trade BserTH, LTC, BNB, XRP, ADA, SOL, LUNA, AVAX, DOT.	S	Registered User	Buy Crypto & Sell Crypto
11	A user must be able to delete/close their account	M	Registered User	Delete account
12	Any registered user must be able to deposit a cryptocurrency.	M	Registered User	Deposit Crypto
13	Any user must be able to view a line graph representing the price of a crypto asset for the last month.	M	User	Deposit Crypto & Withdraw Crypto

14	Any registered user must be able to select the chain to be used when depositing or withdrawing crypto assets.	M	Registered User	Deposit Crypto & Withdraw Crypto
15	Any registered user must be able to deposit their local currency using a bank account.	M	Registered User	Deposit fiat

16	The system must store up to 3 bank cards for every registered user. “D”	M	Registered User	Deposit fiat
17	The user must be able to delete saved bank cards	M	Registered User	Deposit fiat
18	The system must keep track of all the transactions, data about a transaction must include from where, to where, value, currency and date with time. “D”	M	Registered User	Deposit Fiat, Deposit Crypto, Withdraw Fiat, Withdraw Crypto, Send Crypto, Sell Crypto, Buy Crypto,
19	The system should store google authenticator keys for each user that chooses to set it up. “D”	S	Registered User	Edit Account Information
20	Any registered user should be able to set up 2FA using their phone number.	S	Registered User	Edit Account Information
21	Any registered user should be able to set up 2FA using google authenticator technology.	S	Registered User	Edit Account Information

22	A registered User must be able to change their password	M	Registered User	Edit Account Information

23	A customer service agent must be able to engage in chat after searching for account information.	M	Customer service agent	Engage in a chat
24	A customer service agent must only be able to view account information when engaging with a customer.	M	Customer service agent	Engage in a chat
25	The system must store the status of every customer service agent (on-duty/away/offline). “D”	M	Customer Service Agent	Engage in chat
26	Any customer service agent must be able to view chats they previously engaged in.	M	Customer service agent	Engage in chat
27	All administrators must be able to alter the information of other registered users.	M	Administrator	Modify User Information
28	The system should keep logs of any changes that administrators perform, this includes storing time, username and the action. “D”	S	Administrator	Modify User Information
29	The system must store the full name for every registered user. “D”	M	Registered User	Register account

30	System must require the user to verify their email when first making their account	M	User	Register Account
31	The system must store the phone number of every registered user. “D”	M	Registered User	Register account, Edit account information
32	The system must store a unique username per account. “D”	M	Registered User	Register account, Edit account information
33	Any registered user must be able to request an amount of cryptocurrency from another after searching for an account.	M	Registered User	Request
34	Users must be able to request personal data stored by the system, using the interface. (Data Protection Act)	M	Registered User	Request personal data stored
35	A customer service agent should be able to search for user information while engaging in a chat.	S	Customer service agent	Search for user information
36	Any registered user must be able to sell a cryptocurrency for their local currency.	M	Registered User	Sell Crypto

37	Any registered user must be able to cancel their sell order before it is executed.	M	Registered User	Sell Crypto
38	A registered user must be able to send crypto from their account to another after searching.	M	Registered User	Send Crypto
39	A user could be able to send fiat from one account to another.	W	Registered User	Send Fiat
40	Any user must be able to chat with a customer service agent through a chat interface.	M	Registered User	Use chat to get help
41	Any user must be able to view the current market rate of any cryptocurrency.	M	Registered User	View current market rate
42	Any user should be able to see the “top gainers” of the last 24 hours.	C	User	View current market rate
43	Any registered user must be able to view their portfolio performance for a selected period from the past.	M	Registered User	View portfolio data
44	Any registered user must be able to withdraw their local currency into a bank account.	M	Registered User	Withdraw fiat

45	Any registered user must be able to withdraw their cryptocurrency into another wallet.	M	Registered User	Withdraw Transfer

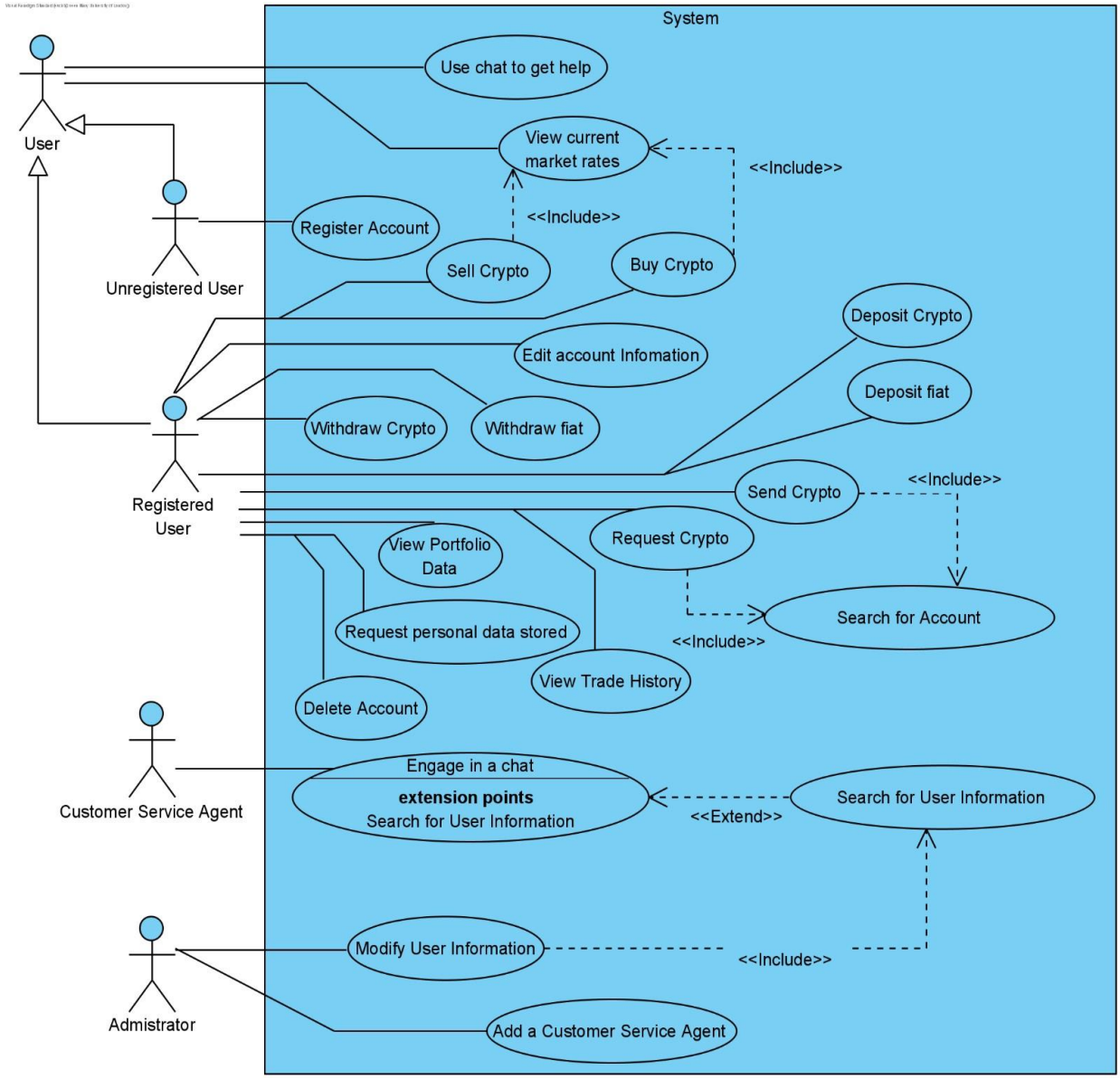
ID	Non-Functional Requirement	Category	Priority
1	The platform must meet 99.9% availability.	Availability	M
2	The majority of the crypto assets must be stored using cold storage.	Security	M
3	Only a very limited number of people must have direct access to private keys of the software's crypto assets.	Security	M
4	All personally identifiable information collected during KYC or otherwise must not be accessible to any other user.	Confidentiality	M
5	Each transaction (transfer or trade) must be executed within a 5-second window or cancelled by the system.	Performance	M
6	The graphical interface of the software must be simple enough such that a wide range of users can navigate simply. (Age 18 - 55)	Usability	M
7	The website must support the following browsers: Firefox, Chrome, Safari and Edge.	Portability	M

8	The software must be audited by at least 2 external independent parties before being deployed.	Audit	M
9	The software must be licensed in the UK by the Financial Conduct Authority (FCA) and by any other equivalent authorities in the targeted countries.	Legal and licensing issues or patent-infringementavoidability	M
10	The software could obtain a Money Transmitter Licence issued by HRMC and any other equivalent authorities in the targeted countries to allow for the transfer of fiat.	Legal and licensing issues or patent-infringementavoidability	C
11	The private keys of the software's crypto assets must have a local backup.	Back-up	M
12	Encrypted private keys of the software's crypto assets should be stored at some third party.	Back-up	S
13	The servers must be able to handle processing one-twentieth monthly active users placing a trade within the same 5 seconds.	Scalability	M
14	User authorisation onto the website must take less than 5 seconds.	Performance	M
15	The system must be implemented as a website.	Platform	M
16	The interface must be all in English.	Accessibility	M

17	The user could have an option to change the language of the interface to English, Spanish, German and French.	Accessibility	C
18	A user should be able to change the font size (for older age groups)	Accessibility	S

3. Use-Case Diagram

This is the use-case diagram that we have created for our system.



4. Use Case Description

We have chosen two crucial and most likely often used use-cases of our system and we have created detailed descriptions of them. Those two usecases are: Request Crypto and Withdraw Crypto.

Name – Request Crypto

Brief Description – This use case will allow the user to request cryptocurrency from another user. The other user can accept or deny the request, which is done through the send use case.

Actor – Registered User

Preconditions – The user must be logged into the system and must know either the username or the phone number that they want to send money to.

Basic Flow:

1. User clicks the transaction tab
2. User clicks the “Request Payment” button
3. User searches for the request receiver, through the Search for Account use case
4. User chooses a user who will receive the request
5. User specifies the cryptocurrency in which the transfer is expected, based on a range of currencies presented to them 6. User chooses the amount to be requested
7. User chooses the time and date the request should be sent
8. User clicks a button labelled ‘next’
9. User is presented with a page showing all the detail the user has entered
10. User clicks ‘send’ to confirm the request

Alternate Flows:

5a. If the selected user is the same as the requesting user, they are prompted with an error message and must re-select the receiver. The flow continues from step 3

7a. User selects the ‘send now’ option and doesn’t input anything. The flow continues from step 8

9a. If any of the fields were filled in incorrectly, they become highlighted.

The user is expected to re-enter the values to correct ones. The flow continues from step 7

10a. User clicks a button labelled ‘back’ to go back and modify the details. The flow continues from step 7

Post Conditions – The user is routed back to the home screen, but a pop-up message is displayed informing that the request was successful. The selected user receives a payment request

Name – Withdraw Crypto

Brief Description – This use case will allow the user to withdraw cryptocurrency to another wallet

Actor – Registered User

Preconditions – The user must be logged in and have the crypto asset to withdraw

Basic Flow:

1. User clicks the transaction tab
2. User clicks the “Withdraw” button
3. User selects “crypto”
4. User selects the coin to withdraw
5. User selects the chain to use when withdrawing
6. User inserts the amount desired to withdraw
7. User enters the recipient wallet address
8. User is presented with a page displaying the details (total amount withdrawn, current market price and the destination wallet)
9. User clicks a button confirming the withdraw
10. The transaction is confirmed
11. The user is taken to their account portfolio where they can see their portfolio value

Alternate Flows –

6a. If the user does not have enough in their account, they are presented with a message to enter a different amount. The flow continues from step 7.

7a. If the wallet address is not recognised, the user is requested to enter a different wallet address. The flow continues from step 8.

Post Conditions – A withdrawal receipt is displayed in transaction history along with a pop-up message informing the user that the withdrawal was successful.

5. Risk Assessment

In this table we have included all the risks that we have identified for this project.

Risk	Likelihood	Severity	Impact	Preventative / Mitigating Actions
Poor time management	Medium	High	Unfinished product	Evaluate progress frequently and adjust project plan if necessary
Missing member(s) due to health issues	Medium	Medium	Unfinished/lowquality product	Have frequent meetings and communication to make sure all members are aware of each other's progress.
Project team misunderstand requirements	Medium	Medium	Inconsistent documentation	Have frequent meetings and communication, making sure all members have a similar understanding of the system
Project team members must acquire new knowledge of the project	High	Low	Delays	Dedicating more time to learn about the project scope as a group

Low individual motivation due to a busy schedule	High	Medium	Unfinished/ low quality product	Individual time management
Failure to integrate with systems	Medium	High	Low user demand	Adding unique features, making sure we're improving on competing limitations
Requirements have compliance issues	High	High	Some features may be disabled/limited in certain locations	Ensuring the system is compliant with domestic and foreign law
Errors in key project management processes	Medium	High	Unfinished/ inconsistent product	Project meetings, checking individual members are meeting project requirements
User interface is low quality	Medium	High	Product is not user-friendly	Involving a target user, ensuring they can interact with the user interface
Users reject the product	High	High	Low user demand	Using advertisement successfully to show the systems superiority over competitors

Requirements do not accurately reflect user's expectations	Medium	Medium	Low satisfaction from customers	Careful explanation of each feature we are presenting in our product
Project conflicts not resolved in a timely manner	Low	High	Final product may be inaccurate	Check product after each step, resolving uncertainties immediately