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third party) and you, in relation to any distribution or transfer of BDY, is to be governed only by the separate terms and conditions of such agreement.

The information set out in the Whitepaper and the Website is for community discussion only and is not legally binding. No person is bound to enter into any contract or binding legal commitment in

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- (a) in any decision to acquire any BDY, you have shall not rely on any statement set out in the Whitepaper or the Website;
- (b) you will and shall at your own expense ensure compliance with all laws, regulatory requirements and restrictions applicable to you (as the case may be);
- (c) you acknowledge, understand and agree that BDY may have no value, there is no guarantee or representation of value or liquidity for BDY, and BDY is not an investment product nor is it intended for any speculative investment whatsoever;
- (d) none of the Company, the Distributor, their respective affiliates, and/or the Buddy DAO team members shall be responsible for or liable for the value of BDY, the transferability and/or liquidity of BDY and/or the availability of any market for BDY through third parties or otherwise; and
- (e) you acknowledge, understand and agree that you are not eligible to participate in the distribution of BDY if you are a citizen, national, resident (tax or otherwise), domiciliary and/or green card holder of a geographic area or country (i) where it is likely that the distribution of BDY would be construed as the sale of a security (howsoever named), financial service or investment product and/or (ii) where participation in token distributions is prohibited by applicable law, decree, regulation, treaty, or administrative

act (including without limitation the United States of America, Canada, and the People's Republic of China); and to this effect you agree to provide all such identity verification document when requested in order for the relevant checks to be carried out.

The Company, the Distributor and the Buddy DAO team do not and do not purport to make, and hereby disclaims, all representations, warranties or undertaking to any entity or person (including without limitation warranties as to the accuracy, completeness, timeliness, or reliability of the contents of the Whitepaper or the Website, or any other materials published by the Company or the Distributor). To the maximum extent permitted by law, the Company, the Distributor, their respective affiliates and service providers shall not be liable for any indirect, special, incidental, consequential or other losses of any kind, in tort, contract or otherwise (including, without limitation, any liability arising from default or negligence on the part of any of them, or any loss of revenue, income or profits, and loss of use or data) arising from the use of the Whitepaper or the Website, or any other materials published, or its contents (including without limitation any errors or omissions) or otherwise arising in connection with the same. Prospective acquirors of BDY should carefully

consider and evaluate all risks and uncertainties (including financial and legal risks and uncertainties) associated with the distribution of BDY, the Company, the Distributor and the Buddy DAO Finance team.

**BDY Token:** BDY are designed to be utilised, and that is the goal of the BDY distribution. In fact, the project to develop Buddy DAO Protocol would fail if all BDY holders simply held onto their BDY and did nothing with it. In particular, it is highlighted that BDY:

- (a) does not have any tangible or physical manifestation, and does not have any intrinsic value (nor does any person make any representation or give any commitment as to its value);
- (b) is non-refundable and cannot be exchanged for cash (or its equivalent value in any other digital asset) or any payment obligation by the Company, the Distributor or any of their respective affiliates;
- (c) does not represent or confer on the token holder any right of any form with respect to the Company, the Distributor (or any of their respective affiliates), or its revenues or assets, including without limitation any right to receive future dividends, revenue, shares, ownership right or stake, share or security, any voting, distribution, redemption, liquidation, proprietary (including all forms of intellectual property or licence rights), right to receive accounts, financial statements or other financial data, the right to requisition or participate in shareholder meetings, the right to nominate a director, or other financial or legal rights or equivalent rights, or intellectual property rights or any

other form of participation in or relating to Buddy DAO Protocol, the Company, the Distributor and/or their service providers;

(d) is not intended to represent any rights under a contract for differences or under any other contract the purpose or pretended purpose of which is to secure a profit or avoid a loss;

(e) is not intended to be a representation of money (including electronic money), security, commodity, bond, debt instrument, unit in a collective investment scheme or any other kind of financial instrument or investment;

(f) is not a loan to the Company, the Distributor or any of their respective affiliates, is not intended to represent a debt owed by the Company, the Distributor or any of their respective affiliates, and there is no expectation of profit; and

(g) does not provide the token holder with any ownership or other interest in the Company, the Distributor or any of their respective affiliates.

Notwithstanding the BDY distribution, users have no economic or legal right over or beneficial interest in the assets of the Company, the Distributor, or any of their affiliates after the token distribution.

To the extent a secondary market or exchange for trading BDY does develop, it would be run and operated wholly independently of the Company, the Distributor, the distribution of BDY and Buddy DAO Protocol. Neither the Company nor the Distributor will create such secondary markets nor will either entity act as an exchange for BDY.

**Informational purposes only:** The information set out herein is only conceptual, and describes the future development goals for Buddy DAO Protocol to be developed. In particular, the project roadmap in the Whitepaper is being shared in order to outline some of the plans of the Buddy DAO Finance team, and is provided solely for **INFORMATIONAL PURPOSES** and does not constitute any binding commitment. Please do not rely on this information in deciding whether to participate in the token distribution because ultimately, the development, release, and timing of any products, features or functionality remains at the sole discretion of the Company, the Distributor or their respective affiliates, and is subject to change. Further, the Whitepaper or the Website may be amended or replaced from time to time. There are no obligations to update the Whitepaper or the Website, or to provide recipients with access to any information beyond what is provided herein.

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# Buddy DAO

The first guarantor based DeFi lending protocol

v4 February 26, 2022 trinity@buddydao.io

For terminology definitions please find the number associated with the word under the Bibliography – Definitions section.

## **Abstract:**

A core limitation of current crypto lending protocols is that they require overcollateralization with crypto, which prevents the vast majority of borrowers in the world from participating. By incorporating the guarantors, the Buddy DAO protocol creates a way for borrowers to show creditworthiness based on their relationship with the guarantors. Guarantors know who the borrowers are and can leverage many off-chain data to guarantee the loans.

By adding a guarantor for each borrower, the protocol dramatically expands both the potential borrowers who can access crypto and the potential capital providers who can gain exposure. Any borrower can get loans in seconds as long as he or she finds a guarantor with crypto assets.

## Introduction

The Buddy DAO Protocol is designed to enable guarantor based lending on [Binance Smart Chain](#). The Buddy DAO Protocol is inspired by Goldfinch, trufi, maple and teller. Borrowers need money, but they might not have a credit history, yet they have something more powerful, a relational history. Buddy DAO can leverage on. Buddy DAO gives everyone, including the unbanked, an opportunity to take an immediate loan, but leveraging their personal relationships. Buddy DAO can

leverage borrowers' off-chain personal relationship with guarantors and enable them to have access to credit from lenders all over the world.

## Problems

### Current Problems with DeFi Finance

DeFi has been growing exponentially in recent years. TVL has grown from \$5Bill TVL in 8/2020 to \$200Bill TVL today. We see this trend will continue but there are many issues. One main issue is that most defi loans need to be over collateralized. That means, if a borrower wants to borrow \$1, he or she needs to put down more than \$1 worth of digital assets such as Bitcoin as collateral. This is like the old days of a pawn shop.



If we think about it, our existing bank and financial system does not work that way. Those creditworthy individuals get credit from banks without putting down any collateral. We believe the same thing will happen in the defi world one day.

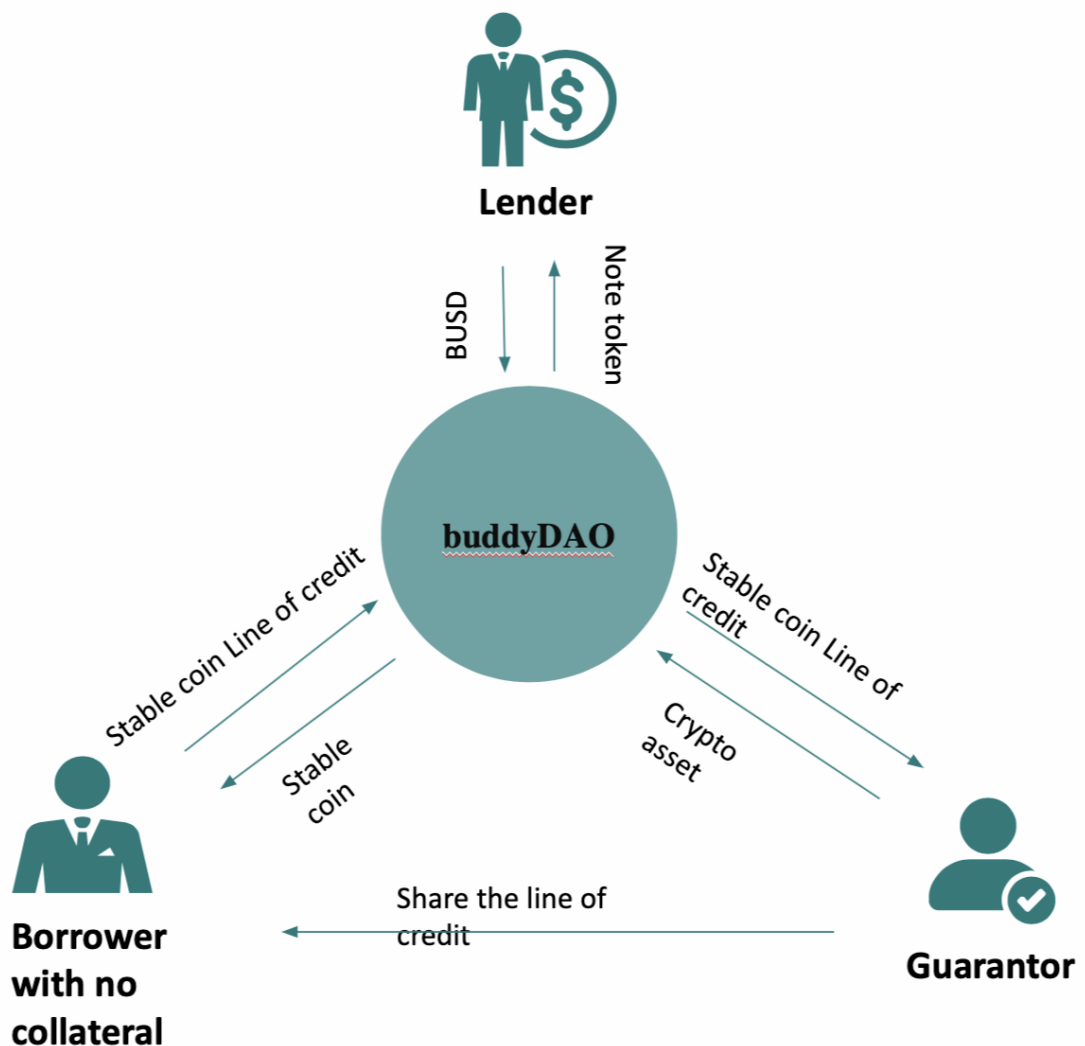
Solution - Uncollateralized loan with a crypto buddy.

The solution for over-collateralized loans is to offer uncollateralized loans. Relationship based underwriting is nothing new in the TradFi world. Buddy DAO is porting what's working on TradFi to DeFi. This will allow everyone to participate and get loans in seconds. The main issue

is that there is not enough on chain data such as credit scores for lenders to decide the default rate for a given borrower. We, Buddy DAO, propose a solution by having a borrower to bring along a guarantor. This guarantor knows the borrower and he certainly has a lot of off-chain data about the borrower and should be able to predict the borrower's creditworthiness. As the protocol does more and more loans, we can have on-chain data to analyze each borrower and the role of guarantor will become less significant.

## Protocol Architecture

There are three types of users who can interact with the Buddy DAO Protocol: borrowers, lenders, and guarantors.





- There are 3 types of users –
  - Borrower: ask guarantor to join BuddyDAO and apply for a line of credit in stable coin.
  - Lender: Deposits stablecoins into the buddy DAO protocol and gets BNote tokens in return. BNote token can be redeemed as stablecoin at loan maturity or Lender can sell the BNote token in DEX to get stablecoins back.
  - Guarantors: Deposits crypto assets such as Bitcoin and get a credit line back. This credit line can be extended to the borrower to draw funds (stablecoin)

# Implementation & Architecture

## The Buddy DAO Smart Contract

### Building Blocks

- The Buddy DAO contract: work with the BSC smart chain and Chainlink chain, to fulfill borrow/lend functionalities
- HTML Pages: including html pages, css, images which will be shown on the user's browser, support the user to do the process
- Javascript code : code which runs on the user's browser and get the input from HTML pages, and call wallet plugin to work with the Buddy DAO contract

Other building block we will use but not implemented by us:

- Price contract: runs on the Chainlink chain to provide the updated price for the coin
- BSC Dataservice: in the ethernet, it is infura, and for BSC, it is dataservice provided by Bianca.

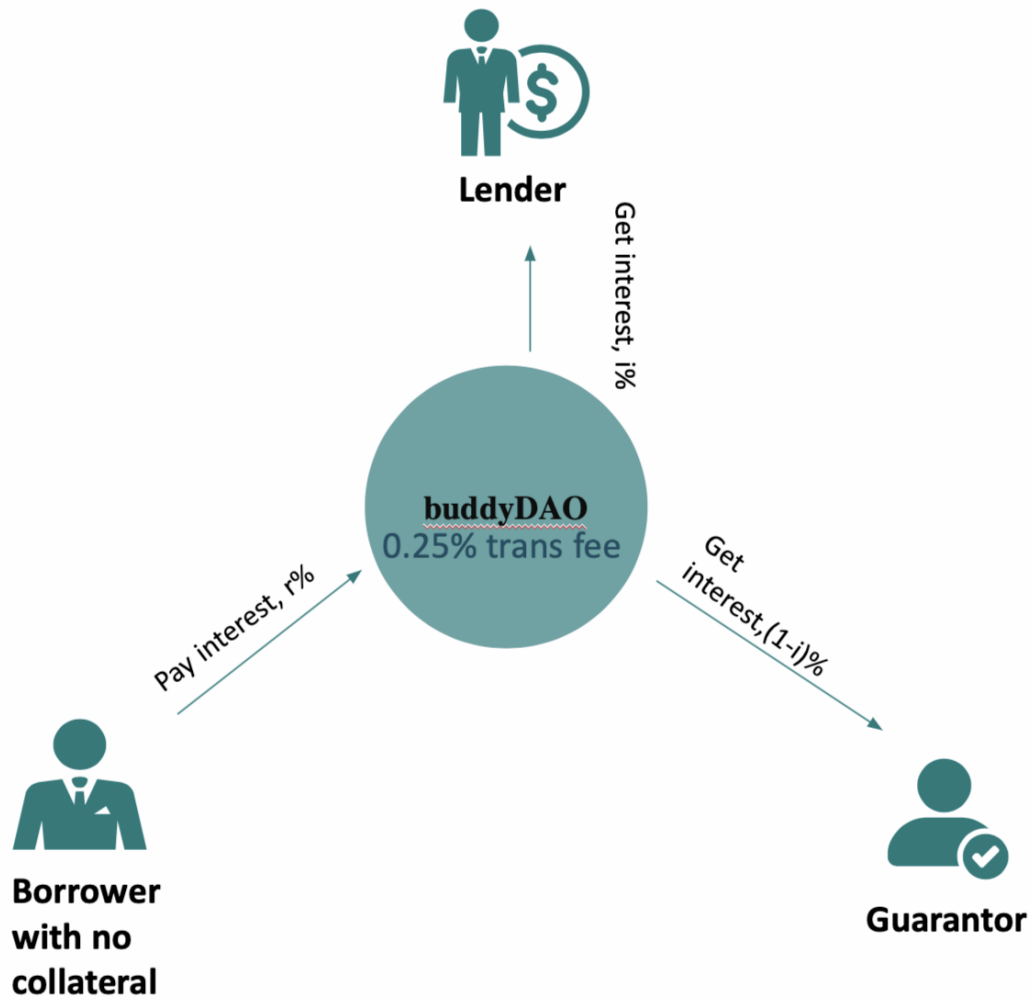
### Alpha Version Implementation

In the alpha version, the Buddy DAO protocol will support 4 crypto assets: BCTB, BNB as collateral and BUSD, USDT, as stablecoins. Users can deposit BUSD and USDT as collateral to generate bNote tokens. Users can use their Metamask wallet to interact with the Buddy DAO Protocol for alpha.

Here is an example:

Borrower Bob wants to get a stable coin loan to fund his small business. He does not have any crypto assets, however, he has a friend who bought bitcoin since 2014. His name is Gary. Gary is crypto rich but cash poor. Borrower Bob goes to Gary to invite him to be his guarantor. Gary deposits 1 Bitcoin into the Buddy DAO protocol. In return, Guarantor Gary got a line of credit of 0.5 Bitcoin worth of stablecoin. Since Guarantor Gary knows Borrower Bob well, he extends his line of credit to Bob and limits it to 0.1 Bitcoin. At any given time, Borrower Bob can borrow upto 0.1 Bitcoin with a stable coin with no collateral required. All Borrower Bob needs to do is to pay weekly interest in stablecoin to Buddy DAO and Buddy DAO will distribute interest payment to guarantor Gary and Lender Alice.

Like most defi lending protocols, there is a margin ratio where liquidation may happen. Lender Alice will deposit stablecoin and get interest payment in stablecoin. She can potentially lose money if crypto assets drop too fast and the protocol does not sell the crypto asset fast enough. Assuming collateralization is 200% and margin ratio is 120%. That means for each \$1 credit Guarantor Gary received, he has to put in \$2 worth of Bitcoin. If bitcoin value drops from \$2 to \$1.2, liquidation happens. If buddy DAO does not sell fast enough and all the sudden, bitcoin value drops to below \$1. The protocol will not have enough stablecoin to return to Lender Alice. In that case, Lender Alice can lose money.



Borrower Bob pays  $r\%$  interest.  
Lender Alice gets  $i\%$  interest.  
Guarantor Gray gets  $(1-i\%)$  interest.

## Risk for Guarantor

Like all loans, there will be default. For uncollateralized consumer loans, default rate can be as high as 20%. To ensure guarantors return, the interest rate he is charging has to be higher than the default rate. Also, his effective return will need to include the default rate as consideration:

$$\sum_{a}^b \text{Effective IRR } \alpha = \text{Interest rate } \beta - \text{Default rate } \theta$$

For all loans from a to b which a given guarantor guarantees.

Therefore, in order for the guarantor to have a positive return:

$$\beta \geq \theta$$

## Governance

Buddy DAO Protocol is empowered by BDY Token, a governance token to guarantee and incentivize the improvement of the protocol over time.

On-chain governance is designed to bootstrap the long term sustainability and prosperity of the Buddy DAO Protocol, driven by the buddy DAO governance token BDY. At genesis, 10,000 BDY tokens will be minted to economically incentivize community participation. They shall be distributed with different airdrops.

The BDY tokens fuels the Buddy DAO governance mechanism and can be staked in on-chain voting for improvement proposals. Governance features include:

- Adding new crypto assets or stablecoins to the protocol
- Adjusting variable interest rates for all markets
- Adding a new market for different maturity

- Voting on protocol improvements/proposals
- Delegate protocol reserve distribution schedules

In Alpha, a certain amount of BDY tokens will be allocated to all borrowers, lenders, and guarantors as rewards to boost initial liquidity. The amount will be adjusted according to the market condition. If there are more borrowers than lenders, more reward shall be given to lenders. If there are more lenders than borrowers, more reward shall be given to the borrowers. The BDY rewards will be accumulated over the day and can be claimed at the end of the day. It is the foundation goal to make Buddy DAO fully decentralized and autonomous. Like the Bitcoin, the TCP/IP, and the DNS protocol, the Buddy DAO protocol upgrade decisions shall be made by the community and it shall be fully decentralized.

## Conclusion

The Buddy DAO Protocol is designed to be the first guarantor based DeFi lending protocol. It enables all borrowers to get loans in seconds. Unlike compound or aave or most of the defi lending protocol, borrowers do not need to deposit collateral to borrow. The alpha version will first run the Binance Smart Chain for low gas fee and fast confirmation time. This enables the creation of a scalable lending market completely governed by the community through its governance token BDY.

## Bibliography

### References

1. Compound Protocol, *whitepaper written by Robert Leshner and Geoffrey Hayes*, February 2019: <https://compound.finance/documents/Compound.Whitepaper.pdf>
2. MakerDAO and DAI, *whitepaper written by Maker Foundation Team*, December 2017: [https://makerdao.com/whitepaper/DaiDec17WP .pdf](https://makerdao.com/whitepaper/DaiDec17WP.pdf)
3. DeFi Pulse, *Maker, Value Locked*: <https://defipulse.com/maker>
4. Binance Smart Chain: <https://www.binance.org/en#smartChain>
5. Goldfinch white paper: [https://goldfinch.finance/goldfinch\\_whitepaper.pdf](https://goldfinch.finance/goldfinch_whitepaper.pdf)
6. COMP Token Governance, *Robert Leshner*, February: <https://medium.com/compound-finance/compound-governance-5531f524cf68>
7. CeFi definition example: <https://www.leewayhertz.com/defi-vs-cefi/>

8. YouTuber Finematics – Lending and Borrowing in DEFI Explained:  
<https://www.youtube.com/watch?v=aTp9er6S73M>

## Definitions

1. Binance Smart Chain – is a network layer block chain that has smart contract functionality, runs parallel to Binance Chain, and has compatibility with the Ethereum Virtual Machine (EVM). It is an independent blockchain that could run even if Binance Chain went offline.
  - a. <https://academy.binance.com/en>
2. Protocols – in crypto are basic set of rules that allow data to be shared between computers. For cryptocurrencies, they establish the structure of the blockchain – the distributed database that allows digital money to be securely exchanged on the internet. They also define the rules which dictate when a new block on the blockchain is created.
  - a. <https://www.coinbase.com/learn/crypto-basics/what-is-a-protocol>
3. Ethereum – Ethereum is a decentralized, open-source blockchain with smart contract functionality. Ether (ETH) is the native cryptocurrency of the platform. After Bitcoin, it is the second-largest cryptocurrency by market capitalization.[1] Ethereum is the most actively used blockchain.
  - a. <https://en.wikipedia.org/wiki/Ethereum>
4. Stablecoins – Stablecoins are cryptocurrencies that attempt to peg their market value to some external reference. Stablecoins may be pegged to a currency like the U.S. dollar or to a commodity's price such as gold.
  - a. <https://www.investopedia.com/terms/s/stablecoin.asp>
5. APY - stands for annual percentage yield. It takes into account the interest rate and compounding period to give you a single number that represents how much you will earn from that investment in one year.
  - a. <https://www.depositaccounts.com/blog/understanding-interest-rate-and-apy.html>
6. DeFi - Decentralized finance is a blockchain-based form of finance that does not rely on central financial intermediaries such as brokerages, exchanges, or banks to offer traditional financial instruments, and instead utilizes smart contracts on blockchains, the most common being Ethereum.
  - a. [https://en.wikipedia.org/wiki/Decentralized\\_finance](https://en.wikipedia.org/wiki/Decentralized_finance)
7. Liquidity Pools – are crypto assets that are kept together to facilitate the trading of trading pairs (borrowing to lending, vice versa) on decentralized exchanges. The liquidity pool are pools of tokens locked in smart contracts that provide liquidity in decentralized exchanges in an attempt to attenuate the problems caused by the illiquidity typical of such systems. Liquidity pools are also the name given to the intersection of orders which create price levels that once reached – see the asset decide whether to continue to move in upward or downward.
  - a. <https://coinmarketcap.com/alexandria/glossary/liquidity-pool>

8. CeFi - In centralized finance (CeFi), all crypto trade orders are handled through a central exchange. Funds are managed by specifically running the central exchange. It means you don't own a private key that provides you access to your wallet and also, you are subject to the rules set by the centralized exchange.
  - a. <https://www.leewayhertz.com/defi-vs-cefi/>
9. KYC – The Know Your Client or Know Your Customer is a standard in the investment industry that ensures investment advisors know detailed information about their clients' risk tolerance, investment knowledge, and financial position. KYC protects both clients and investment advisors.
  - a. <https://www.investopedia.com/terms/k/knowyourclient.asp>
10. Smart Contract – A smart contract is a computer program or a transaction protocol which is intended to automatically execute, control or document legally relevant events and actions according to the terms of a contract or an agreement.
  - a. [https://en.wikipedia.org/wiki/Smart\\_contract](https://en.wikipedia.org/wiki/Smart_contract)
11. Dai – Dai is a stablecoin cryptocurrency which aims to keep its value as close to one United States dollar as possible through an automated system of smart contracts on the Ethereum blockchain. It was created by MakerDAO.
  - a. [https://en.wikipedia.org/wiki/Dai\\_\(cryptocurrency\)](https://en.wikipedia.org/wiki/Dai_(cryptocurrency))
12. USDC – USDC represents fiat, or government money, on the blockchain. It is redeemable on a 1:1 basis for U.S. dollars, issued by regulated financial institutions and backed by fully reserved assets which are audited by accounting firm Grant Thornton LLP every month.
  - a. <https://www.coindesk.com/price/usd-coin>
13. ETH – stands for Ether, Ether is the solution to the issue of payment—a digital asset-bearer like a bond or other security. You can call it the cryptocurrency of the Ethereum network. Just like cash, it doesn't require a third party to process or approve transactions.
  - a. <https://www.investopedia.com/tech/what-ether-it-same-ethereum/>
14. BUSD – is a stablecoin provided by Binance developed in partnership between Binance and Paxos. It is backed 1:1 by US Dollars.
  - a. <https://www.paxos.com/busd/>