PRACTICAL – 1

AIM: To Study different crypto-currencies.

- **Cryptocurrency:**

➔ A cryptocurrency is a digital currency, which is an alternative form of payment created using encryption algorithms. The use of encryption technologies means that cryptocurrencies function both as a currency and as a virtual accounting system.
➔ To use cryptocurrencies, you need a cryptocurrency wallet. These wallets can be software that is a cloud-based service or is stored on your computer or on your mobile device.
➔ The wallets are the tool through which you store your encryption keys that confirm your identity and link to your cryptocurrency.
➔ Cryptocurrencies are almost always designed to be free from government manipulation and control—although, as they have grown more popular, this foundational aspect of the industry has come under fire.
➔ There are now 20,268 cryptocurrencies in circulation. However, many of these are inactive or completely worthless.

➔ **Top 10 Cryptocurrencies are listed below**

1. Bitcoin (BTC)
2. Ethereum (ETH)
3. Tether (USDT)
4. Binance Coin (BNB)
5. Cardano (ADA)
6. Solana (SOL)
7. Dogecoin (DOGE)
8. Shiba Inu (SHIB)
9. Polygon (MATIC)
10. Litecoin (LTC)

1. **Bitcoin (BTC)**

➔ BTC Crypto Type: Token

➔ Market Cap : $410,202,265,385

➔ Bitcoin in the clear leader in the crypto sector. It is also the very first cryptocurrency. Bitcoin launched in 2009; created by a person (or possibly a group) that goes by the pseudonym Satoshi Nakamoto. As of June 2022, there are slightly more than 19 million Bitcoin tokens in circulation, against a capped limit of 21 million. Almost a thousand new bitcoins are mined each day, bringing Bitcoin ever closer to its maximum finite number.

➔ Bitcoin was designed to be independent of any government or central bank. Instead, it relies on blockchain technology, a decentralized public ledger that contains a digital record of every Bitcoin transaction. Bitcoin established the basic system of cryptography and consensus — i.e., peer-to-peer (P2P) verification — that is the foundation of most forms of crypto today.

➔ As a reminder, a P2P network structure in blockchain technology is generally decentralized and designed to operate in the best interest of all parties involved, as opposed to benefitting a centralized entity primarily. A peer-to-peer blockchain network connects different computers (or nodes) together, so they can function in unison. Ideally, P2P platforms are censorship resistant, open, public networks, which allow important data and other functionalities to be shared.

➔ Bitcoin miners use powerful computers to verify blocks of transactions and generate more bitcoins. Bitcoin mining uses a complex, time-consuming process called proof of work (PoW). The transactions are logged permanently on the blockchain — which helps to validate and secure each bitcoin and the network as a whole. Recently, the vast amount of energy required to create Bitcoin has raised concerns about environmental pollution.

2. **Ethereum (ETH)**

➔ ETH Crypto Type: Token

➔ Market Cap : $150,833,549,828

Original author(s)	Vitalik Buterin Gavin Wood
Developer(s)	Ethereum Foundation, Hyperledger, Nethermind, OpenEthereum, EthereumJS, ConsenSys, Prysmatic Labs, Sigma Prime, Status, ChainSafe, Ledgerwatch
Initial release	30 July 2015; 7 years ago
Stable release	London-Bellatrix[1] / 6 September 2022; 5 days ago
Development status	Active
Software used	EVM 1 Bytecode
Written in	Go, Rust, C#, C++, Java, Python, Nim, TypeScript

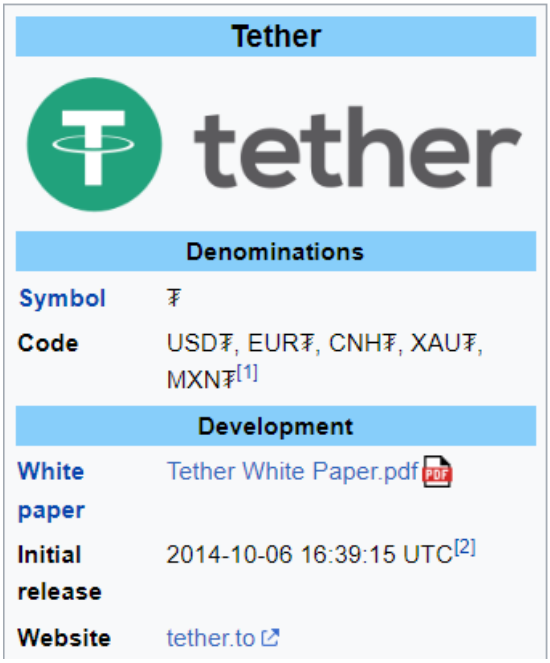
➔ Ethereum is a blockchain network. But Ethereum was designed as a programmable blockchain meaning it wasn't created to support a currency, but rather to enable the network's users to create, publish, monetize, and deploy decentralized applications (dApps). Ether (ETH), the native Ethereum currency, was developed as a form of payment on the Ethereum platform. It might be helpful to think of ETH as a kind of fuel that powers the Ethereum blockchain. Ethereum has helped to launch many initial coin offerings because many ICOs are built on the Ethereum blockchain. Ethereum has also been the blockchain behind the boom in non-fungible tokens (NFTs).

➔ Many people often directly compare Ethereum and Bitcoin against each other. In reality, Bitcoin and Ethereum are designed to achieve different goals, and in many ways can be regarded as complementary forces. Bitcoin is a peer-to-peer digital cash network, which facilitates transactions without the need for a central authority. This novel network architecture has paved the way for the complex blockchain ecosystem that we have today. Ethereum, often referred to as the world computer, iterates on Bitcoin's technology while introducing smart contracts. Smart contracts allow for building dApps that span a broad range of crowdfunding platforms, financial instruments, digital games and collectibles, and decentralized marketplaces. As of June 2022, Ether was the number two virtual currency, behind Bitcoin. Also like BTC, ETH is generated using a PoW system. But unlike Bitcoin, there is no limit to the number of ETH that can be created.

3. Tether (USDT)

➔ USDT Crypto Type: Stablecoin

➔ Market Cap : $66,837,248,865



➔ Tether was the first cryptocurrency marketed as a stablecoin — a breed of crypto known as fiat-collateralized stablecoins. The value of the tether is pegged to a fiat currency — in this case, the U.S. dollar. Tether is the world's largest stablecoin; in 2022, the majority of cryptocurrencies traded using tether.

➔ Like other stablecoins, tether is designed to offer stability, transparency, and lower transaction fees to users. Tether was not meant to be a speculative investment like some cryptocurrencies; originally, investors who wanted to avoid the extreme volatility of the crypto market used USDT. Tether is pegged to the U.S. dollar (which is why the ticker is USDT), and it allegedly maintains a 1:1 value with the dollar, although this claim has come under some scrutiny.

➔ Many believe that Tether is the lifeblood of the crypto ecosystem. They're concerned that if Tether implodes, then the entire system would crash. In May 2022, that's exactly what happened: Tether lost its peg to the dollar briefly, and all cryptocurrencies plummeted. In part, this was a result of another stablecoin, terraUSD (USD) falling below 30 cents. The wave of panic in the broader crypto market was palpable. Because of this crash, many crypto investors tried to redeem their tethers, others tried to exit the asset class altogether, and many lost their investments.

4. **Binance Coin (BNB)**

➔ BNB Crypto Type: Coin

➔ Market Cap : $39,135,965,106

➔ Binance is one of the world's biggest cryptocurrency exchanges. The Binance Coin (BNB) was created as a utility token for use as a medium of exchange on Binance. It was initially built on the Ethereum blockchain, but now lives on Binance's own blockchain platform. Originally, BNB allowed traders to get discounts on trading fees on Binance, but now it also can be used for payments, to book travel, for entertainment, online services, and financial services.

➔ As one of the top five cryptocurrencies by market cap in 2022, BNB has developed a wide range of use cases and real-world applications. But, as with other digital assets, this crypto platform has also faced regulatory hurdles here and abroad.

➔ BNB was created with a maximum of 200 million tokens, about half of which were made available to investors during its ICO. Every quarter, to drive demand, Binance buys back and then "burns" — permanently destroys, or removes from circulation — some of the coins it holds. A project burns its tokens to reduce the overall supply. The motivation is often to increase the value of the remaining tokens, as assets tend to rise in price whenever the circulating supply falls, and they become more scarce.

5. Cardano (ADA)

➔ ADA Crypto Type: Token

➔ Market Cap : $16,833,937,441

CARDANO	
Original author(s)	Charles Hoskinson
Developer(s)	Cardano Foundation, IOHK, EMURGO
Initial release	27 September 2017 (4 years ago)[1]
Stable release	1.34.1 / 7 March 2022 (5 months ago)[2]
Development status	Active
Written in	Haskell
Operating system	Cross-platform
Type	Distributed computing
License	Apache License
Active hosts	4,672[3]
Website	cardano.org

➔ Cardano is a Proof-of-Stake blockchain platform with smart contract functionality. In particular, Cardano is noted for its focus on academic research, high transactions-per-second (TPS) throughput, and an energy-efficient consensus mechanism called Ouroboros. ADA, the native coin of the Cardano network, is used to facilitate transactions and execute smart contracts.

➔ Cardano bills itself as a third-generation blockchain platform, to cast itself as a next-level player. Cardano relies on proof of stake (PoS), which means that the complicated PoW calculations and high electricity usage required for mining coins like Bitcoin aren't necessary. This potentially makes Cardano's network more efficient and sustainable than some other crypto networks.

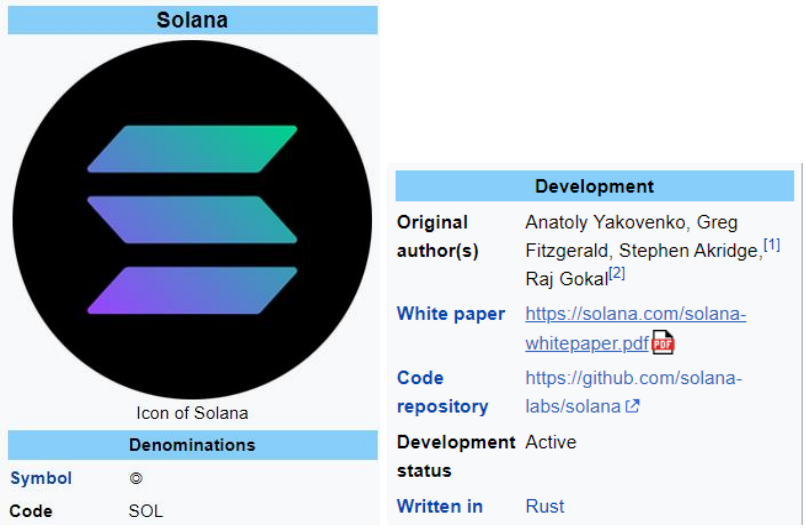
➔ Cardano's cryptocurrency is called ADA, after Ada Lovelace, a 19th-century mathematician. Cardano's main applications are in identity management and traceability. The first application can be used to streamline the collection of data from multiple sources. The latter can be used to audit a product's manufacturing path, and potentially prevent fraud and counterfeit goods.

➔ Cardano is being built in five phases toward achieving its goal of developing the network into a decentralized application (dApp) platform with a multi-asset ledger and verifiable smart contracts.

6. Solana (SOL)

➔ SOL Crypto Type: Token

➔ Market Cap : $14,504,821,341



➔ Solana is a blockchain platform that generates the cryptocurrency, Sol. Solana has made strides in decentralized finance (DeFi) and specifically with its smart contract technology programs that run on the platform according to preset conditions. Smart contracts are similar to paper contracts, but without the middlemen. Solana was also behind the Degenerate Ape Academy, an NFT launched in August 2021. One of the essential innovations Solana brings to the table is its proof-of-history (PoH) consensus. This mechanism allows for greater scalability of the protocol, which in turn boosts usability.

➔ SOL is designed to facilitate the creation of dApps. It aims to improve scalability by introducing a proof-of-history (PoH) consensus combined with the underlying proof-of-stake (PoS) consensus of the blockchain.

➔ Because of the innovative hybrid consensus model, Solana enjoys interest from small-time traders and institutional traders alike. A significant focus for the Solana Foundation is to make decentralized finance accessible on a larger scale.

➔ Solana is known to have an incredibly short processing times. SOL's hybrid protocol allows for significantly decreased validation times for both transaction and smart contract execution. With lightning-fast processing times, Solana has attracted a lot of institutional interest as well. The Solana protocol is intended to serve both small-time users and enterprise customers alike. One of Solana's main promises to customers is that they will not be surprised by increased fees and taxes. The protocol is designed in such a way as to have low transaction costs while still guaranteeing scalability and fast processing.

7. Dogecoin (DOGE)

➔ DOGE—Crypto Type: Altcoin, Meme Coin

➔ Market Cap : $9,088,298,080

➔ Dogecoin (pronounced dohj-coin) is widely known as the first joke cryptocurrency; it was launched in 2013 as a way to poke fun at Bitcoin. Nonetheless, the currency captured people's attention and a fair amount of investment. In April 2019, a tweet from Elon Musk indicated he had a positive view of Dogecoin, which further raised Dogecoin's profile as a legitimate cryptocurrency.

➔ Dogecoin is an altcoin similar to Bitcoin and Ethereum in that it runs on a blockchain network using a PoW system. But the number of coins that can be mined are unlimited (versus the 21 million-coin cap on Bitcoin).

➔ Dogecoin has been used primarily as a tipping system on Reddit and Twitter to reward the creation or sharing of quality content. You can get tipped Dogecoin by participating in a community that uses the digital currency, or you can get your Dogecoin from a Dogecoin faucet. A Dogecoin faucet is a website that will give you a small amount of Dogecoin for free as an introduction to the currency, so that you can begin interacting in Dogecoin communities.

➔ Dogecoin is also associated with some headline moments in crypto — for example, investors paid the equivalent of about $30,000 in Dogecoin to help send the Jamaican bobsled team to the Winter Olympics in 2014. Despite its place as one of the biggest coins by market cap, DOGE trades at one of the lowest prices: $0.072 cents, as of June 25, 2022.

8. Shiba Inu (SHIB)

➔ SHIB Crypto Type: Altcoin, Meme Coin

➔ Market Cap : $6,475,986,264

Shiba Inu	
 Shiba Inu logo	
Code	SHIB
Development	
Original author(s)	"Ryoshi"[1]
White paper	Shibu Inu Ecosystem
Initial release	August 2020; 2 years ago[1]
Development status	Active
Website	www.shibatoken.com
Valuation	
Market cap	US$12.5 billion

➔ Shiba Inu cryptocurrency (SHIB) is what's known as a "meme coin," or a cryptocurrency based on a meme. A meme coin is a cryptocurrency or crypto token based on a viral joke or cultural reference. Projects built around meme coins rely heavily on social media hype to attract new users/investors. Shiba Inu (SHIB) was inspired by Dogecoin (DOGE), the original meme coin created in 2014 that uses the image of a Shiba Inu dog, and which we discussed above.

➔ SHIB intends to be an alternative to Dogecoin or a "Dogecoin killer." Unlike DOGE, which has its own blockchain, SHIB runs on the Ethereum blockchain. One thing DOGE and SHIB both have in common, however, is that their supply is abundant. SHIB began with an initial circulating supply of one quadrillion coins. As with any investment vehicle, Shiba Inu crypto has both advantages and disadvantages. It also has value for a couple of reasons:

➔ There is a limited supply of SHIB. The SHIB coin was launched in 2020 with a fixed 1 quadrillion supply — nearly 50% of which has already been burned or donated — which has kept the market price low (one SHIB coin is worth a fraction of a penny). The cap on the number of coins has also given the price somewhere to go, if demand should rise.

➔ SHIB comes with attractive rewards. Shiba Inu has a system that can provide investors with passive income via rewards from staking — locking up crypto holdings to get rewards or earn interest — or depositing funds in a liquidity pool. This reward system intends to offer users the incentive to expend different coins on the network.

9. Polygon (MATIC)

➔ MATIC—Crypto Type: Token

➔ Market Cap (06/25/22): $4,804,705,995

➔ In early 2021, an Ethereum infrastructure project called Matic rebranded itself as Polygon. Polygon, which is designed for developers of Ethereum projects, works on the infrastructure of the Ethereum network or blockchain and develops products that make blockchain transactions faster and more secure.

➔ Before its relaunch as Polygon, the existing Matic project had more than 80 applications that did approximately 7 million transactions for around 200,000 users. So what is it about this cryptocurrency project and its associated token. Polygon and Matic before it have many goals, but one of their main objectives is to make Ethereum (ETH) and the Ethereum blockchain easier for developers to use. Ethereum was built to create applications and host smart contracts — agreements that can be validated and executed without the approval or action of a third party like a judge or lawyer.

➔ Matic's developers found that there were "scalability and user-experience issues," that had constrained mass adoption of the smart contracts and dApps. To resolve this, Matic decided to use sidechains to process apps and contracts on Ethereum. A sidechain is a separate blockchain that is attached to its parent blockchain using a two-way peg, which enables interchangeability.

➔ The sidechain fix was effective, as it could accomplish the project's goals without slowing down the entire network. Just like Ethereum transactions require gas paid in ether, the MATIC token would be the medium to pay transaction fees on the Matic network. The cryptocurrency sector took notice, and along with the newfound attention, Polygon (MATIC) also enjoyed a new round of credibility and funding.

10. Litecoin (LTC)

➔ LTC Crypto Type: Coin

➔ Market Cap: $4,162,336,685

Litecoin	
Official Litecoin logo	
Denominations	
Plural	Litecoins
Symbol	Ł
Code	LTC
Precision	10^{-8}
Subunits	
$1/1000$	lites,[1] millilitecoin, mŁ
$1/1000000$	microlitecoins, photons, μŁ
$1/100000000$	litoshis

Development	
Original author(s)	Charlie Lee
Initial release	0.1.0 / 7 October 2011; 10 years ago
Latest release	0.21.2.1[2] / 7 June 2022; 2 months ago
Code repository	github.com/litecoin-project/litecoin
Development status	Active
Project fork of	Bitcoin
Written in	C++
Operating system	Windows, OS X, Linux, Android

➔ Litecoin (LTC) is a cryptocurrency created in 2011 as one of the first altcoins (alternatives to bitcoin). Though it's built on bitcoin's original source code and shares certain features with BTC, LTC was designed to improve upon BTC, especially in terms of transaction speed. Though Litecoin was initially a popular entry into the crypto category, it has gained and lost value over time, displaying a similar volatility to many cryptocurrencies (or even certain stocks and bonds).

➔ Like many forms of crypto, Litecoin is a decentralized, peer-to-peer cryptocurrency; it was created from a fork in the Bitcoin blockchain, the transparent, digital public ledger used by most cryptocurrencies. Litecoin was designed to enable almost instant, near-zero cost payments that can be exchanged between people or institutions worldwide.

➔ As with Bitcoin, Litecoin uses a PoW consensus system to verify transactions on the blockchain, but owing to certain modifications it's considered a lighter, faster version of Bitcoin. The main difference between Litecoin and Bitcoin is that Litecoin uses a mining algorithm called scrypt, to enable faster transaction times.

➔ Litecoin generates a new block to be mined every 2.5 minutes, which is about four times faster than Bitcoin's 10 minutes. The Litecoin supply is also four times as great. While Bitcoin has a cap of 21 million coins, the Litecoin supply overall has a cap of 84 million.