**3)Requirements of DApps, Operations of DApps and Example of DApps:**

**What is DApps:**

•A decentralized application (dApp) is a type of distributed open source software application that runs on a

peer-to-peer (P2P) blockchain network rather than on a single computer.

●DApps are visibly similar to other software applications that are supported on a website or mobile device but are P2P supported.

●It enables users to engage in transactions directly with one another as opposed to relying on a central authority.

**Requirements:**

●For an application to be considered decentralized, it must meet the following criteria.

●The DApp should be fully open source and autonomous, and no single entity should be in control of a majority of its tokens. All changes to the application must be consensus-driven based on the feedback given by the community.

●Data and records of operations of the application must be cryptographically secured and stored on a public, decentralized blockchain to avoid any central points of failure.

●A cryptographic token must be used by the application to provide access and rewards

**Operations:**

●Decentralization offers various benefits over apps running on a centralized network.

●Chiefly is the lack of a third party, thanks to the innovative smart contract.

●An app like Venmo allows one to send money to anyone, however, moving those funds to a bank account costs a fee. Plus, moving fiat often takes days to arrive.

●Sending money over a decentralized app, however, means there aren't any or very little costs to be paid.

●This saves users money on fees, and considering decentralized transactions are almost instant, it saves them time as well.

●DApps don't run on centralized servers either. An advantage decentralized platforms have is they're invulnerable to all types of attacks, as there's no physical device to target.

●Not only does this make the network more secure, but it also means there's no downtime.

●Accessing these applications is always possible.

●DApps can also apply to almost any industry, such as gaming, medical, governance and even file storage.

●As a result, DApp usage is almost no different from traditional applications.

●While users benefit from all the changes on the backend, the actual experience should be the same.

●This way of interacting with applications is considered Web 3.0, also referring to the decentralization of information.

●Companies then have control over that information, know what their users like to buy, how much money they have and who they know.

●That control also means they can take it away. Enter Web 3.0, where DApp usage doesn't come at the cost of privacy.

●instead, a user can choose to share only required information for, say, a medical checkup or a loan, and choose who sees it and for how long.

●Companies might pay for this access as well, ensuring that the users also profit from it.

●There's also the problem of trust. In a world where large companies with so-called high security are leaking usernames, emails and passwords, it's hard to trust anyone completely.

**Drawbacks:**

●While decentralized applications might present a future free of corporations, there are currently some major issues that the industry is working to resolve.

●For one, the lack of a central authority might mean slower updates and platform changes. After all, one party can simply update their app as they please.

●A DApp, however, requires majority consensus from the acting governance — even for a minor bug fix. This could take weeks or even months as users debate the pros and cons of any improvement.

●Also, DApps require a reasonably-sized user base to operate properly. They need nodes, governance and users just to interact with it.

●However, accessing DApps can be quite difficult in this early stage, and many aren't seeing the support they

need.

- In the future, accessing a DApp might be a download away.

- But for now, users must download a DApp-supported browser, send the required crypto to that wallet and interact from there. While tech-savvy users should have no problem with this, the vast majority of people will have no idea where to start.

**Exmaples od DApps:**

BitTorrent, Tor, and Popcorn Time are applications that run on computers that are part of a P2P network, whereby multiple participants are consuming content, feeding or seeding content, or simultaneously performing both functions.

## 2)Block chain and full ecosystem decentralization:

🕐 In order to achieve complete decentralization, it is necessary that the environment around the blockchain is also decentralized.

🕐 Blockchain itself is a distributed ledger that runs on top of conventional systems. 🕐 These elements include storage, communication, and computation.

🕐 There are other factors, such as Identity and Wealth, that are traditionally based on centralized paradigms and there's a need to decentralize these aspects too in order to achieve a fully decentralized ecosystem.

🕐 A decentralized ecosystem surrounding blockchain technology is needed for full-solutions operations.

🕐The blockchain represents a decentralized transaction ledger that forms a part of a larger computing infrastructure, which must consist of several other functions, including communication, storage, archiving, and file serving.

🕐•When it comes to storage, the most obvious need might be a secure, off-chain, decentralized storage for files like Electronic Medical Records, or even something as simple as a Microsoft word document.

🕐•It is worth pointing out that file storage can either be decentralized - as in the blockchain - or centralized, like Google Drive.

🕐•The assets can be registered by blockchain transactions, including a pointer and access method and privileges.

🕐•When it comes to file serving, the InterPlanetary File System (IPFS) project has suggested an engaging technique, which can be tailored for decentralized file serving.

🕐•The IPFS represents the need for a worldwide accessible file system, which can provide a form of resolution to the issue of broken website links to files, beyond the idea of blockchain technology.

🕐•One of the major causes of concern today is cyber security. Over the past few years, the rate of cyberattacks has risen dramatically.

🕐•The safety of using blockchain is a major question in the minds of many people across the globe. Blockchain technology was initially introduced to support Bitcoin.

🕐•However, since then, it has gathered so much popularity across several industries. It is no strange fact that the influence of this blockchain is beyond cryptocurrencies.

🕐•The dramatic rise in blockchain recognition has brought up questions about its security and integrity. 🕐•The revolution in digital money is now moving into banking. If you did not know this then you need to visit Bitcoin Prime because they offer current updates in the crypto world.

🕐•You will find several top-rated companies across the globe adopting this technology. For this reason, it is only natural to be sure that this technology is up to the task.

🕐•The data structure that blockchain produces is worth mentioning, as well as its security features. This is based on cryptography and decentralization.

🕐•This encourages trust during any given transaction. The blockchain consists of blocks, which contain transactions.

🕐•The blocks are cryptographically connected in such a way that they are extremely hard to alter. Besides validating transactions, which are contained in the blocks, a consensus mechanism can also ensure that all transactions are correct.

🕐•Decentralization is possible since every member of the network contributes over a distributed network.

🕐•The popularity of blockchain has ensured that a wide variety of tasks can be solved.

🕐•In recent times, blockchains have become a key component that helps in setting up business processes.

🕐•Besides cryptocurrencies, Blockchain technology can be applied in workflow management, Internet-Of-Things networks, and more.

🕐•A number of businesses have found this technology a crucial component. Its high level of security can expose this technology to a great level of risk.

🕐•Besides, there is sensitive information about the assets of various users. This makes it important to have strong protection.

🕐•Furthermore, different blockchain networks vary in who can gain access to the data. The most common types of blockchain are either private or public.

🕐•The security measures vary with each type. While everyone is allowed to join a public blockchain network, only selected participants can engage in private blockchain networks.

🕐•However, regardless of the type of blockchain network, the anonymity of users' identities can be maintained.

D Methods of decentralisation in Block chain?

Ans) → Decentralisation states that a processes of producing own decission making ability to each and every block. without a support of any centralised block.

→ It helps in producing own decission making by taking prior data of blocks by P-2-P lending technology.

→ In Real time example our UPI transactions are based on decentralised transaction Request / accept phenomenon.

→ No other centralised data is collected for data organisation, only the block which is Requesting and accepting the data will have the entire proof of work.

Types of decentralised block chain):-

→ Traditional way of centralising (Fully centralised):-

* A system in which only one block acts as main block unit for data collection and pre processing.

* The block is known as master block for maintaining all data points and every small transaction made by blocks is maintained at central block.

→ This type of approach is mainly used for developement of banking applications.

→ Semi-decentralised :-

* In this model of decentralisation, one main block acts as data collection block.

* Some blocks of Parental Nodes which are highly connected with children nodes are made as Semi-decentralised master Nodes

* Semi-decentralised master Nodes are called Seconding master Nodes

* For each iteration of transactions the Secondry nodes transer data to master Blocks.

→ Complete Decentralised :-

→ In comple decentralised there will be NO centralised body acts as data collection unit

→ each and every blocks acts as own data collection and pre processing units

→ every block is responsible for each data Protection and data requiring for P-2-P Lending.

**\* Architectural decentralised!-**

→ Ans this type of decentralisation states that creating Architectural model for maintaing easy transaction of each and every block without data loss.

→ There won't be any central body, so every data will be processed in its block by itself, but to processes the data from other blocks they need to be interconnected

→ This is the main use of Architectural decentralised.

**\* political decentralised!-**

→ By the use of political decentralisation approach we can centralise upto a certain blocks where the data is being frequently transferred

→ For example, Bitcoin transaction
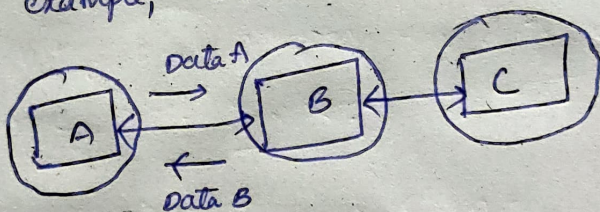


Data A
Data B
A    B    C

→ when Block A transfer data A to Block B, then Block A acts a main block, then it acts a main block, it the same way which Processes the Request (or) ack a query are made a set to make a decentralised body.

* **logical decentralised:-**

→ By the help of logical decentralised each and every block are coupled with another Block and form a data structure.

→ By the help of logical decentralisation the data is being transfered with least time complexity.

→ By this approach there will be No dataloss-