Assignment 2 :-

Q. Explain the properties of the blockchain and
Mention one property which you like the mos[t]

Ans:- Blockchain :- Blockchain is a chain of Blocks
containing information. Each Block has one input
from the previous block and thus it is chained.
It is a distributed ledger which is secure.

A distributed, secure file

☷ ledger   🔒 secure
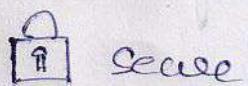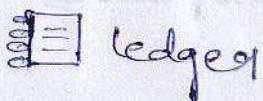
✓ Permanent   ! Immutable

⏱ chronical   ⅲ Constantly growing

The concept of a Block chain was first introduced
by Satoshi Nakamoto in 2008, in the midst of
the financial crisis, to serve as the leader for
Bitcoin, a purely peer-to-peer version of Electroni[c]
cash

①

Satoshi Nakamoto releases reference implementn — **2008**

2010 — MtGox launched

2013 — Blockchain 2.0.

2016 — DAPPs prolifeate

→ Blockchain 3.0

2009
Bitcoin launched
Blackchain 1.0

2011
Namecoin launched

2015
$ 1Brc investment
Ethereum launched
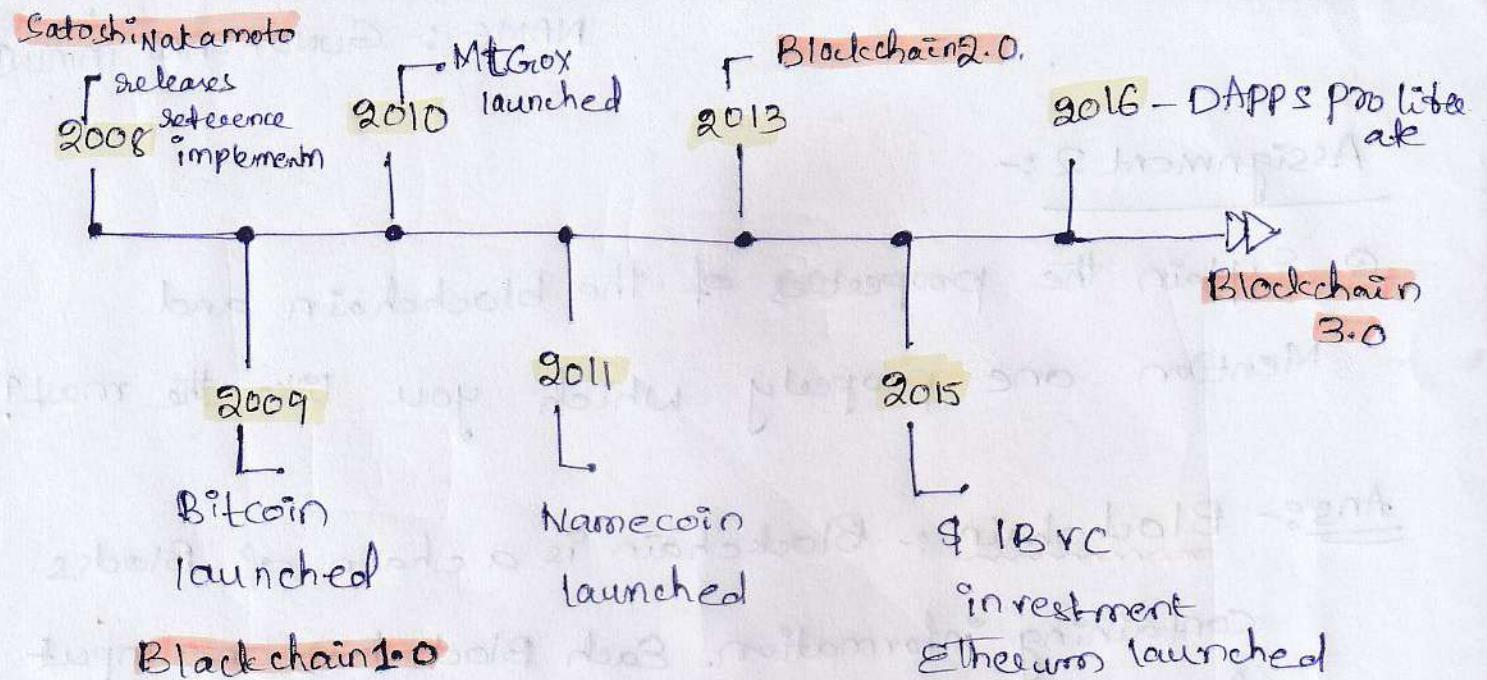
Bitcoin is the first Application of Blockchain

→ Blockchain is the technology Bitcoin, smart contract Ethereum all are applications of Blockchain technology that means they are leveraging properties of Blockchain,

Black chain 1.0 :-
___

• programable money — cryptocurriences

• Satoshi in his first paper discussed only about Blockchain's application in cryptocurrency and created Bitcoin in Jan 3, 2009

• Blockchain 1.0 is confined to Bitcoin
___

Black chain 1.0
___
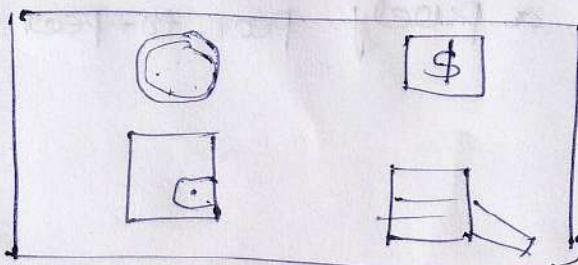
Digital currency Payment led by Bitcoin

②

Blockchain 2.0 :- Blockchain 2.0 is beyond programmable money

Blockchain 2.0 is beyond programable money

- Smart contracts
- Data protection solution based on Blockchain
- Blockchain as a platform - transparent trusted time stamping
- Innovation in conventional market
- Later in 2013 Vitalik Buterin comesup with an idea of applying Blockchain principles in various domains apart from financial. By 2015 vitalik and a group of programmers launched Ethereum, Which envisaged as platform for creating Blockchain applications, smart contracts, Smart property, Smart docs etc. These are all decentralized documents and contract codes using Blockchain technology running in Eitheeeum network

③

Blockchain 3.0 :-

Retail   Telecom   IOT

Healthcare   Insurance   Manu-facturing

Diverse and distruptive application is established Vertical Markets
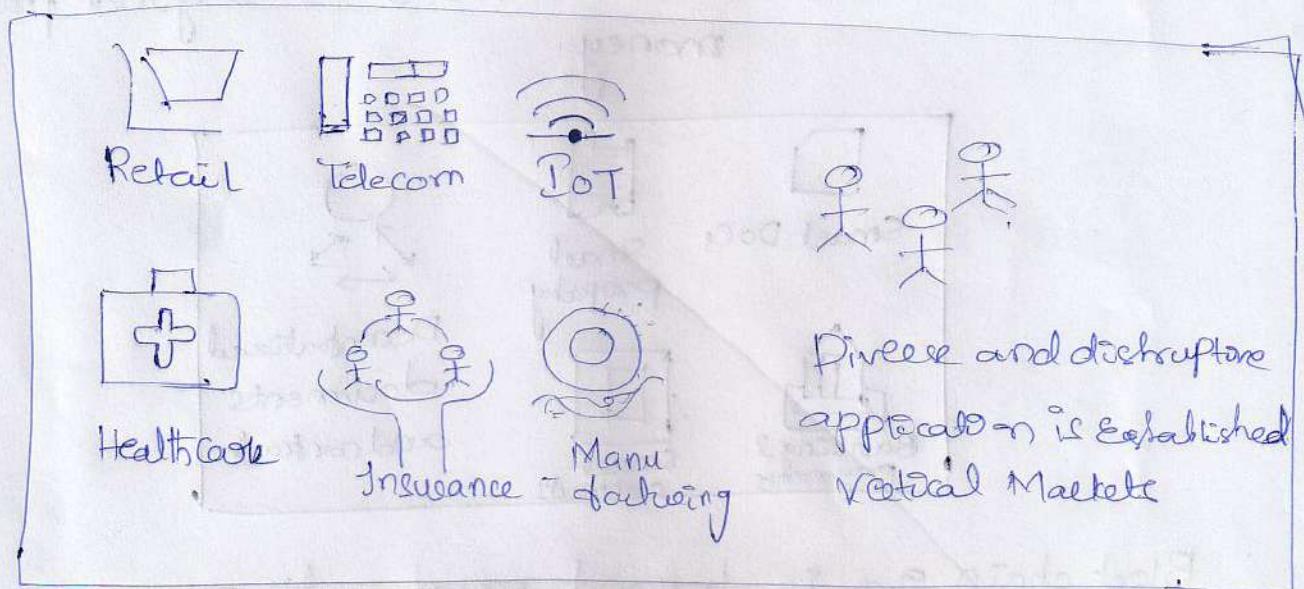
Block chain fininding application in every field.

- Decentralized Web

- Opportunities and challenges

- Expanding the application of Blockchain in all domains

    Examples:- healthcare, retail, manufacturing logistics, Insurance, IOT

Current centralized architecture of Internet created many issues, the Big 5 (Google, Microsoft, Apple Amazon and Facebook) handles most of the personal data.

Decentralized content delivery networks using Blockchain technology can guard against DDoS attacks. Using Smart contracts you can specify how your personal data can be used by others in the system.

④

Properties of Blockchain :

→ 1st property is that it guarantees immutability.

It means if you have stored data on the blockchain it is guaranteed that data cannot be changed later. This is very important when you want to trust something or when you want to make something more trustable. Because if Iam building an application and if I want to change data because Everything is my control, I can change the data and change the data in any way I want to. But with Blockchain, That is not possible.

→ The second property of blockchain is decentralized which means that no single entity as control.

Blockchain need as a group of nodes to be able to serve that work as points where all the data stored in decentralized manner And these nodes work together to make sure that correct provenance of data is maintained. Which means the correct timeline of data is maintained.

→ third property is that blockchains are timestamped by default. This means that it helps in a centralized manner. So, that helps, again in trying to see what data how the data has changed when some record was updated ⑤

who updated it on this kind of thing. so these properties are what make blockchain interesting.

## Block chain As A solution for the heath care sector

In general a block chain is defined as a distributed system which records and stores transcation records. Block chain more specifically is defined as " a shared immutable record of peer-to-peer transcations built from linked transcations blocks and stored in a digital ledger. " Blockchain is also similar to a database which stores information, however the main difference is that the data is located in a network of personel computers called nodes Where there is no central entity such as a goverement or bank controlling the data. Instead all the data is shared publicly although the contents of each data is only accessible to those with permission.
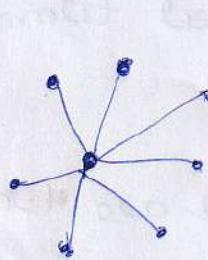
Centralized
Banks, government
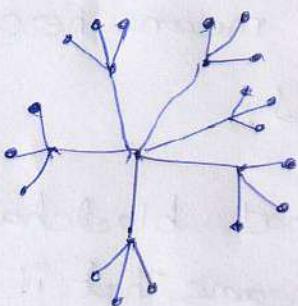
Decentralized
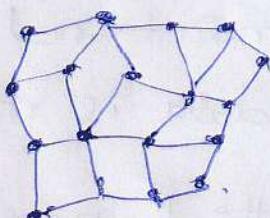
Distributed
(Blockchain)

⑥

Factors driving the blockchain market include

- Limited access to population health data.
- Inconsistent rules and permissions for accessing patient data
- Varying data standards which reduces interoperability as a consequence of common compatibility systems.
- Privacy and security such as confidentiality of protected health information and from hacking attacks
- Fraud and abuse
- Consumer engagement such in the form of disease and management and clinical outcome

Factors inhibiting the growth of the blockchain Market include

- Immature Infrastructure where most blockchain technology is untested and experimental
- High development costs.
- Patient-controlled data can be risky
- Scalability constraints in terms of trade off between volume of transcation and computer power for processing time of transcations

⑦

Opportunities for Health care in Blockchain

A block chain powered health Information Exchange could unlock the true value of interoperability Blockchain - based systems have the potential to reduce or eliminate the friction and costs of current intermediaries.

The promise of blockchain has widespread implications for Stakeholders in the health Care ecosystem. Capitalizing on this technology has the potential to connect fragment systems to generate insights and to better access the value of care

In the long term, a nationalwide blockchain network for Electronic medical records may improve Efficient and support better health outcomes for patients.

Block chain Answers for Common Industry Challenge

Healthcare Industry Challenge	Block chain Opportunities
1. fragmented Data	• Decentralized storage using Computer networks for patient data
	• Shared data across the network and nodes
	• Decentralized source of Internet of Things (IOT) data

2. Timely Access to patient Data

- Distributed, secure access to patient health data across the distributed ledger
- Shared data Enables real-time updates across the networks

3. System Interoperability

- Decentralized Internet and computer networks across geographics
- Enables authenticity (System authentication)

4. Data security

- Digitizing Data security of transcation - digital identity protects patient privacy.

5. patient generated data

- Data from Wearable devices (IOT) aggregated to provide holistic patient care.

6. Access and Data Consistency

- Smart Contracts create a consistent and rule based method for accessing and analyzing patient data that can be permissioned to selected health organizations.

7. cost Effectiveness

- Reduced transcation costs and real time processing to make the system more efficient.

⑨