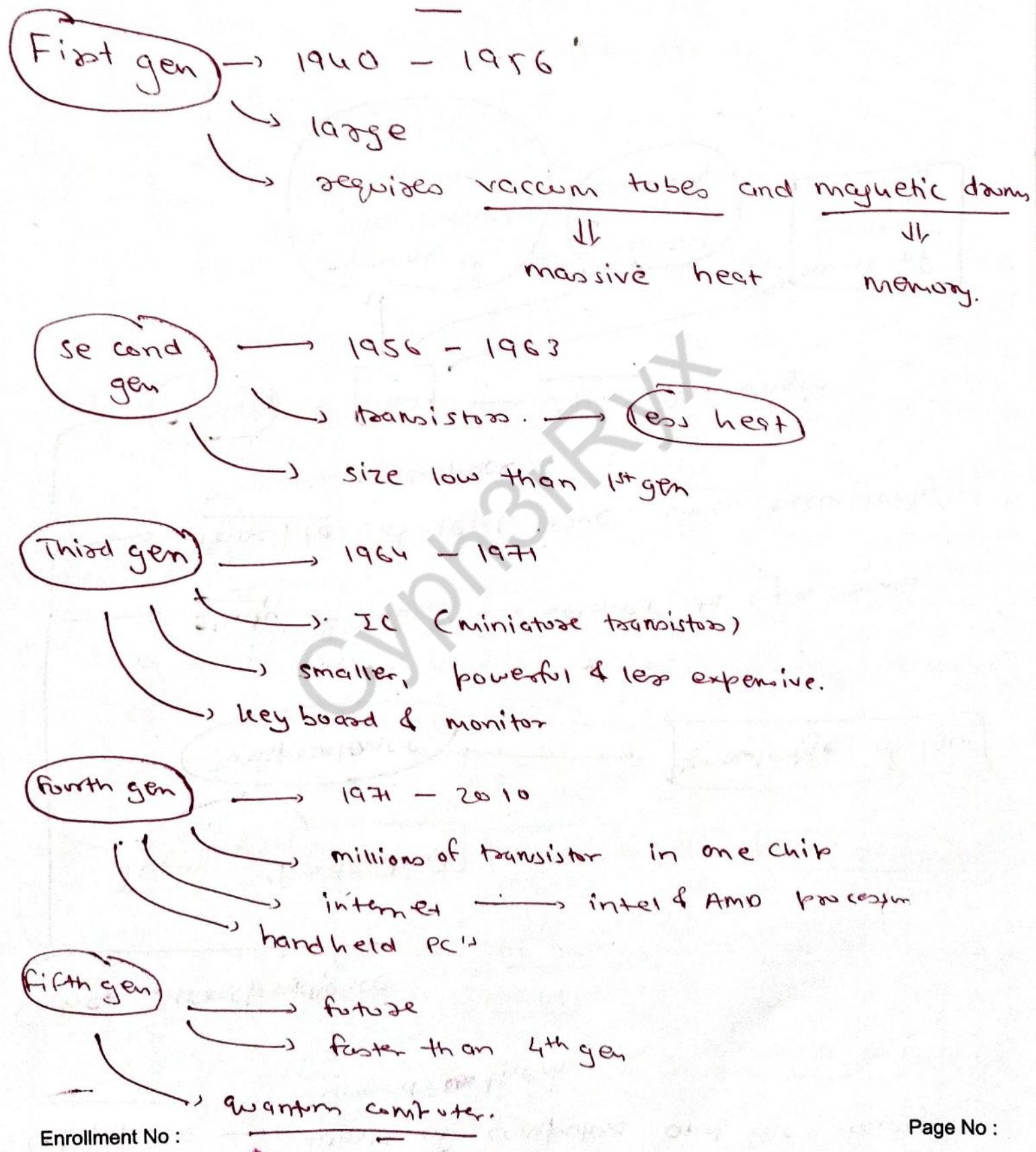


# C L E



Cyberspace → World of computers and the society  
Ground ~~to~~ them.

## Cyber Jurisprudence

Jus Prudentia

Jurisprudence

knowledge of law

study of laws → related to cyber crimes

Principle of legal issue which exclusively regulates cyberspace

Analysis

of law

→ virtual from origin.

System of rules created to regulate behaviour

Control the Community

source of scholarly inquiry

## Jurisprudence

"A theory based study of laws"  
"Jurists" & "Legal Theorists"

- Modern JP began in 18<sup>th</sup> century
  - ↳ first law, civil law, natural law

## General JP

↳ philosophy of law  
↳ can be divided on the basis of question asked

## Doctrinal Approach:

"Way of conducting research which is usually thought of as typical legal research".

↳ focus on Case-law, statutes & other legal sources

↳ This approach makes no attempt to look at the effect of law & how it is applied.

(but) examines it on the way it will be analysed

using legal sources

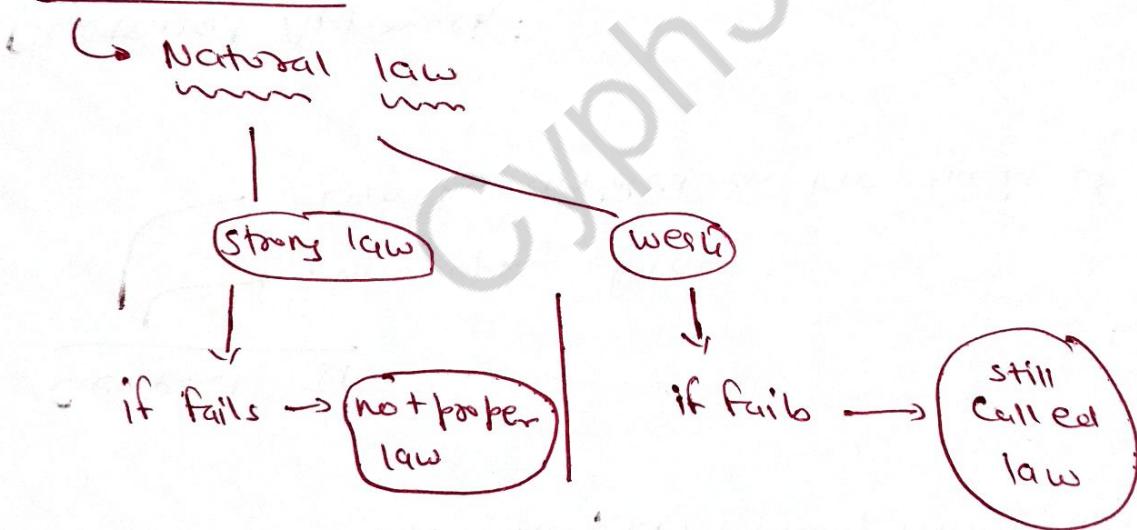
## Consensual Approach:

- ↳ Public order crime involves more than 1 participant
- ↳ legislative bodies are involved

victim is **STATE**, **JUDICIAL SYSTEM**, **SOCIETY**

EZ [jo bi dange ho she hai aur  
jinme bahut kida hai offend hone  
ka unke liye]

## Real Approach:



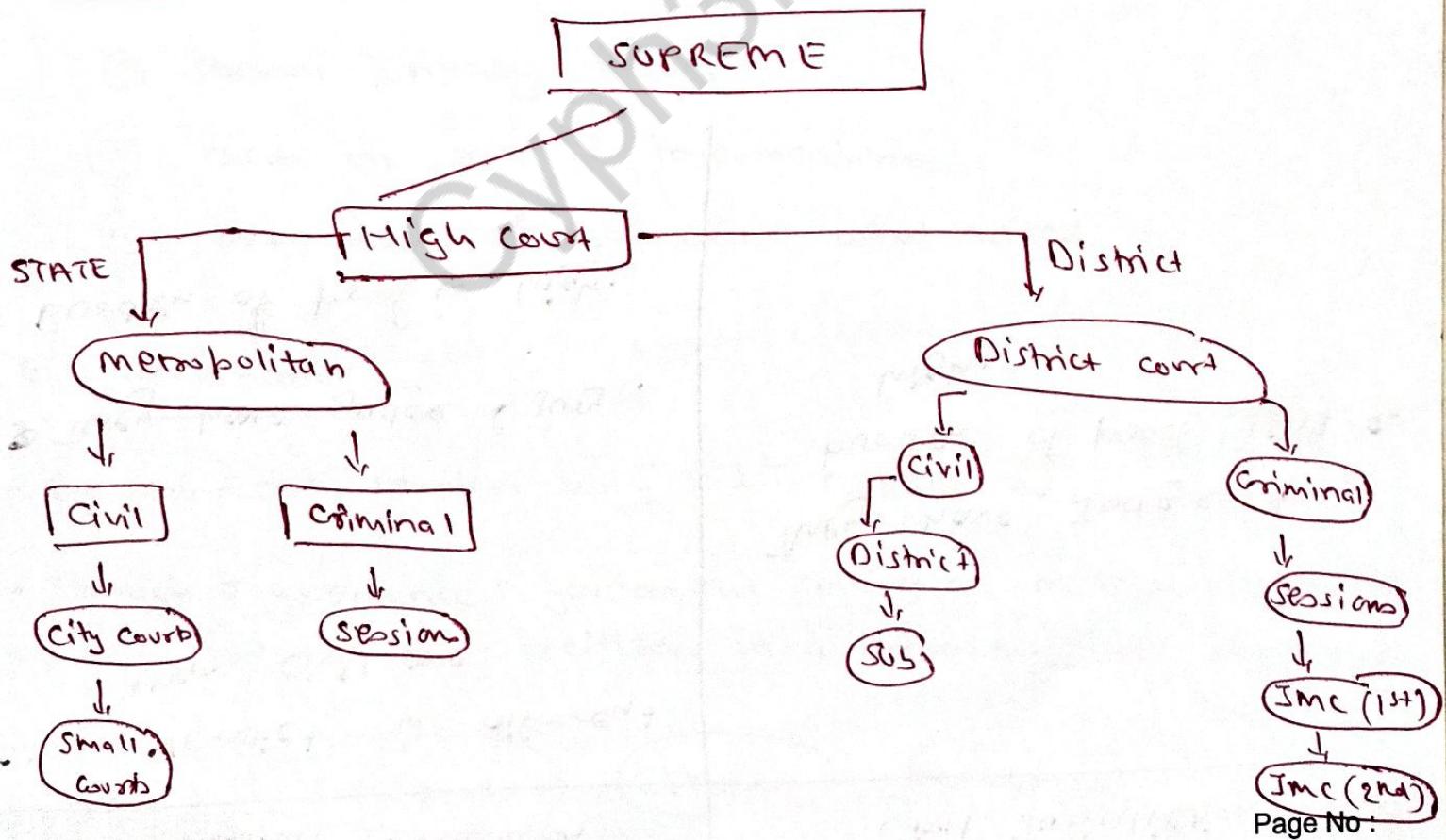
## Cyber Ethics.

- ↳ study of ethics pertaining to computer.
- ↳ Code of responsible behavior.

## Cyber Jurisdiction:

- ↳ internet is free of judges & case.  
so for cyber space  
we need to have jurisdiction laws

## Hierarchy of courts:



## Criminal Jurisdiction

## Civil Jurisdiction

Criminal Verdict is different than civil one.

They have judge & jury.

Burden of proof is high.

They have Judge & burden of proof isn't as high.

## Amendments in IT ACT 2000:

- 1<sup>st</sup> schedule → Penal Code
- 2<sup>nd</sup> schedule → India Evidence Act.
- 3<sup>rd</sup> schedule → Banker's Books Evidence Act.
- 4<sup>th</sup> schedule → Reserve Bank of India Act.

### Highlights:

- (1) Elaborates digital signature
- (2) stresses privacy issues
- (3) focus on role of intermediaries
- (4) New faces of cyber crime were added.

### E-governance:

- ↳ Government services using IT application.
- ↳ Through e-governance: government services are made available to citizens in a convenient, efficient manner.

3 main  
→



## Advantages :

- (1) Speed : swift communication
- (2) Saving cost : stationery and written record replacement
- (3) Transparency : publically available

## Disadvantage:

- (1) Loss of interpersonal communication
- (2) High setup cost
- (3) Illiteracy.

## Domain Name working:

- (1) User request to see "abc.com"
- (2) Request go to DNS server  it gives the ip of that domain
- (3) DNS server forward ip of "abc.com" to the server and it return back info
- (4) User gets the info.

Diff. types:

- (1) **TLD** - Top Level Domain  
↳ .com, .org, .net
- (2) **ccTLD** - Country code Top Level Domain  
↳ .uk, .de, .in
- (3) **sTLD** → sponsored Top level Domain  
↳ .edu, .gov

Web Hosting Agreement:  
www www wwwwww

- (1) **Timing** : length of contract
- (2) **Cost** : cost of service
- (3) **Renewal** : Automatic / notice
- (4) **Dispute resolution** : what laws apply to any disputes under the contract as well as what costs the prevailing party may recover.
- (5) **Intellectual Property** : Right to use copyrights & trademarks.
- (6) **Termination** : What time to terminate.

## Cyber Regulation Appellate Tribunal (S-48):

A person with admin & executive powers. for,

- (1) summoning & enforcing the attendance of any person
- (2) Receiving evidence on affidavit.
- (3) Reviewing decisions.
- (4) Dismissing applications
- (5) issuing commissions for examination of witness
- (6) Transfer cases after laid down procedure.

Term : 5 year or until age 65 year

Penalties: for :

- (1) Damage to computer
- (2) Uploading virus
- (3) illegally downloading
- (4) Unauthorized access
- (5) DOS / DDOS
- (6) Disruption in network
- (7) Tampering / manipulation

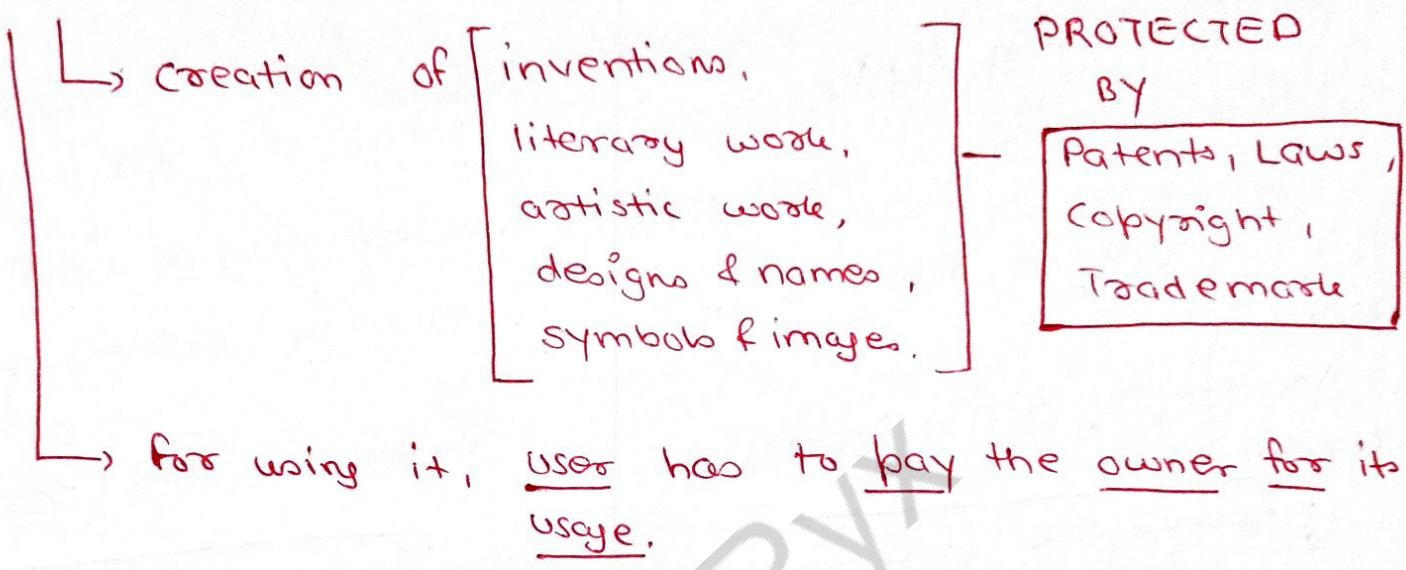
Power to Adjudicate:

To impose this all things and to regulate the behavior of individual on internet, a Adjudicating officer is selected

must have experience in IT field  
judicial experience

### Ch-3

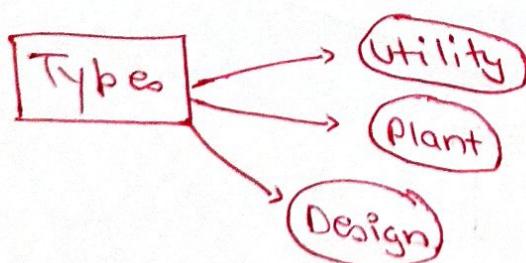
#### • Intellectual Property :



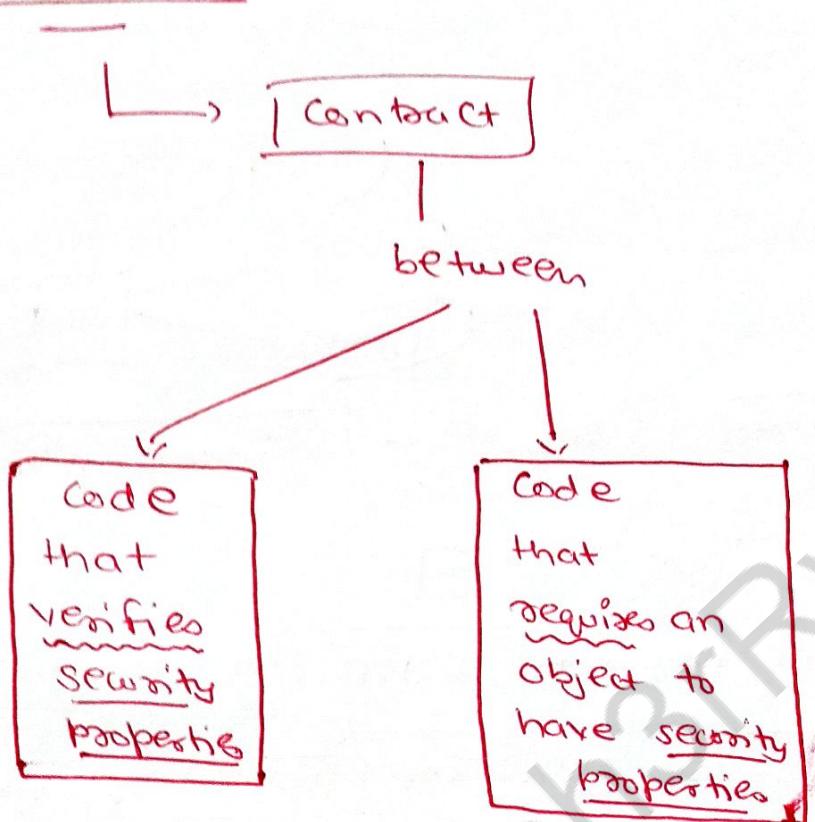
#### • Patent Law :

↳ Safeguard for your original invention.

- Granted by USPTO → United States Patent & Trademark office.  
↳ Grant Right-to-Produce & get incentive for using it;
- Legal monopoly - granted for limited time.



## Trademark



2

## Operations

(i) Apply  
Trademark!

(ii) Verify  
Trademark?

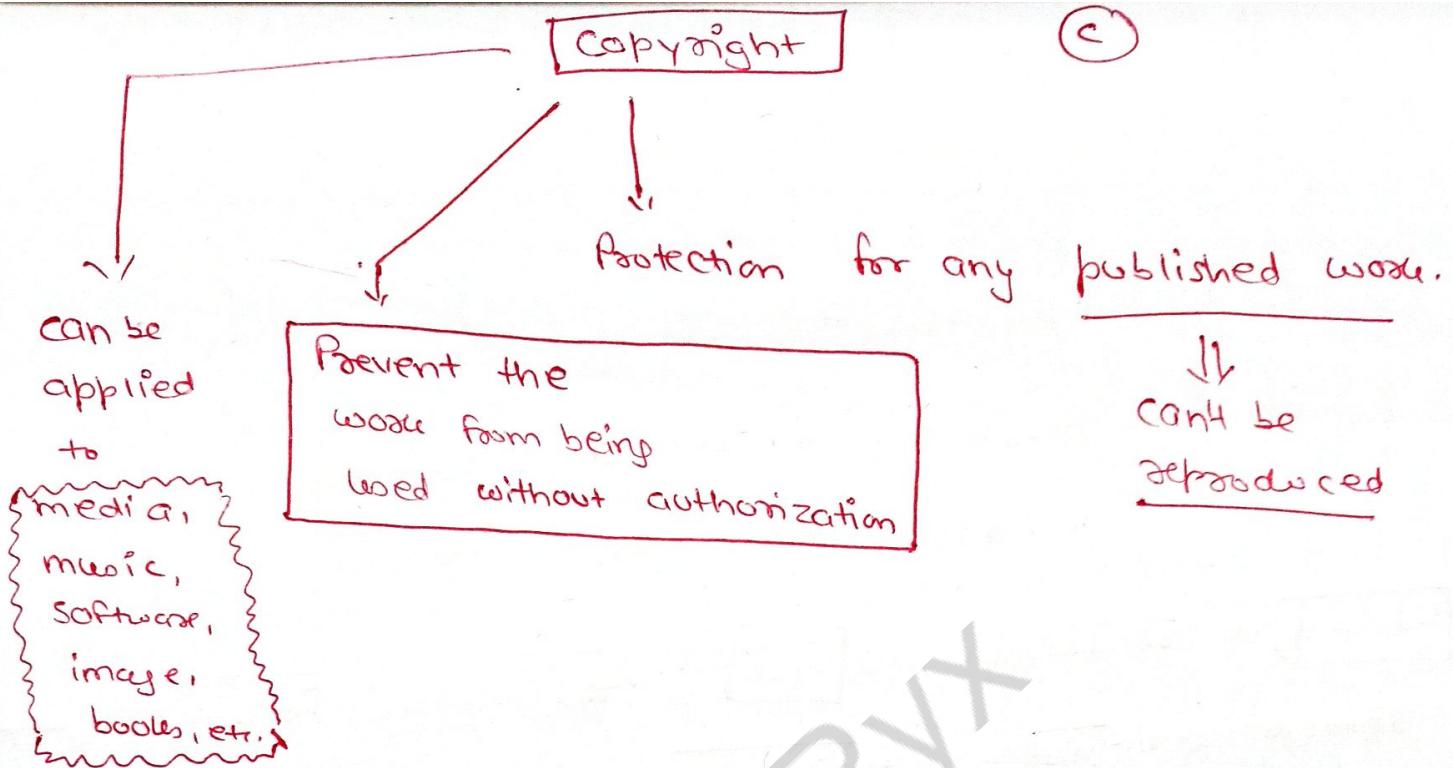
### (i) Apply Trademark! (object)

- ↳ Private key in digital sig.
- ↳ not exposed to code
- ↳ applied to immutable object
- ↳ make sure that Verify! works with this,

### (ii) Verify Trademark? (object)

- Public key in digital signature
- exposed to code
- return True iff, Apply Trademark! is called with object.

(c)



COPYRIGHT	TRADEMARK	PATENT
<ul style="list-style-type: none"> <li>Copyright ACT, 1957</li> <li>Protection of <u>original creative work</u></li> <li>Valid upto [+60] years after author's <u>death</u> &amp; <u>whole lifetime</u></li> <li>Secure creative work.</li> <li>© =&gt; symbol</li> <li>Exclusive rights once the work is created</li> </ul>	<ul style="list-style-type: none"> <li>Trademark Act, 1999</li> <li>Protection to a <u>brand</u> that <u>makes it distinct</u> from other.</li> <li>Valid for [10 years] &amp; <u>renewed</u> every [10 years].</li> <li>Secure branding of the service.</li> <li>(TM) → Registration in progress</li> <li>(R) → Registration complete</li> <li>Reg. → done → use Tm</li> </ul>	<ul style="list-style-type: none"> <li>Patent Act, 1970</li> <li>Protection of <u>inventions</u>, that are <u>novel &amp; industrial utilized</u>.</li> <li>Valid for [20 years]</li> <li>Secure invention useful for world.</li> <li>No symbol</li> <li>Patent reg. require 2-3 years.</li> </ul>

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## Software - Copyright

- ↳ covers protection on how you express your software,  
↓  
( both object/source code )
- ↳ begin once you start coding.
- ↳ lifetime of author, +50 years after their death.
- only protection to source code.  
Means if i change some mmmm code then i can bypass copyright of the code/software.

## Software - Patented

- once you patent a software, you get
  - (i) exclusive right to make
  - (ii) use the software,
  - (iii) license it & sell your software
- Providing the ability, gain an advantage in market.

Eg. Amazon, Patent no. S1960,411

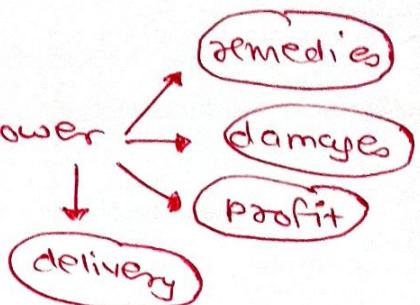
Google, Patent no. D599,372

## Copyright disputes:

if侵权

if infringed

Owner can use power



Section 51

Aids to the infringement.

## Electronic Database:

Maintaining Physical data = hard

Transferring the data to electronic means = easy.

but cybercriminals can attack that.,

### To protect from that:

#### (i) Be alert to impersonators

- ↳ don't give out personal information on phone / mail.
- ↳ always check the source
- ↳ only fill / give info. to trusted source.
- ↳ don't click phishty link.

(ii) Safely Dispose of Personal Information:

- ↳ dispose any info. from mobile device before selling it.
- ↳ remove sim card from mobile device
- ↳ remove voice message, messages sent/received, photos, etc

(iii) Encrypt your data:

- ↳ keep browser secure
- ↳ lock your phone & private files
- ↳ safe online transaction

(iv) Keep Password Private:

- ↳ use strong password
- ↳ don't reuse them
- ↳ don't share it w/ others.

(v) Don't overshare on Social Media Sites:

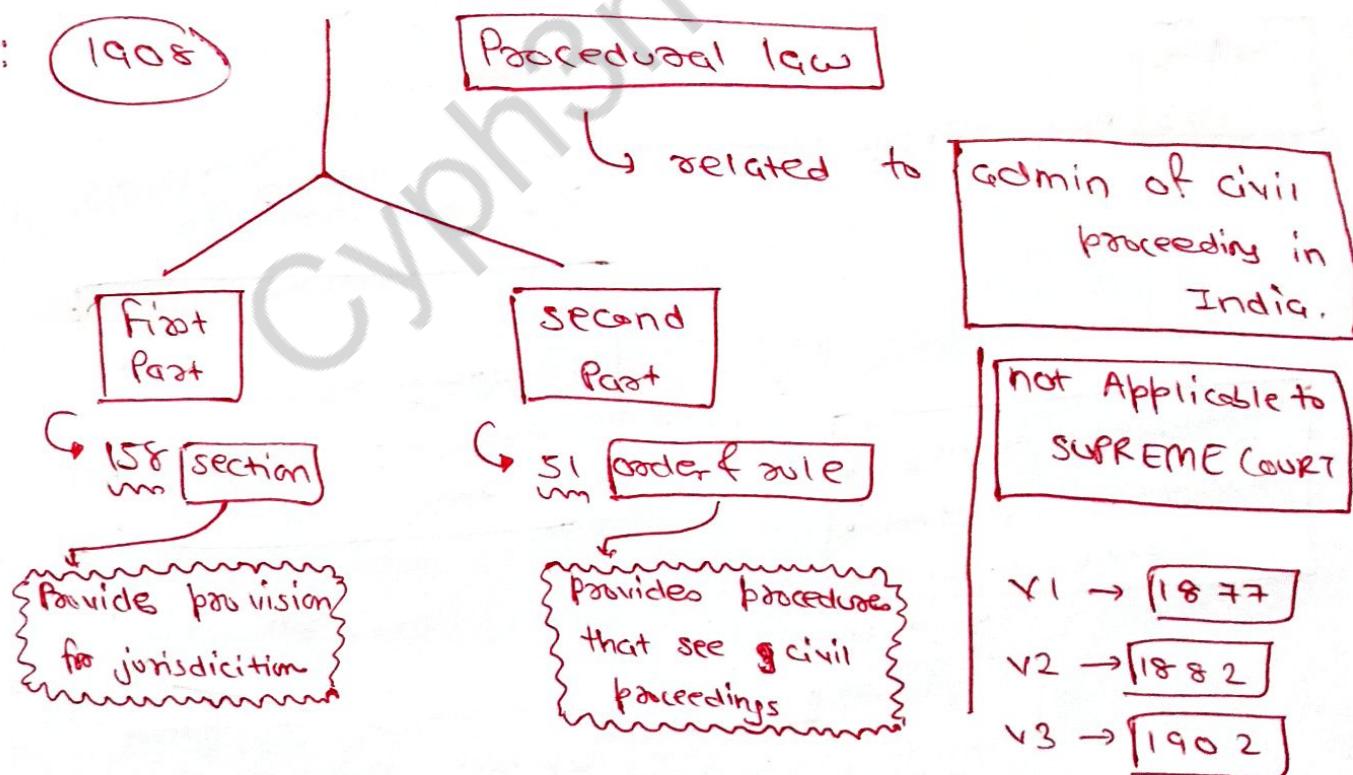
- ↳ don't share everything on social media
- ↳ never post private data.

## Protection via IT Act 2000:

- ① **Section 43** — unauthorized access to computer.
- ② **Section 65** — computer source code breach / destruction
- ③ **Section 66** — protection against hacking.  
↳ ③ YI - prison - 2 lakh rupees
- ④ **Section 70** — protect data stored in protected system.
- ⑤ **Section 72** — privacy & confidentiality breach

## Civil Procedure Code

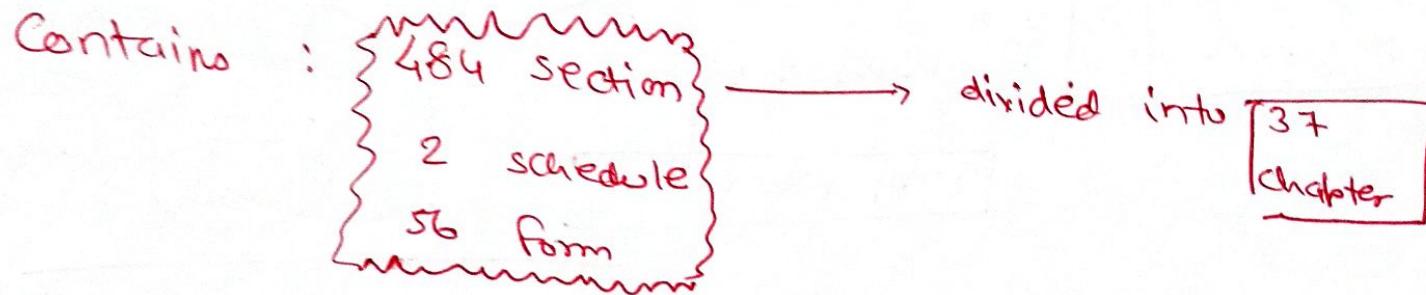
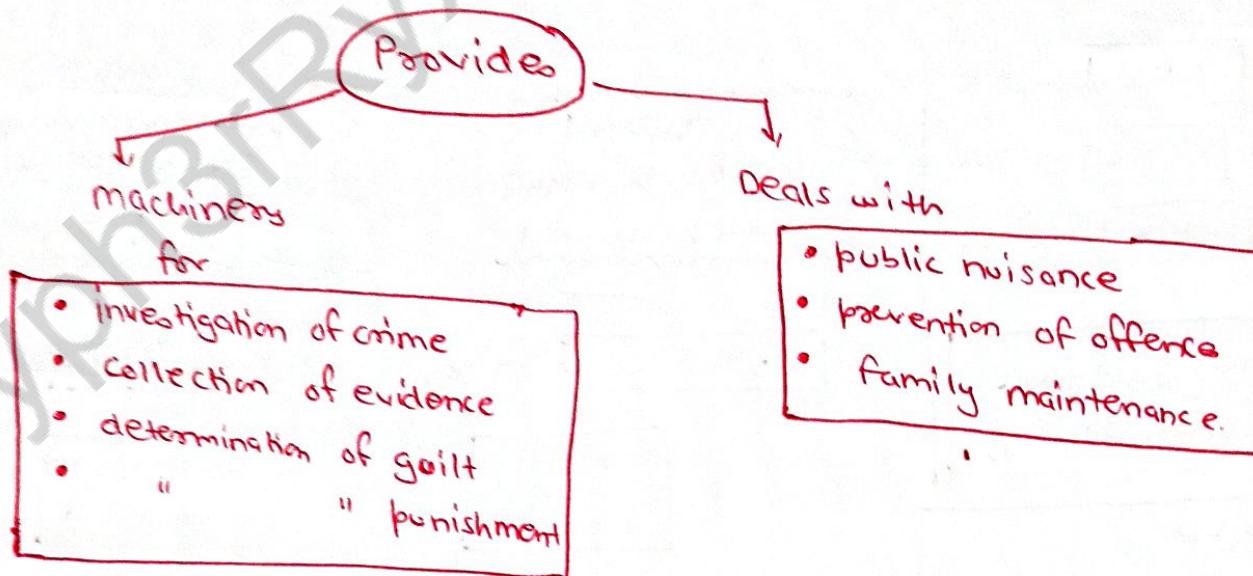
final version : 1908



## Criminal Procedural Code (C.P.C)

1973

→ enforced on APRIL 1, 1974



# Sections of Indian Penal Code (IPC):

## IPC :

- Section 354-D : Drishyam movie case  
Stalking women, Contact her illegally
- Section 383 : Extortion
- Section 379 : Theft
- " 406 : Breach of trust
- " 417 : Cheating
- " 471 : Forgery document
- " 500 : Defamation
- " 506 : Harm reputation of individual via Electronic means.  
(Blackmailing)

## RBI Sections:

- (17) → Deposit acceptance from government
- (18) → Emergency loans to bank
- (21) → Public debt management
- (22) → Right to issue currency notes in India.
- (24) → denomination max. to 10,000 ₹
- (26) → legal tender of bank notes
- (27) → exchange of imperfect notes
- (42) → every bank must have average daily balance

# ODR - Online Dispute Resolution

↳ settles dispute over internet

method of



[Alternative Dispute Resolution]

set of rules that resolves the dispute outside the court



① **Meditation** : 3<sup>rd</sup> party (neutral) helps other 2 party to reach an agreement

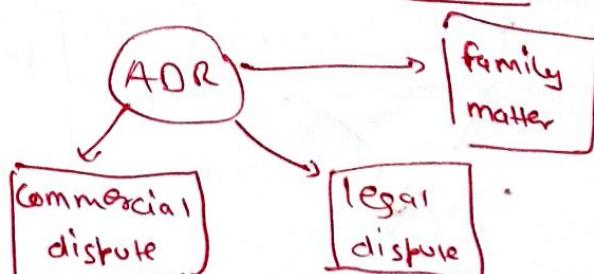
② **Negotiation** : Resolve issues by working out a agreeable solution.

③ **Arbitration** : 3<sup>rd</sup> party listens both dispute, gives soln that both has to accept

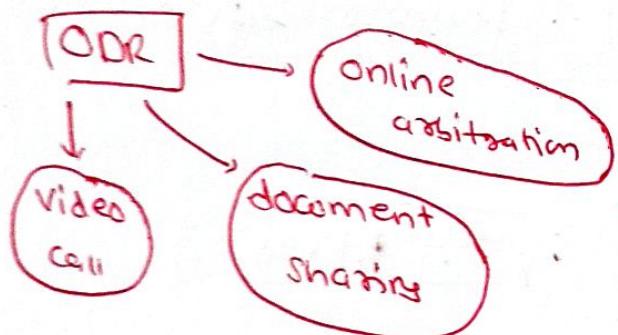
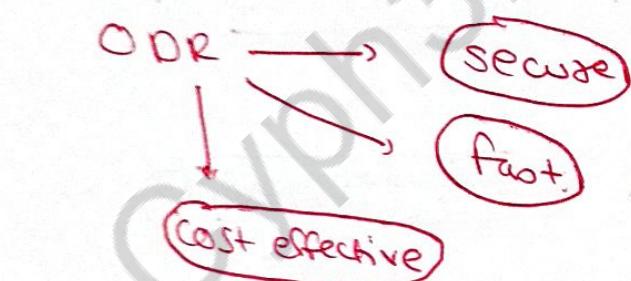
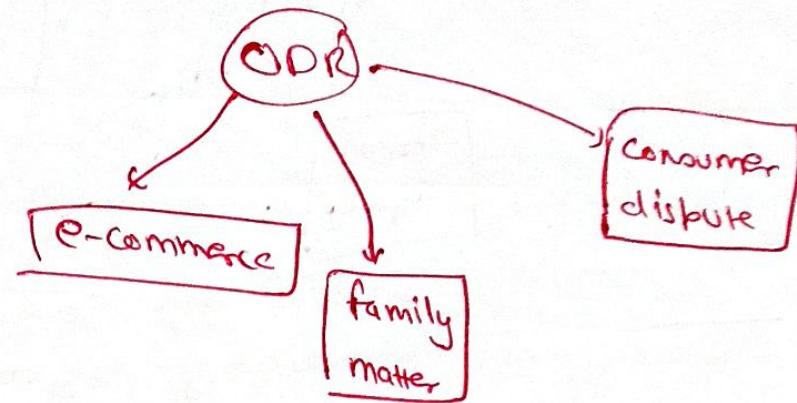
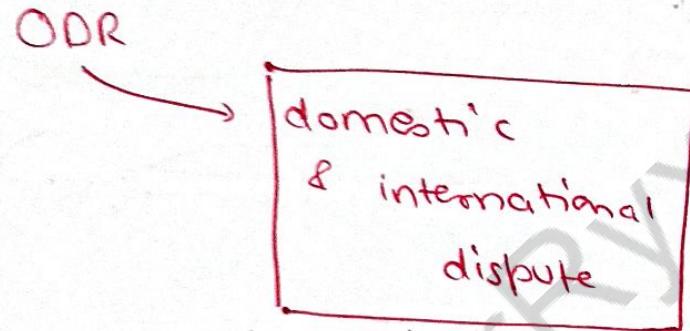
④ **Collaborative law** : Both parties & attorneys work together to solve the dispute.

ADR → faster  
cheat

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Most HELPFUL

when both  
parties are  
located in  
different  
countries &  
world

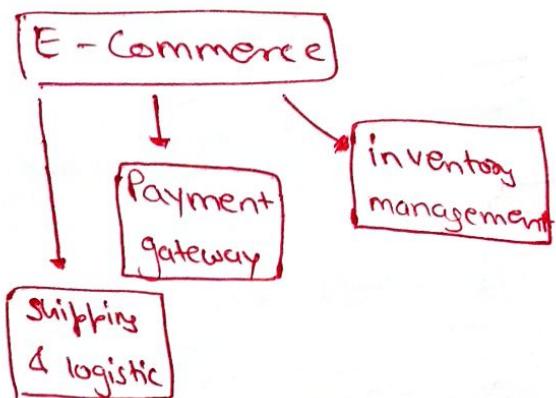
### Electronic Commercial Transaction

Buying & selling of goods - services over Internet

Forms : **B2B** → Business - to - Business

**B2C** → Business - to - consumer

**C2C** → Consumer - to - consumer



- wider audience
- increase sales
- comfort
- huge no. of choice

### Evolution:

- 1970 → fund transfer
- 1984 → Data Transfer.
- 1992 → online retail service
- 1994 → SSL
- 1995 → Amazon.com
- 1999 → \$1 billion
- 2000 → Online market booming

### Development:

- 1993 → eCash [Electronic Money]
- 1994 → first purchase through eCash
- 1995 → first eWallet
- 1996 → standards developed
- 1997 → first online payment system (CyberPlat)
- 1998 → first transaction via Cyber Plat.

## PAPER CONTRACT

- ① Physical Papers
- ② Requise multiple copies to be signed & delivered.
- ③ Requires Physical Storage.
- ④ Time consuming
- ⑤ Hard to manage.
- ⑥ Susceptible to damage
- ⑦ Once lost - tedious reconstruction
- ⑧ Physical Notary

## PAPERLESS CONTRACTS

- ① Electronic manner
- ② Signed electronically, eliminating need of physical deliveries
- ③ Digitally stored
- ④ Less time consuming
- ⑤ Easy to manage
- ⑥ Resistant to damage
- ⑦ Once lost - recover from backup
- ⑧ Digital Signature

## B2B → Business to Business

- one business sells product / service to other business
- involves large volume of orders & higher price

### Example:

- (i) Tata to Jio
  - ↳ steel for building infrastructure
  - oil for making product
- (ii) Google to Apple
  - ↳ use of search engine in their product

## B2C → Business to Consumer

- one business sells product / service to an individual
- most common type
- offline retailers & online retailers.

### Example:

- (i) Buying shoes from Amazon
- (ii) Buying Netflix for entertainment
- (iii) Booking hotel from Trivago

## C2C → Consumer to Consumer

- consumer sells product / service to another consumer.
- done via marketplace & online platforms
- Transactions done in between 2 individuals

### Example:

- (i) Buying phone from ebay.com
- (ii) Renting room from airbnb.com
- (iii) freelancers

## Esecurity

II,

(rules to be safe on internet)

- Protocols that are used to safeguard people who engage in online selling and buying goods

- ① **Privacy** (Confidentiality) : Prevent sharing of customer data to the unauthorized 3rd parties.
- ② **Integrity** : Ensures customer data is safe & not altered.
- ③ **Authentication** : Business should prove it is real & genuine.
- ④ **Non Repudiation** : Repudiation = denial  
Non repudiation = you can't deny it.

## TAXATION :

Government takes up some share of your earning to provide you goods & services for your betterment

e.g. GST & Income Tax.

### E-Taxation :

Use of internet to fill tax online & submit tax return.

involve → use of

digital tools

simplify  
& streamline

↓  
tax related process

E-taxation

cost saving

reduce complexity

reduce burden

increased efficiency

### Disadvantage:

- struggle w/ globalization.
- Tax evasion in eCommerce.
- High risk of Tax fraud
- manipulation of numbers
- need to reform new policies
- international taxing can be hard.

### Provide :

- automated tax calculation
- digital record keeping
- online portals
- manage information electronically

# Electronic Payment

↳ e Payment : Any transaction is done via internet without the use of cash.

- Growing technology
- Advance Payment tech.
- secure online transaction
- decrease cash inflow
- bureaucracy decreased

Points to be noted

Done via.,  
UPI, Debit Card,  
Credit Card, Smart  
Card  
Wallets

2 ways

Credit Payment System

① Credit Card : Payment via credit card

② E-wallet : uses postpaid account that is decharged w/ money

③ Smart Card : Plastic Card w/ microprocessor for online transaction

Cash Payment systems

① Direct Debit : Use of debit card

② E-cheque : digital version of old paper cheque

③ E-cash : certain amount of money is stored in client device

④ Stored Value Card

!!

# SUPPLY CHAIN :

network of



involves:

- ① process of making goods
- ② supply the goods to customer
- ③ do the production, transportation, warehousing, distribution

Production  
transportation  
warehousing  
distribution

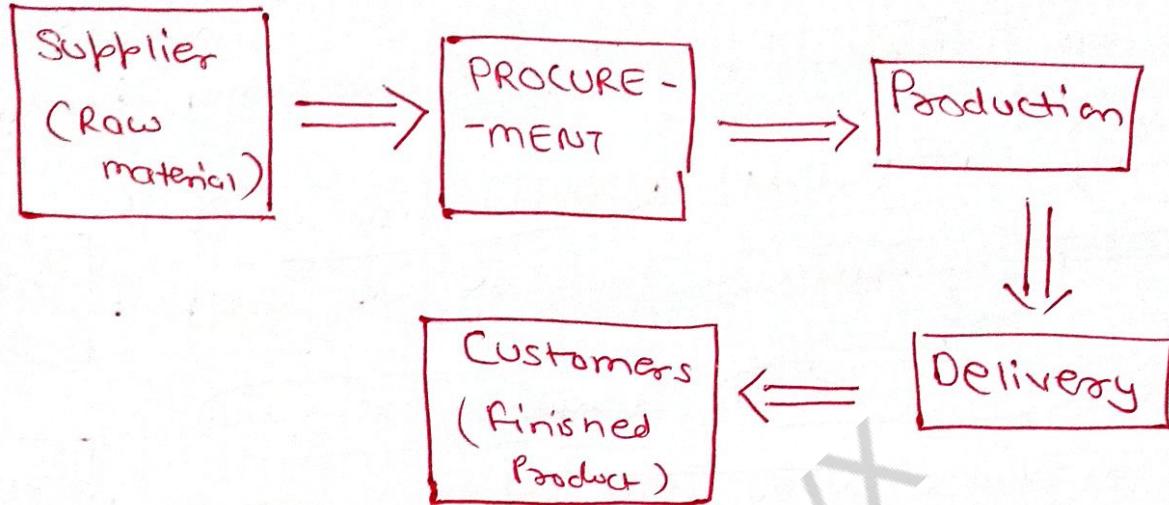


(SCM) = ~~Strategic~~ Supply Chain Management

## Strategies

- ① **Lean strategy** : Focus on reducing waste & improve efficiency, minimize inventory, optimize resource, reduce cost
- ② **Agile strategy** : Focus on improving flexibility & responsiveness, quick decision making, prototyping, response to feedback
- ③ **Resilient strategy** : focus on resilient & adaptable, Supply chain.

## SCM Process:



- Ensures stock availability
- Encourage positive customer review
- Deliver cost effective solution.

## SCM benifits:

- ① more efficient Supply chain
- ② Lower shipping cost
- ③ Increase capacity of warehouse
- ④ Manage labour effectively
- ⑤ Use third party logistics.

## EDI : Electronic Data Interchange

↳ helps trading partners & organization



1. Speed up logistics.
2. Eliminate manual errors.

It is **Automated** → Computer to computer

Exchange

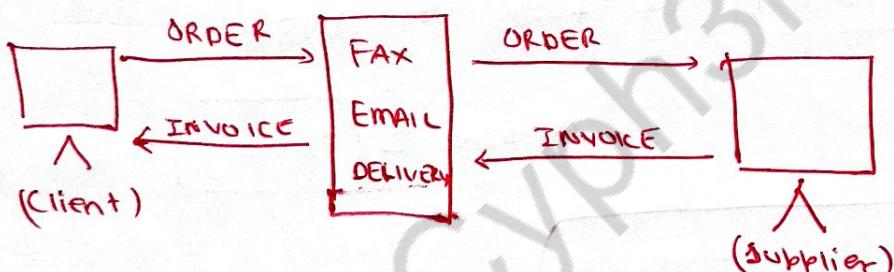


business

document

btw business.

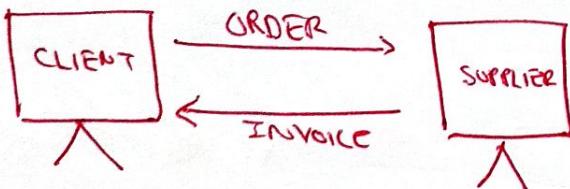
Manual process :



Benefits :

- Faster Processing
- Lower Costs
- More Accuracy
- Better Relationship
- Strategic Benefits.
- Fewer Errors.

EDI process :



## Process:

- (1) Buyer's Procurement System uses **EDI** → autogenerate & sends an **EDI-formatted PO**
- (2) Then ~~the~~ Vendor's EDI receives **EDI-for-PO**
- System automatically notify vendor → send goods
- (3) Once **Goods** = ready  
ASN is sent by **system** to **Buyer's**
- (4) **Vendor** → **ERP** → **send** → **Invoice** → **To** → **Buyer**

## E-MARKET

### Electronic Market

↳ connected via modern network

Buyer Seller = not on same place.

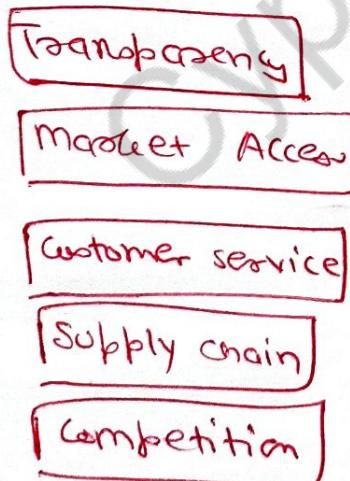
Ex. Nasdaq Stock market → Stock company's network  
 at one place.

You can bid on  
stocks from anywhere

www → boosted E-markets

### Benefits:

- ① Increase transparency
- ② Improved market access
- ③ Improved customer service
- ④ Enhanced supply chain
- ⑤ Increased competition



### Individual can.,

- check account balance
- receive real time update
- view history of transaction
- track portfolio performance.

## Emerging Trends:

New businesses.

① AI

② IoT

③ Cloud computing

④ Blockchain.

- Aid in customer's

benefits



- empower customers
- one stop shopping
- flexible service
- on time delivery

## Importance of Cyber laws:

- ① Protects Individual & Organization
- ② Regulate Internet Usage
- ③ Protect Intellectual Property
- ④ Prevent Cyber crimes
- ⑤ Ensues Privacy
- ⑥ Promotes e-Commerce
- ⑦ Promotes Trust & confidence.
- ⑧ Encouraging Innovation
- ⑨ Securing national security
- ⑩ Ensues international cooperation support.

## Significance of Cyber Ethics:

Cyber Ethics = Study of ethics related to computer & internet, covering user's behavior & computer's response by programming & how it affects society.

Significance / Teaching => in schools, organization, camps, seminars, etc

Responsible Behavior  
~~~~~ ~~~~

- (1) Do not Cyberbully
- (2) Do not Plagiarize
- (3) Do not authorize someone's PC without permission
- (4) Do not use rude & foul language
- (5) Do not crack / use other user's passwords
- (6) Do not destroy other user's system by viruses, Dos, malwares
- (7) Do not download copyrighted material illegally.

## Why do we need Cyber Ethics ?

- ① Increasing Cybercrime
- ② Increasing Unethical behavior
- ③ Spying
- ④ Threat to Privacy
- ⑤ Fraud & Ownership manipulation
- ⑥ Impersonation
- ⑦ Intellectual Property Usage Illegally
- ⑧ Freedom of information
- ⑨ Digital divide
- ⑩ Digital Rights Management

(For exams, expand each point accordingly)

## A.I Ethics:

A.I being integral part of our technology now  
So, here are points to be take care of

### Ethical Challenges

- ① Decision making & Liability  
↳ if mistakes are made, who'll take responsibility?
- ② Transparency  
↳ clear explanation for machine reasoning to determine accountability
- ③ Bias  
↳ A.I should be neutral & have no discrimination
- ④ Human value  
↳ Robots must not harm / kill humans  
A.I should be contained & regulated.

## 5 Core principles to keep AI Ethical

① AI must be a force for good & diversity

- ↳ Clarity
- ↳ No bias/judice
- ↳ Careful designing

② Intelligibility & Fairness:

- ↳ improve intelligence
- ↳ improve fair sources of info

③ Data Protection:

- ↳ must protect user privacy
- ↳ must understand data rights

④ Educate yourself w/ AI:

- ↳ know the vulnerabilities of AI & patch them.

⑤ Confronting the power to destroy:

- ↳ (no) hatred to anyone
  - ↳ (no) gouge to anyone
  - ↳ (no) harm to anyone
- must be enclosed,

## Issues in AI:

- ① **Unemployment**: What if it takes our jobs?
- ② **Inequality**: Distribution of wealth created by AI
- ③ **Humanity**: How machines affect behavior & interaction of humans?
- ④ **Artificial Stupidity**: Who'll take responsibility for AI mistakes?
- ⑤ **Racist Robots**: Bias Elimination
- ⑥ **Security**: Vulnerable AI → destruction
- ⑦ **Evil genies**: Hackers hacking AI
- ⑧ **Singularity**: How will humans stay in control?

## Block chain

A distributed

ledger system

||

Records transaction

in secure & transparent manner

no need of

Central trust authority

To

Verify information

(or)

authenticate transaction.

TRUST in the predefined code is the way

Each Transaction

||

Strictly  
verified

Using

Computer  
Algorithm

ACCEPTED

||

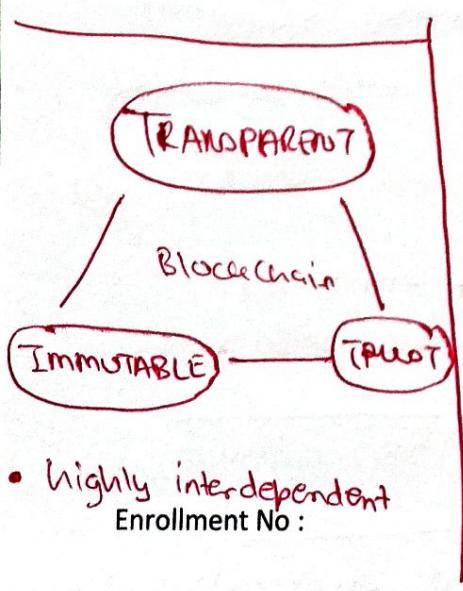
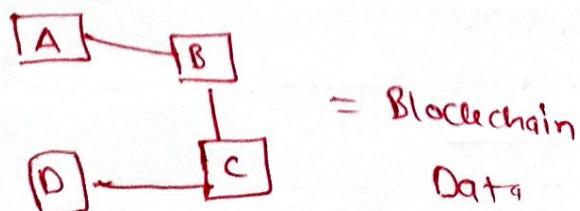
divided  
into  
blocks

&

chain them  
together

g. ABCD = Transaction

Blockchain verified



## key attribute of blockchain:

### ① Transparency:

↳ entire records are available to all

### ② Trust:

↳ rules bind by cryptographic algorithms & immutable of transaction

### ③ Immutable:

↳ no one can change / modify any transaction

### ④ Pseudonymity:

↳ use of public & private key system

### ⑤ Verifiability:

↳ transactions are auditable in real time

### ⑥ Controllability:

↳ exclusive control over data or digital assets

### ⑦ Security:

↳ use of encryption algorithm combined w/ dissemination of data

### ⑧ Disintermediation:

↳ no one can interfere bet'n your transaction

## Ethical Design & Implementation :

(B) main roots to be cleared

① How is **governance** created & maintained?

↳ sets of rules by which all transactions are governed.

② How is **identity** defined & established?

↳ whom is **granted** the use of this technology

↳ used to **establish** transactional / digital identities for **accessing** info. or services.

③ How are inputs **verified** & transactions authenticated?

↳ if entity initiating the transaction has full control over that

④ How is **access** defined, granted & executed?

↳ scope of access to individual's information on a blockchain.

⑤ How is Ownership defined, granted & executed?

↳ Blockchain let user control their data & how they exercise them.

⑥ How is Security setup and ensured?

↳ no linking email,  
phone no.,  
password

All of this is done  
in stored info.