

Professional Issues in IT

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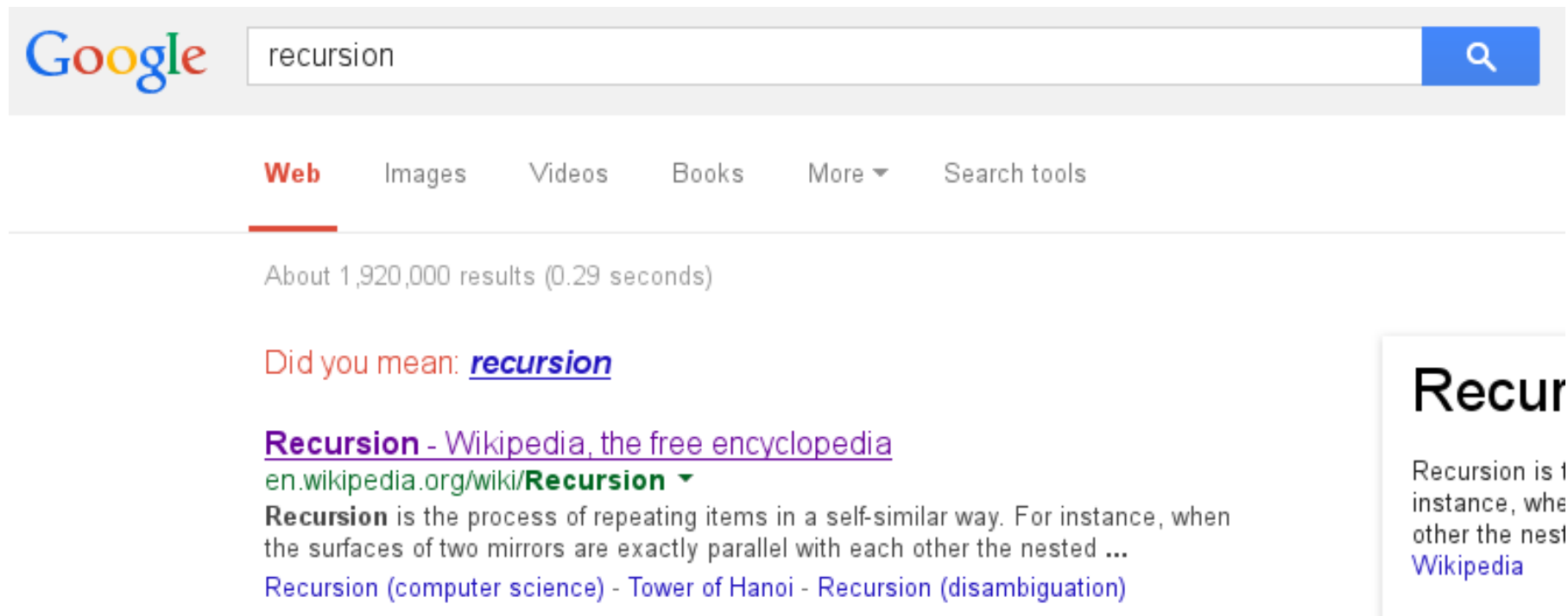
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Weird Laws

- **Law of Recursion:** To understand Recursion, you need to understand Recursion
- **Brook's Law:** Adding more manpower to a late software project makes it more late. (Fred Brook, 1965)
 - Software Engineering Principle. Reason: (1) New people must become educated with the project before actually working on it (takes time). (2) Communication over-head increases



Weird Laws

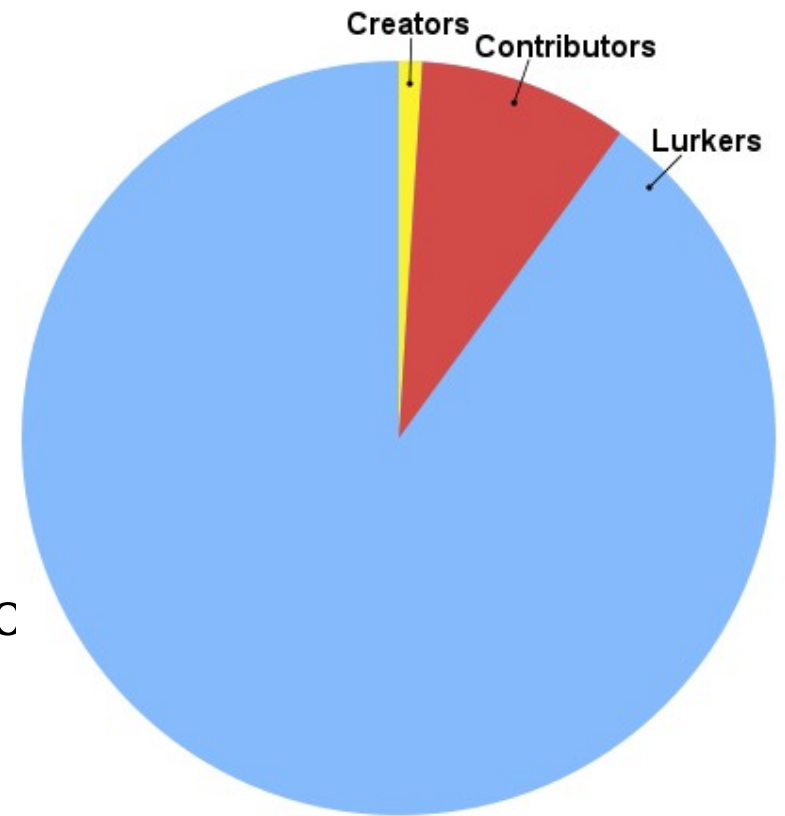
- **Law of Credibility, or 99 % Rule:**

1st 90% of code accounts for 90% of development time.
Remaining 10% of code accounts for remaining 90% of development time.

- John Bentley (1985) Communications of the ACM 28(9) 896-901
- Projects don't complete on time !!!

Weird Laws

- **1% Rule:** Only 1% of users on a collaborative website actively create new content. Remaining 99% only lurk.
 - Variant: 1-9-90 Rule (Shown right)
- **Pareto's Principle:** 20% of group will produce 80% of activity (group can be defined)
 - 20% of pea pod's in Pareto's garden contained 80% of peas
 - Applied in Marketing: 80% sales cc from 20% of clients



Weird Laws

- **Wirth's Law:** Software gets slower faster than hardware gets faster (Niklaus Wirth, 1995)
- **Gates' Law:** Speed of software halves every 18 months (Bill Gates)
- **Moore's Law:** Hardware gets faster every 18 months (John Moore, 1960s)
- **Many More ...**

Laws

- From our perspective, we are not concerned with “ALL” legal concepts, but only specific laws/legislations related to IT/Computing/Software
- But certainly, knowing some legal concepts would be indeed helpful

Law



- **“A set of Rules that can be enforced in Court”**
- Varies from country to country
- Many types, but examples concerning our profession:
 - Data protection laws (controlling rogue markets)
 - Right to access of information Laws (Punjab/Khyber Pakhtunkhwa started in 2013)
 - Laws for Misuse of Computers (FIA Cyber-crimes branch)
- Different Legal Systems (Different Courts, Jurisdiction Issues, Different Laws for Different territorial regions)

Broad Classification of Laws

- **CRIMINAL LAWS:**

Punishment of wrong-doers (using fines and/or imprisonment)

- **CIVIL LAWS:**

Settlement of Disputes between People (Arbitrations),
Victims can be compensated.

Criminal Law

- What is a crime?
Society/government decides.
 - Murder, Assault, Narcotics, Fraud, Money Laundering, Customs, Domestic violence, Physical Abuse, Kidnapping, etc.
- Mechanisms to determine whether person guilty of crime is guilty/not-guilty
 - Pakistan Penal Code (1860 Act, British India)
- Range of punishments that can be awarded
 - Qisas, Diyat, Death, Life, Property Confiscation, Imprisonment (Hard,Soft), Fine

Criminal Law: How it works

- 1) Crime discovery by police, or reported by witnesses
- 2) Evidence collection by police for courts
- 3) State starts proceedings for prosecution of accused/defendant
- 4) If found guilty, accused will be sentenced

Criminal Law: Other Important Aspects

- Criminals dis-advantaged:
A criminal is innocent until proven Guilty,
But society **may** think otherwise
- Penalty should be sufficient to discourage others.
How much is “sufficient”?
- Keep criminals away from public.
But what can be done after they finish their sentences
- Rehabilitation:
Reforming criminals during sentence/jail-term
If a criminal is institutionally rehabilitated (in jail), should society accept them? Will the victim families accept that he is reformed?
- All above are ethical issues in legal perspective

Civil Law

- What it does:
 - Resolution of Disputes b/w people
 - Resolution of Disputes b/w companies/organizations after they are incorporated.
- Terminologies
 - **Plaintiff**: Person who feels he is wronged moves court
Example: person A sues person B
Example: person A files “shufa” against person B
 - **Litigation**: Court proceedings ensued after court is moved
- Other applicable areas: Banking, Business, Company, Constitution, Corporate, Insurance, Labour, Succession, Tax, ...

Concept of Standard of Proof vs Burden of Proof

- **Standard of Proof**

- In Criminal Law:

- Prosecution must demonstrate that an accused is guilty (using witnesses, forensics, etc.)

- In Civil Law:

- Plaintiff merely claims that the other party is guilty.

- **Burden of Proof:**

- Criminal Law:

- Burden of presenting Proof lies on prosecution.
Defendant is Innocent until proven guilty.

- Civil Law:

- Both plaintiff and defendant have the burden of presenting proof.

Examples of Crimes involving CS/IT (Cyber Crimes)

- Mobile Credit/Credit Card/ATM Fraud
- Threatening Calls through Mobile/Phones
- IP/Email Address Tracing (by non-govt persons)
- Threatening/Abusive Emails
- Hacking related attacks, Website Defacements
- Email scams, SMS Scams
- Electronic Money Laundering (Paypal ?????)
- Pornography, Gambling, Virus/Worm Attacks, Internet Time Theft, etc. .
- Anything else ?

Important Cyber Crime Laws in Pakistan

- (1885) Telegraph Act
- (1933) Wireless Telegraph Act
- (1974) Federal Investigation Agency Act
- (1996) Pakistan Telecommunication Act
- (2002) Electronic Transactions **Act**
- (2007) Electronic Crimes **Ordinance**
- (2007) Payments & Electronic Fund Transfer Act

Application Areas of Electronic Transaction Act (2002)

- Criminal Access to Data/Computers
- Data/System Damage
- Electronic Fraud/Forgery
- Encryption Mis-use
- Cyber Stalking
- Virus Propagation
- Spamming/Spoofing
- Cyber Terrorism

Famous Cyber Criminals ?



Julian Assange
Wikileaks
Wanted for hacking
espionage related crimes
in many countries



Kevin Mitnick
**Life in Prison, but
released after 5 years**
Most wanted computer
hacker in United States
Hacked IBM, Nokia, Sun
FBI, Pentagon, Novell
servers.
**Hired by companies to
setup secure systems.**



Adrian Lamo
Hacked New York Times,
Yahoo, Microsoft
servers.
**Arrested 2003
light sentence
but heavy fine.**
Relaxed after revealing
name of soldier who
leaked sensitive
diplomatic cables to
WikiLeaks

Famous Cyber Criminals ?

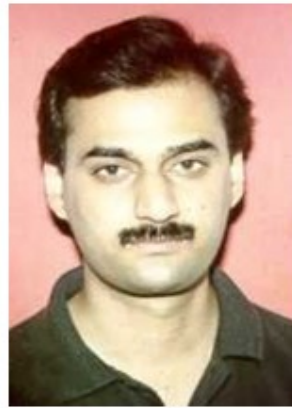


Gary McKinnon
Caused damage to
US Military Servers
(Pentagon + NASA)

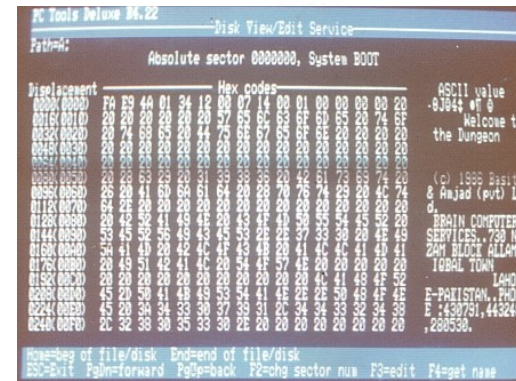
\$700,000

Can face 60 years in
prison if extradited from
UK to USA.
AUTISTIC

Amjad and Basit Farooq Alvi.



Amjad Farooq Alvi.



Basit Farooq Alvi.

Robert Soloway
Microsoft Sued him
\$ 7 Million in Damages.
Case still going
World's biggest Spammer
Tax evasion, Wire + Email
fraud, etc.

Brain Virus
Released January 1986
from Lahore, Pakistan
**considered 1st Virus
for MS-DOS**



Cyber Crime ?

Hacked By Pakistan Cyber Army

https://www.centralbankofindia.co.in/site/

Google

أشهد أن لا إله إلا الله وأشهد أن محمداً رسول الله

Hacked By Pakistan Cyber Army



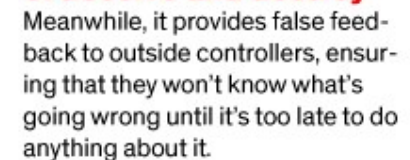
Oooopsss ! WTF ? Central Bank of India HaCked ?

IMG: IEEE Spectrum Magazine

STORIES



If the system isn't a target, Stuxnet does nothing; if it is, the worm attempts to access the Internet and download a more recent version of itself.



Who makes Laws?

• آئین کے تناظر میں !!!

- Pakistan:

- Based on Legal system of British India
- Influenced by Shariah Law (Federal Shariat Court)
- Local Laws/FCR (FATA/PATA)

- Great Britain

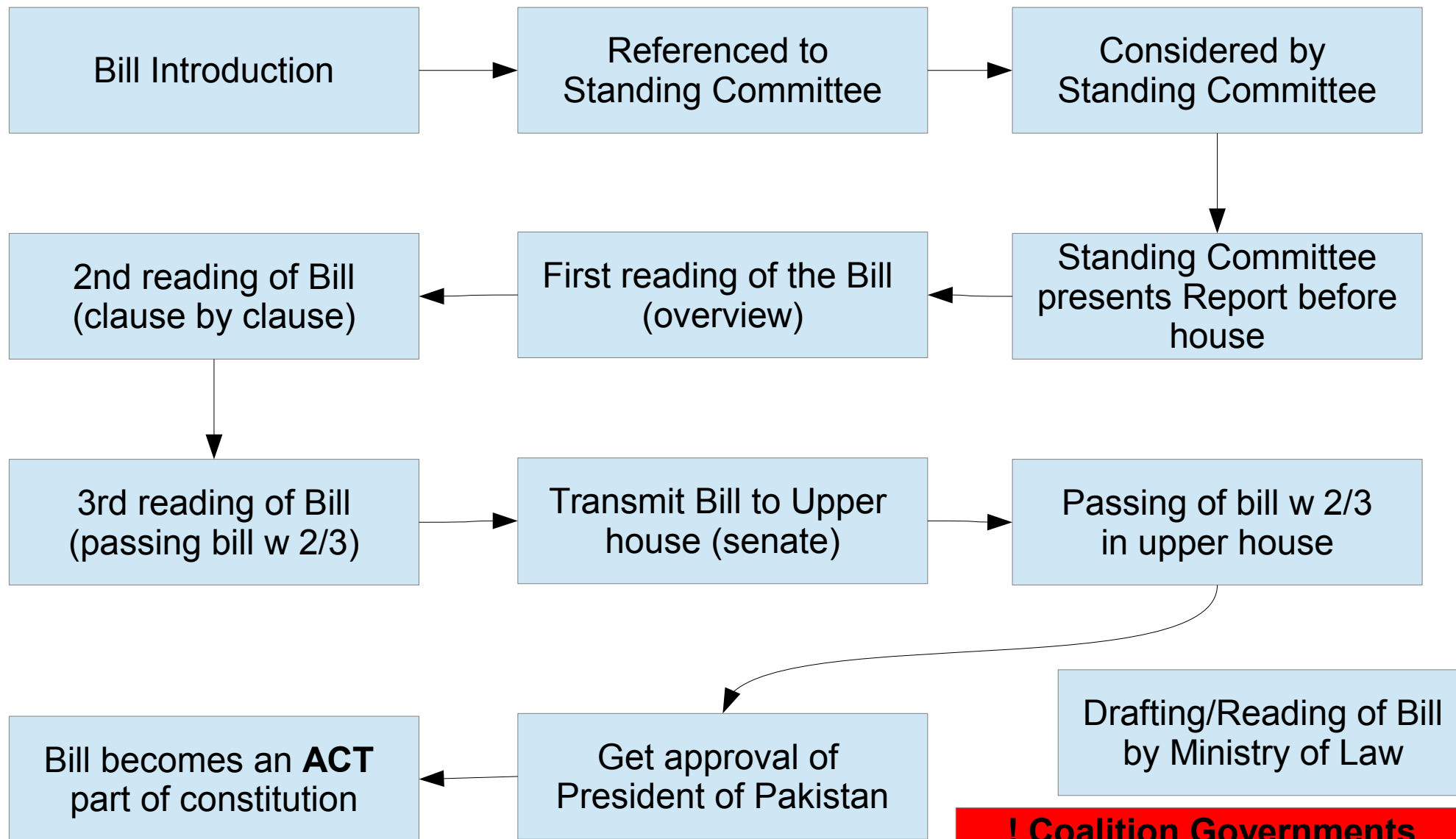
- Common Law: Not written, determined by judge judgments over centuries (Precedence Rule)
 - Applicable to Commonwealth Countries
- Statute Law: Acts of Parliament (Legislation)

Who makes Laws?

- National Assembly (Lower House) Legislation Types:
 - Government Bills
 - Private Member's Bills
- Provincial Assembly Legislation:
 - Only if not in concurrent Lists



Pakistan: Process of Passing a Bill



Info: Imtiaz Yusuf, Ministry of Law, Govt of Pakistan

! Coalition Governments
! Military takeover
! Parliamentary capacity

Other Countries: Case of UK

(Legislation by Parliament)

- **House of Commons**

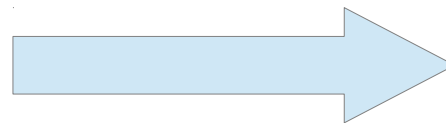
(elected members: MP)

(PM, Exchequer, Foreign Secretary,
Home Secretary from here)



- **House of Lords**

(Appointed, Hereditary Peers,
Lords, Barons, etc.)



- **Passing a Bill:**

1) Government Introduces Bill in
House of Commons

2) Upon approval, passed to House of Lords.

3) Upon approval, becomes “**Act of Parliament**”.

4) Passed to Queen for final approval (Queen cannot Refuse), and then becomes
law.

Other Countries: Case of USA

(Legislation by Congress)

- Senate (elected for 7 years, 2 senators per state)
- House of Representatives (Congressmen, elected for 2 years, 1 congressman per state)
- Passing a Bill:
 - 1) Legislation passes through Senate, and then forwarded to Congress
 - 2) Legislation debated in Congress, and then passed to President for Approval.
 - 3) President gives final approval, but has veto rights.
 - Supreme Court: Can veto law passed by congress + president if it is UN-constitutional

