

# **Information Technology Act**

**Adv Prashant Jhala**

**922 3535 301**

**p12jhala@gmail.com**

# Background

- Information Technology Act, 2000 came into force on 17th October 2000
- Information Technology (Amendment) Act, 2008 came into force on 27<sup>th</sup> October 2009
- Indian Penal Code- “Document”  
Followed by “or Electronic Record”
- Evidence- Sec 65B



# What are cyber crimes?

- **Any unlawful activity where cyberspace is used as a tool or a target or both.**
- **Cyberspace includes computers, the Internet, pen drives.. even cars and microwave ovens!**
- **Money is the most common motive behind cyber crimes rather than for “revenge” or for “fun”.**

# Computing Speed

- **China- world's fastest Supercomputer**
- **Computing speed- 2,507 trillion calculations per second**
- **That is 1.4 times faster than the world 's current fastest ranked supercomputer in the US**
- **Japan- "K Computer"- is in a bid to take away the crown**



# Use of Technology

- **US police to use an algorithm a complicated math equation, to predict crimes**
- **40% of crimes were predicted**
- **5 criminals were arrested**
- **Crimes in those areas are down by 27%**
- **Computerized Simulation plans were created to keep a check on Sachin Tendulkar in the series concluded in England**

# Exponential Growth of Technology

- **A car without a driver- Free University of Berlin, Germany**
- **Uses Laser camera fitted on the roof, Radar in front bumper, 3 other cameras, GPS system, Odometer fitted on the wheels to monitor distance from other cars & objects (systems cost \$5.5 lac )**
- **This car is run on a software & it does not need a driver to maneuver. It can stop & start by itself, it can think about different possibilities, routes, traffic etc by using sensors**

# What does Cyber Law Encompass?

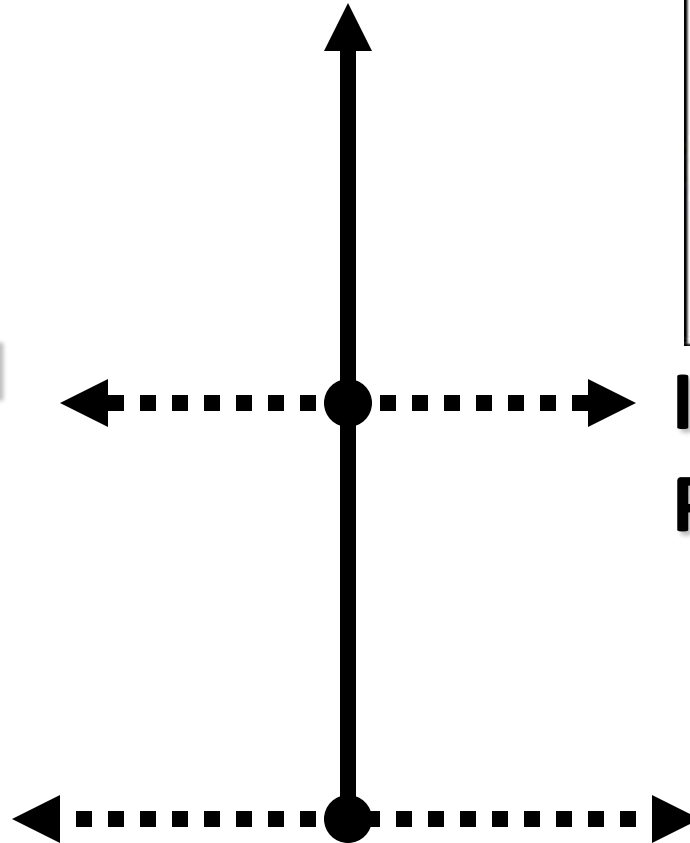


**Electronic and  
Digital  
Signature  
Laws**

**Intellectual  
Property Law**

**Cyber Crime  
Law**

**Data Protection  
and Privacy  
Laws**



# Electronic v/s Digital Signatures

- The Information Technology (Amendment) Act, 2008 amends the technology dependent approach.
- It introduces the concept of *electronic signatures or electronic authentication technique* in addition to digital signatures (Sec 3-A).



**Digital Signature**

# Technologies in use

- PINs
- user-defined or assigned passwords,
- scanned handwritten signatures,
- signature by means of a digital pen,
- clickable “OK” or “I accept” boxes.



# Technologies in use



- Digital signatures within a public key infrastructure (PKI)
- Biometric devices



# Sec 75

- **Irrespective of the nationality of any person, if any person while committing any Offence or Contravention outside India, uses a Computer, Computer system or Computer network located in India**
- **The provisions of this Act will apply to such person**
- **Wide scope, but applicability?**



# Sec 43-Compensation claims

- **Penalties & Compensation is not restricted to Rs 1 crore anymore on cyber crimes like:**
  - (a) accessing or securing access to a computer
  - (b) downloading, copying or extracting data
  - (c) computer contaminant or virus
  - (d) damaging computer
  - (e) disrupting computer
  - (f) denial of access



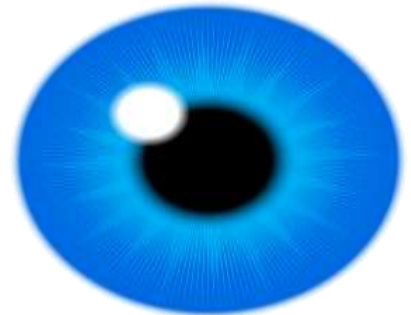
# Sec 43-Compensation claims

- **Penalties & Compensation is not restricted to Rs 1 crore anymore on cyber crimes like:**
  - **(g) providing assistance to facilitate illegal access**
  - **(h) computer fraud**
  - **(i) destroying, deleting or altering or diminishing value or utility or affecting injuriously**
  - **(j) stealing, concealing, destroying or altering computer source code**

# **Sec 43-Compensation claims**

- **The Adjudicating Officers (Secretary of the IT Dept) will have jurisdiction for cases where the claim is up to Rs. 5 crore.**
- **Above that, the case will need to be filed before the civil courts (Unlimited liability).**

# Liability of call centers, BPOs etc



<http://aurum.qb.net>

- **Sec 43 A- failure to protect data**
- **A special liability has been imposed on call centers, BPOs, banks and others who possess, deals or holds or handles “sensitive personal data or information”.**
- **Negligence in “implementing & maintaining reasonable security practices and procedures” & thereby causes wrongful loss or wrongful gain to any person**

# **Sensitive personal information**

**Password- Medical information- Financial information-  
Biometric information- Health information**

- **Sexual orientation**
- **Indicative list**
  - **Hospitals, Doctors, Insurance companies;**
  - **BPOs;**
  - **All organizations which collect health information about their employees;**
  - **Banks, NBFCs;**
  - **Educational Institutions**

# Compliance assessment

- **Map information flow, assess requirements;**
- **Create assessment report, suggest measures;**
- **Inspect after implementation of measures;**
- **Review employee agreements and policies;**
- **Create ISMS and formulate security policies;**
- **Training and awareness programs on information security, data protection and cyber crime law**

# Liability of call centers, BPOs etc

- Under the new law, in such cases, the BPOs and call centers could also be made liable if they have not implemented proper security measures.
- Just Dial alleged Infomedia Stole its Database, online directory (2010)



# Information Security- Social Engineering

- **Human factor is truly security's weakest link**
- **Albert Einstein, is quoted as saying, "Only two things are infinite, the universe and human stupidity, and I'm not sure about the former"**
- **(IT) professionals hold to the misconception that they've made their companies largely immune to attack because they've deployed standard security products - firewalls, intrusion detection systems, or stronger authentication devices such as time-based tokens or biometric smart cards are **living in illusion of security****

# Information Security



- Cracking the **human firewall** is often easy, requires no investment beyond the cost of a phone call, and involves minimal risk
- The Computer Security Institute, in its 2001 survey of computer crime reported that 85 percent of responding organizations (to SE) had detected computer security breaches in the preceding twelve months

# Data Theft

- **Since last 2 years, Indian business persons incurred a loss of Rs 1000 crore – data theft through phishing**
- **For approx Rs 50000, a database of 1 lac mobile phone number can be purchased**
- **A data theft virus may cost Rs 3 crore**
- **Advanced Persistent Threats (ATP's)**
- **Are crated to evade best online detection skills**

## **Sec 72A (offence)**

- **Punishment for Disclosure of information in breach of lawful contract**
- **Any person including an intermediary who, while providing services under a lawful contract, has secured access to any material containing “Personal Information” about another person, with the intent or knowledge to cause wrongful loss or wrongful gain discloses**



## **Sec 72A (offence)**

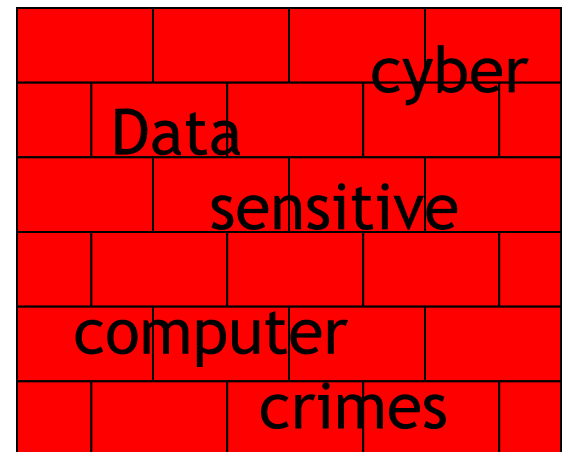
- **without consent of the person concerned or in breach of a lawful contract, such material to any other person**
- **Imprisonment up to 3 years or with fine up to 5 lac or with both (Cognizable but Bailable)**

# Sec 85 Offences by Companies

- **Where a person committing a contravention of any of the provisions of this Act or of any rule, direction or order made there under is a Company,**
- **every person who, at the time the contravention was committed, was in charge of, and**
- **Was responsible to, the company for the conduct of business of the company as well as the company,**
- **shall be guilty of the contravention and shall be liable to be proceeded against and punished accordingly:**

# Sec 85 Offences by Companies

- provided that nothing contained in this subsection shall render any such person liable to punishment
- if he proves that the contravention took place without his knowledge
- or that he exercised all due diligence to prevent such contravention.
- Baze.com-CEO was arrested



# Scope of Misuse - Liabilities

- **Is it a crime to store pornography?**
- **In a corporate office- a team with police officials- software licenses checked for piracy- found pornographic clippings stored on one of the terminals by an employee- employer threatened to be charged u/d sec 67**
- **Web Defacement- what if child pornography uploaded?**
- **Bazee.com- case**

# Computer Related Offences

## Sec 66

If you spend more on coffee than on IT security, then you will be hacked.

What's more, you deserve to be hacked.



Richard Clarke,  
Special Adviser on cybersecurity to the US President.

# **Computer Related Offences**

## **Sec 66**

- **If any of the acts as mentioned in Sec 43 (a)-(j)**
- **Done with dishonest intention or for fraudulent purpose**
- **3 years jail and / or fine up to Rs 5 lac**
- **Cognizable & Bailable**

# Hack Attack

- **Websites experience at least 27 attacks every hour**
- **Hacker engage automation thus the attacks goes upto 25000 per hour**
- **375.3 million websites that are active had an average 230 vulnerabilities during 2010**
- **Hacking cases- Maharashtra 28, AP 24, Kerela 22, TN 15**
- **In cities, Bangalore had 102 cases- highest in the list**

# Hack Attack

- **Sony Play station (2011)**
- **Vital information including credit card numbers & bank details, addresses etc of customers playing games online were compromised after been hacked into**
- **The attack went unnoticed for several days**
- **Sony could not fix it nor stop the further attacks**
- **They had to apologize to the gamers**
- **Could not resume business for a long period**

# **Report- Foreign Spies Stealing US Economic Secrets in Cyberspace**

- **China & Russia were named the most responsible countries for cyber- economic espionage**
- **Billions of dollars of trade secrets, technology (military apps) & intellectual property are being siphoned each year from the computer systems of the US government agencies, corporations & research institutions**
- **Thus benefitting the economies of China & other countries- by gaining access to cutting edge technology of US**
- **The Hackers come from many countries & range from foreign intelligence services to corporations to criminals**

# **Sec 66- Computer Related Offences**

- **HSBC Bank (Geneva)- Hard Disc was stolen by employees**
- **They ran away to Lebanon**
- **Invited various countries to buy the HD that had details of 78000 private customers & 20000 Corporate clients**
- **Sold to French Government as it contained information of illegal money parked in the bank by their citizens**
- **Got money, political asylum and state security**

# **West Bengal CID website attack-2011**

- **Kolkata: The perpetrators of Sunday's hacking attack on the official website of West Bengal CID has been traced to Lahore and they had routed it through a US proxy server, a senior agency official said**
- **"The hacking was done by little-known organization Muslim Liberation Army from Lahore and the proxy server was traced to America," DIG, CID, (SOG), K Jayaraman told reporters**
- **There was no reason to worry as the original home page had been restored on that day itself, he added**

# **West Bengal CID website attack-2011**

- **The hacked page reads: "This institutionalized impunity with which the killing of civilians by military and police forces in Jammu and Kashmir continues should be a source of shame for India which propagates to be a democracy."**
- **Meanwhile, the Muslim Liberation Army has claimed to have hacked different government, college and university websites from time to time.**

# **GPS Coordinates Downloaded by PAK Army- 2011**

- **Indian Security Breached- Siachen Glacier**
- **Pakistan army downloaded the GPS coordinates of all the helipads along with the code sings & nick-names from the Indian Army helicopter that strayed across the Line of Control (LoC)**
- **The GPS data was found to be wiped out from the helicopter**

# **Sending offensive messages**

- **Section 66A- email sent for causing annoyance or inconvenience or to deceive or to mislead the addressee or recipient about the origin of such messages**
- **Spam, spoofing , phishing**
- **Threat mails,**
- **3 years jail and fine**
- **New provision**



# Sec 66 A

- **Email spoofing, SMS spoofing**
- **Spam mails**
- **Phishing mails**
- **Threat mails**
- **Cyber Stalking**



## Sec 66 B-C-D

- **Sec 66B**- Stolen computer or devices (2<sup>nd</sup> hand mobile phones), up to 3years and/or fine up to 1 lac
- **Sec 66C**- Identity Theft e.g. password, electronic signatures or id features, up to 3 years and a fine up to 1 lac eg. Creating a fake profile
- **Sec 66D**- Cheating by Personating (impersonation), fake mails, phishing, up to 3 years and fine up to 1 lac

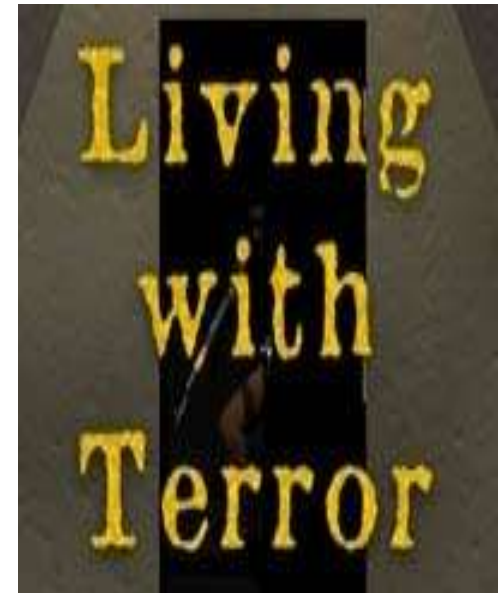
# Sec 66E- Violation of Privacy

- **Voyeurism** - Acts like hiding cameras in changing rooms, hotel rooms etc, photographers who capture gear malfunction photos of models while covering a fashion show is punishable with jail up to 3 years & or fine up to 2 lac
- **Shopping Mall in Bandra**
- This would apply to cases like the infamous Pune spy cam incident where a 58-year old man was arrested for installing spy cameras in his house to 'snoop' on his young lady tenants
- **Mc Donald's, Thane-** mobile phone camera hidden by an employee in the wash room- 2010



# Sec 66F – Cyber Terrorism

- **Covers acts like hacking, denial of access attacks, port scanning, spreading viruses etc if these acts can be linked to the object of terrorizing people.**
- **Conspiracy is also covered**
- **Attracts - Life Term**
- **Cognizable, Non bailable**



# Sec 67-Cyber Porn



- **Publishing, Transmitting & causing to Publish**
- **1<sup>st</sup> offence- imprisonment up to 3 years & fine up to Rs 5 lac**
- **Cognizable & Bailable**
- **Subsequent offence- imprisonment up to 5 years and a fine up to Rs 10 lac**
- **Cognizable & Non-Bailable**

## **Sec 67-Obscene sms / emails**

- **The punishment for spreading obscene material by email, websites, sms has been reduced from 5 years jail to 3 years jail.**
- **This covers acts like sending 'dirty' jokes and pictures by email or sms.**
- **Sms by an new mobile user landed him in trouble.**
- **2010- Thane- Ravindra Bhalerao owner of a coaching class, showed porn clips to a minor girl- arrested under this section**
- **Global Internet- Porn sites generates approx 3000 US dollars per seconds (2010)**

# Sec 67 B- Child Porn

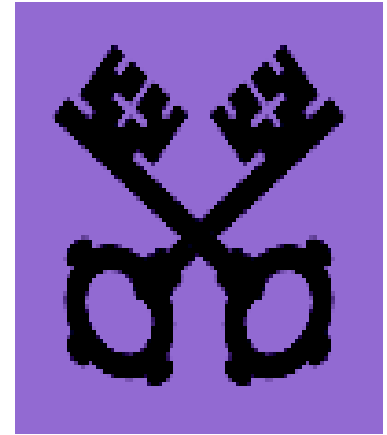


- **Collecting, browsing, downloading etc of child pornography (below the age of 18 years) is punishable with jail up to 5 years & fine up to Rs 10 lac for the first conviction.**
- **For a subsequent conviction, the jail term can extend to 7 years. A fine of up to Rs 10 lac can also be levied.**
- **Sec 67B - Cognizable & Non Bailable**

## **Sec 67 B- Child Porn**

- **2010-Lt Colonel Jagmohan Balbir Singh arrested for uploading clips of child pornography (publishing)**
- **The downloading software he used simultaneously uploaded clips.**
- **Software like u-Torrent- have an inbuilt system wherein the clip being downloaded gets simultaneously uploaded through the default setting to maintain high quality of videos on the internet**
- **Seeders- downloads & uploads the video, hence better quality. Leechers- only downloads**
- **2010- Spanish priest was arrested with 21000 files on child pornography**

# Sec 69



- **Sec 69-** Intercept or monitor or decrypt
- **Sec 69A-** Blocking for public access (both sec 69 & 69A- up to 7 years & fine)
- Refusing to hand over passwords, prison for up to 7 years.
- **Sec 69 B-** Monitor & collect Traffic Data(3 years & fine)

# Sec 70 & 70A

- **Sec 70- Hacking into a Government computer or website or the facility of “Critical Information Infrastructure” (destruction of which will impact on national security, economy, public health or safety) or even attempting to do so is punishable with imprisonment up to 10 years**
- **Sec 70 A- Nodal agency for Critical Information Infrastructure Protection.**



## **Sec 70 B**

- **Sec 70 B- ICERT to serve as national agency for Incidence Report**
- **Any service provider, intermediaries, data centers, body corporate or person fails to provide the information called for or comply with the directions**
- **Imprisonment up to 1 year or fine up to Rs 1 lac or both**

# Sec 78

- **Sec 78 -Cyber crime cases can now be investigated by Inspector rank police officers (PI).**



- **Earlier such offences could not be investigated by an officer below the rank of a Deputy Superintendent of police (Dy.SP)**

# **Sec 79 A**

- **Central Govt to notify Examiner of Electronic Evidence**
- **For the purpose of providing Expert Opinion on electronic form (computer evidence, digital- audio, video, cell phones, fax machines) for evidence before any Court**

# **Sec 80 Power of Police Officer and Other Officers to Enter, Search, etc**

- **Any police officer, not below the rank of a Inspector or any other officer of the**
- **Central Government or a State Government authorized by the Central Government in this behalf**
- **may enter any public place and search and arrest without warrant**
- **any person found therein who is reasonably suspected of having committed or of committing or of being about to commit any offence under this Act**

# RELEVANT AUTHORITIES

- **For investigation**
  - **Controller of Certifying Authorities (Chap IX & XI)**
  - **Officers appointed by CCA**
  - **Inspector of Police (Chap XI)**
  - **ICERT**
- **For adjudication**
  - **Adjudicating Officer (Chap IX-up to Rs 5 cr)**
  - **Cyber Appellate Tribunal (Chap IX)**
  - **Civil Courts (compensation above Rs 5 cr)**
  - **Criminal Courts (Chap XI)**

# ADMISSIBILITY OF ELECTRONIC RECORDS

- **Sec 65 B of the Indian Evidence Act**
- **The computer holding the evidence need not be produced in a Court. A printout of the record, or a copy on a CD Rom, Hard disk etc can be produced.**
- **However some conditions need to be met & a certificate needs to be provided**
- **“Information relating to IP address 10.232.211.84”**
- **The System administrator will have to state that to the best of his/her knowledge & belief that- the said server & the computer were used as per the companies security policies**

# Misleading Advertising

- Reebok- had to pay \$25 mn fine for claiming its EsayTone shoes gives the perfect posterior
- Revelon- its cream could get rid of cellulite
- KFC- fried chicken's- nutritional value & its compatibility with popular weight-loss program
- Coca- Cola, Nestle & Beverages artnership Worldwide- consuming "Enviga"- carbonated green tea product- will lead to weight loss
- Nivea- "My Silhouette"-body cream- helps you lose weight

# Use of steganography (Encryption)



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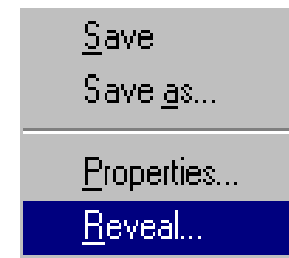


**Original picture**

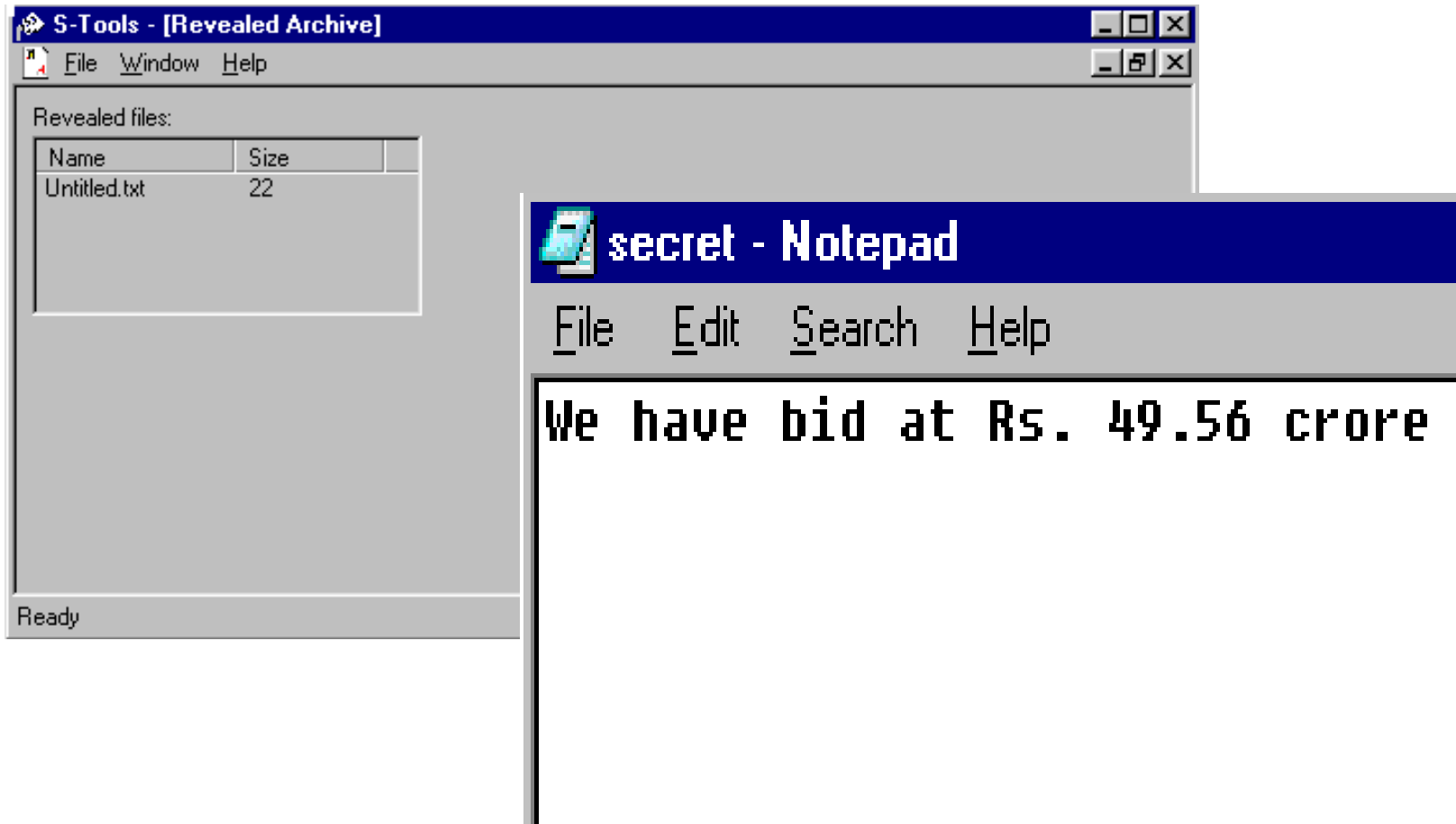


**Altered picture**

# Revealing hidden message



# Revealing hidden message



# Steganography

- Science of hiding data behind an Image File (mp3, video, acrobat stego) Data is scrambled into the mage
- S-tools are used to create Stego Files. Uses a high level Encryption
- It is almost impossible to crack as they use complex Algorithms for creation
- Steg analysis or Histogram, may give out important results
- **Camouflage**- any file behind any file

# Social Networking Sites

- Has created a parallel cyber world population & proclaims that it is the 4<sup>th</sup> largest populated space on the planet that exists in cyber space -SNS
- The internet, emails & SNS may have redefined our existence but have caused complications by bringing dangers into our homes & offices
- Nearly 3 lacs complaints were filed- The Internet Crime Report



# **Social Networking Sites**

- **A student of IIM Bangalore committed suicide**
- **Had a fight with her boyfriend residing in Delhi**
- **Her boyfriend uploaded his status on fb and declared about his breakup with this girl by posting it on the social networking site**
- **The girl could not take it, committed suicide, leaving behind a note that she was upset after reading the post on Fb- 2011**
- **Adnan Patrawala case- Orkut**

# Case Study

**Young girl accepts friend request from a stranger on a social networking website**



# Invited to a party



# Drink spiked with a drug without her knowledge





- **Drug has sedative, hypnotic, dissociative and amnesiac effects**
- **She wakes up after 24 hours in an unknown place and can't remember a thing!**
- **Finds obscene pictures of hers online...**

# *Password Cracking*

- ❖ Password crackers are used for brute force attacks and dictionary attacks
- ❖ On a Pentium IV computer, approx 50 lacs passwords can be checked per second
- ❖ Software's- Pass ware kit, decryptum.com, Rainbow table

**Adv Prashnat Jhala**  
**9223535301**



**Thank You**