Nature of Computing

Chapter 10 – Computer Security and Risks

Austrian Empress Maria Theresa

Kempelen’s Amazing Chess-Playing Machine

Emperor Joseph II

Napoleon Bonaparte

Edgar Allan Poe
Deep Blue vs Kasparov 1997

Computer Crime
- 2001 Survey – 85% of businesses had a security breach
- Estimated loss = $377 million
- Each Year: billions lost
- Most crime by company insiders, exploiting loopholes
- Many companies cover up, rather than publicize their losses

Types of Computer Crime
- Stealing data (e.g. Credit Card numbers)
- Theft of computers
- Identity theft – two thirds of ID theft begin with email (“Phishing”)

Reducing Risks
- Reduce physical access
  - Hide your laptop
  - Take it with you
  - Don’t leave in library
- Use secure passwords (not just words)
- Use Firewalls

Other Precautions
- Backups
  - No matter what precautions you take, something could still go wrong
  - Protect your valuable data
  - Offsite backups
- UPS – Uninterruptible Power Supply
  - Cheap – About $60
  - Protects from power spikes, outages
  - Can shut down computer for you

Computer Security
- Crime
- Cryptography
- Security vs. Privacy
- Ethics
Cryptography
- Public Key Cryptography
- Private Key
- Public Key

Security vs. Privacy – p405
- Employers may read email
- ISP’s have right to read email
- Phone systems must be capable of being tapped by FBI
- GUID – Global Unique Identifier
- GPS, Cell phones & 911 calls

Computer Ethics – p 407
- Know the rules and the law
- Don’t assume it’s okay if it’s legal
- Think scenarios
- Get wisdom from others – talk about it
- Make yourself proud
- Golden Rule
- Take the long view

Artificial Intelligence?
- Is the soul immaterial?
- Does it require a soul in order to be intelligent?
- What if it were possible, would you make an intelligent robot?