Computer Security

- ❖ **Computer Security is a safeguard.**
  - ◆ Protect personally identifiable information (PII)
  - ◆ Protect computers from cyber criminal attack
- ❖ *Compromise* **is a breach in security**
  - ◆ Malicious attacker hacking into a system
  - ◆ User forgetting to log out of a machine
- ❖ *Risk* **is likelihood that the compromise occurs**
  - ◆ Confidentiality risk: exposing password and user ID
  - ◆ Integrity risk: unauthorized change to documents
  - ◆ Availability risk: improper control of access

Cyber Criminal Tactics

- ❖**Malware = "malicious software."**
  - ◆ Viruses spread via e-mail, websites, file sharing, USB drives, and removable media
  - ◆ Worms spread across networks by exploiting software vulnerabilities
  - ◆ Trojan horses disguised as legitimate software "Backdoor" trojan facilitate unauthorized access
  - ◆ Spyware collects information about computers or their users and sends it to third parties
- ❖**Spam messages are unsolicited messages.**
  - ◆ Can't harm computer without user interaction
  - ◆ Opening attachments or clicking links malware

Protection from Cyber Attacks

- ❖ **Antivirus software scans your computer and files to protect it from known viruses**
  - ◆ Bitdefender Antivirus
  - ◆ AVG Antivirus
  - ◆ Avast
- ❖ **Firewall is a protective layer with Internet**
- ❖ **Strong Passwords mix letter case, numbers, and symbols. Use password manager such as KeePass**
- ❖ **Develop Good Security Habits like logging out, beware of spam emails, changing passwords**
- ❖ **Use Encryption on transmitted documents**
- ❖ **Scan and Immunize against Spyware**
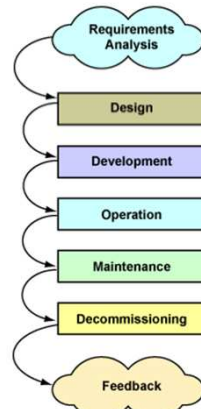 - ◆ Spybot Search and Destroy
  - ◆ Spybot Anti-Beacon

Signs Computer Is Compromised?

- ❖**Signs Computer Is Compromised?**
  - ◆ Pop-up ads appear even when not on web
  - ◆ Home page of your web browser is hijacked
  - ◆ Computer seems less responsive and slow
  - ◆ Internet access is persistently slower
  - ◆ Windows is "low on resources" frequently
  - ◆ Your firewall cannot be started
  - ◆ Antivirus software cannot be updated
  - ◆ Computer is crashing often
- ❖**Responding to a Compromise**
  - ◆ Update and run virus and spyware scanners
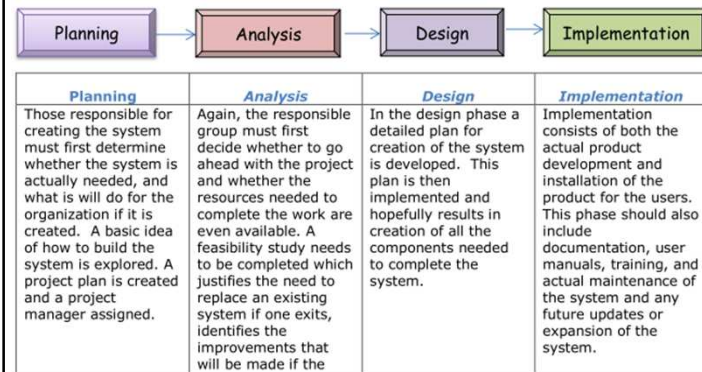 - ◆ Have serviced by a computer professional

Systems Development Life Cycle (SDLC)

❖ Structured methodology and process that guides development of information systems

❖ SDLC is based on a series of related activities that are combined into phases

❖ Purpose of using SDLC is to promote quality during the design, development, and implementation effort

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SDLC Four-Phase Approach

Planning →	Analysis →	Design →	Implementation
Planning	**Analysis**	**Design**	**Implementation**
Those responsible for creating the system must first determine whether the system is actually needed, and what is will do for the organization if it is created. A basic idea of how to build the system is explored. A project plan is created and a project manager assigned.	Again, the responsible group must first decide whether to go ahead with the project and whether the resources needed to complete the work are even available. A feasibility study needs to be completed which justifies the need to replace an existing system if one exits, identifies the improvements that will be made if the	In the design phase a detailed plan for creation of the system is developed. This plan is then implemented and hopefully results in creation of all the components needed to complete the system.	Implementation consists of both the actual product development and installation of the product for the users. This phase should also include documentation, user manuals, training, and actual maintenance of the system and any future updates or expansion of the system.

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Waterfall Model of SDLC

Advantages
Direct project-manager and management control.
Timeline can be established with specific deadlines for each phase, and a software solution can proceed through the development process like a product through an assembly line, and if properly managed, be delivered on time.
Each phase of development proceeds in a predefined order, without any overlapping steps or turning back.
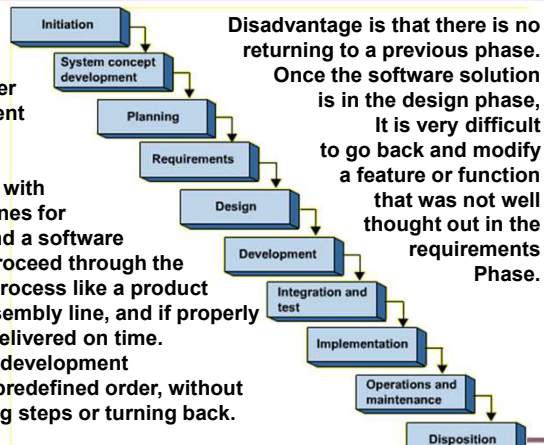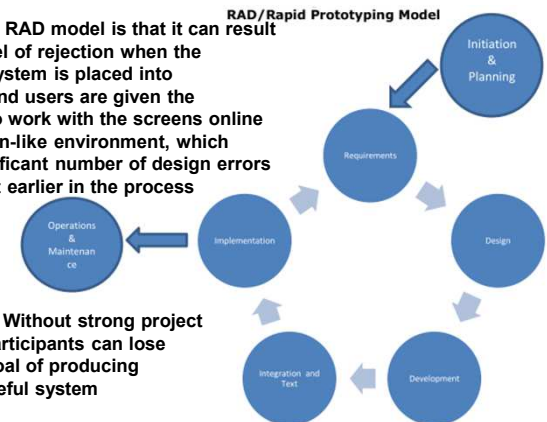
Disadvantage is that there is no returning to a previous phase. Once the software solution is in the design phase, It is very difficult to go back and modify a feature or function that was not well thought out in the requirements Phase.

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Rapid Application Development

Advantage of RAD model is that it can result in a lower level of rejection when the information system is placed into production. End users are given the opportunity to work with the screens online in a production-like environment, which means a significant number of design errors can be caught earlier in the process

Disadvantage Without strong project leadership, participants can lose sight of the goal of producing an optimal useful system

RAD/Rapid Prototyping Model

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