

# Information Security and U.S. Libraries

Opposing objectives?

# The purpose of Information Security as a profession

- Confidentiality.
  - Only those individuals that possess the appropriate rights will have access to the appropriate data.
- Integrity.
  - Assurance that data is not molested in any form but that the recipient of the data can rely upon the source provider.
- Availability.
  - The profession strives to have the data accessible whenever it is required.

# A “broad” view of Librarianship as a profession

- Availability

- The profession strives to provide information whenever it is required by the patron.

- Integrity

- The profession works to provide assurance that data is not molested in any form but that the recipient of the data can rely upon the source provider and, that the data is factual.

- Confidentiality

- Also strives to provide only individuals that possess the appropriate rights access to the appropriate data through Library cards, restricted access rooms, restricted web sites, etc.

Today, the word data usually denotes something associated with computers, in its more classical sense it is another word for information

# Let's step back over 2000 years and substitute data with information

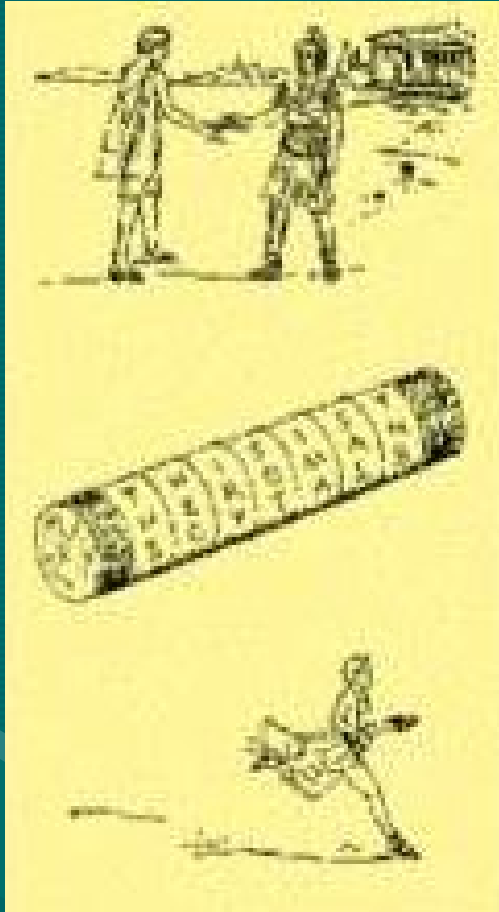


- Over 2000 years ago, practice was to have scribes document religious, scholarly and governmental knowledge and actions.
- Money changers and tax collectors, now known as bookkeepers, also documented business transactions.
- To ensure availability and integrity scribes would often be tasked with copying documents from one form to other scrolls, papyrus, tablets or other forms of media. Confidentiality, on the other hand, may not have been of great focus at this time since the vast majority of the population was unable to interpret the information due to illiteracy.

# Importance of Libraries

- The Samarian financial records are some of the earliest known records found to date forming a formal method of transaction keeping; thought to be dating around 3500 BC.
- The library at Alexandria is thought to be one of the first such repositories. The Library at Alexandria was created by one of Alexander the Great's generals in 290 BC as repository for important documents.
- These buildings served to protect the scholarly knowledge of the time. A great deal of time and effort went into creating in protecting these vital and historical assets.
- Similar forward thinkers of the era also realized the importance of this wealth of knowledge. Unfortunately, some of these leaders were adversaries of the leaders of the time and upon seizing in these cities, destroyed the libraries and repositories some thereby destroying several hundreds of years of knowledge. Such was the fate of the library at Alexander which was destroyed in 412. A. D.

# Importance of Information



- During times of political unrest the importance of valid information is paramount. To demonstrate the importance of confidentiality of information let us examine the Spartans. Military maneuver orders were delivered to the Spartan prince and general Pausanias in 475 BC via what could be the earliest system of military cryptography, the skytale

# Importance of Information



- As a device for conveying ciphers, the skytale consists of a staff of wood around which a strip of papyrus is tightly wound. Writing the message down the length of the staff, the parchment is unwound to conceal the message. Since the message appears to be nothing more than a series of disconnected letters, its true meaning remains concealed. The secret key of the text is the circumference of the wood. With the wrong circumference, the message is unusable. If the wood matches, you are able to read the message.

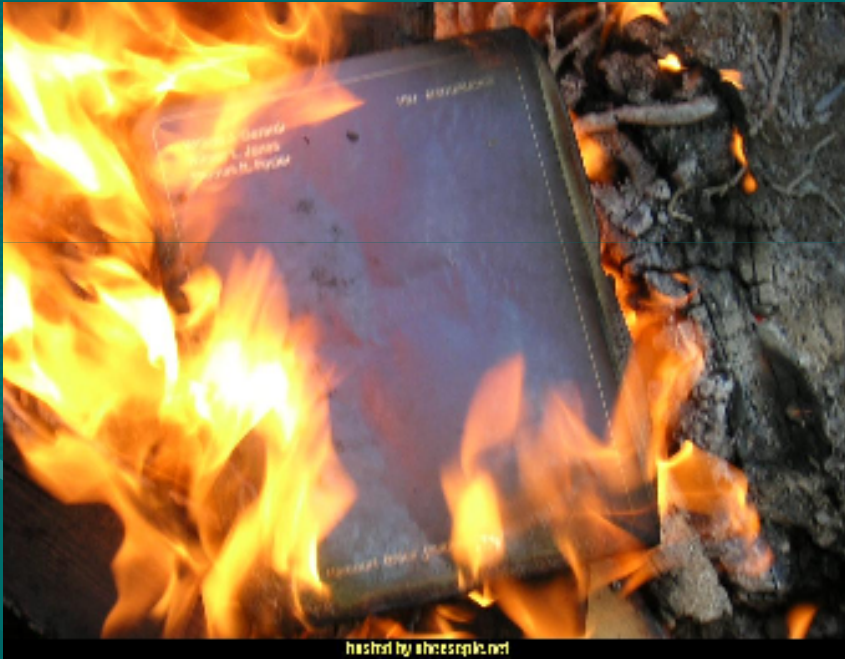


# Importance of Information



- Hitler wished to skew the future learning and knowledge. To do so, Hitler's regime sought to destroy many forms of existing knowledge.
- February 4, 1933 Nazis confiscated literature, music, art, newspapers and any other form of media that it considered dangerous to the state.
- May 5<sup>th</sup> – 22<sup>nd</sup> 1933 literature, research papers and, other forms of information were pulped, burned or, otherwise destroyed by the third Reich.

# Importance of Information



- Hitler was trying was attempting to skew knowledge by only allowing the knowledge he deemed appropriate
- The actions of the third Reich are therefore an abomination for global society and knowledge.

# Mission differences

- Such support for the sharing of information through libraries thereby adds support for information security. While the field of information security does not attempt to validate information correctness, it does seek to protect the data .

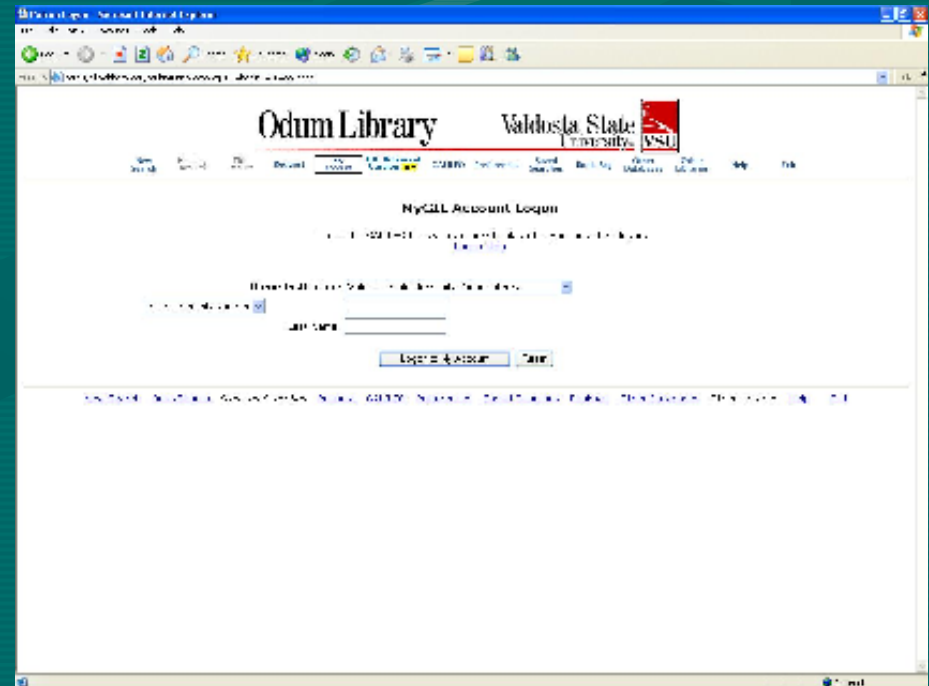
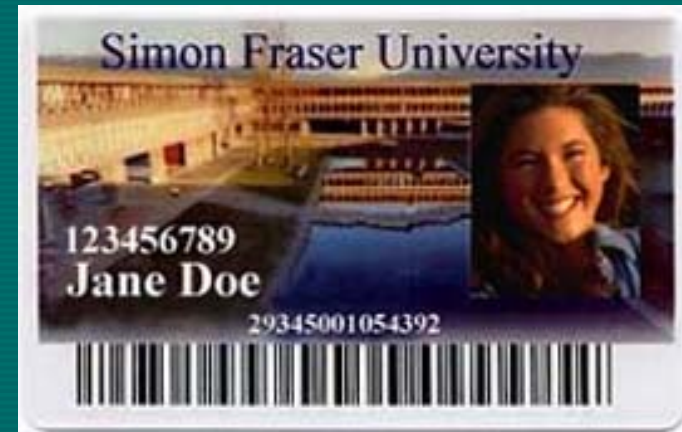


# What are some similarities?

- Access Control
- Physical and Electronic Security
- Telecommunication and Network Security
- Business Continuity / Disaster Recovery
- Impact Analysis

# Access Control

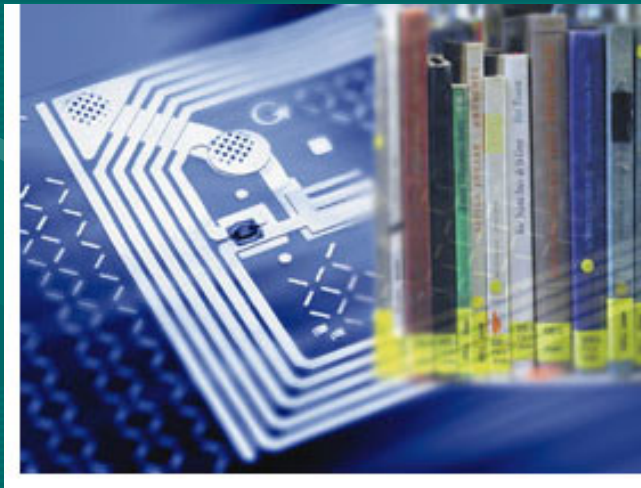
- Identification in the form of:
  - Library (Institutional) IDs
  - Web site authentication
- Required for:
  - Physical resource borrowing
  - Reserve materials
  - Valid email for I.L.L.
  - Reserve/Renewal process through O.P.A.C.
  - Validation for Reference CHAT
  - Authentication for GALILEO password
  - Authenticated E-Resources





# Physical and Electronic Security

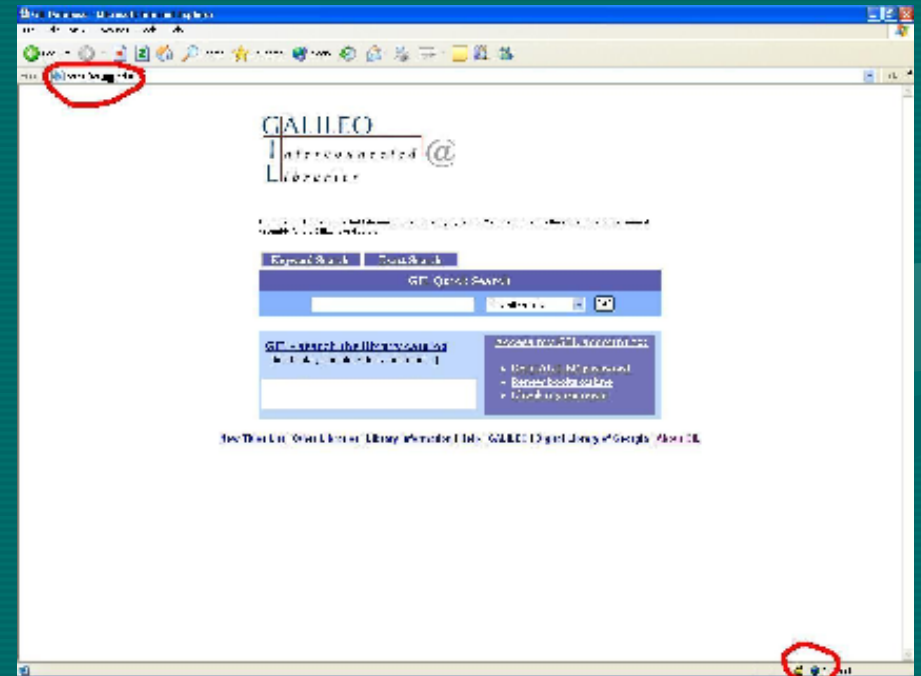
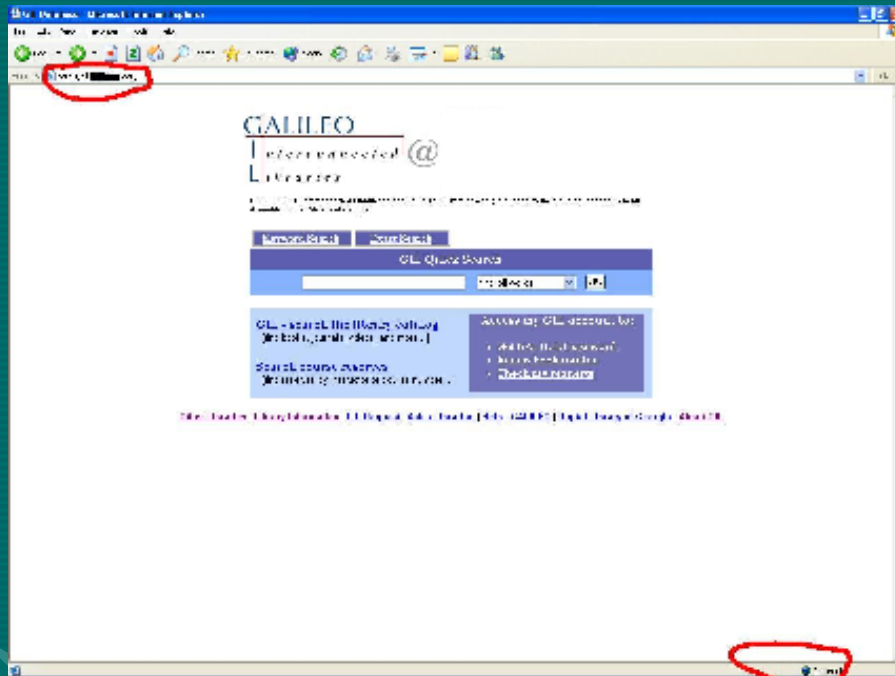
Material/Resource protection through “Tattle tape”, RFIDs  
Security gates, Security guards, etc.



# Archive and museum information protection through physical and electronic security



# Telecommunication and Network Security



- Both professions strive to protect the user's transactions over networks and the Internet through switched networks and SSL encryption



# Business Continuity / Disaster Recovery and Impact Analysis

- Assign value to information and assets
  - What is the value of asset to institution
    - How many missions/goals are affected
    - How many people/departments are affected
  - How much does it cost to maintain asset
  - How much would it cost to recreate or recover information/asset
  - How much does it cost to develop or acquire asset/information
- Estimate potential loss per risk
  - What physical damage can take place and what would it cost
  - How much productivity could be lost and the cost associated
  - What are the cost of disclosing confidential information
  - What are the costs if critical devices fail or critical information is lost
  - What are the cost of recovering from compromises

# Business Continuity / Disaster Recovery and Impact Analysis Cont.

- Threat Analysis
  - Likelihood of threat
  - Occurrence of Threat
- Loss Potential per Threat
  - Potential loss and probability
  - Annualized Loss Expectancy (ALE)
  - Remedial measures to mediate threat
- Manage Risk
  - Reduce
  - Assign
  - Accept

# Library Example

- Replacement cost
  - 1 book lost = price of book + cost of labor (administration, acquisition, cataloging and circulation) + PR (cost of patron(s) not having access to resource)
  - 1 computer stolen = cost of computer + cost of labor (administration, acquisition, installation) + PR (cost of patron(s) not having access to resource)

- If OPAC contained 500,000 records
- Avg. of 10 minutes creation time per record
- Would take approx. 40 years 133 days 20 minutes to recreate OPAC
- For an average \$30,000 Cataloger, would cost approx. \$1,201,923.08

Needless to say, \$1.2 million  
recreation cost justifies a  
\$5,000 backup system

# What practices can be gleaned from Library history

- History of Librarianship
- Data Classification Schemes
  - Dewey
  - MARC 21
  - LOC
  - XML
  - Dublin Core
- User Authentication Standards

- Information Security is concerned with Library anonymity practice of computer usage
  - Allows abuse of Library ethical practices
  - Distorts user accountability
  - Today, almost anyone with a “high speed” connection can launch a computer / network attack

“The social role of the library has undergone much change since its Sumerian or Alexandrian beginnings. Libraries in Sumeria were established in large part as record repositories. The Library at Alexandria no doubt played that role, but it also served as a research facility. What changed? Certainly the “information containers” did: the books had evolved from clay tablets to papyrus scroll. But social, political, and economic needs had also changed. The quest for knowledge came to be perceived as a social good”.



# Are the roles changing yet again?

We as individuals no matter the profession have an obligation to take into account the delicate balance of security concerns with privacy and individual rights.

Questions?

Comments?

