Types of Authentication: Biometrics

- Biometrics refers to the **identification of individuals** based on their physical characteristics

Biometric Identification Techniques

Fingerprinting
- **Ridges** and **furrows** on the surface of the fingertip, which are individually **unique**

Retinal Scanning
- **Analyzes** the layer of blood vessels at the back of their eyes

Iris Scanning
- Analyzes the colored part of the eye

Vein Structure Recognition
- **Analyzes** the thickness and location of veins

Face Recognition
- Analyzes the pattern of **facial features**

Voice Recognition
- Analyzes an **individual's vocal pattern**

Types of Authentication: Smart Card Authentication

- A smartcard is a small **computer chip device** that holds the personal information required to authenticate the user

- Users must insert their Smartcards into readers and their **Personal Identification Number** (PIN) to complete authentication

- Smartcard Authentication is a **cryptography-based authentication** method that provides stronger security than password authentication

Notes:

Types of Authentication: Single Sign-on (SSO)

- SSO allows a user to authenticate themselves to **multiple servers** on a network with **single password** without re-entering it every time

Advantages:

- Users do not need to remember passwords for multiple applications or systems
- Reduces the time needed for entering a username and password
- Reduces the network traffic to the **centralized server**
- Users only need to enter credentials once for multiple applications

Types of Authorization

- Authorization involves **controlling an individual's access** of information (E.g., the user can read the file but not overwrite or delete it)

Types of Authorization Systems

Centralized Authorization

- Authorization for network access is done through a **single centralized** authorization unit
- Maintains a **single database** for authorizing all the network resources or applications
- **An easy and inexpensive** authorization approach

Implicit Authorization

- Users can access the requested resource **on behalf** of others
- The access request goes through a **primary resource** to access the requested resource

Decentralized Authorization

- Each network resource maintains its **authorization unit** and locally performs authorization
- Maintains its **own database** for authorization

Explicit Authorization

- Unlike Implicit Authorization, it requires **separate authorization** for each requested resource
- Explicitly maintains authorization for each **requested object**

Notes: