

## Unit 2: Digital Signatures and Key Management

### 1) Idiom of the day

#### “Hardwired to”

To be naturally or innately programmed to do something.

*Example: She's hardwired to think logically, which makes her great at coding.*

### 2) ACTIVITY 1: Warm-up activity: "Who Am I? Digital Identity Challenge"

#### Objective:

To introduce students to the concepts of digital signatures and key management by using an interactive, fun guessing game that demonstrates the importance of secure, verifiable communication.

#### Instructions:

##### 1. Introduction to the Activity:

Start by asking the class:

*"How do we know if an email, message, or document is really from someone we trust? How do we make sure nobody can fake it?"*

Explain that in the digital world, this is where digital signatures and key management come into play: they allow us to verify the authenticity of digital messages.

##### 2. Activity Setup:

Explain that the game they'll play mimics the process of verifying someone's identity digitally.

- **Step 1:** You will share a set of "identity clues" (descriptions or traits) about a famous person or character.
- **Step 2:** The students will guess who the person is based on these clues.
- **Step 3:** One of the clues will be intentionally false (like how someone can try to fake a signature or impersonate someone online).

##### 3. The Game Begins:

Example Clues (make sure to adjust based on the group's knowledge):

- **Clue 1:** I am a famous inventor.
- **Clue 2:** I developed the theory of relativity.
- **Clue 3:** I am known for my iconic white hair and mustache.

#### 4. Twist:

In this round, the "false clue" is introduced:

**Clue 4 (False):** I was the first president of the United States.

(This clue could mislead the participants into thinking it's George Washington.)

#### Discussion After the Game:

- **How does this relate to Digital Signatures?**
  - In the game, the false clue represents an attempt at impersonation, just like how someone might fake a message or document in the digital world.
  - Just like we need the correct clues to identify the person (identity verification), we need digital signatures to verify the authenticity of a digital message.
- **Key Management in the Game:**
  - Ask students: *"What happens if we didn't have a way to check the clues? How could someone easily trick us?"*

#### Wrap-Up Questions:

- What did you learn about how easily someone could impersonate another person if we don't have a way to check their identity?
- How do you think digital signatures help prevent people from "faking" digital messages or documents?
- Why is key management important in maintaining the security and authenticity of digital communication?