**Encoding vs. Decoding: What’s the Difference?**

**Introduction**  
In the fields of communication, data processing, and computer science, understanding the distinction between encoding and decoding is essential.  
Both are crucial processes involved in the transmission and interpretation of information.

**What is Encoding?**  
Encoding is the process of converting information from one format or representation into another.  
In digital systems, this often means translating human-readable data (like text, images, or audio) into a format suitable for storage, transmission, or encryption.  
For example, converting the letter 'A' into its ASCII code 65 is an example of encoding.

**What is Decoding?**  
Decoding is the reverse process of encoding. It involves taking encoded data and converting it back into a format that is understandable or usable by humans or machines.  
For instance, turning a binary string '01000001' back into the character 'A' is decoding.

**Applications in the Real World**  
Encoding and decoding are used in many real-world applications:

* In **video streaming**, data is encoded for compression and decoded on the user’s device.
* In **communication systems**, messages are encoded for secure transmission and decoded by the recipient.
* In **machine learning**, tokenizers encode text into numerical formats for models to process.

**Summary**  
While encoding prepares data for transmission or storage, decoding ensures the data can be understood upon reception.  
Both are fundamental to how computers and communication systems function today.