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**Character Encoding**An **encoding scheme** or simply **encoding** is a **way** to represent a character in binary. An encoding must follow a specific character set. For example, UTF-8 encoding follows the **UTF character set**. It uses **8-bit binary numbers** to represent a character.

1. **ASCII Encoding**American Standard Code for Information Interchange  
   Contains a total of **128 characters** and each character has a unique value between **0** and **127**needs only **7 bits** to encode a character  
   the actual **bit-width** of ASCII is **8**
2. **ISO/IEC 8859–1**  
   8-bit character encoding.  
   ISO 8859–1 is an extension for ASCII encoding which introduces 128 new characters by utilizing the dead bit of the ASCII code point
3. **Unicode Consortium and UTF encodings**If we think about 8-bit fixed-width encoding, we have only 8 bits to represent a character. Hence the maximum of 256 characters can be represented by such an encoding. The Unicode Consortium also maintains the standard for UTF encodings. UTF (an acronym for Unicode Transformation Format) is a set of encoding schemes based on Unicode charset.
4. **UCS Encodings**This ISO/IEC 10646 standard is maintained in conjunction with The Unicode Standard (“Unicode”), and they are code-for-code identical.  
   UCS-2 is 16-bit fixed-width encoding (2 bytes)  
   UCS-4 is 32-bit fixed-width encoding (4 bytes), which means 32 bits will be used to encode a character
5. **UTF Encodings**UTF-8 is an 8-bit variable-length encoding scheme designed to be compatible with ASCII encoding.  
   UTF-16 is 16-bit variable length encoding scheme and it uses the UTF character set for character code points. This means that a UTF-16 encoded character will have a 16-bit code unit.