## **Web-design PW2 – Avchinnikova Anastasia 354**

1. Character Encoding: A character encoding is a system that assigns a unique number (code point) to each character in a character set, such as letters, digits, and symbols. This encoding allows computers to represent and manipulate text. Common character encoding schemes include ASCII, UTF-8, UTF-16, and UTF-32.

2. Byte Order Mark (BOM): A byte order mark is a special character sequence placed at the beginning of a text file to indicate the encoding and byte order of the text. In UTF-8, the BOM is optional and, if present, consists of the byte sequence EF BB BF. The difference between UTF-8 with and without BOM is mainly in how applications interpret the text file. Some applications may require a BOM to correctly identify UTF-8 encoding, while others may not support or expect it. In general, UTF-8 without a BOM is more widely compatible and is often preferred for interoperability.

3. ASCII Art: ASCII art is a form of digital art that utilizes the ASCII (American Standard Code for Information Interchange) character set to create images and designs. Here's a simple example of ASCII art depicting a smiley face :-)

4. HTML Character Entities: HTML character entities are special codes used to represent characters that cannot be easily typed or displayed directly in HTML documents. For example, the &lt; entity represents the less-than sign <, and &amp; represents the ampersand &. These entities ensure that characters are displayed correctly across different browsers and devices.

5. Use Cases for `<pre>` and `<code>` HTML Tags:

- <pre> tag: This tag is used to define preformatted text, preserving both spaces and line breaks as they appear in the HTML code. It's commonly used for displaying text-based content such as code snippets, ASCII art, poetry, or any text that requires specific formatting.

- <code> tag: This tag is used to define a piece of computer code within the text. It's typically used to highlight programming code snippets, making them stand out from the rest of the text. The <code> tag doesn't preserve whitespace or line breaks like the <pre> tag does. It's often used within <pre> tags or in combination with CSS for styling.

1. GZIP: GZIP is a file format and software application used for file compression and decompression. It uses the DEFLATE compression algorithm, which is also used in the ZIP file format. However, GZIP is designed specifically for single-file compression, commonly used in Unix and Linux systems. It doesn't support archiving multiple files into a single compressed file.

2. ZIP: ZIP is both a file format and a software application used for archiving and compression. It allows multiple files and directories to be compressed into a single archive file. ZIP supports various compression algorithms, including DEFLATE (the same algorithm used in GZIP), as well as others like LZMA and BZIP2. ZIP archives can also store file metadata, directory structures, and support encryption.

Key Differences:

- Purpose: GZIP is primarily used for compressing single files, often used in conjunction with tools like tar to create compressed archives of directories. ZIP, on the other hand, is designed for archiving multiple files and directories into a single compressed file.

- Features: ZIP archives support features like storing file metadata, directory structures, and encryption, making them suitable for distributing multiple files while preserving their organization and integrity. GZIP, being focused on single-file compression, lacks these features.

- Compatibility: ZIP archives are widely supported across different operating systems and software applications, making them a common choice for file distribution. GZIP, although widely supported on Unix and Linux systems, may require additional software or utilities for decompression on other platforms.

- Compression Algorithms: Both GZIP and ZIP support the DEFLATE compression algorithm, but ZIP offers flexibility by supporting multiple compression algorithms, allowing users to choose the one that best fits their requirements.