**1. File Processing:**

A text file (.txt) is a type of file that contains plain text data without special formatting. In Python, text file processing involves operations such as opening a file, reading data, writing data, and closing the file.

Python provides various tools for working with text files, with the most important being the open() function and file object methods.

**2. Classes and Functions Used in File Processing:**

**2.1. open() Function**

The open() function in Python is used to open a file. The basic syntax is:

file = open(file\_path, mode, encoding)

Where:

file\_path: The path to the file to be opened.

mode: The file access mode, including:

"r" (read): Opens the file for reading (default).

"w" (write): Opens the file for writing; if the file exists, it will be overwritten.

"a" (append): Opens the file to append data at the end.

"x" (exclusive creation): Creates a new file; if the file already exists, it raises an error.

"b" (binary mode): Binary mode (used for image, audio, etc.).

"t" (text mode): Text mode (default).

encoding: The character encoding used, with "utf-8" being the most common for Unicode handling.

**Example:**

file = open("example.txt", "w", encoding="utf-8")

**2.2. File Object Methods**

Once a file is opened, we can use the following methods to manipulate it:

Method Description

file.read(size) Reads the entire file or size characters

file.readline() Reads a single line from the file

file.readlines() Reads the entire file and returns a list of lines

file.write(text) Writes text to the file

file.writelines(list) Writes a list of strings to the file

file.close() Closes the file to free system resources

**Example of reading a file:**

file = open("example.txt", "r", encoding="utf-8")

content = file.read()

print(content)

file.close()

**2.3. Writing a Unicode File:**

Example of writing a file with Vietnamese text:

with open("unicode\_example.txt", "w", encoding="utf-8") as file:

file.write("Có công mài sắt.\n")

file.write("Có ngày nên kim.\n")

**Using with open(...) ensures the file is automatically closed.**