Files

Carlos Tavares

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What are files i

A computer has several types of memory: **RAM** (transient), **ROM** (permanent) and the **hard-drives** (persistent)

What are files ii

Information in the persistent storage (hard-drives) is generally available in files and folders.

Behind the scenes files and folders are encoded in a very specific way: a file system.

The file system is managed by the operating system.

What are files iii

A file systems is generally organized into files and folders.

Directories and Files have names: for instance example_files **(directory)** and example.txt **(file)**

A path is a directory + files_name. Example:

example_files/example..txt

What are files iv

Paths can be relative or can be absolute. Consider we are in the following folder:

/some_path/current_directory

A file example.txt that is in the **current_directory**, will have a

relative path: example.txt

absolute path: /some_path/current_directory/example.txt

Opening a File

- Use the **open()** function to open a file.
- Syntax:

  file_object = open(file_name, [access_mode])
- Access modes: w, r, a;
- A file object enables us to call other support methods associated with it.

Reading a File

```
# Open a file for reading
with open('example.txt', 'r') as file:
    content = file.read()
    print(content)
```

- The **with** statement handles the file closing automatically.
- The **read()** method reads the whole file at once.

Example of File Iteration

```
with open('example.txt', 'r') as file:
    for line in file:
        print(line, end='')
```

- This reads each line in the file one at a time.
- The end='' parameter in the print function avoids double spacing caused by the newline character at the end of each line.

Writing to a File

```
# Open a file for writing
with open('example.txt', 'w') as file:
    file.write('Hello, World!')
```

- Opening a file in mode 'w' will create it if it does not exist.
- Be careful, as it will overwrite the file if it already exists.

Appending to a File

```
# Open a file for appending
with open('example.txt', 'a') as file:
    file.write('Append this line.')
```

- The 'a' mode will append to the end of the file without overwriting it.
- It will also create the file if it does not exist.

Closing a File

- It is good practice to close the file when you are done with it.
- Use the close() method to close the file.
- When using with, the file is automatically closed at the end of the block.

Questions?