Programming for AI

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BS(AI)-IV

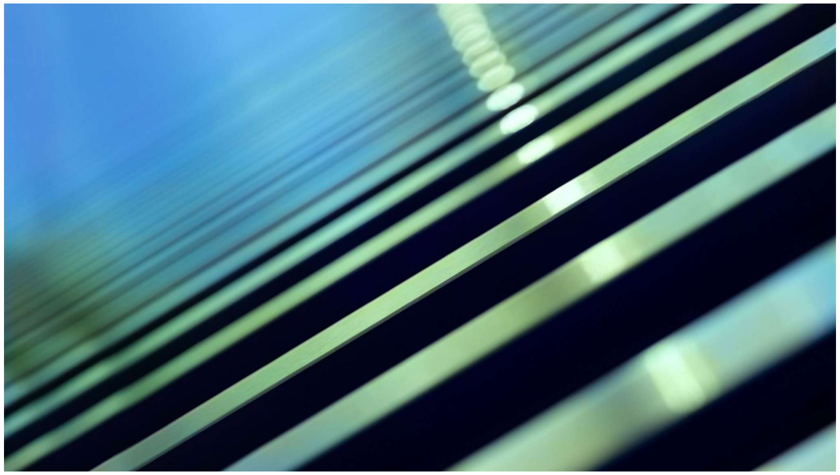
Outlines

1. File Handling
2. Opening a file
3. Reading from a file
4. Writing to a file
5. Appending to a file
6. Using with statement

File Handling

Process of performing operations on a file such as creating, opening, reading, writing and closing it.

It involves managing the data flow between the program and the file system on the storage device



Opening a file

- Before performing any kind of operation, you need to open the file in your code

```
with open(“file.txt”, ”r”) as file:
```

File Modes

- When you open a file, you need to specify the mode:

Mode	Description	Behavior
r	Read-only mode.	Opens the file for reading. File must exist; otherwise, it raises an error.
w	Write mode.	Opens the file for writing. Creates a new file or truncates the existing file.
r+	Read and write mode.	Opens the file for both reading and writing. File must exist; otherwise, it raises an error.
a	Append Mode	Opens the file for appending data. Creates a new file if it doesn’t exist.

Reading a file

- It can be achieved with the help of file.read()
- Reads the entire content
- After reading use file.close() to free up system resources

```
file = open(“file.txt”, “r”)
content= file.read()
print(content)
file.close()
```

Writing to a file

- Writing to a file is done using file.write()
- Writes the specified string to the file
- If the file exists, its content is erased.
- If it doesn’t exist, a new file is created.

```
file = open(“file.txt”, “w”)
file.write(“Hello”)
file.close()
```

Writing to a File in Append Mode (a)

- It is done using file.write() which adds the specified string to the end of the file without erasing its content

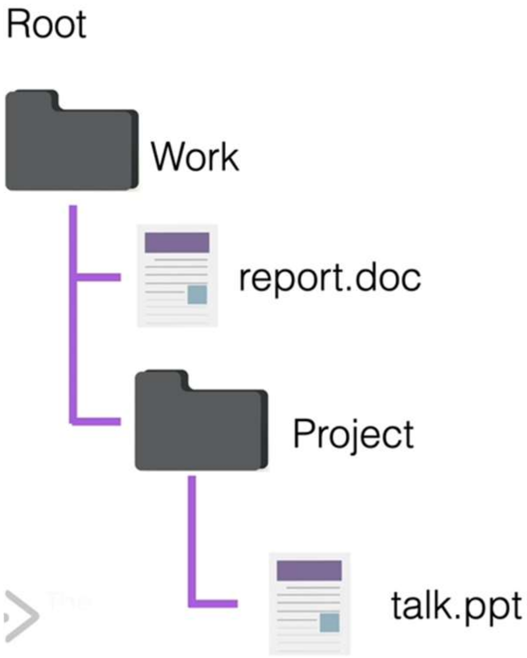
```
file = open(“file.txt”, “a”)
file.write(“This will add a line”)
file.close()
```

Using with statement

- with statement is used for resource management
- It automatically closes the file

```
with open(“file.txt", "r") as file:
        content = file.read()
        print(content)
```

Root directory and file paths

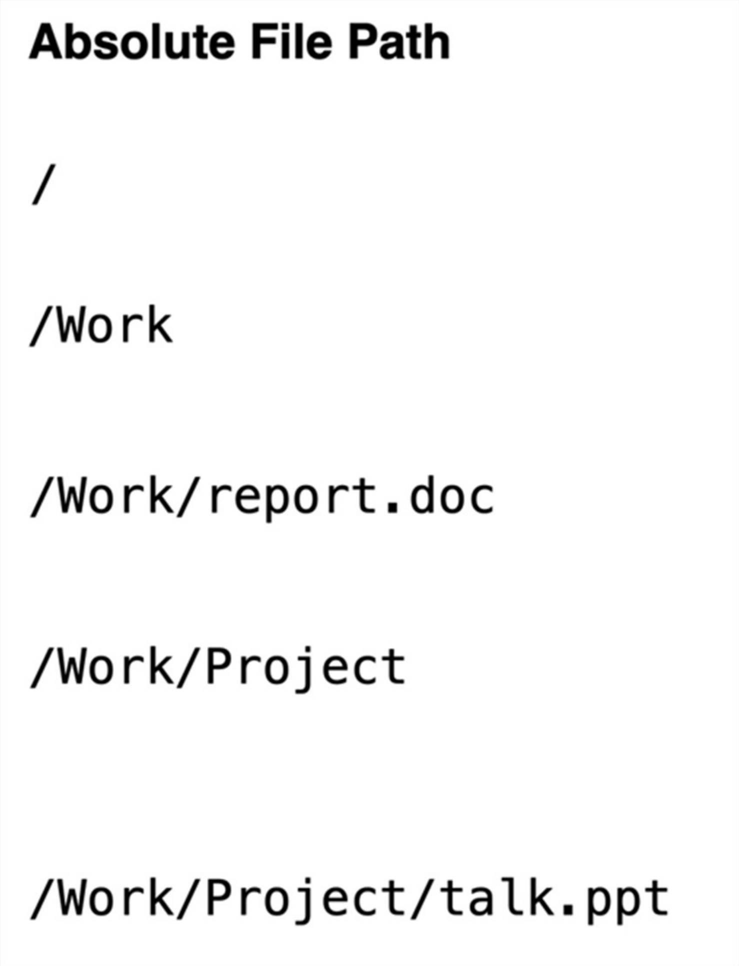


File Path

```
/

/Work

/Work/report.doc

/Work/Project

/Work/Project/talk.ppt
```

Absolute File path

- Absolute file paths always start relative to the root

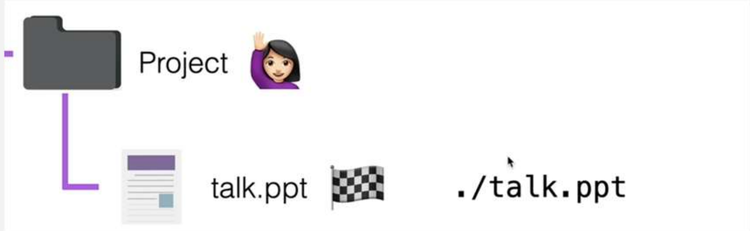


Absolute File Path

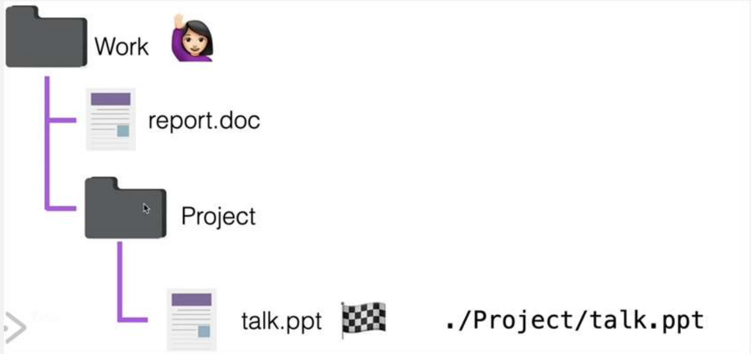
```
/

/Work

/Work/report.doc

/Work/Project

/Work/Project/talk.ppt
```

Relative file path

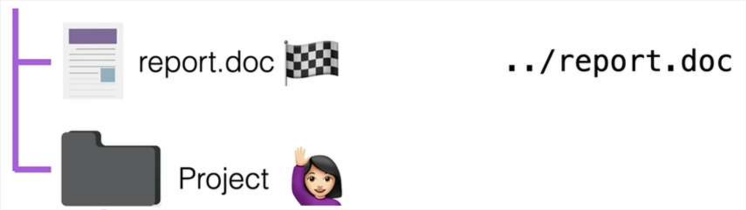
- If we establish a working directory, lets assume project then we can use Relative file path



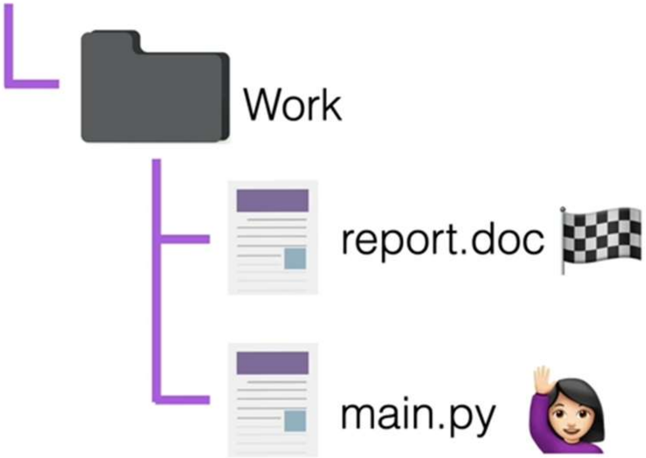
Relative file path



Going one step backward



Within same folder one step backwards



`./report.doc`

Using absolute file path

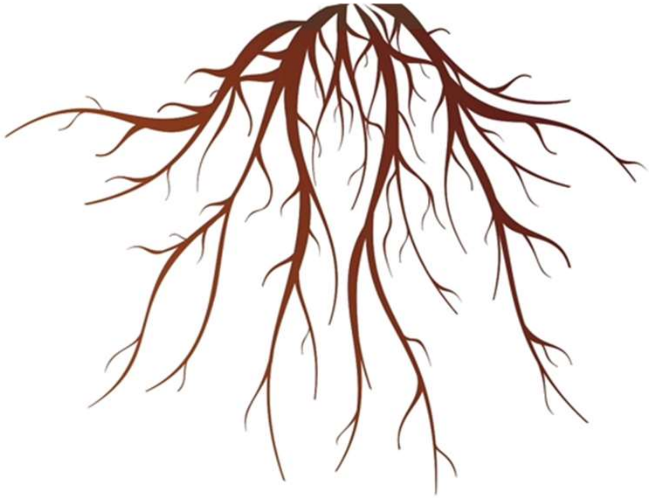
Read a file from desktop

\Users\92306\Desktop\file.txt

Using Relative file path

../../Desktop/file.txt

Absolute vs Relative



Absolute

🙋🏻‍♀️ ➡️ 🏁

Relative