🧠 Python OS Module Cheatsheet

The `os` module lets you interact with your operating system — navigate files, handle paths, read env variables, and automate tasks.

📂 Directory Operations

Action	Command	Description
Get current working directory	`os.getcwd()`	Returns the current directory path
Change directory	`os.chdir(path)`	Switch to another directory
List files/folders	`os.listdir(path='.')`	Lists contents of the directory
Create a directory	`os.mkdir('folder')`	Creates a new single folder
Create nested directories	`os.makedirs('a/b/c')`	Creates directories recursively
Remove a directory	`os.rmdir('folder')`	Removes an empty folder
Remove nested directories	`os.removedirs('a/b/c')`	Removes directories recursively

🧾 File Operations

Action	Command	Description
Rename a file/folder	`os.rename('old.txt', 'new.txt')`	Renames or moves a file
Get file stats	`os.stat('file.txt')`	Returns metadata (size, timestamps, etc.)

Tip:
Use `datetime.fromtimestamp(os.stat('file.txt').st_mtime)` to get *last modified time* in readable format.

🌲 Directory Traversal

Action	Command	Description
Walk through directories		

```
for dirpath, dirnames, filenames in os.walk('.'):
    print(dirpath, dirnames, filenames)
```

| Recursively lists all folders & files |

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🌎 Environment Variables

Action	Command	Description
Get all environment	`os.environ`	Returns a dict of system variables
Get specific variable	`os.environ.get('HOME')` or `os.environ.get('USERPROFILE')`	Returns user home path

🛤️ Path Operations (`os.path`)

Action	Command	Description
Join paths safely	`os.path.join(path, 'file.txt')`	Handles slashes
Get file name	`os.path.basename(path)`	Extracts only the file
Get directory name	`os.path.dirname(path)`	Extracts only the directory name
Check if path	`os.path.exists(path)`	True if path exists
Check if path is	`os.path.isfile(path)`	True if it's a file
Check if path is directory	`os.path.isdir(path)`	True if it's a folder
Split file and extension	`os.path.splitext('file.txt')` → `('file', '.txt')`	Splits name and ext

⚡ Pro Tip

For modern projects, explore the `pathlib` module:

```
from pathlib import Path
home = Path.home()
for file in home.rglob('*.py'):
    print(file)
```

It's cleaner, more readable, and cross-platform compatible.

🧩 Quick Reference

```
import os
dir(os)  # Lists all available methods in os module
```

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