

LECTURE 19

THE OS MODULE

MCS 260 Fall 2021

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REMINDERS

- Project 2 due Friday at 6:00pm central
- Worksheet 7 available
- Thursday lab students: attempt problem 1

CURRENT WORKING DIRECTORY

The OS keeps track of a current working directory (CWD) for every program.

The terminal usually shows the CWD in the prompt.

When you run a program in the terminal, it inherits the terminal's CWD.

`open("foo.txt", "r")` looks for `foo.txt` in the CWD.

CWD RECOMMENDATION

Always run your Python scripts from the terminal, first changing directory to the one containing the script.

Running a script when your terminal is in a different directory can have confusing results.

. AND ..

Context-dependent special directory names:

- `.` refers to the current directory
- `..` refers to the parent directory

THE OS MODULE

```
import os
```

gives your program access to lots of functions that ask the operating system to do things.

Today we focus on the **filesystem** operations in this module.

SHELL COMMANDS

- `pwd` - print working directory
- `cd` - change working directory
- `ls` - list files in a directory
- `rm` - remove a file
- `mkdir` - create a directory
- `rmdir` - remove a directory
- `cat` - display file contents

OS MODULE FUNCTIONS

- `os.getcwd()` - get current working directory
- `os.chdir(x)` - change working directory to `x`
- `os.listdir(x)` - get list of files in dir `x`
- `os.remove(fn)` - delete a file (skip recycling bin)
- `os.mkdir(x)` - create directory `x`
- `os.rmdir(x)` - remove directory `x` (must be empty)

OS MODULE FUNCTIONS

- `os.path.join(part0, part1, ...)` - join path components (using proper separator for the OS)
- `os.path.exists(name)` - True if name exists
- `os.path.isfile(name)` - True if name is a file
- `os.path.isdir(name)` - True if name is a directory

GOODIES SKIPPED FOR NOW

`os.path.dirname` - All but the last component of a path (i.e. the directory part, if the path includes a filename)

- e.g. On Windows,

```
os.path.dirname("C:\\Users\\dd\\out.txt") returns  
"C:\\Users\\dd"
```

`os.path.basename` - The last component of a path (i.e. the filename part, if the path includes one)

- e.g. On Windows,

```
os.path.basename("C:\\Users\\dd\\out.txt") returns  
"out.txt"
```

Let's write our own mini-terminal

REFERENCES

- os module documentation
- In *Downey*:
 - Section 14.4 discusses some of the features of the os module

REVISION HISTORY

- 2021-10-05 Initial publication