

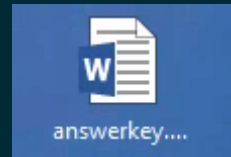
# **PATHS & DIRECTORIES**

MCS 260 Fall 2020

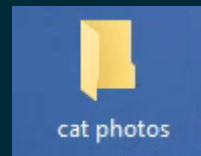
Week 1 Discussion

# FILES AND DIRECTORIES

A **file** is a named object that stores data (e.g. a document). Files cannot contain other files.



A **directory** or **folder** is a container that stores files & directories.



Both files and folders are often represented by icons.

# FULL PATHS

A **full path** is a name that uniquely specifies a single file or directory by describing all of the nested directories that contain it.

Example (Windows):

```
C:\Users\sramanujan\Documents\letter.pdf
```

Example (Linux/OS X):

```
/Users/sramanujan/Documents/letter.pdf
```

# DECODING A FULL PATH

Consider the Windows example:

```
C:\Users\sramanujan\Documents\letter.pdf
```

"C:" is the drive letter (specifies a storage device)

"\" is the path separator

"Users", "sramanujan", "Documents" are directories, each contained within the previous one

"letter.pdf" is the filename

# THE DESKTOP

Icons on the desktop are just files in a certain directory.

In Windows, the desktop for a user named USERNAME is usually:

```
C:\Users\USERNAME\Desktop
```

In OS X, it is usually:

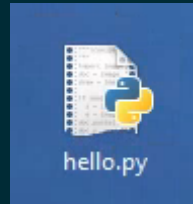
```
/Users/USERNAME/Desktop
```

In Linux, it is usually:

```
/home/USERNAME/Desktop
```

# EXAMPLE

This file on my desktop in Windows:



Has full path:

```
C:\Users\ddumas\Desktop\hello.py
```

To run this Python script in Powershell I could use the command:

```
python C:\Users\ddumas\Desktop\hello.py
```

# WORKING DIRECTORY

Graphical and terminal interfaces have a notion of the **working directory**.

To show the current working directory (PowerShell, OS X, or Linux):

```
pwd
```

(print working directory)

If a filename is given without a full path, its full path is assumed to start with the working directory. This is called a **relative path**.

# MOVING AROUND

Move to a directory described by its full path:

```
cd C:\Users\ddumas\Desktop
```

Move to a **subdirectory** (a directory contained in the working directory):

```
cd Desktop
```

Move to the **parent directory**, i.e. the one that contains the working directory:

```
cd ..
```

"cd" works the same way in Windows, OS X, Linux



# RUNNING A SCRIPT: THREE WAYS

We want to run `hello.py`, a script on the desktop.

In PowerShell, with absolute path:

```
PS C:\Users\ddumas> python C:\Users\ddumas\Desktop\hello.py
Hello world
```

In PowerShell, with relative path:

```
PS C:\Users\ddumas> python Desktop\hello.py
Hello world
```

In PowerShell, first `cd` to Desktop, then run:

```
PS C:\Users\ddumas> cd Desktop
PS C:\Users\ddumas\Desktop> python hello.py
Hello world
```