

Technichal Skill Cluster Workshop #1: File Paths

2026-02-3

1. Path Syntax by Operating System

System	Separator	Example Path (Absolute)
Windows	Backslash \	C:\Users\name\data.csv
Mac / Linux	Forward slash /	/Users/name/data.csv

Fun fact: Both Python and R accept forward slashes / on ALL operating systems. Use forward slashes and your code will work everywhere!

2. How to Copy a File Path

Windows:

- Hold Shift + Right-click the file → “Copy as path”
- Or: Click the address bar in File Explorer and copy

Mac:

- Right-click the file → Hold Option → “Copy as Pathname”
- Or: Drag file into Terminal to see path

3. Python (with pandas)

Check your working directory

```
import os
print(os.getcwd())      # Shows current folder
```

Import data

```
import pandas as pd

# Option 1: Forward slashes (recommended, works everywhere)
df = pd.read_csv("C:/Users/name/Documents/data.csv")

# Option 2: Raw string with backslashes (Windows only)
df = pd.read_csv(r"C:\Users\name\Documents\data.csv")

# Option 3: Relative path (file in working directory)
df = pd.read_csv("data.csv")
```

View your data

```
df.head()            # First 5 rows
df.shape           # (rows, columns)
df.columns         # Column names
```

4. R

Check your working directory

```
getwd()            # Shows current folder
setwd("C:/path")    # Change working directory
```

Import data

```
# Option 1: Forward slashes (recommended, works everywhere)
df <- read.csv("C:/Users/name/Documents/data.csv")

# Option 2: Relative path (file in working directory)
df <- read.csv("data.csv")
```

View your data

```
head(df)           # First 6 rows
dim(df)            # Rows and columns
names(df)          # Column names
View(df)           # Open in spreadsheet viewer (RStudio)
```

5. Common Mistakes to Avoid

Mistake	Problem	Fix
Forgetting quotes	<code>read.csv(data.csv)</code>	Add quotes: "data.csv"
Backslashes in Python	\U and \n are escape codes	Use / or raw string <code>r"..."</code>
File not found	Wrong working directory	Check with <code>getwd()</code> or <code>os.getcwd()</code>
Typos in path	Misspelled folder name	Copy path directly from file explorer

6. Absolute vs. Relative Paths

Type	Example	When to Use
Absolute	<code>C:/Users/name/project/data.csv</code>	One-off scripts, quick tasks
Relative	<code>./data.csv</code>	Shared projects, reproducibility

Tip: Relative paths make your code portable. If you share your project folder, others can run it without changing paths.

Dot Notation

Symbol	Meaning	Example
.	Current directory (where your script is running)	<code>./data.csv</code>
..	Parent directory (one folder up)	<code>../data.csv</code>

You can chain .. to go up multiple levels: `../../file.csv` goes up two folders.

Example: Navigating a Project Folder

Imagine your project has this structure:

```
my_project/
++ code/
|   +- analysis.py
|   +- helpers/
|       +- utils.py
++ data/
|   +- raw/
|       |   +- survey.csv
|   +- cleaned/
|       +- survey_clean.csv
```

```
+-- output/
  +- results.csv
```

If your **working directory** is `my_project/code/`, here's how to access different files:

Target File	Relative Path	Explanation
<code>survey.csv</code>	<code>../data/raw/survey.csv</code>	Go up to <code>my_project/</code> , then into <code>data/raw/</code>
<code>survey_clean.csv</code>	<code>../data/cleaned/survey_clean.csv</code>	Go up to <code>my_project/</code> , then into <code>data/cleaned/</code>
<code>results.csv</code>	<code>../output/results.csv</code>	Go up to <code>my_project/</code> , then into <code>output/</code>

If your **working directory** is `my_project/code/helpers/`, accessing `survey.csv`:

```
../../../../data/raw/survey.csv
|   |
|   +- First `...` goes from helpers/ up to code/
+---- Second `...` goes from code/ up to my_project/
```

Python & R Examples

```
# Python - from code/ folder, read raw data
df = pd.read_csv("../data/raw/survey.csv")

# Save cleaned data
df.to_csv("../data/cleaned/survey_clean.csv", index=False)

# R - from code/ folder, read raw data
df <- read.csv("../data/raw/survey.csv")

# Save cleaned data
write.csv(df, "../data/cleaned/survey_clean.csv", row.names = FALSE)
```

Quick Reference

Task	Python	R
Check working directory	<code>os.getcwd()</code>	<code>getwd()</code>
Change working directory	<code>os.chdir("path")</code>	<code>setwd("path")</code>
Read CSV	<code>pd.read_csv("file.csv")</code>	<code>read.csv("file.csv")</code>
View first rows	<code>df.head()</code>	<code>head(df)</code>
View dimensions	<code>df.shape</code>	<code>dim(df)</code>