Navigating the File System

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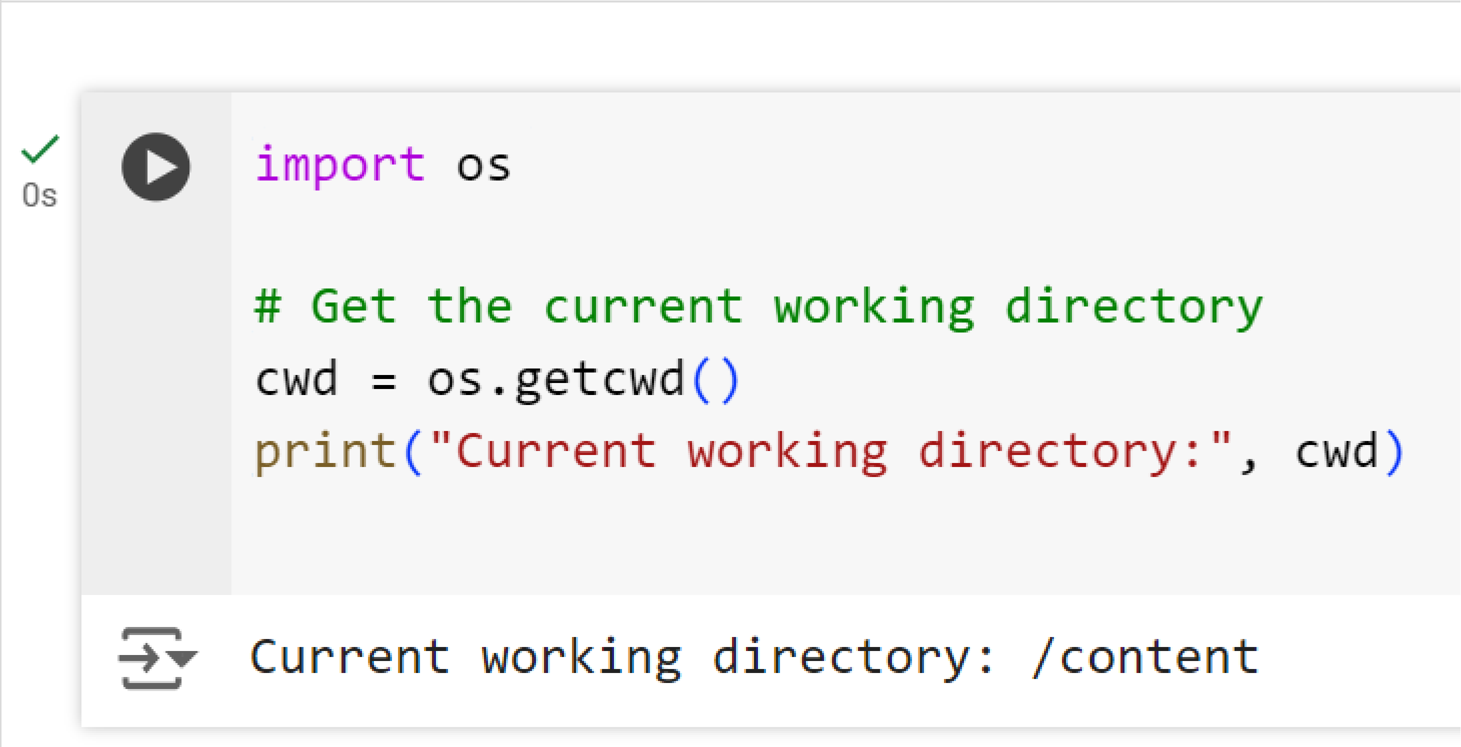
Navigating the File System

Current Working Directory:

```
import os
# Get the current working directory
cwd = os.getcwd()
print("Current working directory:", cwd)
```



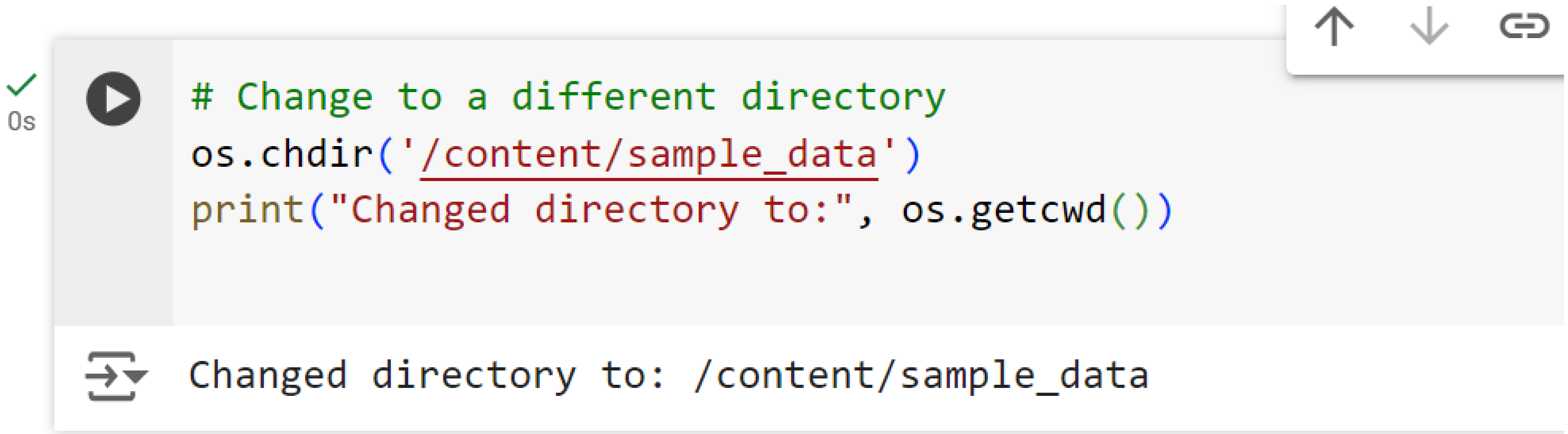
```
import os

# Get the current working directory
cwd = os.getcwd()
print("Current working directory:", cwd)
```

```
Current working directory: /content
```

Change Directory:

```
# Change to a different directory
os.chdir('/path/to/directory')
print("Changed directory to:", os.getcwd())
```

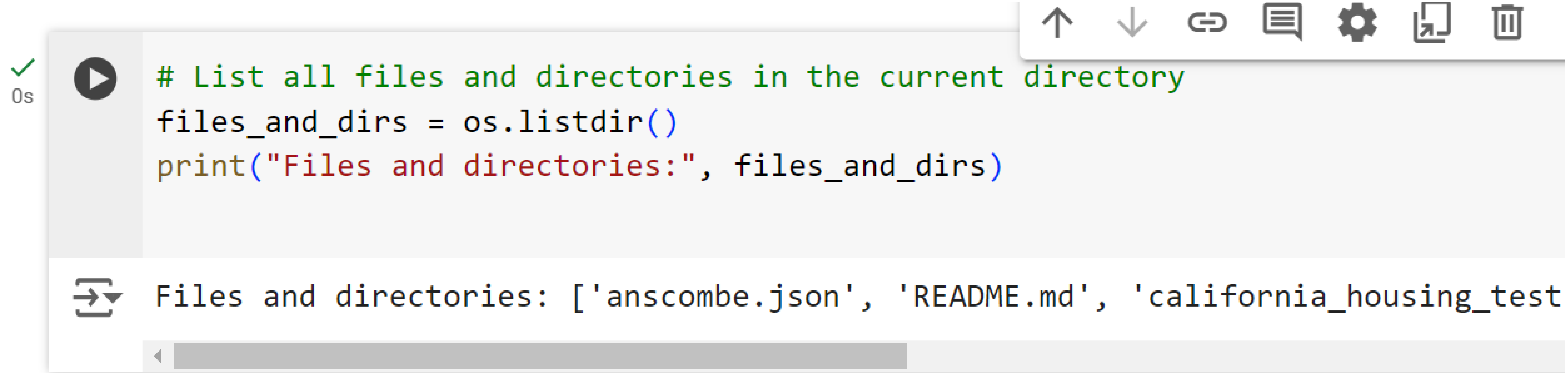


```
# Change to a different directory
os.chdir('/content/sample_data')
print("Changed directory to:", os.getcwd())
```

```
Changed directory to: /content/sample_data
```

List Files and Directories:

```
# List all files and directories in the current directory
files_and_dirs = os.listdir()
print("Files and directories:", files_and_dirs)
```



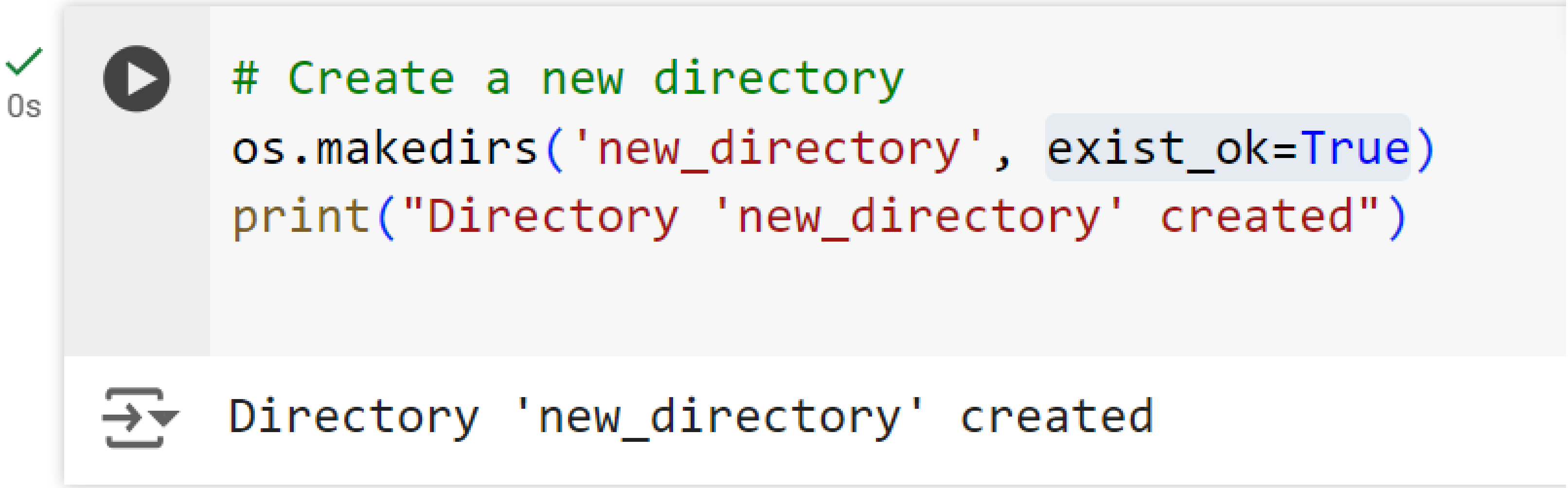
```
# List all files and directories in the current directory
files_and_dirs = os.listdir()
print("Files and directories:", files_and_dirs)
```

```
Files and directories: ['anscombe.json', 'README.md', 'california_housing_test
```

Creating Directories and Files

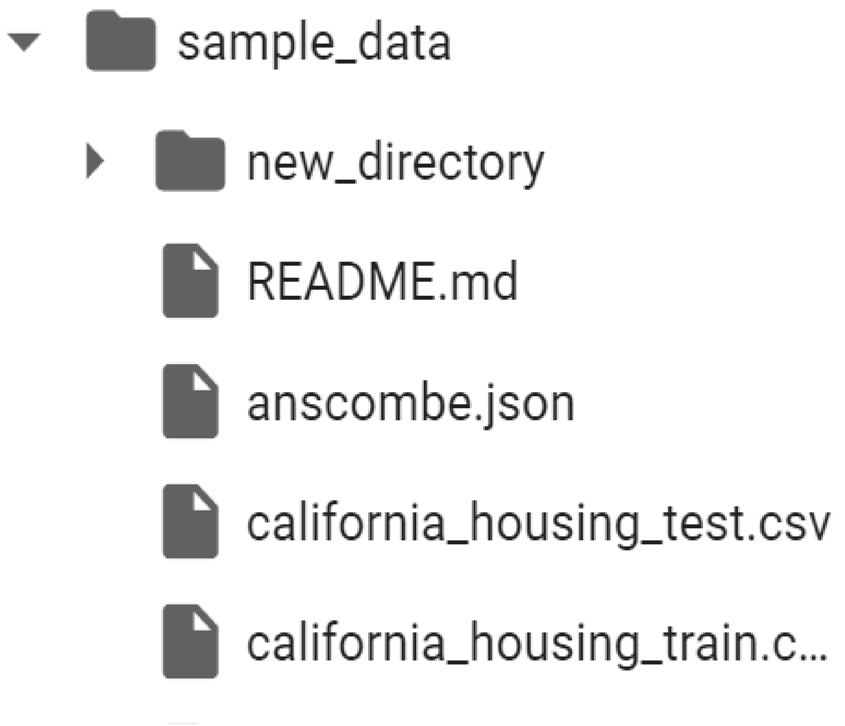
Create a Directory:

```
# Create a new directory
os.makedirs('new_directory', exist_ok=True)
print("Directory 'new_directory' created")
```



```
# Create a new directory
os.makedirs('new_directory', exist_ok=True)
print("Directory 'new_directory' created")
```

```
Directory 'new_directory' created
```

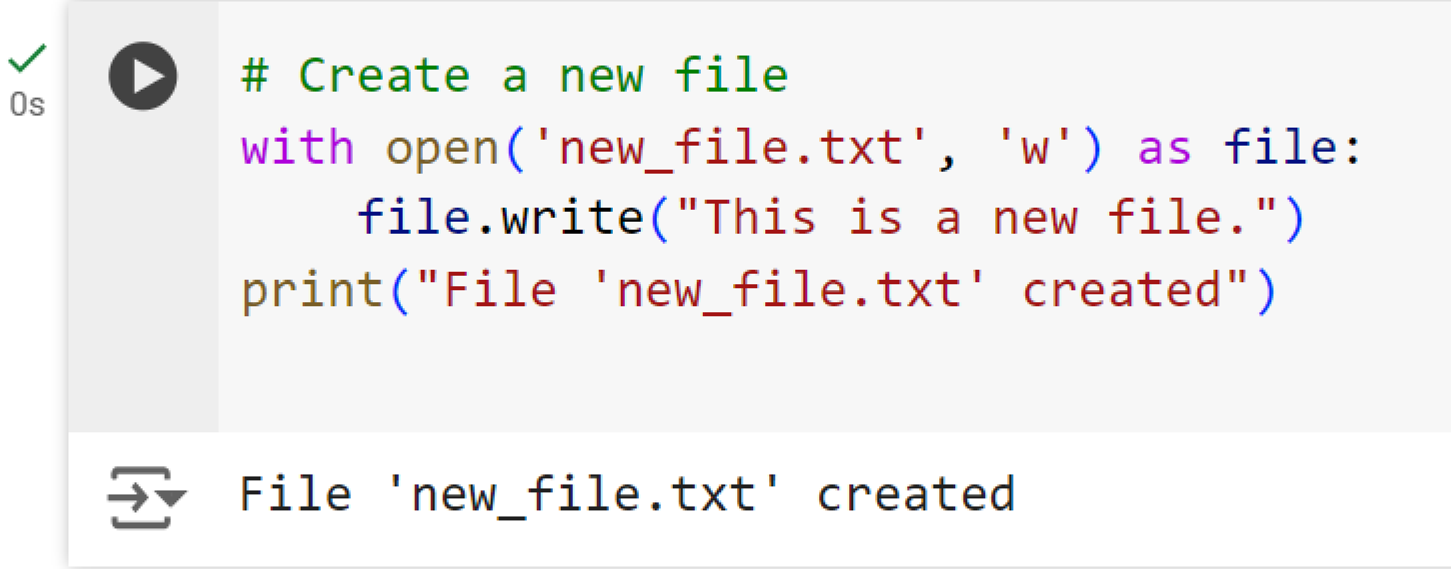


exist_ok=True: argument ensures that no error is raised if the directory already exists. Without this argument, an OSError would be raised if the directory already exists.

Creating Directories and Files

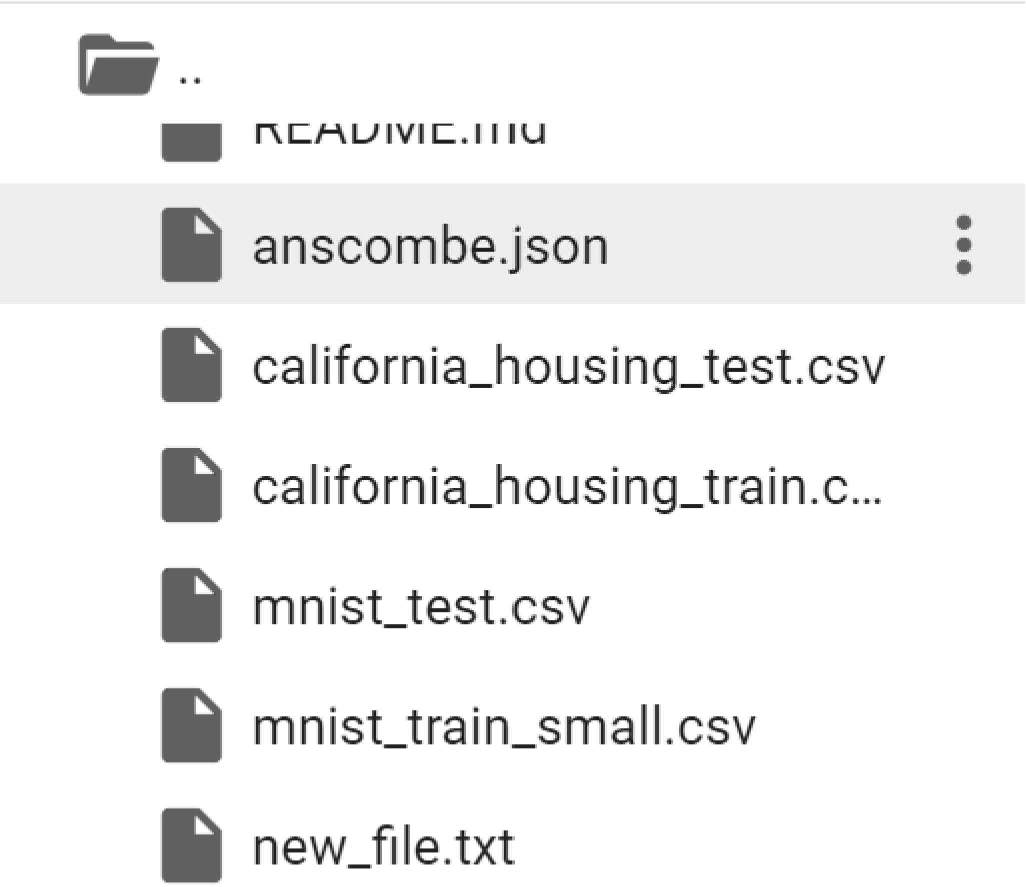
Create a File:

```
# Create a new file
with open('new_file.txt', 'w') as file:
   file.write("This is a new file.")
print("File 'new_file.txt' created")
```



```
# Create a new file
with open('new_file.txt', 'w') as file:
    file.write("This is a new file.")
print("File 'new_file.txt' created")
```

```
File 'new_file.txt' created
```



..

README.md

anscombe.json

california_housing_test.csv

california_housing_train.c...

mnist_test.csv

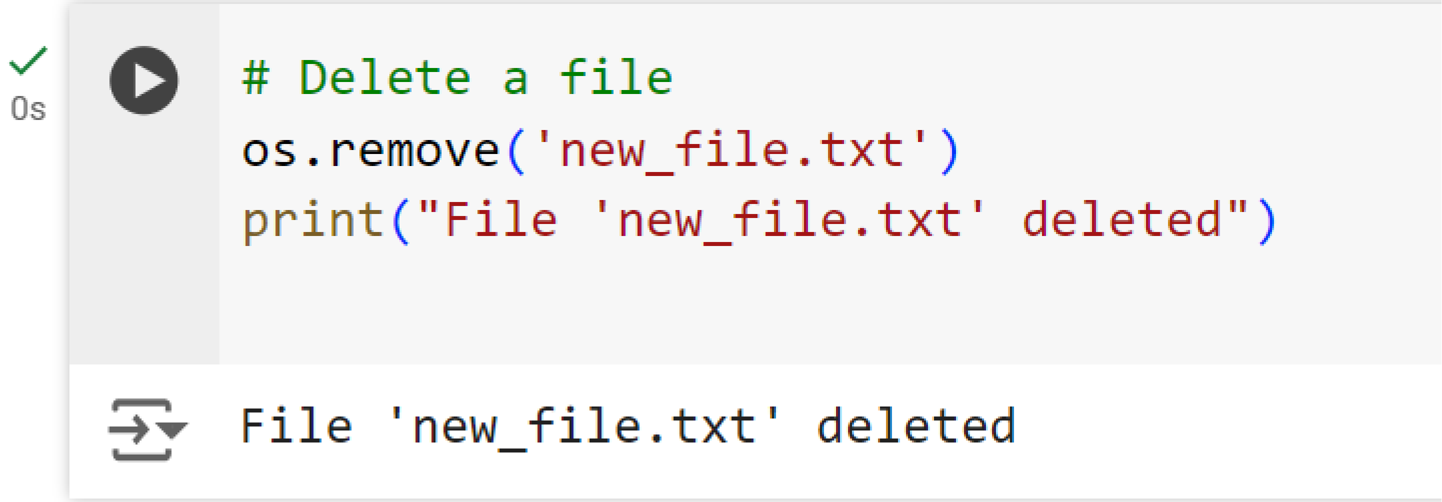
mnist_train_small.csv

new_file.txt

Creating Directories and Files

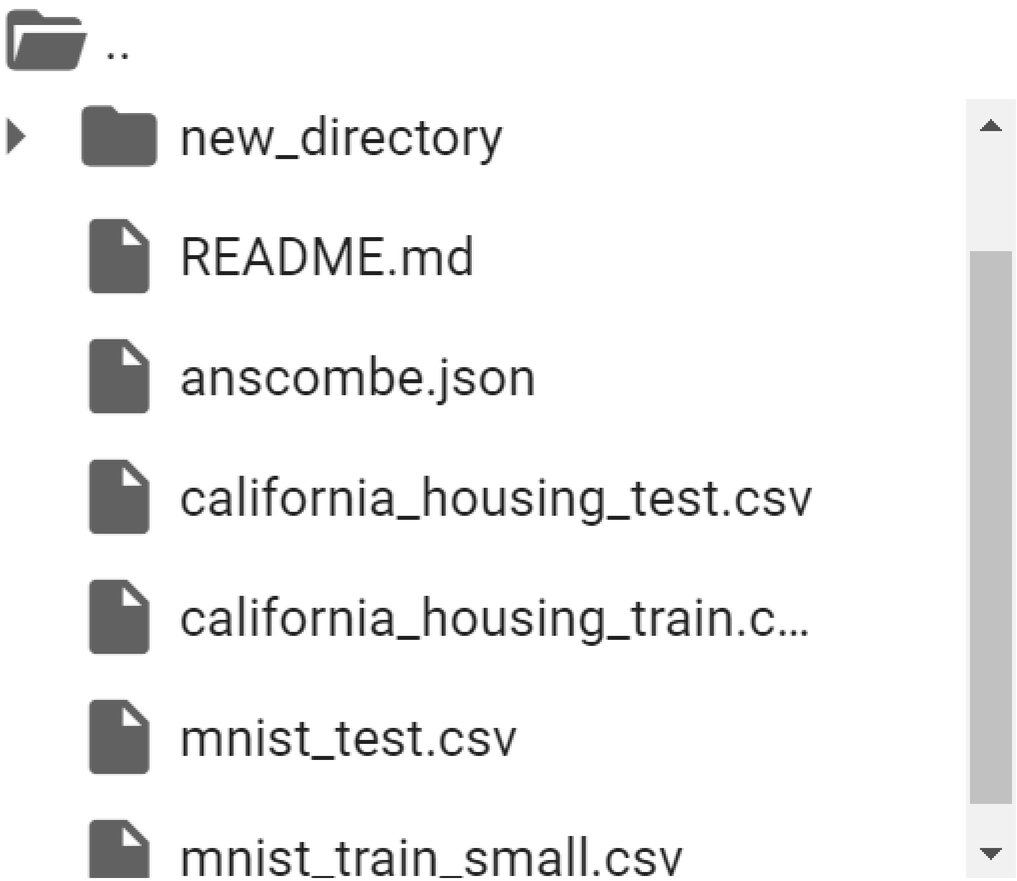
Deleting Directories and Files

```
# Delete a file
os.remove('new_file.txt')
print("File 'new_file.txt' deleted")
```



```
# Delete a file
os.remove('new_file.txt')
print("File 'new_file.txt' deleted")
```

```
File 'new_file.txt' deleted
```

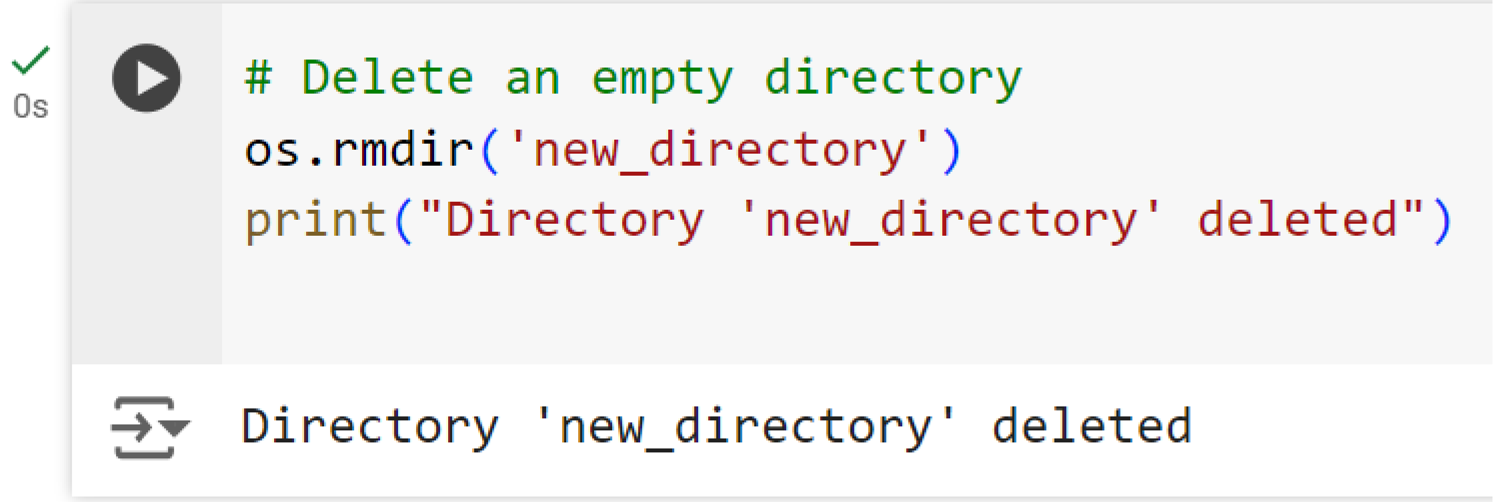


..
new_directory
README.md
anscombe.json
california_housing_test.csv
california_housing_train.c...
mnist_test.csv
mnist_train_small.csv

Creating Directories and Files

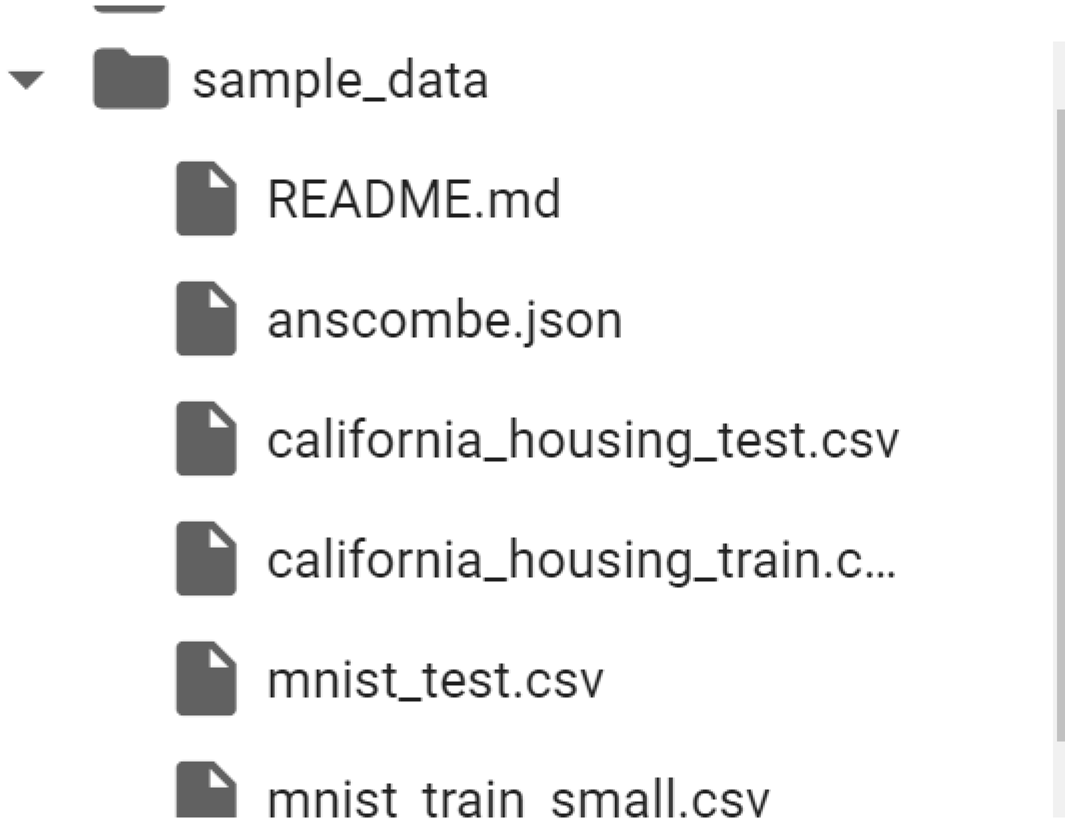
Delete an Empty Directory:

```
# Delete an empty directory
os.rmdir('new_directory')
print("Directory 'new_directory' deleted")
```



```
# Delete an empty directory
os.rmdir('new_directory')
print("Directory 'new_directory' deleted")
```

```
Directory 'new_directory' deleted
```



- sample_data
  - README.md
  - anscombe.json
  - california_housing_test.csv
  - california_housing_train.c...
  - mnist_test.csv
  - mnist_train_small.csv

Creating Directories and Files

Delete a Directory with Contents:

```
import shutil
# Delete a directory with all its contents
shutil.rmtree('directory_with_contents')
print("Directory 'directory_with_contents' and its contents deleted")
```

Moving and Copying Files and Directories

Move a File or Directory:

```
# Move a file
shutil.move('source_file.txt', 'destination_directory/')
print("File moved to destination directory")

# Move a directory
shutil.move('source_directory', 'destination_directory/')
print("Directory moved to destination directory")
```

Using pathlib for an Object-Oriented Approach

- The pathlib module offers a more modern and object-oriented approach to file system operations.

Navigating and Creating Paths:

```
from pathlib import Path

# Define a path
path = Path('new_directory')

# Create a directory
path.mkdir(parents=True, exist_ok=True)
print(f"Directory {path} created")
```

Iterating Over Directory Contents:

```
# Iterate over all items in a directory
for item in path.iterdir():
    print(item)
```

Delete a File or Directory:

```
# Delete a file
file_path = Path('new_file.txt')
file_path.unlink()
print(f"File {file_path} deleted")

# Delete a directory
path.rmdir()
print(f"Directory {path} deleted")
```

Check if a File or Directory Exists:

```
path = Path('some_directory_or_file')

if path.exists():
    print(f"{path} exists")
else:
    print(f"{path} does not exist")
```

Task:

Write a Python script that lists all the files and directories in the current working directory and prints them separately.

```
import os
# Get the current working directory
cwd = os.getcwd()

# List all files and directories
files = []
directories = []
for item in os.listdir(cwd):
    if os.path.isfile(item):
        files.append(item)
    elif os.path.isdir(item):
        directories.append(item)
print("Files:", files)
print("Directories:", directories)
```