

Unit 6 Lesson 2: Writing CSV Files

Quick Reference Guide

Import

```
import csv
```

Create New CSV File (Write Mode)

```
data = [
    {'name': 'Alice', 'score': 100},
    {'name': 'Bob', 'score': 85}
]

with open("output.csv", "w", newline="") as file:
    fieldnames = ['name', 'score']
    writer = csv.DictWriter(file, fieldnames=fieldnames)

    writer.writeheader()      # Write column names
    writer.writerows(data)    # Write all data
```

Result file:

```
name,score
Alice,100
Bob,85
```

Append to Existing File

```
new_record = {'name': 'Charlie', 'score': 92}

with open("output.csv", "a", newline="") as file:
    fieldnames = ['name', 'score']
    writer = csv.DictWriter(file, fieldnames=fieldnames)

writer.writerow(new_record) # NO header!
```

Key Rules

Rule	Why It Matters
Always use <code>newline=""</code>	Prevents extra blank lines on Windows
"w" mode overwrites	Existing data is deleted!
"a" mode appends	Adds to end, keeps existing data
No header when appending	Header is already in the file

writerow vs writerows

```
# writerow() - One record at a time
writer.writerow({'name': 'Alice', 'score': 100})

# writerows() - Multiple records at once
writer.writerows(list_of_dicts)
```

Read-Modify-Write Pattern

```
import csv

# 1. READ - Load existing data
with open("data.csv", "r") as file:
    data = list(csv.DictReader(file))

# 2. MODIFY - Change the data
for item in data:
    item['value'] = int(item['value']) + 100

# 3. WRITE - Save changes back
with open("data.csv", "w", newline="") as file:
    fieldnames = ['col1', 'col2', 'value']
    writer = csv.DictWriter(file, fieldnames=fieldnames)
    writer.writeheader()
    writer.writerows(data)
```

File Modes Summary

Mode	Creates?	Existing Data	Use For
"w"	Yes	Deleted	New files, complete rewrites
"a"	Yes	Kept	Adding records
"r"	No	Read only	Loading data

fieldnames

The `fieldnames` list controls:

1. **Which keys** are written from each dictionary
2. **Column order** in the CSV file

```
fieldnames = ['username', 'level', 'score']
# Columns will appear in this exact order
```

✖ Common Mistakes

Forgetting newline=""

```
# ✖ Wrong
with open("data.csv", "w") as file:

# ✓ Correct
with open("data.csv", "w", newline="") as file:
```

Writing header when appending

```
# ✖ Wrong - header appears multiple times!
with open("data.csv", "a", newline="") as file:
    writer.writeheader() # DON'T do this!
    writer.writerow(record)

# ✓ Correct
with open("data.csv", "a", newline="") as file:
    writer.writerow(record) # Just the data
```

Using "w" when you meant "a"

```
# ✖ DANGER - deletes all existing data!
with open("scores.csv", "w", newline="") as file:

# ✓ Safe - adds to existing data
with open("scores.csv", "a", newline="") as file:
```