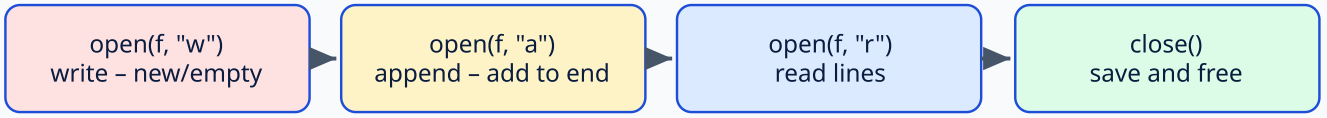
Grade 13 A/L ICT · Lesson 9

9.11 File Handling: Open, Read, Write, Append and Close

Syllabus 9.11. Variables are lost when a program ends; **files** keep data on storage. In Python you **open** a file with a **mode**, **read** or **write** it, and **close** it. Mode "w" creates or empties a file, "a" **appends** to the end, and "r" reads.

1. File modes

File modes



Opening in "w" mode erases an existing file – use "a" to keep old data.

The r, w and a modes

Mode	Meaning	If file is missing
"r"	Read from the start	Error
"w"	Write – old content is erased	Created
"a"	Append – add to the end	Created

🐍 Write, append and read a text file

```
f = open("marks.txt", "w")      # write: creates or empties
f.write("Nimal,78\n")
f.write("Kamala,45\n")
f.close()

f = open("marks.txt", "a")      # append: adds to the end
f.write("Sunil,88\n")
f.close()

f = open("marks.txt", "r")      # read
total = 0
for line in f:
    name, mark = line.strip().split(",")
    total += int(mark)
    print(name, mark)
f.close()
print("Total:", total)
```

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▶ Output

```
Nimal 78
Kamala 45
Sunil 88
Total: 211
```

🧱 **Worked example: Why does the file have three lines and Total 211?**
"w" writes Nimal and Kamala; "a" keeps them and adds Sunil. Reading line by line, strip() removes the newline, split(",") separates name and mark, and int() converts it: 78 + 45 + 88 = **211**.

- read() returns the whole file; readline() one line; readlines() a list of lines.
- write() writes a string – add "\n" yourself for a new line.
- close() saves the buffer and frees the file.

💡 with open("marks.txt") as f: closes the file automatically, even if an error happens.

🚀 **Beyond the syllabus (2026 update)** *Not required for the exam – read for interest.* In 2026 many apps store data as CSV or JSON files; Python's csv and json modules read them in one line.

Key Words

File – Named collection of data kept on storage.	**open()** – Built-in function that opens a file in a mode.
close() – Method that finishes using a file and saves it.	**Read mode** – Mode r that reads an existing file.
Write mode – Mode w that creates or empties a file.	**Append mode** – Mode a that adds data to the end of a file.
read() – Method that returns the whole file as a string.	**readline()** – Method that returns one line of a file.
write() – Method that writes a string to a file.	**Newline** – Character \n that ends a line of text.
Text file – File of readable characters such as .txt or .csv.	**Persistent storage** – Storage that keeps data after the program ends.

Sample Q&A

1. Why use files?

Answer: Variables are lost when the program ends; files keep data.

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2. "w" vs "a"?

> **Answer:** "w" erases old content; "a" adds to the end.

3. Opening a missing file with "r"?

> **Answer:** An error (FileNotFoundError).

4. Why strip() each line?

> **Answer:** To remove the newline before splitting.

5. Total printed?

> **Answer:** 211.

6. Why close a file?

> **Answer:** To save buffered data and free the file.

MCQ

1. Which mode adds data to the end of a file?

A. "a"
B. "x" only
C. "w"
D. "rb"
E. "r"

2. Opening an existing file with "w"

A. gives an error
B. locks it forever
C. adds to the end
D. erases its old content
E. only reads it

3. The Total printed by the files program is

A. 88
B. 211
C. 123
D. 200
E. 166

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4. How many lines does marks.txt hold at the end?

A. 4
B. 1
C. 3
D. 0
E. 2

5. line.strip().split(",") on "Nimal,78\n" gives

A. ("Nimal", 78)
B. ["Nimal", "78"]
C. "Nimal78"
D. ["Nimal,78"]
E. [78]

6. Which method returns one line?

A. open()
B. close()
C. read()
D. write()
E. readline()

7. Opening a missing file in "r" mode

A. creates it
B. raises an error
C. returns 0
D. appends
E. empties it

8. The with statement for files

A. closes the file automatically
B. sorts lines
C. opens two files
D. deletes the file
E. reads only binary

9. Which term means: “Named collection of data kept on storage”?

A. Text file
B. close()
C. File
D. readline()
E. Append mode

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10. Which term means: “Built-in function that opens a file in a mode”?

A. open()
B. read()
C. Read mode
D. Persistent storage
E. write()

11. Which term means: “Method that finishes using a file and saves it”?

A. File
B. Write mode
C. Newline
D. readline()
E. close()

12. Which term means: “Mode r that reads an existing file”?

A. Append mode
B. open()
C. write()
D. Read mode
E. Text file

13. Which term means: “Mode w that creates or empties a file”?

A. Newline
B. close()
C. read()
D. Persistent storage
E. Write mode

14. Which term means: “Mode a that adds data to the end of a file”?

A. readline()
B. File
C. Read mode
D. Append mode
E. Text file

15. Which term means: “Method that returns the whole file as a string”?

A. Persistent storage
B. write()
C. open()
D. read()
E. Write mode

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16. Which term means: “Method that returns one line of a file”?

A. readline()
B. Newline
C. close()
D. Append mode
E. File

17. Which term means: “Method that writes a string to a file”?

A. Read mode
B. write()
C. Text file
D. read()
E. open()

18. Which term means: “Character \n that ends a line of text”?

A. Persistent storage
B. close()
C. Write mode
D. readline()
E. Newline

19. Which term means: “File of readable characters such as .txt or .csv”?

A. File
B. write()
C. Text file
D. Read mode
E. Append mode

20. Which term means: “Storage that keeps data after the program ends”?

A. Write mode
B. read()
C. Persistent storage
D. Newline
E. open()

Structured Questions

1. Explain the r, w and a modes. *(3 marks)*

> r read; w create/erase; a append.

2. Write code to save three names to a file, one per line. *(3 marks)*

> open w; write each with \n; close.

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3. Write code to read marks.txt and print the total. *(6 marks)*

> open r; loop lines; split; int; add; print.

4. Explain why the program prints Total 211. *(3 marks)*

> w two lines; a adds Sunil; 78 + 45 + 88.

5. State two reasons to close a file. *(2 marks)*

> Flush data; free the file for others.

Summary

- Files keep data after the program ends.
- open() with r, w or a.
- "w" erases; "a" appends.
- Read with read(), readline() or a for loop.
- Always close() or use with.

MCQ answer key – 9.11

1. **A** – Append.
2. **D** – Write empties.
3. **B** – 78 + 45 + 88.
4. **C** – Two written, one appended.
5. **B** – Two strings.
6. **E** – readline.
7. **B** – FileNotFoundError.
8. **A** – Auto close.
9. **C** – File – Named collection of data kept on storage.
10. **A** – open() – Built-in function that opens a file in a mode.
11. **E** – close() – Method that finishes using a file and saves it.
12. **D** – Read mode – Mode r that reads an existing file.
13. **E** – Write mode – Mode w that creates or empties a file.
14. **D** – Append mode – Mode a that adds data to the end of a file.
15. **D** – read() – Method that returns the whole file as a string.
16. **A** – readline() – Method that returns one line of a file.
17. **B** – write() – Method that writes a string to a file.
18. **E** – Newline – Character \n that ends a line of text.
19. **C** – Text file – File of readable characters such as .txt or .csv.
20. **C** – Persistent storage – Storage that keeps data after the program ends.

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