# Internship Assignment: Python File System - Reading Files

📅 Week: 1

📂 Topic: File Reading in Python

🎯 Objective: Learn how to read data from files using Python. Understand different file reading methods and apply them to real-world use cases.

## ✅ Learning Outcomes

By the end of this assignment, students will be able to:

* • Open and read text files in Python.
* • Use different read methods (read(), readline(), readlines()).
* • Iterate over file content line-by-line.
* • Handle file paths using os and pathlib.

## 🔹 Part 1: Basic File Reading

### 🧪 Example 1: Read the entire file

with open("sample.txt", "r") as file:  
 content = file.read()  
 print(content)

Task:  
1. Create a file called notes.txt and add 4–5 lines of text.  
2. Write a program to read the entire file and print the content.

## 🔹 Part 2: Reading Line by Line

### 🧪 Example 2: Read line by line using readline()

with open("sample.txt", "r") as file:  
 line = file.readline()  
 while line:  
 print(line.strip())  
 line = file.readline()

Task:  
- Modify your earlier program to read the file line by line and print with line numbers (e.g., Line 1: ...).

## 🔹 Part 3: Read All Lines into a List

### 🧪 Example 3: Using readlines()

with open("sample.txt", "r") as file:  
 lines = file.readlines()  
 print("Total lines:", len(lines))  
 print(lines)

Task:  
- Count the number of words in each line and print it in the format:  
 Line 1 has 6 words

## 🔹 Part 4: Iterate Over File (Recommended Method)

### 🧪 Example 4: Pythonic way to read lines

with open("sample.txt", "r") as file:  
 for index, line in enumerate(file, 1):  
 print(f"Line {index}: {line.strip()}")

Task:  
- Use this method to find the total number of characters (excluding newlines) in the file.

## 🔹 Part 5: Working with Paths (Optional Advanced Task)

### 🧪 Example 5: Using os and pathlib

from pathlib import Path  
  
file\_path = Path("sample.txt")  
if file\_path.exists():  
 print("File exists. Size:", file\_path.stat().st\_size, "bytes")  
else:  
 print("File does not exist.")

Task:  
- Ask the user to enter a filename and check whether the file exists. If it does, read and display the content; otherwise, print a warning.

## 📂 Submission Checklist:

- [ ] notes.txt with sample content

- [ ] Python script implementing all the above tasks

- [ ] Screenshot of output for each example

- [ ] Optional: Combine all outputs into a single .ipynb or .py file for submission