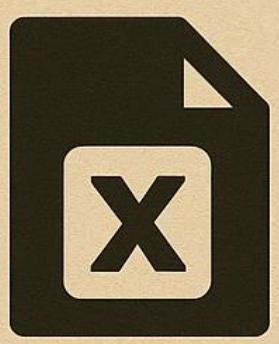
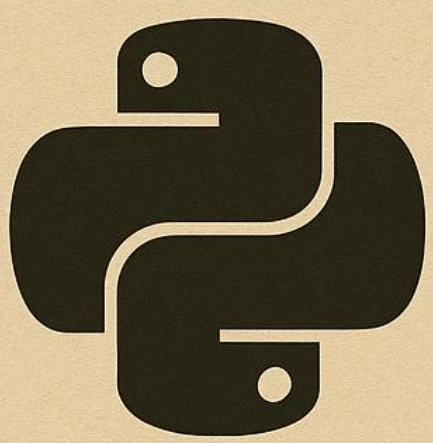


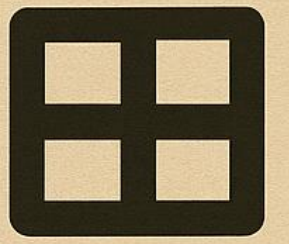


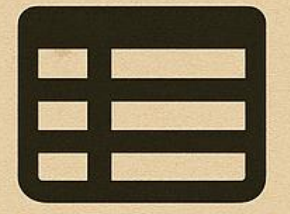
READING & WRITING

Excel Files

using openpyxl

INTRODUCTION TO DICTIONARIES

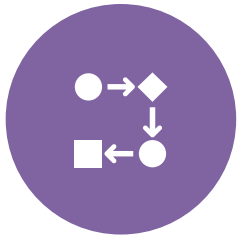




Why Excel Automation Matters

- EXCEL EVERYWHERE

- REAL-WORLD AUTOMATION



- GREAT PRACTICE WITH LOOPS

- PREPARES FOR PANDAS

🎯 Goals for This Video

- VIRTUAL ENVIRONMENT

- INSTALL OPENPYXL

- READ EXCEL

- DICTIONARIES

- WRITE EXCEL

Definitions

- Workbook – entire Excel .xlsx file
- Worksheet – a tab inside the workbook
- Cell – smallest data container (e.g., A1)
- Row – horizontal group of cells
- Column – vertical group of cells
- Header Row – labels like Name, Email, Grade
- Cell Value – actual data or formula in a cell
- openpyxl – library for reading/writing .xlsx
- Virtual Environment – isolated Python setup
- Dictionary – key/value data structure

Prepare the Project Folder

- Create folder

- Add sample Excel

- Open in VS Code

Creating a Virtual Environment

python -m venv venv

Activate with yourprojectroot/venv/scripts/activate.ps1

pip list

https://realpython.com/python-virtual-environments-a-primer/ - Friendly Intermediate

https://docs.python.org/3/library/venv.html - Official

Installing openpyxl

Need for Package Indexer

https://pypi.org/ - 99% of packages

Python Package Index find

- pip install openpyxl

- pip show

Exploring Sample Excel File

- Columns
- Header row
- Table structure

Loading a Workbook

- load_workbook()

- wb.active

Iterating Through Rows

- ITER_ROWS(VALUES_ONLY=TRUE)

- SKIP HEADER

Introducing Dictionaries

- Keys = column names

- Easier than tuples

Converting Rows to Dicts

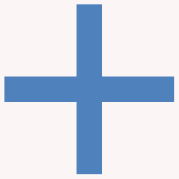
- student['name']

- Clean, readable

 Using Dictionaries

- Filter

- Cleaning



- Add fields

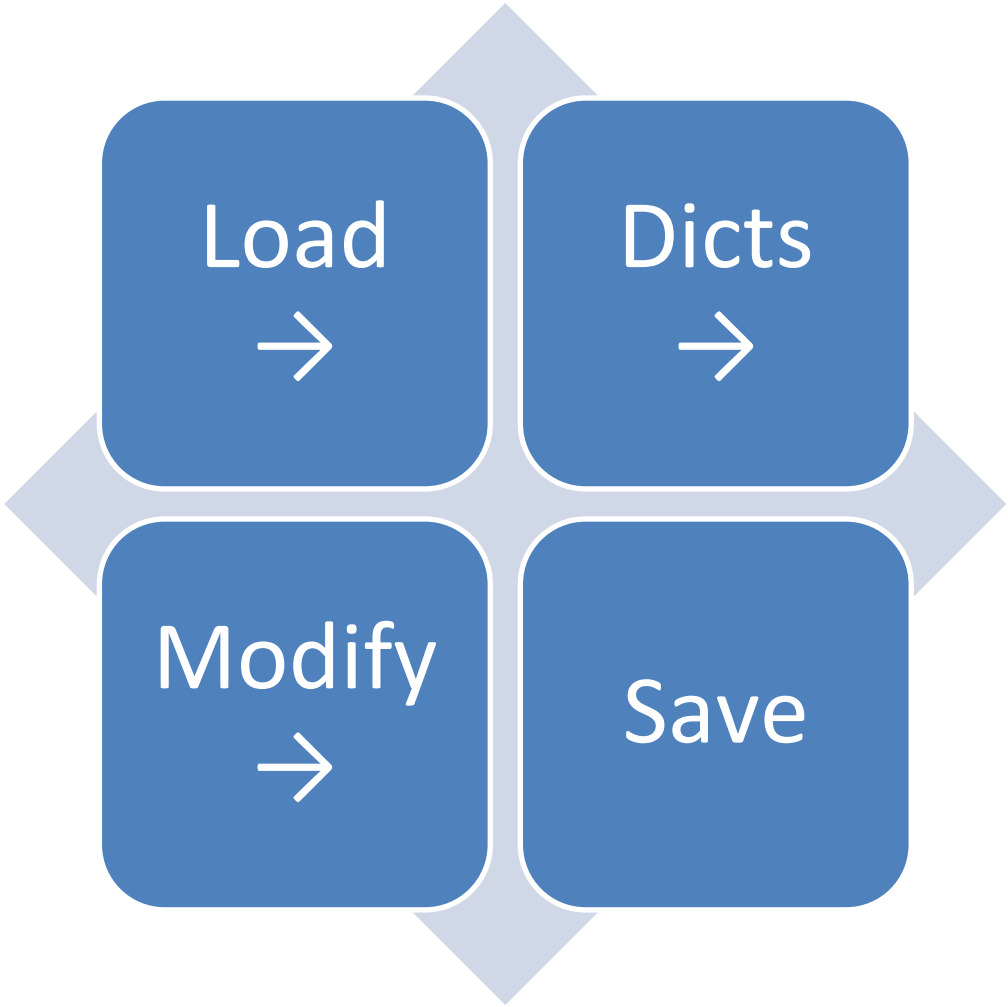
Creating a New Excel File

- Workbook()

- append()

- save()

Full Simple Workflow



🚀 Advanced Workflows

- Multi-sheet

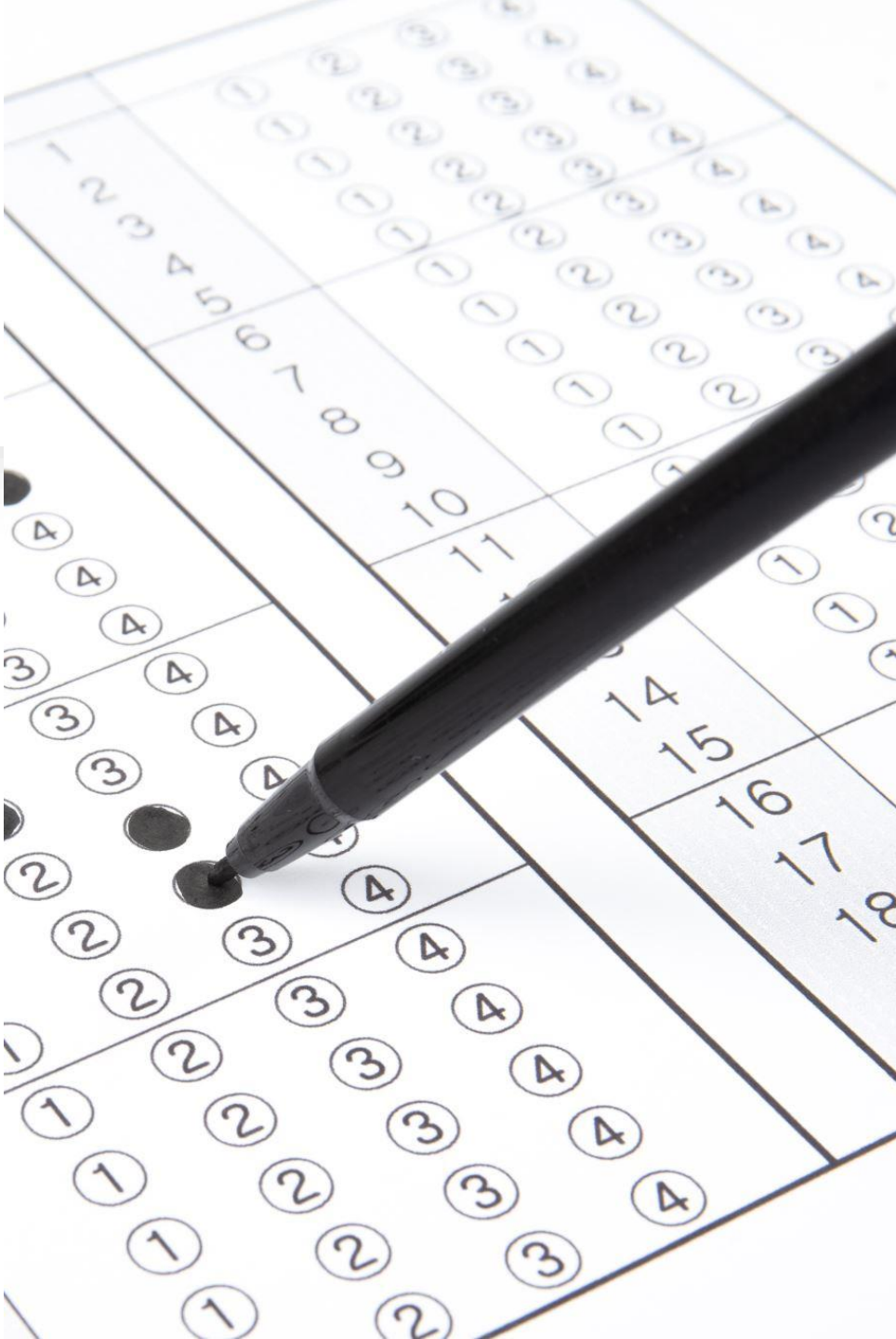
- Formulas

- Templates

- Styling

Advanced Case Study – Attendance

- Student attendance Tracked
- Many worksheets
- Grades
- Present/absent logic



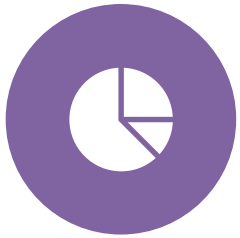
Color Formatting

- • PatternFill
- • Red/yellow/green

💪 openpyxl Strengths

- FORMATTING

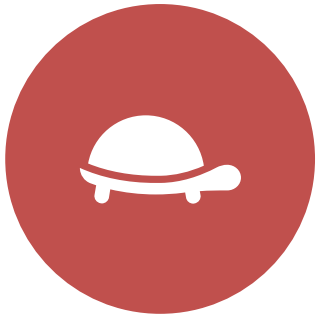
- TEMPLATES



- CHARTS

- MULTI-SHEET

openpyxl Limitations



- SLOW FOR LARGE DATA

- NO FORMULA CALC(CAN CREATE)

- MANUAL STEPS

Skills Learned

- How to set up and use a **Python virtual environment**
- Installing and using **openpyxl** to read and write Excel files
- Iterating through Excel worksheets and converting rows into **Python dictionaries**
- Processing, transforming, and generating new structured data from spreadsheets
- Creating new Excel files and saving results using Workbook() and append()
- Working with **multiple worksheets** and merging them into a single summary
- Applying basic **cell formatting** (colors) to communicate data meaning

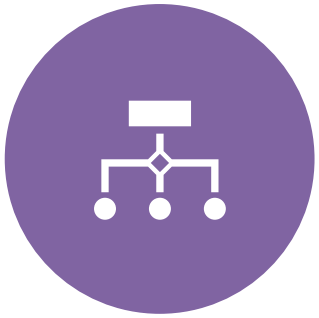
References - URLs

- Official - https://pypi.org/project/openpyxl/
- Intermediate - https://realpython.com/openpyxl-excel-spreadsheets-python/
- Beginner - https://automatetheboringstuff.com/3e/chapter14.html

→ Next Up: Pandas

- DATAFRAMES

- FAST OPERATIONS



- MERGE AND RESHAPE