Python for Excel Users: Half-day Workshop

Lesson 1: Python and Excel for data analytics

Lesson 2: From Excel cells to Python lists and dictionaries

Lesson 3: From Excel tables to Python DataFrames

Lesson 4: From Excel lookups and PivotTables to Pandas manipulation

Lesson 5: Data visualization with seaborn

Lesson 6: From "That's hard in Excel" to "That's easy in Python!"

Learning Objectives

- Student can compare and contrast uses of Excel and Python for data analytics
- Student can create, inspect and manipulate lists and dictionaries
- Student can create, inspect and manipulate DataFrames
- Student can manipulate tabular data with Pandas
- Student can visualize univariate distributions
- Student can conduct end-to-end data analysis project

Lesson 1: Python and Excel for data analytics
Objective: Student can compare and contrast uses of Excel and Python for data analytics
Description:

- Welcome to Planet Python
- What is Python and when would you use it?
- Working in Jupyter

Exercises: "Hello world" in Jupyter
Assets needed: None
Time: 30 minutes

Lesson 2: From Excel cells to Python lists and dictionaries
Objective: Student can create, inspect and manipulate lists and dictionaries
Description:

- Variable assignment
- Data types
- Indexing and subsetting lists
- Indexing and accessing dictionaries

Exercises: Drills on lists and dictionaries
Assets needed: None
Time: 45 minutes

Lesson 3: From Excel tables to Python DataFrames
Objective: Student can create, inspect and manipulate DataFrames
Description:

- From lists to NumPy arrays
- From NumPy arrays to Pandas DataFrames
- Importing and inspecting a DataFrame

Exercises: Drills
Assets needed: Baseball records
Time: 45 minutes

Lesson 4: From Excel lookups and PivotTables to Pandas manipulation
Objective: Student can manipulate tabular data with Pandas
Description:

- Sorting, filtering, summarizing, renaming
- Merging
- Un-pivoting and re-shaping
- Exporting results

Exercises: Drills
Assets needed: Baseball records
Time: 50 minutes

Lesson 5: Data visualization with seaborn
Objective: Student can visualize univariate distributions
Description:

- Bar charts
- Line charts
- Histograms
- Custom plots & themes

Exercises: Drills
Assets needed: Baseball records
Time: 30 minutes

Lesson 6: From "That's hard in Excel" to "That's easy in Python!"
Objective: Student can conduct end-to-end data analysis project
Description:

- Append, transpose, summarize and visualize a set of csv files

Exercises: Drills
Assets needed: Retail sales dataset
Time: 30 minutes