



# Pandas: Half-day workshop

Lesson 1: Up and running with NumPy

Lesson 2: Introduction to Pandas

Lesson 3: Exploring DataFrames

Lesson 4: Basic DataFrame manipulation

Lesson 5: Intermediate DataFrame manipulation

*Recommended prior training: Python half-day workshop*

## Learning Objectives

- Student can create and operate on NumPy arrays
- Student can import and create Pandas DataFrames
- Student can inspect and explore Pandas DataFrame
- Student can perform basic operations on Pandas DataFrames
- Student can perform intermediate operations on Pandas DataFrames

Lesson plan developed by George Mount. For more resources like this, visit [stringfestanalytics.com](http://stringfestanalytics.com)

### Lesson 1: Up and running with NumPy

Objective: Student create and operate on NumPy arrays

Description:

- Installing NumPy
- Creating arrays
- Inspecting arrays
- Reshaping arrays
- Array mathematics
- Random numbers

Exercises: Drills

Assets needed: None

Time: 35 minutes

### Lesson 2: Introduction to Pandas

Objective: Student can import and create Pandas DataFrames

Description:

- Installing NumPy
- NumPy and Pandas
- Series and DataFrames
- Columns and indices
- Creating DataFrames
- Importing: CSV, Excel

Exercises: Drills

Assets needed: Baseball records

Time: 25 minutes

### Lesson 3: Exploring DataFrames

Objective: Student can inspect and explore Pandas DataFrames

Description:

- Inspecting columns
- Printing rows
- Descriptive statistics
- Checking for missing values
- Retrieving columns

Exercises: Drills

Assets needed: Baseball records

Time: 40 minutes

### Lesson 4: Basic DataFrame manipulation

Objective: Student can perform basic operations on Pandas DataFrames

Description:

- Sorting and filtering rows
- Modifying columns
- Removing columns
- Manipulating missing values
- Removing duplicates
- Aliasing modules

Exercises: Drills

Assets needed: Baseball records

Time: 45 minutes

### Lesson 5: Intermediate DataFrame manipulation

Objective: Student can perform intermediate operations on Pandas DataFrames

Description:

- Creating new columns
- Reshaping: melting and pivoting
- Aggregating
- Merging DataFrames
- Exporting DataFrames: CSV, Excel

Exercises: Drills

Assets needed: Baseball records

Time: 45 minutes



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