1 Data Wrangling: Clean, Transform, Merge, Reshape

1.1 Combining and Merging Data Sets

Database-style DataFrame Merges
Merging on Index
Concatenating Along an Axis
Combining Data with Overlap

1.2 Reshaping and Pivoting

Reshaping with Hierarchical Indexing
Pivoting "long" to "wide" Format

1.3 Data Transformation

Removing Duplicates
Transforming Data Using a Function or Mapping
Replacing Values
Renaming Axis Indexes
Discretization and Binning
Detecting and Filtering Outliers
Permutation and Random Sampling
Computing Indicator/Dummy Variables

1.4 String Manipulation

String Object Methods
Regular expressions
Vectorized string functions in pandas

1.5 Example: USDA Food Database

Merge, join, and concatenate

pandas provides various facilities for easily combining together Series, DataFrame, and Panel objects with various kinds of set logic for the indexes and relational algebra functionality in the case of join / merge-type operations.

Concatenating objects The concat function (in the main pandas namespace) does all of the heavy lifting of performing concatenation operations along an axis while performing optional set logic (union or intersection) of the indexes (if any) on the other axes. Note that I say "if any" because there is only a single possible axis of concatenation for Series.