

Grouping and Aggregating

Objective

The object of this lab is to give you some practical experience of wrangling data and deriving data from existing datasets.

Specifically by allowing you to demonstrate your understanding of the following concepts

- Merging DataFrames
- Creating Multi Part Indexes
- Creating Pivot Tables
- Grouping and Aggregating Data
- Creating Cross Sections

Create a new notebook

Import the libraries

```
pandas  
numpy  
matplotlib.pyplot
```

Import the sales and Stores datasets for Adidas

Using the files `../Data/Adidas_Sales.csv` and `../Data/Adidas_Stores.csv`

Merge both datasets into a single DataFrame

Build a Multi Index

Use the columns

- Asset ID
- Location
- Province
- Cit
- Asset Type
- Brand
- Financials

Create some Pivot Tables

1) Produce pivots for the following

- by Asset ID
- by Location
- by Province
- by City
- by Asset Type
- by Brand
- by Financials

2) Create a pivot of the following

- Location, Province, Asset Type
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- For each quarter between Mar-16 and Dec-17 (inclusive)

Create some Groups

Using the same Multi Index created for part 2, use the pandas.groupby method to produce groups of the following

- 1) The sum of all Financials for each Location for the quarters Mar-16 through to Dec-17 inclusive
- 2) The total number of employees for the entire enterprise grouped by Location, Brand and City

Create some Cross Sections

Use the pandas.xs method to produce the following cross sections

- 1) Total quarterly Financials for the USA for the year 2018
 - 2) Total quarterly Operating Income for each country for the year 2017
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