Exercise set 3

Introduction to Python Programming for Economics & Finance

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1 Decade averages of US aggregate data

Using the data from the CSV file `FRED.csv`, perform the following tasks:

1. Load the data using `read_csv(..., sep=',')`
2. Compute the GDP growth rate and inflation as the percentage changes of the columns `GDP` and `CPI` using `pct_change()`.
3. Add the column `Decade` which contains the decade for every observation. Use 1940 to code the 40s, 1950 for the 50s, etc.
4. Compute the decade averages for annual GDP growth, inflation and the unemployment rate (`UNRATE`). To do this, you need to `groupby()` the `Decade` column you just created.

2 Federal Funds Rate

In this exercise, you are asked to retrieve and plot the US Federal Funds Rate.

1. Using `pandas_datareader`, download the time series from FRED starting from 2000-01-01.

   If you are unable to install `pandas_datareader`, e.g., because you are using Jupyter Lite, you can instead load the data from the file `FFR.csv` as follows:

   ```
   pd.read_csv('FFR.csv', index_col='DATE', parse_dates=True)
   ```

2. The data you just retrieved is at daily frequency, but the FFR usually remains fairly constant for several weeks (or even months). Resample the data to monthly frequency using `resample()`, averaging over daily observations.
3. Plot the monthly FFR using pandas's plotting routines. Add a title and label both axes.