Mandatory Assignment 1

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Exercise 1

Drawing from the exercise sets, we download adjusted prices for all constituents of the Dow Jones 30 Index from January 1st, 2000 until December 31st, 2023 from Yahoo!Finance. This process follows the methodology outlined in the exercise sets, employing the `tq_index` and `tq_get` commands to gather the data into the `index_prices` data set. We then use a filter mechanism to sort out the tickers that do not have a continuous trading history, ultimately creating a new data set called `index_prices_filtered` without the tickers **CRM**, **DOW** and **V**. Lastly, we compute monthly returns using the `tq_transmute` command. The code has not been echoed in this .pdf-file, because it is not particularly interesting and does not reveal any results. Please see the .qmd-file for the code details.

Exercise 2

Referring to the monthly returns stored in the data set `monthly_returns`, we compute the sample mean μ and the variance-covariance matrix Σ using the commands `mean()` and `cov()`.

References

Table 1: Top 5 Mean Monthly Returns

symbol	Mean_Monthly_Return
AAPL	0.0188405
AMGN	0.0063999
AMZN	0.0122444
AXP	0.0060226
BA	0.0080119