UNIVERSITY OF TORONTO
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RSM338 **PROBLEM SET #1** **Raymond Kan**

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1. The file `monthly.csv` contains monthly data of portfolio returns from the combined NYSE/AMEX/Nasdaq over the period 1926/1–2023/12. The first column is the date for the end of the month (in `yyyymmdd` format). The second column is the value-weighted market return, the third column is the equal-weighted market return. The 4th to 13th column are monthly returns from 10 size decile portfolios (sorted by market capitalization, from lowest to highest).

   (a) Compute the average, standard deviation, 25th, 50th, and 75th percentiles based on the monthly returns of the 12 portfolios.

   (b) Compute the coefficients of skewness and (excess) kurtosis based on the monthly returns of the 12 portfolios. For each coefficient, perform a test of normality.

   (c) Repeat the exercises in parts (a) and (b) but based on the returns for the month of January as well as for the rest of year.

2. The file `daily.csv` contains daily data from the combined NYSE/AMEX/Nasdaq over the period 1926/1/2–2023/12/29. The first column is the date (in `yyyymmdd` format). The second column is the value-weighted market return, the third column is the equal-weighted market return.

   (a) Construct weekly return series using the daily data. The weekly return is computed as the return from Wednesday's closing price to the following Wednesday's close, with the following exceptions:

   - If the following Wednesday's price is missing, the Thursday's price (or Tuesday's if Thursday's is missing) is used.
   - If both Tuesday's and Thursday's prices are missing, the return for that week is reported as missing, and the return for the following week is a 2-week return.

   (b) Compute the average, standard deviation, 25th, 50th, and 75th percentiles based on the weekly returns of the two portfolios.

   (c) Compute the coefficients of skewness and (excess) kurtosis based on the weekly returns of the two portfolios. For each coefficient, perform a test of normality.