Read Me

**Basic Data Cleaning**

* NFT Tokens Basic cleaning.R:
  + Data cleaning on NFT Tokens data, the output is a .csv file and a .rda file with date and return information
* Crypto\_clean.R:
  + Data Cleaning on Crypto data, the output is a .rda file with date and return information
* Basic cleaning for stock.R:
  + Data Cleaning on S&P 500 individual stocks, the output is a .rda file with date and return information
* Clean Estate.R:
  + Data Cleaning on REIT (FFR), the output is a .csv file and a .rda file with date and return information
* clean\_TBill.R
  + Data Cleaning on TBill, the output is a .rda file with date and return information
* Clean SP500.R
  + Data Cleaning on SP500 Index, the output is a .rda file with date and return information
* clean vanguard.R
  + Data Cleaning on Vanguard Bond ETF Index, the output is a .rda file with date and return information
* NFT\_AVG\_price clean.R
  + Data cleaning on NFT AVG Price data and the outputs is a .rda file with date and return information

**In-depth Data cleaning**

* Merge all\_Final.R
  + Merge all return datasets together to get a comprehensive dataset for analysis
  + The output is a .rda file including all assets returns and date
* Finalize datalist 0411.R
  + Separate the dataset according to year and month to have different time window for analysis
  + The output is a list in .rda file with cleaned data in each time window

**Portfolio Construction**

* Try to run a MVE.R
  + Used R-package “IntroCompFinR” for portfolio construction with tangency.portfolio
  + Tried 4 time frames of portfolio construction and found this package cannot satisfy our demand
* optimize.portfolio.try.R
  + Use R-package "PortfolioAnalytics" for Portfolio Construction
  + The output are many .rda file with the info of optimized portfolio in different time window based on the results of different computers
* Merge portfolio together.R
  + Merge the portfolios constructed on different computers together
  + Calculate asset class weights besides individual asset weight
  + Calculate MVE Portfolio Sharpe Ratio and SP500 Sharpe Ratio
  + Trading strategy analysis: used last month weight for current weight and look at the sharpe ratio
  + Visualization on SR comparison, Return comparison and Volatility comparison

**Outcome Analysis**

* Finding returns of each category.R
  + Found returns of each category in Aug. 2021
* Plot Correlation Matrix.R
  + Correlation Matrix Analysis on Portfolio of Aug. 2021