FBA | QUANTITATIVE FINANCE RESEARCH GROUP

Financial AI

Homework 4

Due at 06:00 pm (Korea Standard Time) on Saturday, September 17

Submit one file: written solutions with executable Python code

Problem 1. Udacity, Artificial Intelligence for Trading

Solve and Submit Term 1 - Lesson 9. Project 1 – Trading with Momentum.ipynb

Problem 2. Udacity, Data Structure & Algorithms

Solve and Submit Chapter 1 – Lesson 5. Project – Unscramble Computer Science Problem.ipynb

Problem 3. Use the daily price from Homework 3, Problem 1. 12-1 (12 months minus 1 month) price momentum is defined as the percent change in price from one year ago to one month ago (e.g., If today is January 1, 2020, it is the change in price from January 1, 2019 to December 1, 2019). The number shows you the return of a share price over the past year but excluding the last month. It is useful to screen out companies with a large jump in share price over the past month which studies have shown usually reverses shortly after.

(a) Use the daily returns to calculate a daily 12-1 price momentum signal for each stock

(b) Using the momentum signal to construct a price momentum portfolio's weight. The portfolio should be equal-weighted long-short portfolio based on the signal Note: Long-short equity is an investment strategy that seeks to take a long position in underpriced stocks while shorting overpriced shares.

Problem 4. LeetCode and HackerRank

(a) Solve and Submit LeetCode : 541. Reverse String II (https://leetcode.com/problems/reverse-string-ii/)

(b) Solve and Submit LeetCode : 141. Linked List Cycle
(https://leetcode.com/problems/linked-list-cycle/)

(c) Solve and Submit HackerRank : Merge two sorted linked lists
(https://www.hackerrank.com/challenges/one-week-preparation-kit-merge-two-sorted-linked-lists/problem?h_r=internal-search)