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**Introduction to FinTech – Final Project Report**

1. Project Description

期末Project - 量化交易競賽

網址：<https://crypto-arsenal.io/zh-tw> (CSIE5434 比賽)

Pass Code：5434

重要時程：

* (6/15 更新) 策略提交截止：2020/6/22 23:59。
* (6/15 更新) 比賽時間：2020/6/23～2020/7/2。

說明：

* 以python 開發交易策略（參考文件：<https://github.com/Crypto-Arsenal/public-docs>），提交至CSIE5434 比賽。
* 初始模擬資金為100,000 USDT。
* Binance交易所BTC/USDT實時模擬交易。
* 市價單交易，手續費0.1%。
* 詳細說明請見 CryptoArsenal CSIE5434 比賽。
* (6/15 更新) 第一天 6/23 系統試跑程式，若程式錯誤則無法參比賽，提交前請先回測確認程式正常運作。6/24 起正式計算，6/25 起可在排行榜看見排名。
* (6/12 更新) 提交策略時請在 Author of Strategy 備註學號，格式為：姓名(學號)

評分方法：

* 比賽結果 70%
  + 百分比 = 最終排名 / 總人數。
  + 分數 = 70 + (1 - 百分比) \* 30。
  + 未提交者不計分。
  + 若參賽者惡意攻擊系統造成伺服器當機資料遺失，將不予計分。
  + 範例：
    - A同學在50人中排第10，百分比為20%，得到 94 分。
    - B同學在50人中排第50，百分比為100%，得到 70 分。
    - C同學未提交作業，得到 0 分。
* 文件 30% (上傳Ceiba)
  + Report with at least four A4 pages.
  + 10 minutes presentation.
  + Github of the codebase.

1. Main idea behind the strategy

**A limit order** is an order to buy or sell a security at a specific price or better. A buy limit order can only be executed at the limit price or lower, and a sell limit order can only be executed at the limit price or higher.

Essentially, limit orders are great for patient investors and for those who want to hold by purchasing cryptocurrencies at cheap prices. However, there is a risk of missing out if the market turns around. If the asset does not reach the specified price, the order is not filled and you may miss out on the trading opportunity.

**Limit orders vs market orders**

A [market order](https://www.investopedia.com/terms/m/marketorder.asp) is the most basic type of trade. It is an order to buy or sell immediately at the current price. Typically, if you are going to [buy a stock](https://www.investopedia.com/ask/answers/05/042205.asp), then you will pay a price at or near the posted [ask](https://www.investopedia.com/terms/a/ask.asp). If you are going to sell a stock, you will receive a price at or near the posted [bid](https://www.investopedia.com/terms/b/bidprice.asp). Market orders are popular among individual investors who want to buy or sell a stock without delay. The advantage of using market orders is that you are guaranteed to get the trade filled; in fact, it will be executed ASAP. Although the investor doesn't know the exact price at which the stock will be bought or sold, market orders on stocks that trade over tens of thousands of shares per day will likely be executed close to the bid/ask prices.

Limit orders, on the other hand, are designed to give investors more control over the buying and selling prices of their trades. Prior to placing a purchase order, a maximum acceptable purchase price amount must be selected, and minimum acceptable sales prices are indicated on sales orders. A limit order offers the advantage of being assured the market entry or exit point is at least as good as the specified price. Limit orders can be of particular benefit when trading in a stock or other asset that is thinly traded, highly volatile, or has a wide bid-ask spread. However, limit orders are more complicated to execute than market orders and subsequently can result in higher brokerage fees. But it is still a good idea to use limit orders, because we have more control over the price.

1. Code

***# Class name must be Strategy***

class Strategy():

***# option setting needed***

def \_\_setitem\_\_(self, key, value):

self.options[key] = value

***# option setting needed***

def \_\_getitem\_\_(self, key):

return self.options.get(key, '')

def \_\_init\_\_(self):

***# strategy property needed***

self.subscribedBooks = {

'Bitfinex': {

'pairs': ['ETH-USDT'],

},

}

self.period = 10 \* 60

self.options = {}

***# user defined class attribute***

self.last\_type = 'sell'

***# called every self.period***

def trade(self, information):

***# for single pair strategy, user can choose which exchange/pair to use when launch, get current exchange/pair from information***

exchange = list(information['candles'])[0]

pair = list(information['candles'][exchange])[0]

if self.last\_type == 'sell':

self.last\_type = 'buy'

return [

{

'exchange': exchange,

'amount': 1,

'price': 9285,

'type': 'LIMIT',

'pair': pair,

},

]

else:

self.last\_type = 'sell'

return [

{

'exchange': exchange,

'amount': -1,

'price': 9310,

'type': 'LIMIT',

'pair': pair,

},

]

return []