UDACITY

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Trading with Momentum

REVIEW

CODE REVIEW

HISTORY

Meets Specifications

Dear Student,

You did a great job meeting all the specifications of the Momentum Trading project. Please check the following links to continue your learning on the topic:

List of code, papers, and resources for AI/deep learning/machine learning/neural networks applied to algorithmic trading
Machine Trading: Deploying Computer Algorithms to Conquer The Markets
Quantitative Trading: How to Build Your Own Algorithmic Trading Business
Python for Finance

Happy learning and stay Udacious 😃

Thanks!

Market Data

The function `resample_prices` computes the monthly prices.

You have implemented `resample_prices` function correctly 👍

You have implemented `resample_prices` function correctly 👍

resample and last functions are used correctly to resample prices 👌

```
Tests Passed
```

Congratulations!

The function `compute_log_returns` computes the log returns from the prices.

You have implemented the function `compute_log_returns` correctly to compute the log returns from the prices 👌

```
Tests Passed
```

Congratulations!

An alternative way to compute log returns is as follows:
`return np.log(prices).diff()`

ADDITIONAL RESOURCES

Following are the links to learn more about natural logarithm:
log(x) vs ln(x):The curse of scientific computing
NumPy: Logarithm with base n
Pandas diff function
numpy.log() in Python

The function `shift_returns` computes the shifted returns.

You have implemented `shift_returns` function correctly 👍

Excellent use of shift function to shift the `returns` df by `shift_n` periods 👏

```
Tests Passed
```

Congratulations!

ADDITIONAL RESOURCES

Below are the resources to learn more about shift function in a pandas DataFrame:
How to shift or lag values in a dataframe
Shifting several rows in a pandas DataFrame
Shift Pandas DataFrame with a multiindex

Portfolio

The function `get_top_n` selects the `top_n` number of the top performing stocks.

You have implemented `get_top_n` function correctly 👏 Please also take a look at this article to read about optimizing pandas code for speed.

```
Tests Passed
```

Congratulations!

alternative ways to implement `get_top_n` :

`return (prev_returns.rank(axis=1, ascending=False)<=top_n).applymap(int)`

`return prev_returns.apply(lambda x: x >= pd.Series.nlargest(x, top_n).min(), axis=1).astype('int64')`

`return (prev_returns.rank(1, 'average', None, 'keep', False) <= top_n).astype(np.int)`

The function `portfolio_returns` calculates the projected returns.

You have implemented `portfolio_returns` correctly 👌

```
Tests Passed
```

Congratulations!
The following is an alternative way to implement `portfolio_returns` function using `pandas` dataframes :

`return (lookahead_returns*(df_long - df_short)) / n_stocks`

Statistical Tests

The function `analyze_alpha` calculates the t-value and p-value.

You calculated `t-value` and `p-value` correctly. `p-value` is correctly divided by 2 👍

```
Tests Passed
```

Congratulations!
Please check t-statistic and p-value to learn more on this topic. This link link tells the differences between one-tailed & two-tailed tests and when to can we use them.

The student correctly identifies the p-value they got. The student indicates what the p-value indicates about their signal.

You have correctly identified the `p-value` and compared it to `alpha`. You have also correctly indicated what this `p-value` means for our signal. Please check this link to learn more about hypothesis testing. Also, check this link to learn about estimating a P-value from a simulation

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