



Start Lab

02:30:00

Improve Momentum Trading strategies using Hurst

Overview

Set up your environment

Launch AI Platform Notebooks

[Clone course repository](#)

Momentum Strategies using Hurst

End your lab

2 hours 30 minutes

Free



Overview

Momentum trading strategies, based on concepts from physics, attempt to take advantage of stocks' tendencies to continue going either up or down, independent of daily fluctuations. Contrarily, mean-reversion strategies are based on trends reversing direction.

In this notebook we'll be implementing a strategy to trade on momentum. You'll be using the training wheels version of the [Auquan Toolbox](#) to abstract out the details since the full version of toolbox is a bit comprehensive to get started with.

We're providing you with a bare-bones version that shows you how to use 30 day momentum to trade on Apple, sometime between 2015 and 2017. This naive strategy loses money and that's to be expected. Your goal is to make use of Hurst exponent that you learnt in previous lessons to create a better strategy.

This is an analytical method of momentum trading, but it is also to turn this into a machine learning problem. This is discussed at the end of the notebook, with a link to an extension exercise on the quant-quest website from Auquan for you to attempt this approach.

Objectives

In this lab, you will:

- Understand how the barebones momentum version is working and make yourself comfortable with it
- Use the Hurst exponent to create a money making strategy

Set up your environment

For each lab, you get a new Google Cloud project and set of resources for a fixed time at no cost.

1. Make sure you signed into Qwiklabs using an **incognito window**.
2. Note the lab's access time (for example, **02:00:00** and make sure you can finish in that time block.

There is no pause feature. You can restart if needed, but you have to start at the beginning.

3. When ready, click

START LAB

4. Note your lab credentials. You will use them to sign in to the Google Cloud Console.

Open Google Console

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

Username
google2876526_student@qwiklabs.n

Password
TG959yrKDX

GCP Project ID
qwiklabs-gcp-0855e773352d3560

New to labs? [View our introductory video!](#)

5. Click **Open Google Console**.

6. Click **Use another account** and copy/paste credentials for **this** lab into the prompts.

If you use other credentials, you'll get errors or **incur charges**.

7. Accept the terms and skip the recovery resource page.

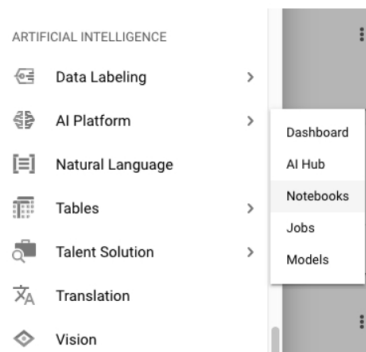
Do not click **End Lab** unless you are finished with the lab or want to restart it. This clears your work and removes the project.

Launch AI Platform Notebooks

To launch AI Platform Notebooks:

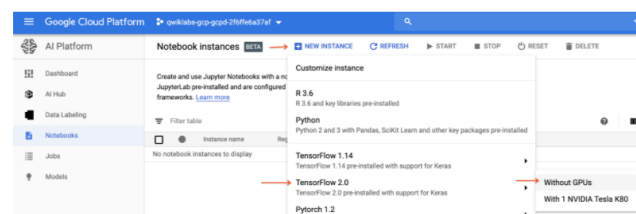
Step 1

Click on the Navigation Menu. Navigate to AI Platforms, then to Notebooks.



Step 2

On the Notebook instances page, click **+ NEW INSTANCE**. Select TensorFlow 2.x without GPUs.



In the pop-up, confirm the name of the deep learning VM, move to the bottom of the window and click Create.

New notebook instance

Instance name *
tensorflow-20191031-100408

Environment:
Image: TensorFlow 2.0 (with Intel® MKL-DNN/MKL and CUDA 10.0)
Packages: python2, python3, scikit-learn, pandas, and nltk.

Machine configurations: ?
Region and zone: us-west1-b
Machine type: 4 vCPUs, 15 GB RAM
Boot disk: 100 GB Disk

Networking:
Subnetwork *
default(10.138.0.0/20)

External IP: Ephemeral(Automatic)

Permission:
Compute Engine default service account

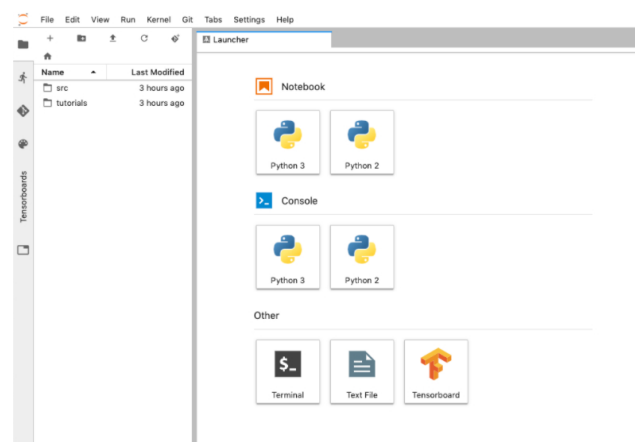
Estimated cost: ?
\$99.89 monthly, \$0.137 hourly

[CUSTOMIZE](#) [CANCEL](#) [CREATE](#)

The new VM will take 2-3 minutes to start.

Step 3

Click **Open JupyterLab**. A JupyterLab window will open in a new tab.

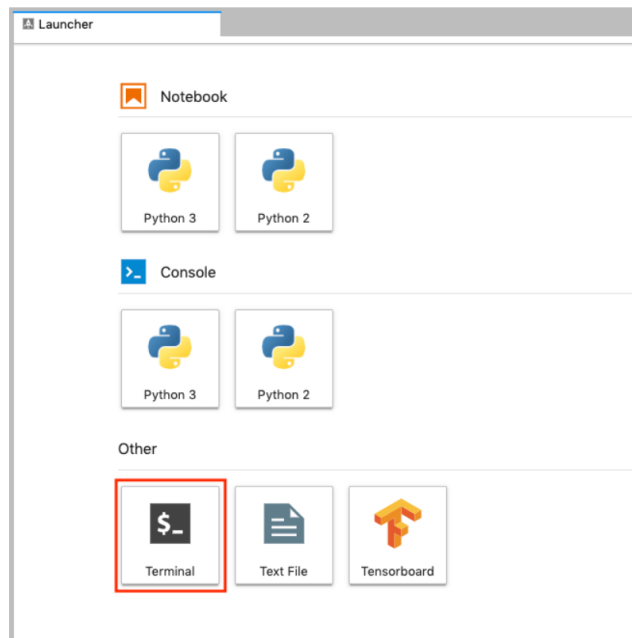


Clone course repository

To clone the `training-data-analyst` notebook in your JupyterLab instance:

Step 1

In JupyterLab, click the Terminal icon to open a new terminal.



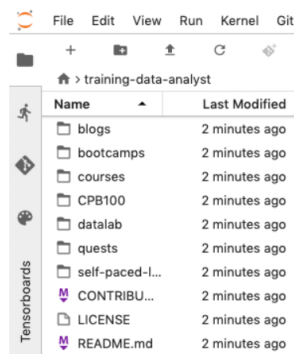
Step 2

At the command-line prompt, type in the following command and press Enter.

```
git clone https://github.com/GoogleCloudPlatform/training-data-analyst
```

Step 3

Confirm that you have cloned the repository by double clicking on the `training-data-analyst` directory and ensuring that you can see its contents. The files for all the Jupyter notebook-based labs throughout this course are available in this directory.



Momentum Strategies using Hurst

Step 1

In the notebook interface, navigate to **training-data-analyst > courses > ai-for-finance > practice** and open **momentum_using_hurst.ipynb**.

You can also visit the solution version of the lab in case you need to get unblocked at any stage of the exercise. The solution notebook is available at **training-data-analyst > courses > ai-for-finance > solution** and open **momentum_using_hurst_solution.ipynb**.

Step 2

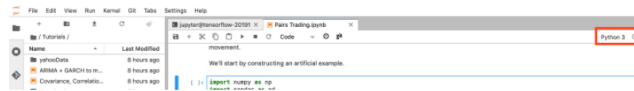
In the notebook interface, click on **Edit > Clear All Outputs** (click on Edit, then in the drop-down menu, select Clear All Outputs).

Tip: To run the current cell you can click the cell and hit **shift+enter**. Other cell

tip: to run the current cell you can click the cell and hit **Shift+Enter**. Other cell commands are found in the notebook UI under **Run**.

Step 3

Ensure you're using the Python 3 kernel by selecting **Python 3** from the upper right corner of the notebook.



Read the narrative and execute each cell in turn.

End your lab

When you have completed your lab, click **End Lab**. Qwiklabs removes the resources you've used and cleans the account for you.

You will be given an opportunity to rate the lab experience. Select the applicable number of stars, type a comment, and then click **Submit**.

The number of stars indicates the following:

- 1 star = Very dissatisfied
- 2 stars = Dissatisfied
- 3 stars = Neutral
- 4 stars = Satisfied
- 5 stars = Very satisfied

You can close the dialog box if you don't want to provide feedback.

For feedback, suggestions, or corrections, please use the **Support** tab.

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