Google Colab 101

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What is Colab?

- Google Colab is a Jupyter Notebook with free GPU.

  ▶ https://colab.research.google.com

- Good to try deep learning without paying money for expensive GPU on AWS, GCP, or other cloud platforms !

Things we should know

Put '!' at the front for shell assignment *e.g.* try '! pwd'
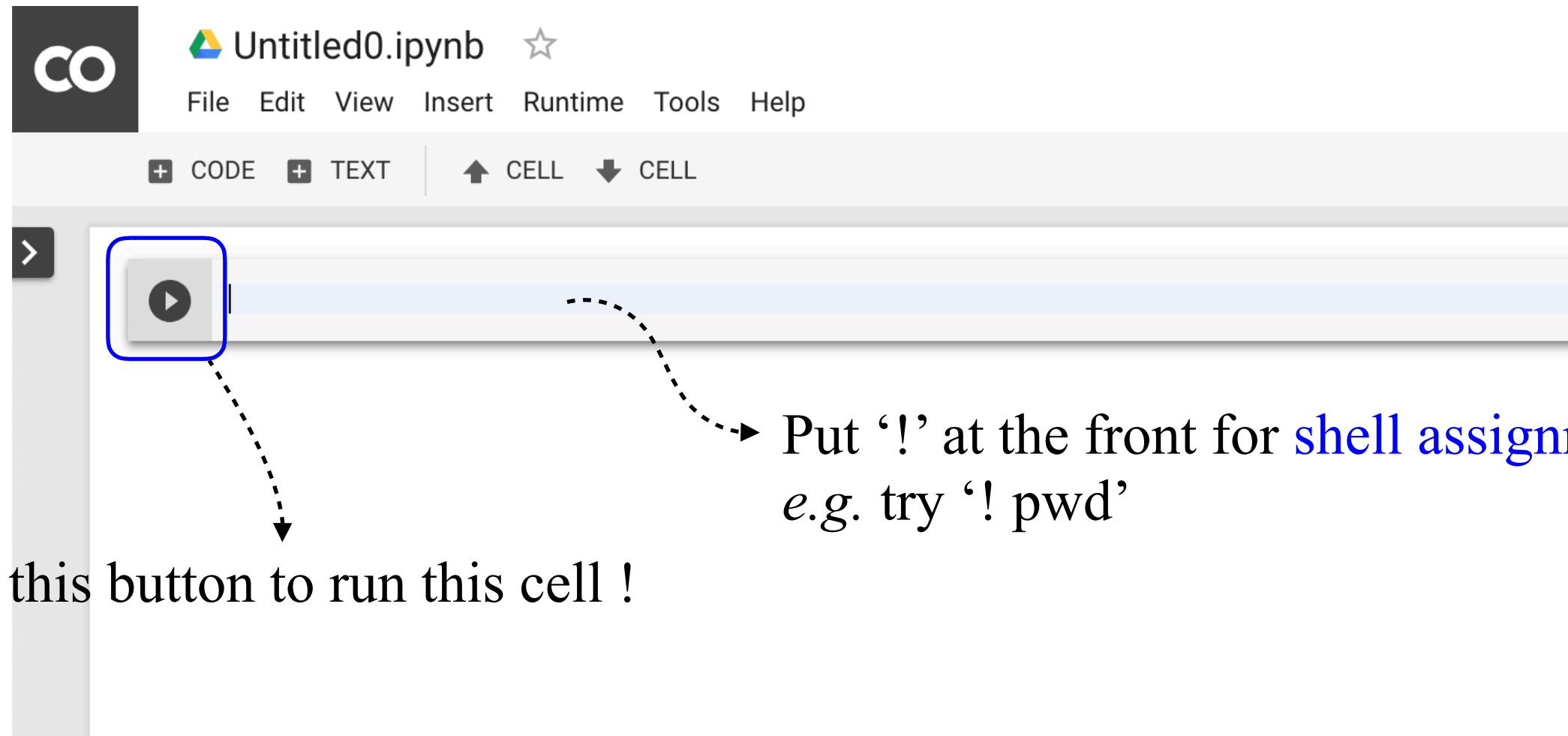
Press this button to run this cell !

TensorBoard with Colab

Idea

To run TensorBoard in the background of Google Colab, use ngrok to tunnel traffic to localhost, so that it can be accessed outside Google Colab. Its detail can be found in this stackoverflow. Credit to Joope

It may seem complicated ! We have another bypass…

i.e. use TensorBoardColab (https://github.com/taomanwai/tensorboardcolab)

```
[ ]    !pip install -U tensorboardcolab
```

To ensure we are using the latest version

TensorBoard with Colab

- To initialize TensorBoardColab,

```
from tensorboardcolab import *

tensorboard_colab = TensorBoardColab()
```

TensorBoard with Colab

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```
from tensorboardcolab import *

tensorboard_colab = TensorBoardColab()
```

- Now, we need to get an instance of FileWriter:

```
colab_writer = tensorboard_colab.get_writer();
colab_writer.add_graph(session.graph)
colab_writer.flush();
```

TensorBoard with Colab

```
colab_writer = tensorboard_colab.get_writer();
colab_writer.add_graph(session.graph)
colab_writer.flush();
```

- This is an equivalent way of doing:

writer = tf.summary.FileWriter('./graphs/linear_regression', session.graph)

- Be careful ! event files will be saved at './Graph' location

TensorBoard with Colab
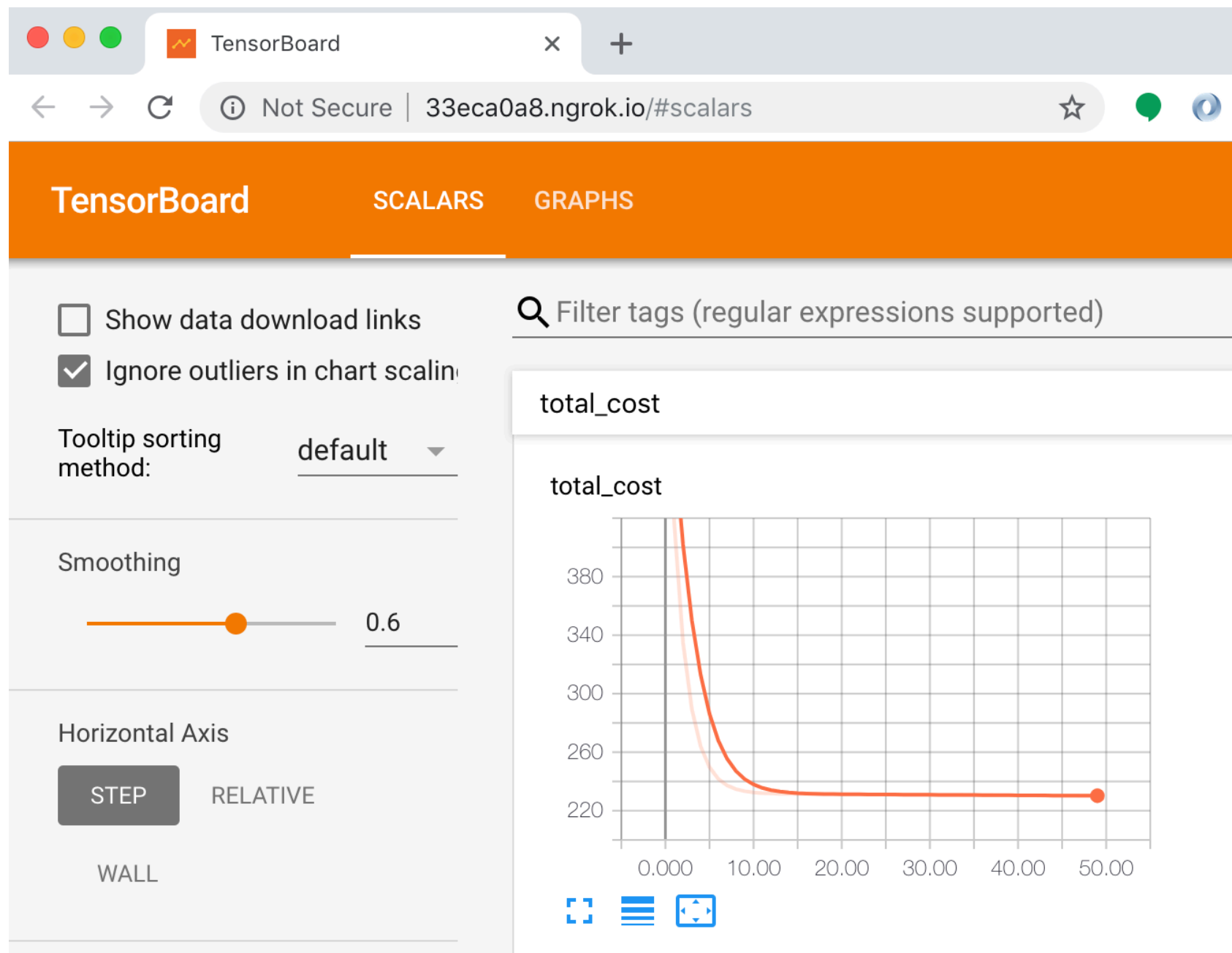
- To add a summary in TensorBoard:

```
summary, cost = session.run([merged, loss_function], feed_dict={X: data.T[0], Y: data.T[1]})

colab_writer.add_summary(summary, i)
colab_writer.flush();
```

- This is an equivalent way of doing:

```
summary, cost = session.run([merged, loss_function], feed_dict={X: data.T[0], Y: data.T[1]})
writer.add_summary(summary, i)
```
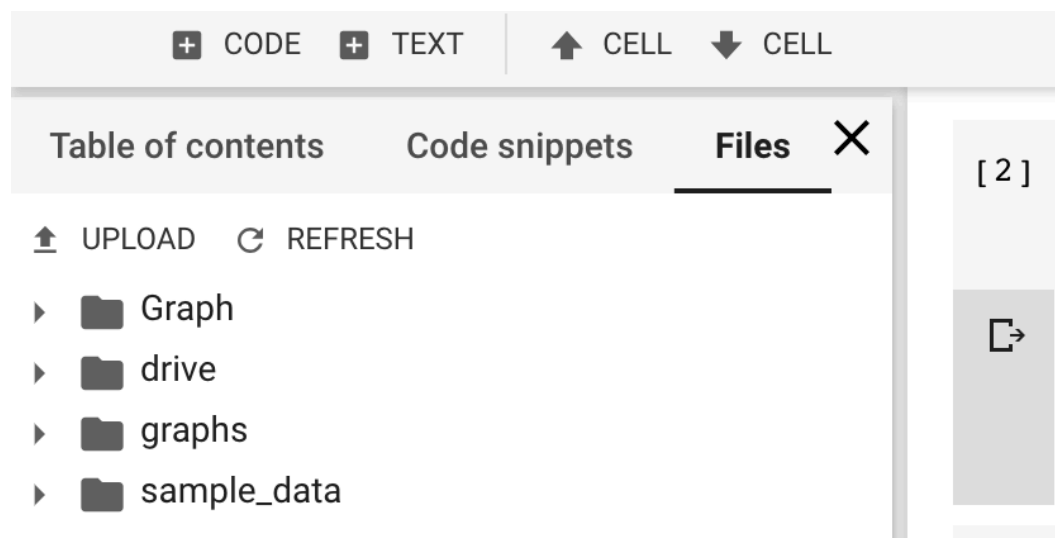
TensorBoard with Colab

Connect with Google Drive

1
```
from google.colab import drive
drive.mount('/content/drive')
```

2

⊞ CODE	⊞ TEXT	⬆ CELL	⬇ CELL

Table of contents   Code snippets   **Files** ✕

⬆ UPLOAD   ↻ REFRESH

▸ 📁 Graph
▸ 📁 drive
▸ 📁 graphs
▸ 📁 sample_data

[2]

⮕

- This will prompt for authorization
  - (1) Open the link in a new tab
  - (2) We will get a code
  - (3) Copy the code and put it back to the prompt
  - (4) Now, we have access to Drive !

- Now, you can have fun with it *e.g.*
  - !cp "/content/drive/My Drive/xy.py" "xy.py"
  - !ls

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[1] https://stackoverflow.com/questions/48376580/google-colab-how-to-read-data-from-my-google-drive

Hope you enjoy !

Useful Reading

- How to upload your own dataset into Google Colab?
  https://medium.com/@yuraist/how-to-upload-your-own-dataset-into-google-colab-e228727c87e9

- An easy way to learn and use TensorFlow:
  https://medium.com/tensorflow/colab-an-easy-way-to-learn-and-use-tensorflow-d74d1686e309

- TensorBoard and Colab:
  https://medium.com/12-developer-labors/introduction-to-tensorflow-for-developers-part-2-tensorboard-b0d76f74108c

- Use TensorBoard in Google Colab:
  https://medium.com/@tommytao_54597/use-tensorboard-in-google-colab-16b4bb9812a6

- Can I use TensorBoard with Google Colab?:
  https://stackoverflow.com/questions/47818822/can-i-use-tensorboard-with-google-colab