

物聯網實務 HW12


電機碩一 11278008 林佳慧

日期:2023/12/06

Exercise 12-1

training a model in Python

Code in Colab



The screenshot shows the Google Colab interface. At the top, the title bar displays the Colab logo, the notebook name "trainandconverttfjs.ipynb", and a star icon. On the right, there are "Share", "Settings", and a user profile icon labeled "佳慧". Below the title bar is a menu bar with "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help". A status message "Changes will not be saved" is visible. The "File" menu is open, showing options like "Locate in Drive", "New notebook", "Open notebook" (with "Ctrl+O" shortcut), "Upload notebook", "Rename", "Move", "Move to trash", "Save a copy in Drive" (highlighted with a red rectangle), "Save a copy as a GitHub Gist", "Save a copy in GitHub", "Save" (with "Ctrl+S" shortcut), "Save and pin revision" (with "Ctrl+M S" shortcut), "Revision history", "Download", and "Print" (with "Ctrl+P" shortcut). The main code area shows a terminal output of a pip install command for tensorflowjs, with progress bars and version information. On the right side of the code area, there is a toolbar with icons for undo, redo, link, settings, copy, delete, and a vertical ellipsis.

trainandconverttfjs.ipynb ☆

File Edit View Insert Runtime Tools Help Changes will not be saved

Locate in Drive

New notebook

Open notebook Ctrl+O

Upload notebook

Rename

Move

Move to trash

Save a copy in Drive

Save a copy as a GitHub Gist

Save a copy in GitHub

Save Ctrl+S

Save and pin revision Ctrl+M S

Revision history

Download

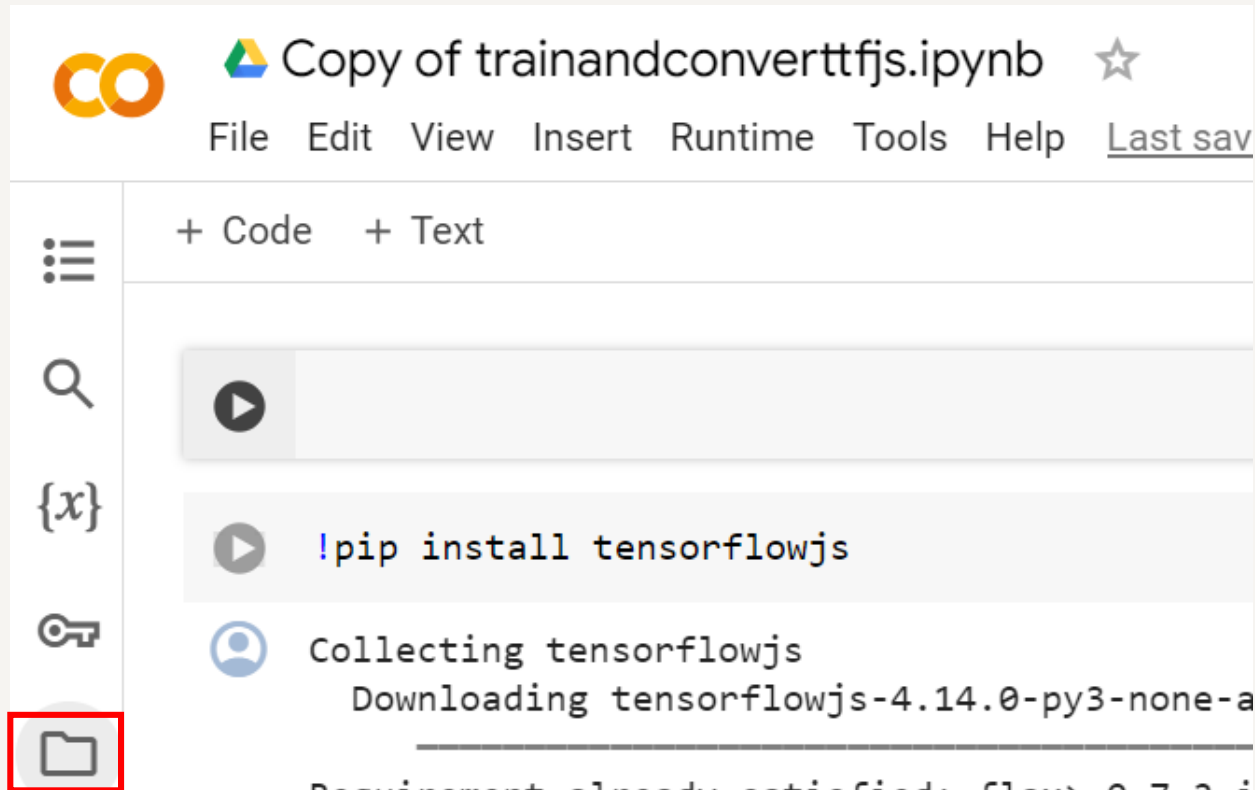
Print Ctrl+P

Connect

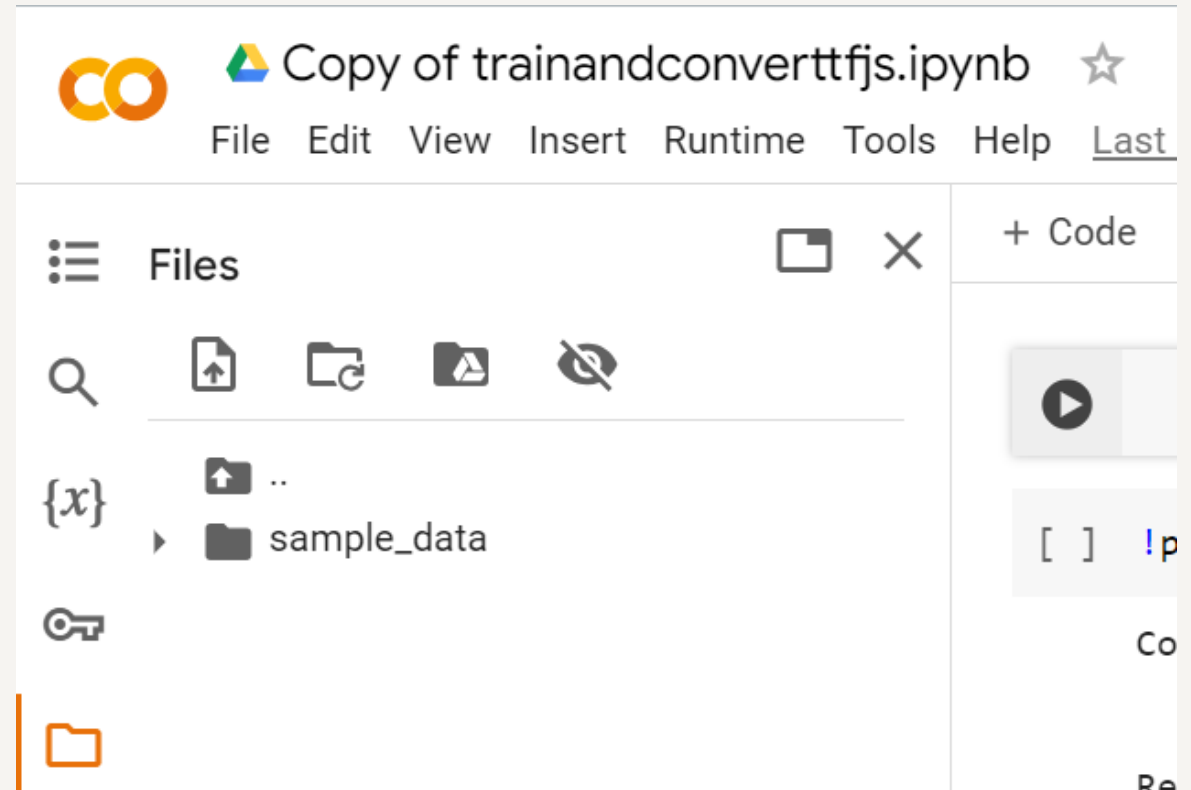
↑ ↓ ↶ ↷ ⚙️ 📄 🗑️ ⋮

```
y3-none-any.whl (89 kB)
89.2/89.2 kB 2.7 MB/s eta 0:00:00
>=0.7.2 in /usr/local/lib/python3.10/dist-packages (from tensorflowjs) (0.7.5)
rtlib_resources>=5.9.0 in /usr/local/lib/python3.10/dist-packages (from tensorflowjs) (6.1.1)
=0.4.13 in /usr/local/lib/python3.10/dist-packages (from tensorflowjs) (0.4.20)
ib>=0.4.13 in /usr/local/lib/python3.10/dist-packages (from tensorflowjs) (0.4.20+cuda11.cudnn86)
orflow<3,>=2.13.0 in /usr/local/lib/python3.10/dist-packages (from tensorflowjs) (2.14.0)
sts>=1.5.0 (from tensorflowjs)
orests-1.8.1-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (15.3 MB)
15.3/15.3 MB 44.4 MB/s eta 0:00:00
2,>=1.16.0 in /usr/local/lib/python3.10/dist-packages (from tensorflowjs) (1.16.0)
orflow-hub>=0.14.0 in /usr/local/lib/python3.10/dist-packages (from tensorflowjs) (0.15.0)
aging~=23.1 in /usr/local/lib/python3.10/dist-packages (from tensorflowjs) (23.2)
y>=1.22 in /usr/local/lib/python3.10/dist-packages (from flax>=0.7.2->tensorflowjs) (1.23.5)
ack in /usr/local/lib/python3.10/dist-packages (from flax>=0.7.2->tensorflowjs) (1.0.7)
x in /usr/local/lib/python3.10/dist-packages (from flax>=0.7.2->tensorflowjs) (0.1.7)
x-checkpoint in /usr/local/lib/python3.10/dist-packages (from flax>=0.7.2->tensorflowjs) (0.4.3)
```

Copy of trainandconverttfjs.ipynb

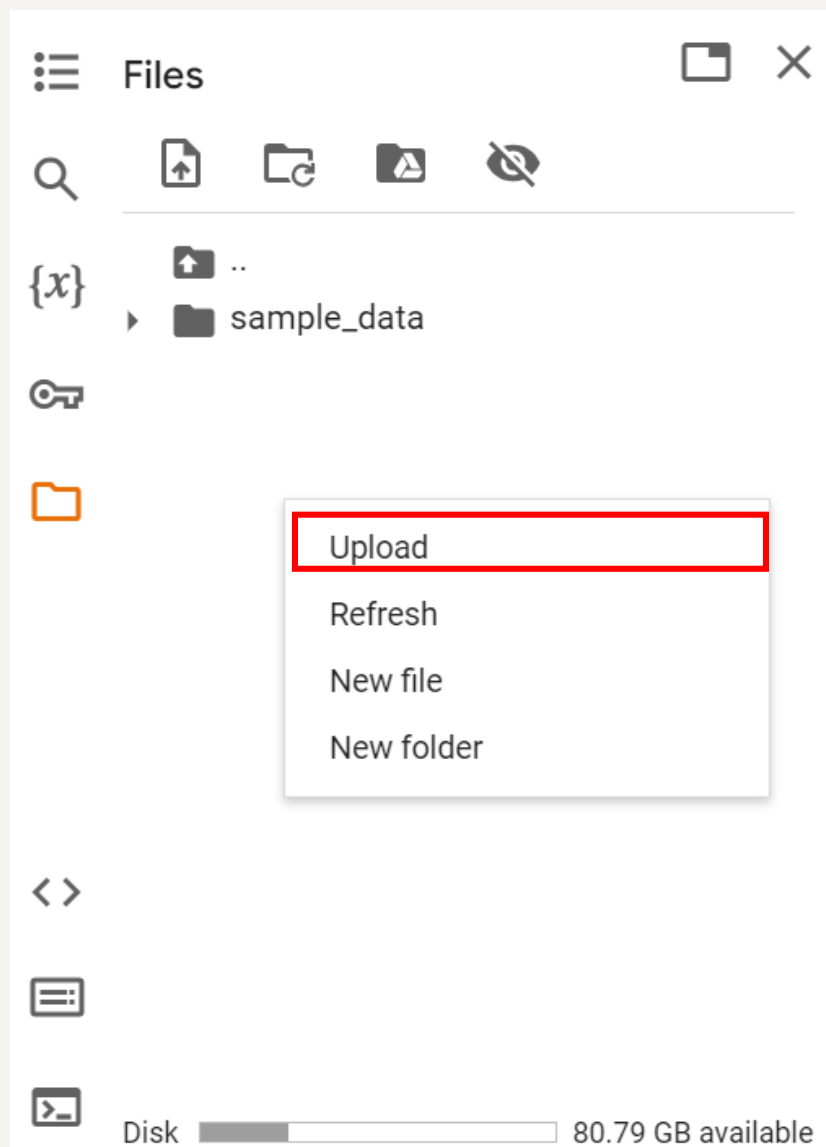


The screenshot shows the Google Colab interface for a notebook titled "Copy of trainandconverttfjs.ipynb". The top bar includes the Colab logo, the notebook title, a star icon, and a menu bar with "File", "Edit", "View", "Insert", "Runtime", "Tools", "Help", and "Last saved". Below the menu bar, the left sidebar contains icons for a hamburger menu, search, code editor, and a file icon (highlighted with a red box). The main area shows the notebook content with a code cell containing the command `!pip install tensorflowjs` and a runtime cell showing the progress of installing tensorflowjs.

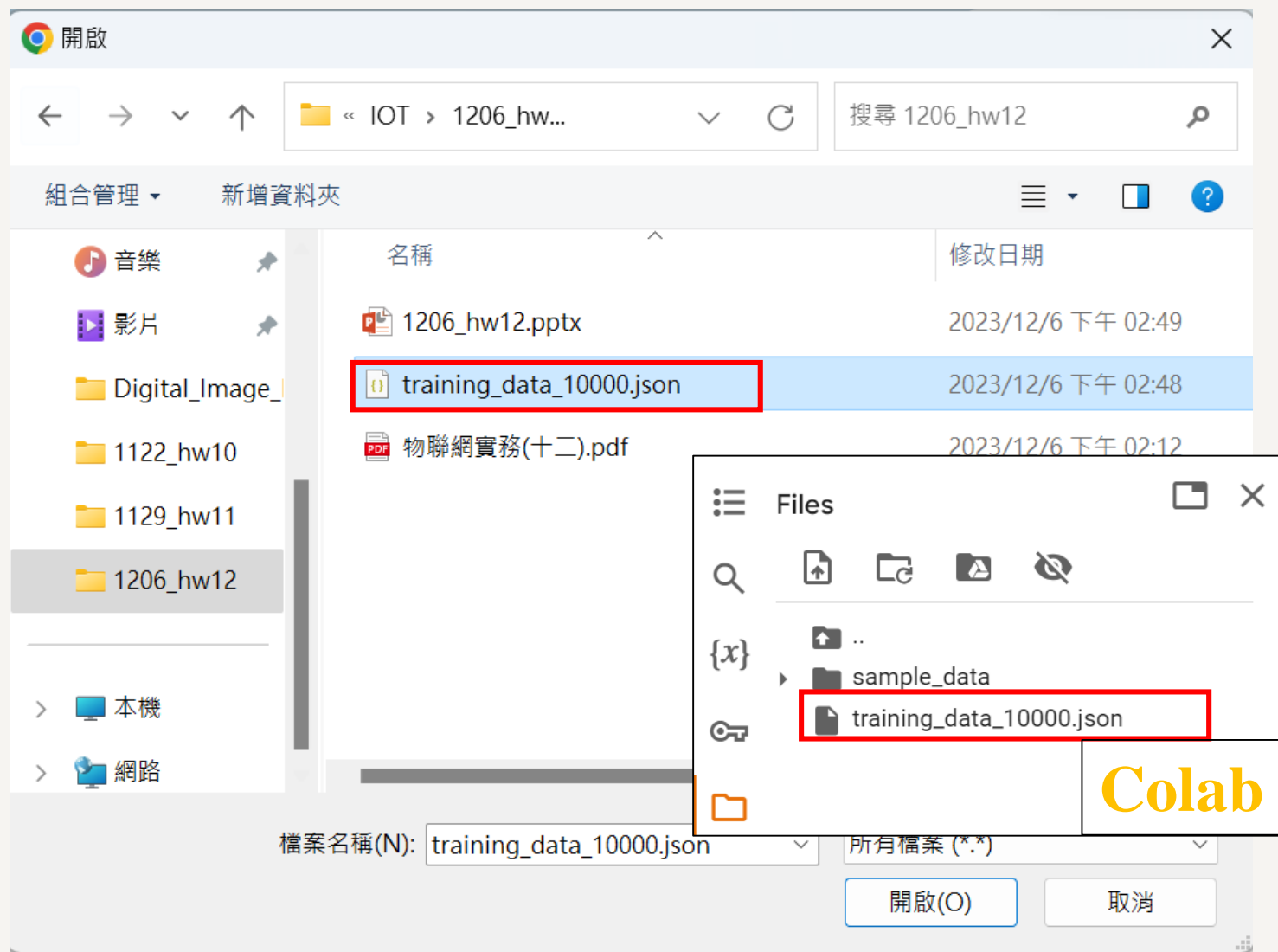


The screenshot shows the Google Colab interface for the same notebook. The left sidebar now displays a file explorer view with a "Files" header, a search icon, and a list of files and folders. The files and folders listed are `..` and `sample_data`. The main area shows the notebook content with a code cell containing the command `[] !p` and a runtime cell showing the progress of installing tensorflowjs.

Upload



training_data_10000.json



!pip install tensorflowjs

+ Code + Text



```
!pip install tensorflowjs
```



```
Downloading wurlitzer-3.0.3-py3-none-any.whl (7.3 kB)
Collecting tensorboard<2.16,>=2.15 (from tensorflow<3,>=2.13.0->tensorflowjs)
  Downloading tensorboard-2.15.1-py3-none-any.whl (5.5 MB)
    5.5/5.5 MB 102.8 MB/s
Collecting tensorflow-estimator<2.16,>=2.15.0 (from tensorflow<3,>=2.13.0->tensorflowjs)
  Downloading tensorflow_estimator-2.15.0-py2.py3-none-any.whl (441 MB)
    442.0/442.0 kB 44.2 MB/s
Collecting keras<2.16,>=2.15.0 (from tensorflow<3,>=2.13.0->tensorflowjs)
  Downloading keras-2.15.0-py3-none-any.whl (1.7 MB)
    1.7/1.7 MB 78.8 MB/s
Requirement already satisfied: markdown-it-py>=2.2.0 in /usr/local/lib/python3.8/site-packages (from tensorflow-estimator<2.16,>=2.15.0->tensorflowjs)
Requirement already satisfied: pygments<3.0.0,>=2.13.0 in /usr/local/lib/python3.8/site-packages (from tensorflow-estimator<2.16,>=2.15.0->tensorflowjs)
Requirement already satisfied: google-auth<3,>=1.6.3 in /usr/local/lib/python3.8/site-packages (from tensorflow-estimator<2.16,>=2.15.0->tensorflowjs)
Requirement already satisfied: google-auth-oauthlib<2,>=0.5 in /usr/local/lib/python3.8/site-packages (from tensorflow-estimator<2.16,>=2.15.0->tensorflowjs)
Requirement already satisfied: markdown>=2.6.8 in /usr/local/lib/python3.8/site-packages (from tensorflow-estimator<2.16,>=2.15.0->tensorflowjs)
Requirement already satisfied: requests<3,>=2.21.0 in /usr/local/lib/python3.8/site-packages (from tensorflow-estimator<2.16,>=2.15.0->tensorflowjs)
Requirement already satisfied: tensorboard-data-server<0.8.0,>=0.7.0 in /usr/local/lib/python3.8/site-packages (from tensorflow-estimator<2.16,>=2.15.0->tensorflowjs)
Requirement already satisfied: werkzeug>=1.0.1 in /usr/local/lib/python3.8/site-packages (from tensorflow-estimator<2.16,>=2.15.0->tensorflowjs)
```

```
import tensorflowjs as tfjs
```



```
import tensorflowjs as tfjs
```




4s



```
import tensorflowjs as tfjs
```

train

 Copy of trainandconverttfjs.ipynb ☆
File Edit View Insert Runtime Tools Help

Comment Share Settings 佳慧

Files

sample_data

training_data_10000.json

Found existing installation: tensorflow 2.14.0

Uninstalling tensorflow-2.14.0:
Successfully uninstalled tensorflow-2.14.0
Successfully installed keras-2.15.0 tensorboard-2.15.1 tensorflow-2.15.0.post

1m [1]

2s [2]

```
import tensorflowjs as tfjs

import keras
from keras.models import Sequential
from keras.layers import Dense, Dropout
import json
import numpy as np

with open('training_data_10000.json') as f:
    data = json.load(f)
    xs = np.array(data['xs'])
    ys = np.array(data['ys'])

train = xs[:-15]
train = ys[:-15]
```

```
adam = keras.optimizers.Adam(lr=0.001)

model.compile(loss='categorical_crossentropy',
              optimizer=adam,
              metrics=['accuracy'])

model.fit(x_train, y_train, epochs=100, batch_size=10)

score = model.evaluate(x_test, y_test, batch_size=10)
print(score)

model.save("Keras-64x3-10epoch")

#tfjs.converters.save_keras_model(model, "tfjsv3")
```

Executing (0s)


Release notes

Please follow our [blog](#) to see more information about new features, tips and tricks, and featured notebooks such as [Analyzing a Bank Failure with Colab](#).

2023-11-27

- Removed warning when calling await to make it render as code
- Added "Run selection" to the cell context menu
- Added highlighting for the %python cell magic
- Launched AI coding features for Pro/Pro+ users in more locales
- Python package upgrades
 - bigframes 0.12.0 -> 0.13.0

generate Keras-64x310epoch

 Copy of trainandconverttfs.ipynb ☆
File Edit View Insert Runtime Tools Help [All changes saved](#)

Comment

Share

Settings

佳慧

Files

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{x}

🔑

📁

...

Keras-64x3-10epoch

sample_data

training_data_10000.json

+ Code + Text

11m

Epoch 91/100
3001/3001 [=====] - 6s 2ms/step - loss: 0.6620 - acc
Epoch 92/100
3001/3001 [=====] - 7s 2ms/step - loss: 0.5713 - acc
Epoch 93/100
3001/3001 [=====] - 6s 2ms/step - loss: 0.6148 - acc
Epoch 94/100
3001/3001 [=====] - 6s 2ms/step - loss: 0.6185 - acc
Epoch 95/100
3001/3001 [=====] - 6s 2ms/step - loss: 0.6526 - acc
Epoch 96/100
3001/3001 [=====] - 6s 2ms/step - loss: 0.6308 - acc
Epoch 97/100
3001/3001 [=====] - 7s 2ms/step - loss: 0.7482 - acc
Epoch 98/100
3001/3001 [=====] - 6s 2ms/step - loss: 0.7701 - acc
Epoch 99/100
3001/3001 [=====] - 7s 2ms/step - loss: 0.7343 - acc
Epoch 100/100
3001/3001 [=====] - 6s 2ms/step - loss: 0.7538 - acc
2/2 [=====] - 0s 11ms/step - loss: 0.4716 - accuracy
[0.47164443135261536, 1.0]

RAM
Disk

Release notes

2023-11-27


- Removed warning when calling await to make it render as code
- Added "Run selection" to the cell context menu
- Added highlighting for the %%python cell magic
- Launched AI coding features for Pro/Pro+ users in more locales
- Python package upgrades
 - bigframes 0.12.0 -> 0.13.0
- Python package inclusions
 - transformers 4.35.2
 - google-generativeai 0.2.2

2023-11-08

11m 26s

completed at 3:06 PM

```
tfjs.converters.save_keras_model(model, "tfjsv3")
```


Copy of trainandconverttfjs.ipynb
☆

File Edit View Insert Runtime Tools Help
All changes saved

Comment
Share
Settings
佳慧

Files

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📁 ..

📁 Keras-64x3-10epoch

📁 sample_data

📁 tfjsv3

📄 training_data_10000.json

🔑

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<>

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Disk

78.91 GB available

+ Code

+ Text

✓ 11m [3]

```

3001/3001 [=====] - 6s 2ms/step - loss: 0.9390 - acc
Epoch 25/100
3001/3001 [=====] - 7s 2ms/step - loss: 0.9433 - acc
Epoch 26/100
3001/3001 [=====] - 6s 2ms/step - loss: 0.9467 - acc
Epoch 27/100
3001/3001 [=====] - 6s 2ms/step - loss: 0.9420 - acc
Epoch 28/100
3001/3001 [=====] - 7s 2ms/step - loss: 0.9422 - acc
Epoch 29/100
3001/3001 [=====] - 6s 2ms/step - loss: 0.9403 - acc
Epoch 30/100
module: tfjs
0.9419 - acc
View source
0.9430 - acc
<module 'tensorflowjs' from '/usr/local/lib/python3.10/dist-pac
tfjs.converters.save_keras_model(model, "tfjsv3")
/usr/local/lib/python3.10/dist-packages/keras/src/engine/training.py:3103: Us
saving_api.save_model(

```

0s

completed at 3:13 PM

✓ RAM


✓ Disk

Release notes

2023-11-27

- Removed warning when calling await to make it render as code
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 - transformers 4.35.2
 - google-generativeai 0.2.2

!7z a -tzip tmodel.zip tfjsv3

 Copy of trainandconverttfjs.ipynb ☆
File Edit View Insert Runtime Tools Help [All changes saved](#)

Comment

Share

佳慧

Files

..

Keras-64x3-10epoch

sample_data

tfjsv3

tmodel.zip

training_data_10000.json

+ Code + Text

✓ 0s [4] /usr/local/lib/python3.10/dist-packages/keras/src/engine/training.py:3103: Us
saving_api.save_model(

!7z a -tzip tmodel.zip tfjsv3

```
7-Zip [64] 16.02 : Copyright (c) 1999-2016 Igor Pavlov : 2016-05-21  
p7zip Version 16.02 (locale=en_US.UTF-8,Utf16=on,HugeFiles=on,64 bits,2 CPUs  
  
Scanning the drive:  
1 folder, 2 files, 22655 bytes (23 KiB)  
  
Creating archive: tmodel.zip  
  
Items to compress: 3  
  
Files read from disk: 2  
Archive size: 19149 bytes (19 KiB)  
Everything is Ok
```

RAM

Disk

Release notes X

2023-11-27

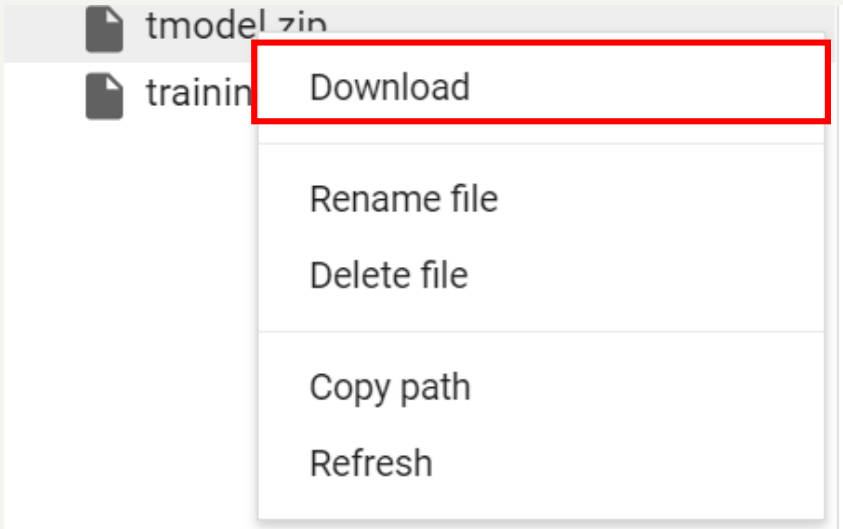
- Removed warning when calling await to make it render as code
- Added "Run selection" to the cell context menu
- Added highlighting for the %%python cell magic
- Launched AI coding features for Pro/Pro+ users in more locales
- Python package upgrades
 - bigframes 0.12.0 -> 0.13.0
- Python package inclusions
 - transformers 4.35.2
 - google-generativeai 0.2.2

2023-11-08

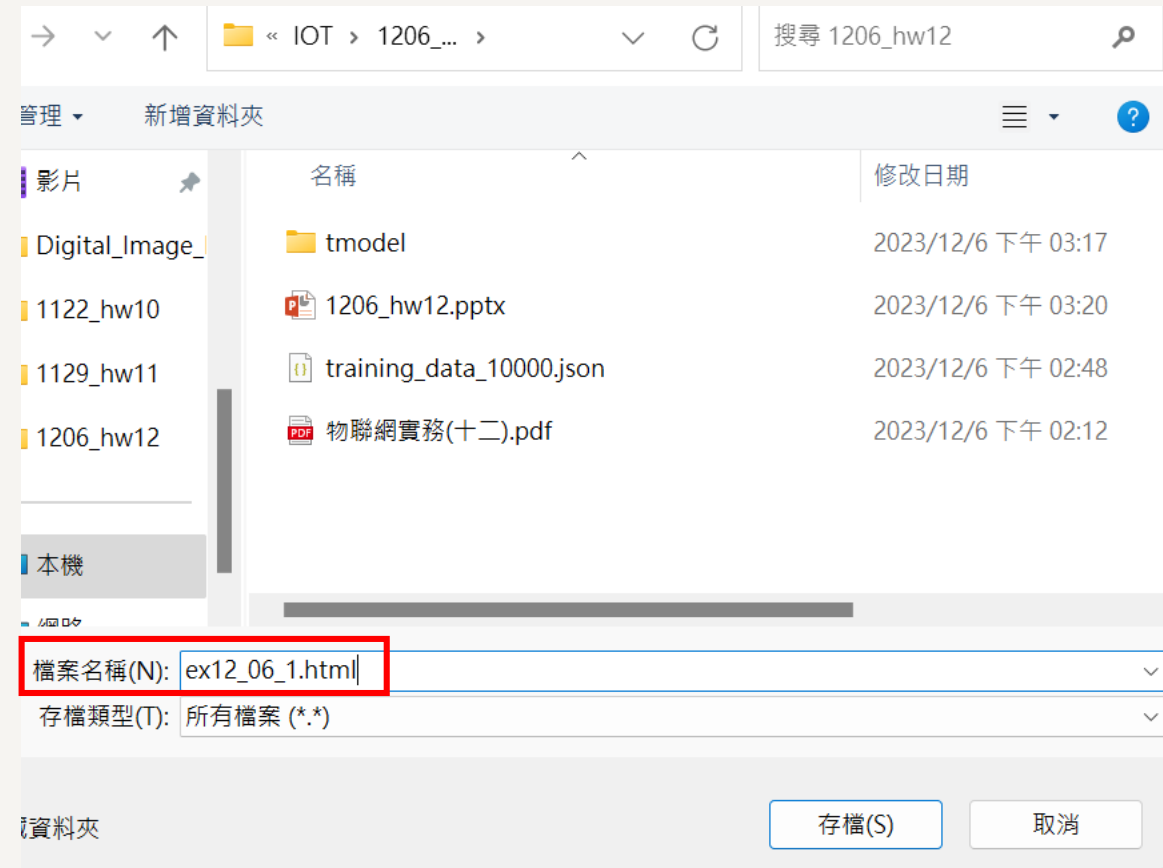
Disk 78.91 GB available

✓ 0s completed at 3:13 PM

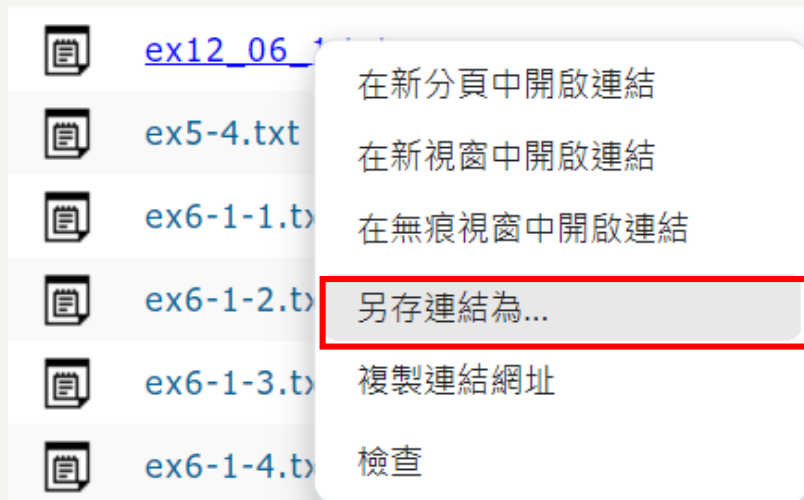
Download



Save as html file



Download ex12_06_1.html




EXTENSIONS: MARKET... ...[preview on web](#)


Preview on W... 457K ★ 5
Preview Web Page on Web ...
YuichiNukiyama [Install](#)

Live Preview 3.5M ★ 4.5
Hosts a local server in your ...
Microsoft [Install](#)

Markdown All in One 6K
All you need to write Markdown in your favorite IDE or text editor.
fantasy [Install](#)

CZ Live Preview  818
Hosts a local server in your ...
tzw666 [Install](#)

html-live-server 56K ★ 4.5
Live server to render html w...
Naveen Vignesh [Install](#)

 **Gryffindor IT** [Preview Web Page on Web ...](#) [Install](#)

VSCode Pro - Fr... 6K ★ 5
An Opinionated collection/p...
SeyyedKhandon [Install](#)

Comrade 64

Extension: Preview on Web Server X



Preview on Web Server v1.3.0

v1.3.0

YuichiNukiyama	457,455	(45)
----------------	---	--

457,455

★★★★★ (45)

Preview Web Page on Web Server.

Install



DETAILS FEATURE CONTRIBUTIONS CHANGELOG

vscode-preview-server

Features

This extension provide preview of HTML which execute on web server. When you save files, this extension automatically reload browser or side panel (live preview feature). You can call these features from the context menu or editor menu. The main features are as follows.

- **Preview on side panel (ctrl+shift+v)**: Open preview of HTML on side panel. With this feature, you can easily check the operation of HTML, CSS and JavaScript.
- **Launch on browser (ctrl+shift+l)**: Open Web Page on default browser. You can check all operation with web page.
- **Stop the web server (ctrl+shift+s)**: Stop the web server. This feature can be used only from command palette.

Categories

Other

Extension Resources

Marketplace

Repository

License

YuichiNukiyama

More Info

Published 2017-01-24,
22:31:50

Last released 2019-08-11,
11:54:51

Identifier `yuichinukiyama.vscoc`

▼ 1206_HW12



▼ tmodel

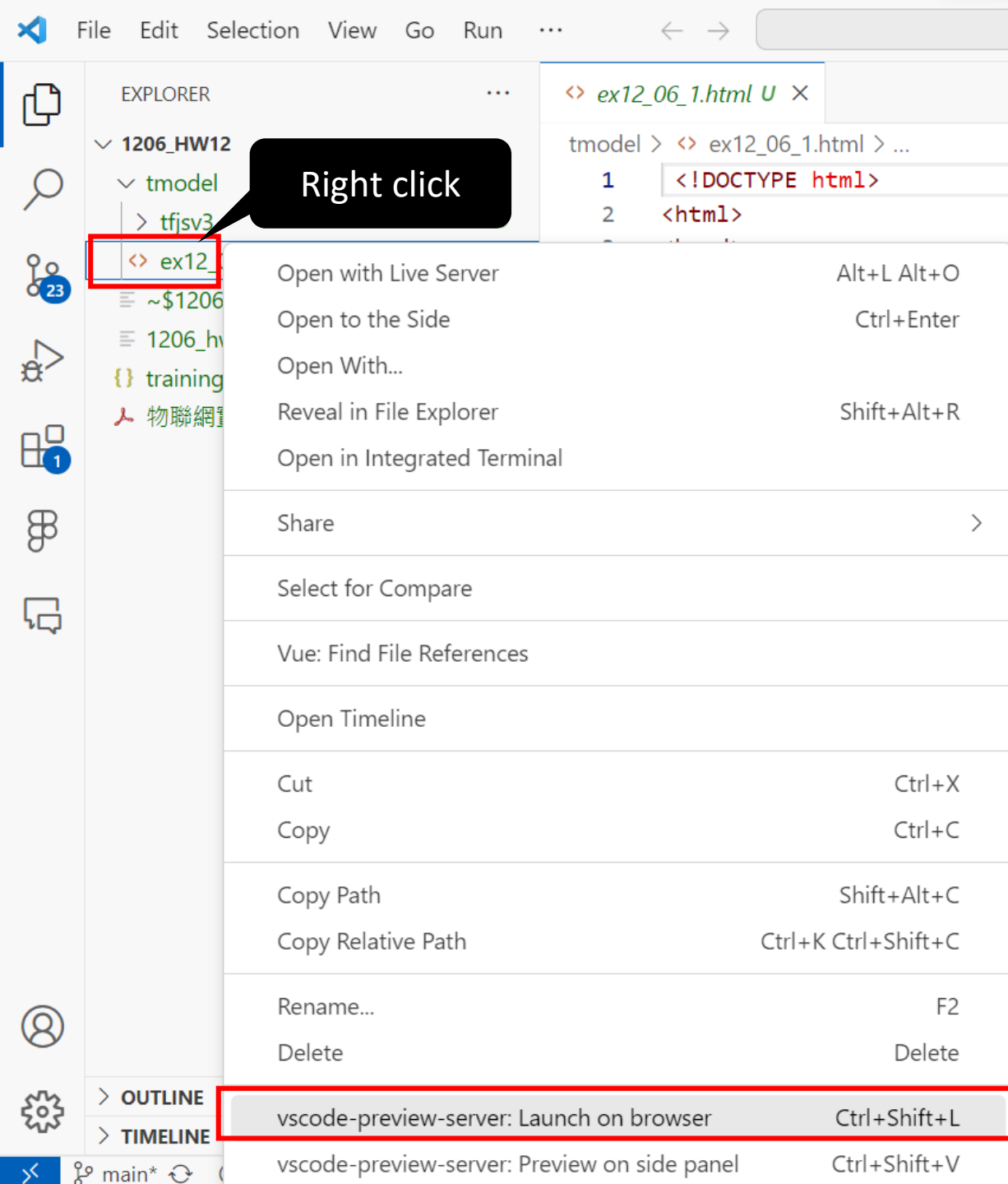
> tfjsv3

<> ex12_06_1.html

須將這兩個檔案放在
同一個資料夾

≡ ~\$1206_hw12.pptx

≡ 1206_hw12.pptx



Ctrl+shift+I/ F12

i DevTools is now available in Chinese!

Always match Chrome's language

Switch DevTools to Chinese

Don't show again



Elements

Console

Sources

Network

Performance

Memory



top



Filter

Default levels

No Issues

3 hidden



Tensor

[[0.2647545, 0.1089542, 0.6262913],]

[array_ops.ts:1136](#)

[ex12_06_1.html:182](#)

Int32Array [2, buffer: ArrayBuffer(4), byteLength: 4, byteOffset: 0, length: 1, Symbol(Symbol.toStringTag): 'Int32Array')

Tensor

[[180, 182, 576, 185, 185, 573],]

[array_ops.ts:1136](#)

Tensor

[[0.2534691, 0.1005669, 0.645964],]

[array_ops.ts:1136](#)

[ex12_06_1.html:182](#)

Int32Array [2, buffer: ArrayBuffer(4), byteLength: 4, byteOffset: 0, length: 1, Symbol(Symbol.toStringTag): 'Int32Array')

Tensor

[[185, 185, 573, 190, 188, 570],]

[array_ops.ts:1136](#)

Tensor

[[0.2410424, 0.0918556, 0.667102],]

[array_ops.ts:1136](#)

[ex12_06_1.html:182](#)

Int32Array [2, buffer: ArrayBuffer(4), byteLength: 4, byteOffset: 0, length: 1, Symbol(Symbol.toStringTag): 'Int32Array')

Tensor

[[190, 188, 570, 195, 191, 567],]

[array_ops.ts:1136](#)

>



Console

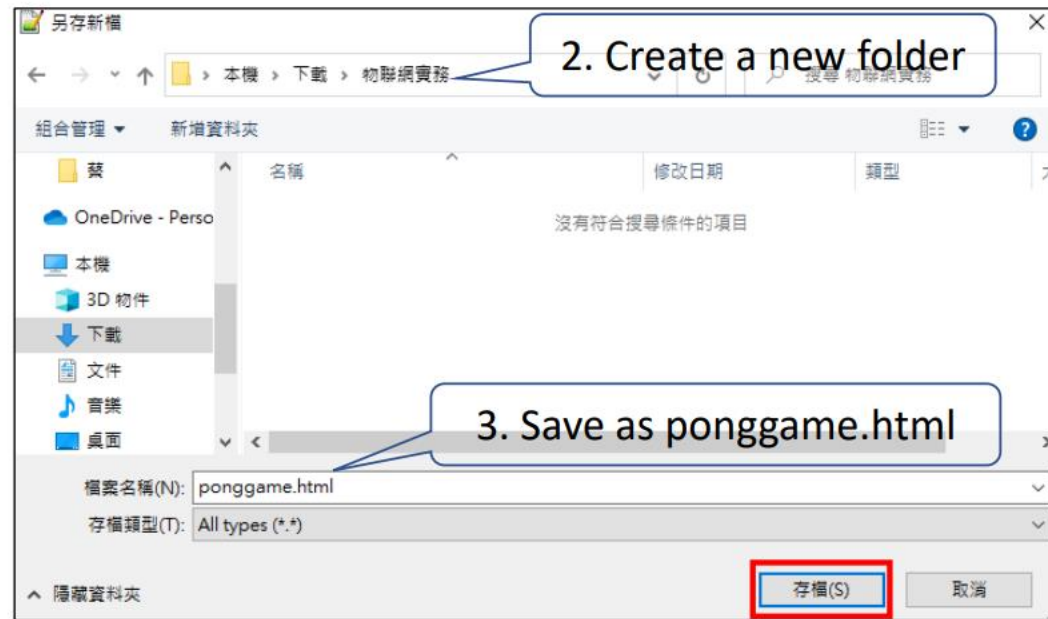
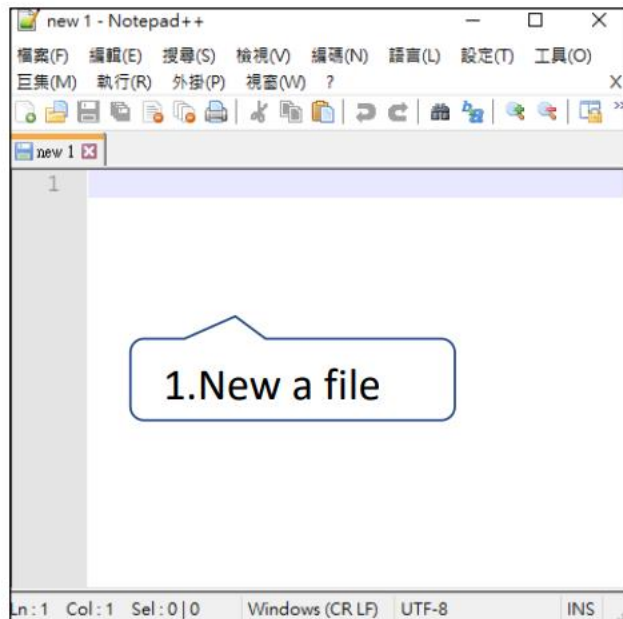
What's New

Issues



Exercise 12-2

- **Pong Clone In JavaScript**
- • we will have just a simple HTML file that is: "ponggame.html"



ponggame.html

```
<html>
<head>
<title> Ping Pong Game</title>
</head>
<body>
<h1> Your name's Ping Pong Game</h1>
<div id='mainContent'></div>
<script src="https://cdn.jsdelivr.net/npm/@tensorflow/tfjs@0.11.2"> </script>
<script src="ponggame.js"></script>
</body>
</html>
```

Copy

Paste & Save



The screenshot shows a code editor interface with a menu bar (File, Edit, Selection, View, Go, Run, ...) and a search bar containing '1206_hw12'. The editor has three tabs: 'ponggame.html U', 'ex12_06_3.html U', and 'ponggame.js JS'. The active tab is 'ponggame.html', which displays the following HTML code:

```
<> ponggame.html > html
1  <html>
2  <head>
3  <title> Ping Pong Game</title>
4  </head>
5  <body>
6  <h1> Linda's Ping Pong Game</h1>
7  <div id='mainContent'></div>
8  <script src="https://cdn.jsdelivr.net/npm/@tensorflow/tfjs@0.11.2"> </script>
9  <script src="ponggame.js"></script>
10 </body>
11 </html>
```

```
// initial model definition
const model = tf.sequential();
model.add(tf.layers.dense({units: 256, inputShape: [8]})); //input is a 1x8
model.add(tf.layers.dense({units: 512, inputShape: [256], activation:"sigmoid"}));
model.add(tf.layers.dense({units: 256, inputShape: [512], activation:"sigmoid"}));
model.add(tf.layers.dense({units: 3, inputShape: [256]})); //returns a 1x3
const learningRate = 0.001;
const optimizer = tf.train.adam(learningRate);
model.compile({loss: 'meanSquaredError', optimizer: optimizer});
```

Copy all

```
//animation of the pong game code
var animate = window.requestAnimationFrame || window.webkitRequestAnimationFrame || window.mozRequestAnimationFrame || function (callback) {
    window.setTimeout(callback, 1000 / 60)
};
```

```
// variables for pong game.
var canvas = document.createElement("canvas");
var width = 400;
var height = 600;
canvas.width = width;
canvas.height = height;
var context = canvas.getContext('2d');
var player = new Player();
var computer = new Computer();
var ball = new Ball(200, 300);
var ai = new AI();
```

```
var keysDown = {};
```

```
//from pong code:
var render = function () {
    context.fillStyle = "#000000";
    context.fillRect(0, 0, width, height);
    player.render();
    computer.render();
    ball.render();
};
```

File Edit Selection View Go Run ... 1206_hw12

EXPLORER

- 1206_HW12
 - tmodel
 - tfjsv3
 - ex12_06_1.html
 - ~\$1206_hw12.pptx
 - 1206_hw12.pptx
 - ponggame.html
 - JS ponggame.js**
 - training_data_10000.json
 - 物聯網實務(十二).pdf

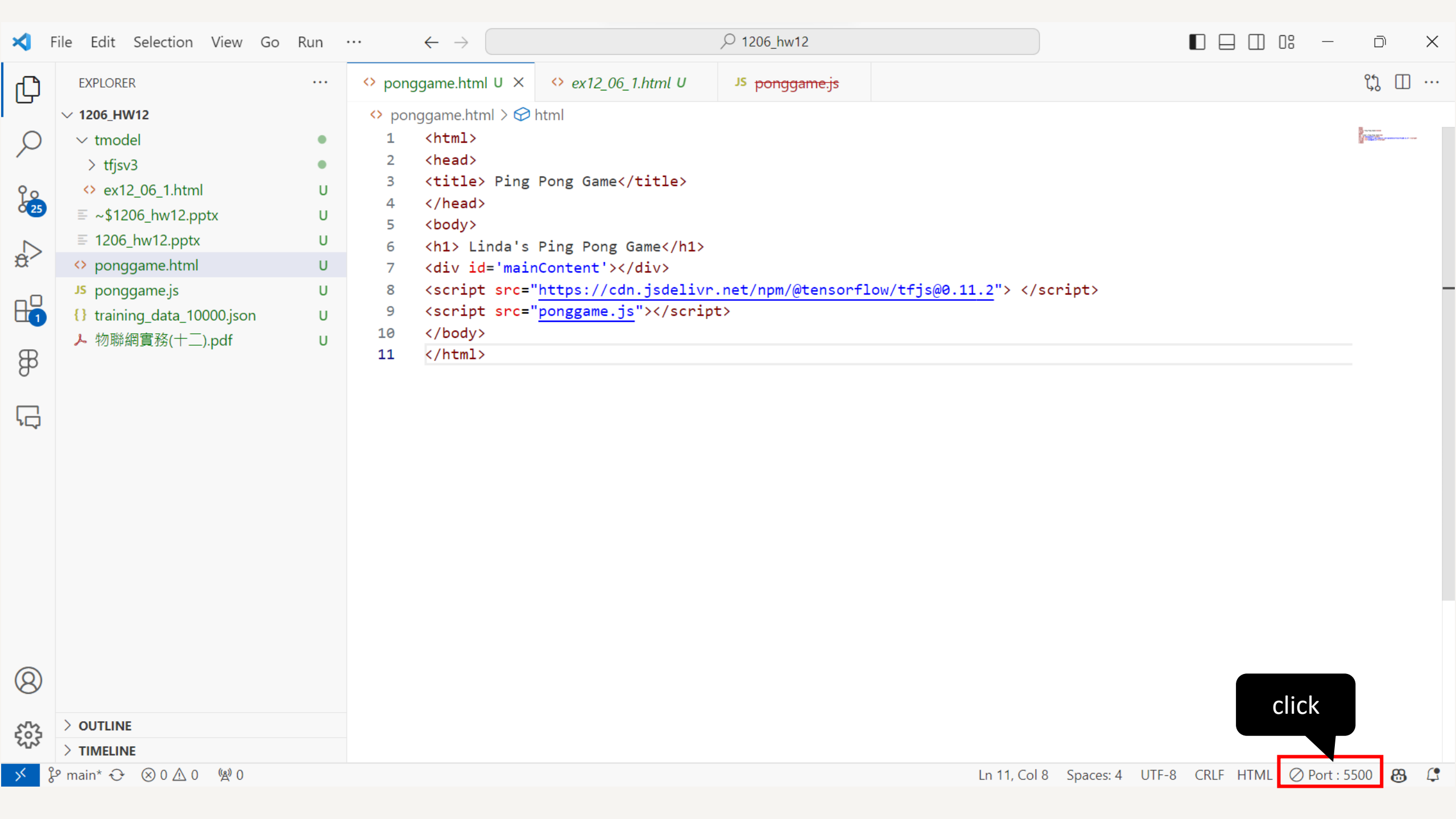
JS ponggame.js > ...

```
1 // initial model definition
2 const model = tf.sequential();
3 model.add(tf.layers.dense({units: 256, inputShape: [8]})); //input is a 1x8
4 model.add(tf.layers.dense({units: 512, inputShape: [256], activation:"sigmoid"}));
5 model.add(tf.layers.dense({units: 256, inputShape: [512], activation:"sigmoid"}));
6 //returns a 1x3
7
8 const optimizer = tf.train.adam(learningRate);
9 model.compile({loss: 'meanSquaredError', optimizer: optimizer});
10
11 //animation of the pong game code
12 var animate = window.requestAnimationFrame || window.webkitRequestAnimationFrame || window.mozRequestAnimationFrame ||
13   window.setTimeout(callback, 1000 / 60)
14   };
15
16 // variables for pong game.
17 var canvas = document.createElement("canvas");
18 var width = 400;
19 var height = 600;
20 canvas.width = width;
21 canvas.height = height;
22 var context = canvas.getContext('2d');
23 var player = new Player();
24 var computer = new Computer();
25 var ball = new Ball(200, 300);
26 var ai = new AI();
27
28 var keysDown = {};
```

Save as ponggame.js

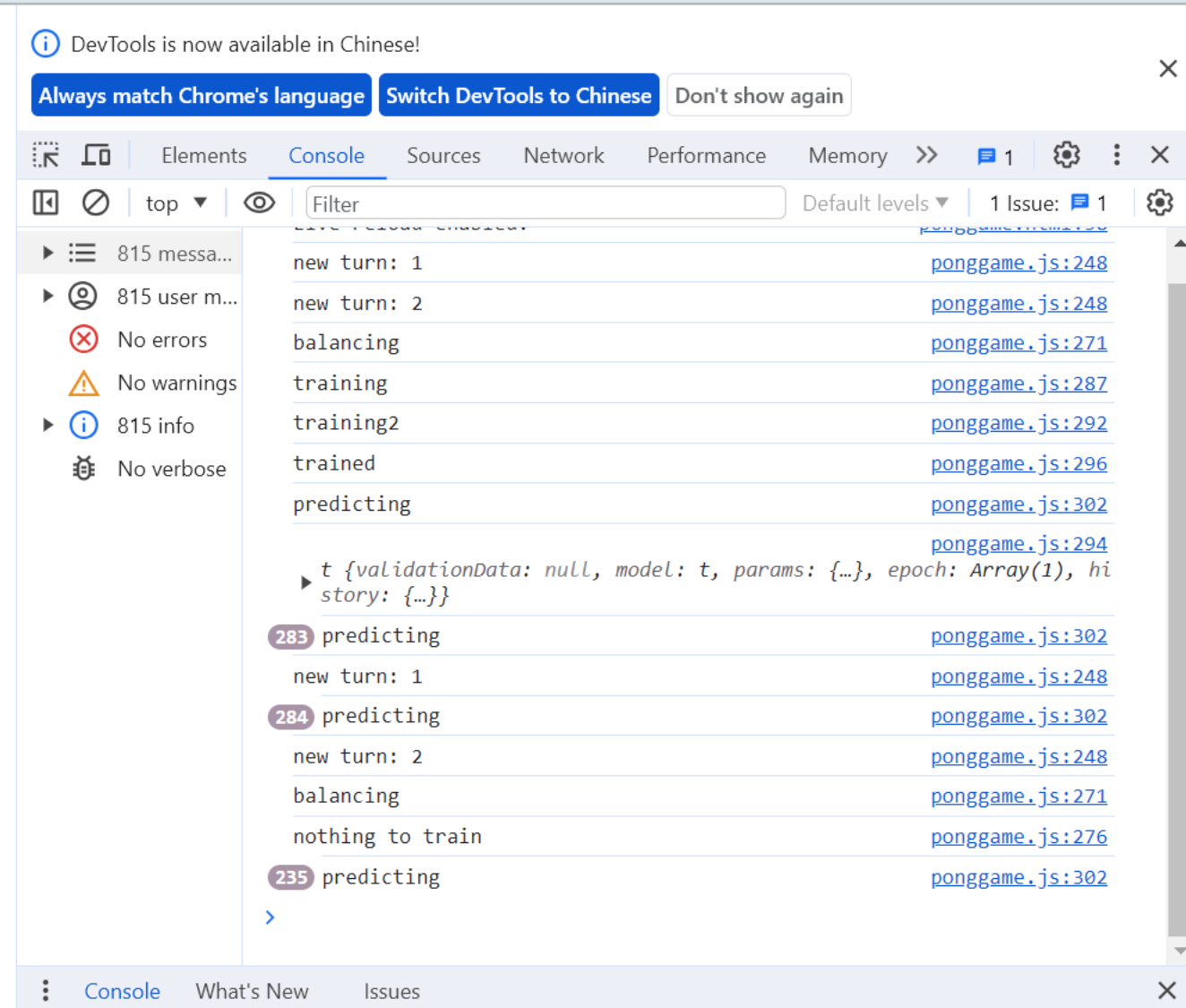
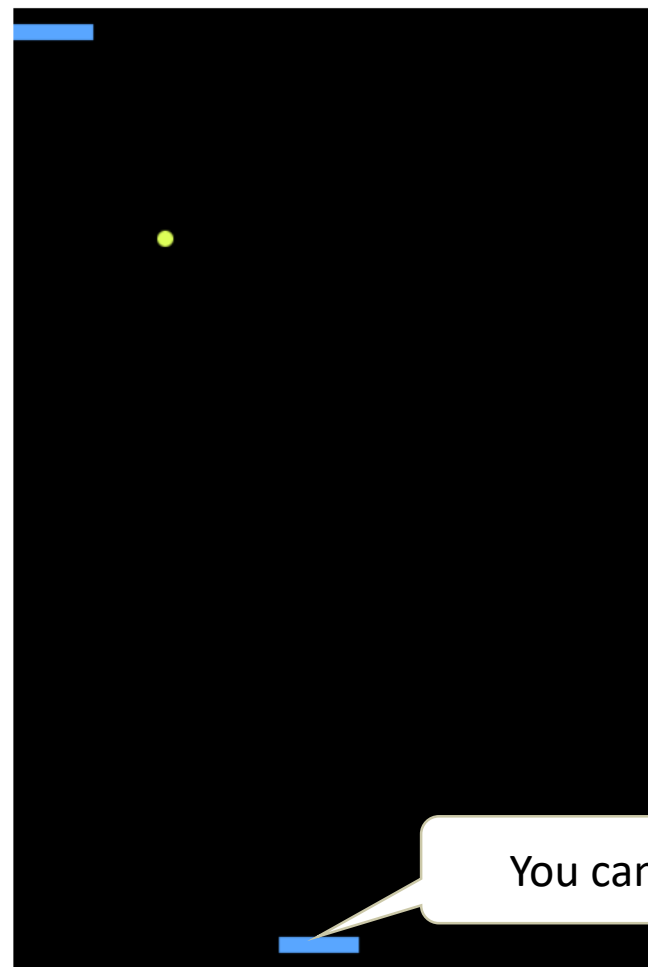
Paste

Ln 1, Col 1 Spaces: 4 UTF-8 CRLF {} JavaScript Port : 5500



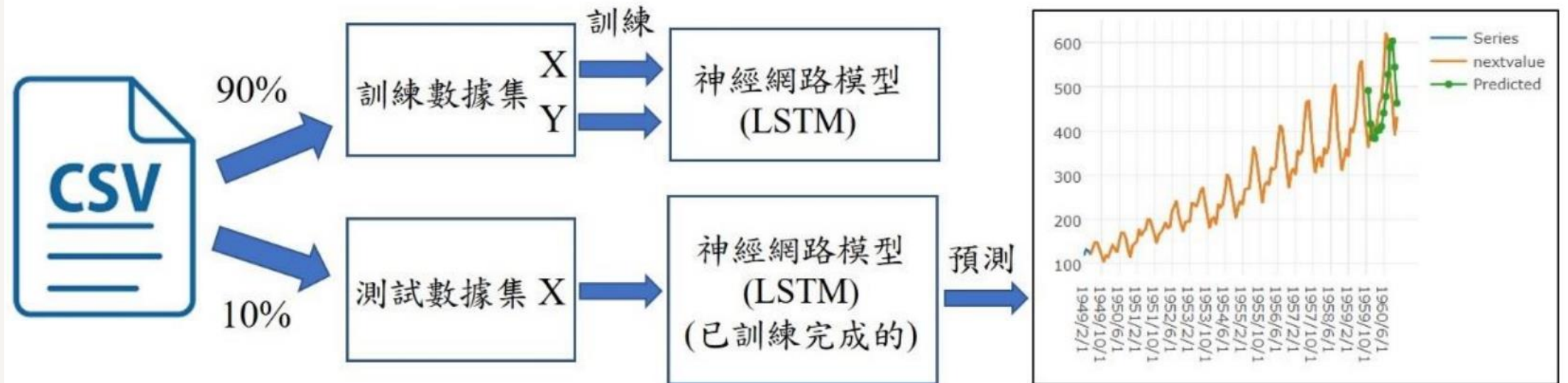
ponggame.html

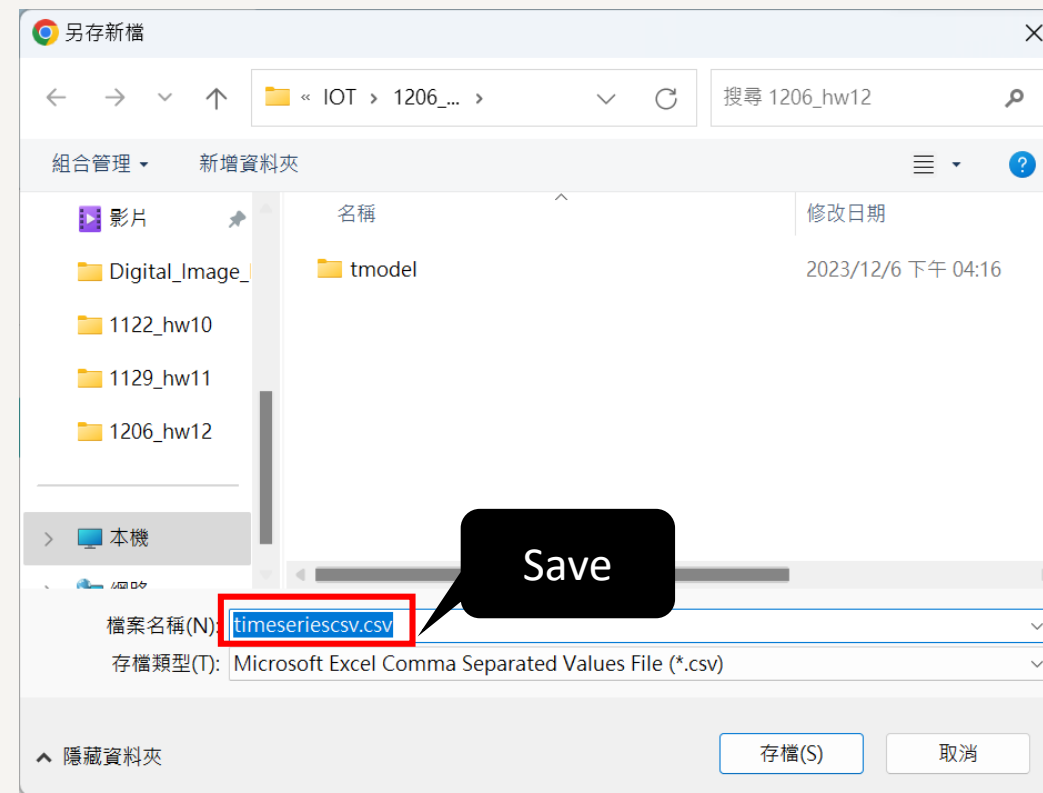
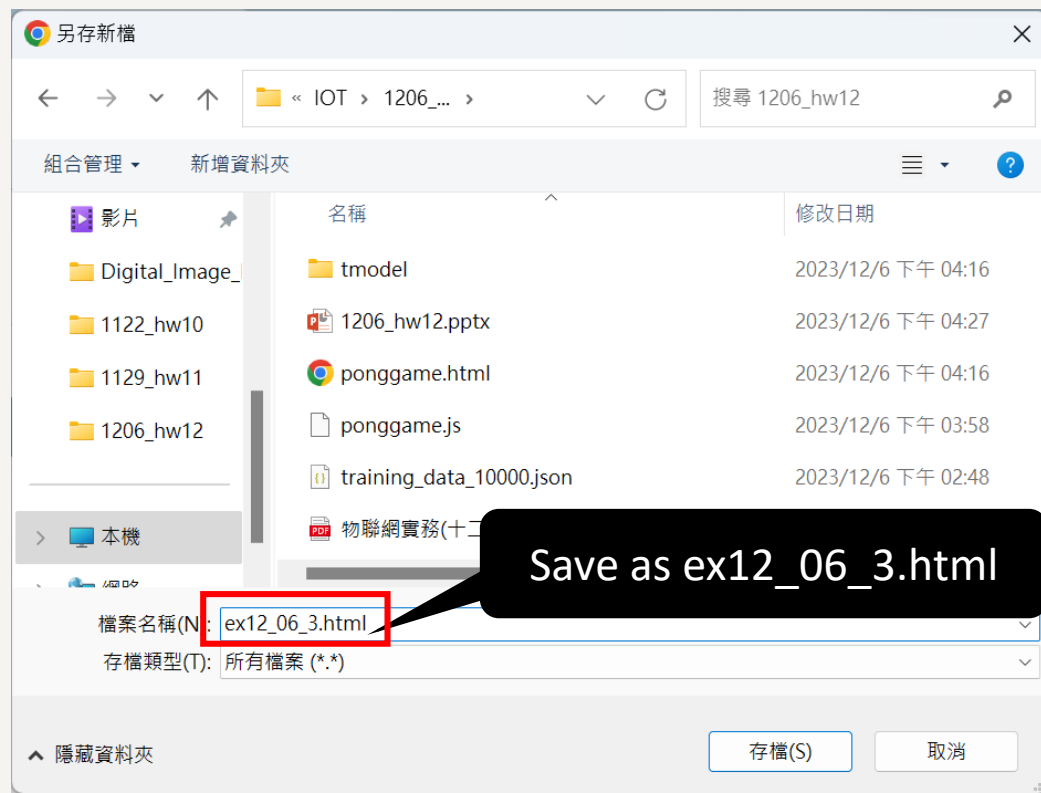
Linda's Ping Pong Game



Exercise 12-3

使用csv檔案與LSTM網路進行時間序列預測的實驗架構圖





Time Series Prediction

select *.csv data file
選擇檔案 未選擇任何檔案

1. 選出"timeseriescsv.csv"

2. Train

Train

Predict

3. Predict

Save

model-prediction-test

Load

1. Ctrl+shift+I / F12

Time Series Prediction

select *.csv data file

選擇檔案

timeseriescsv.csv

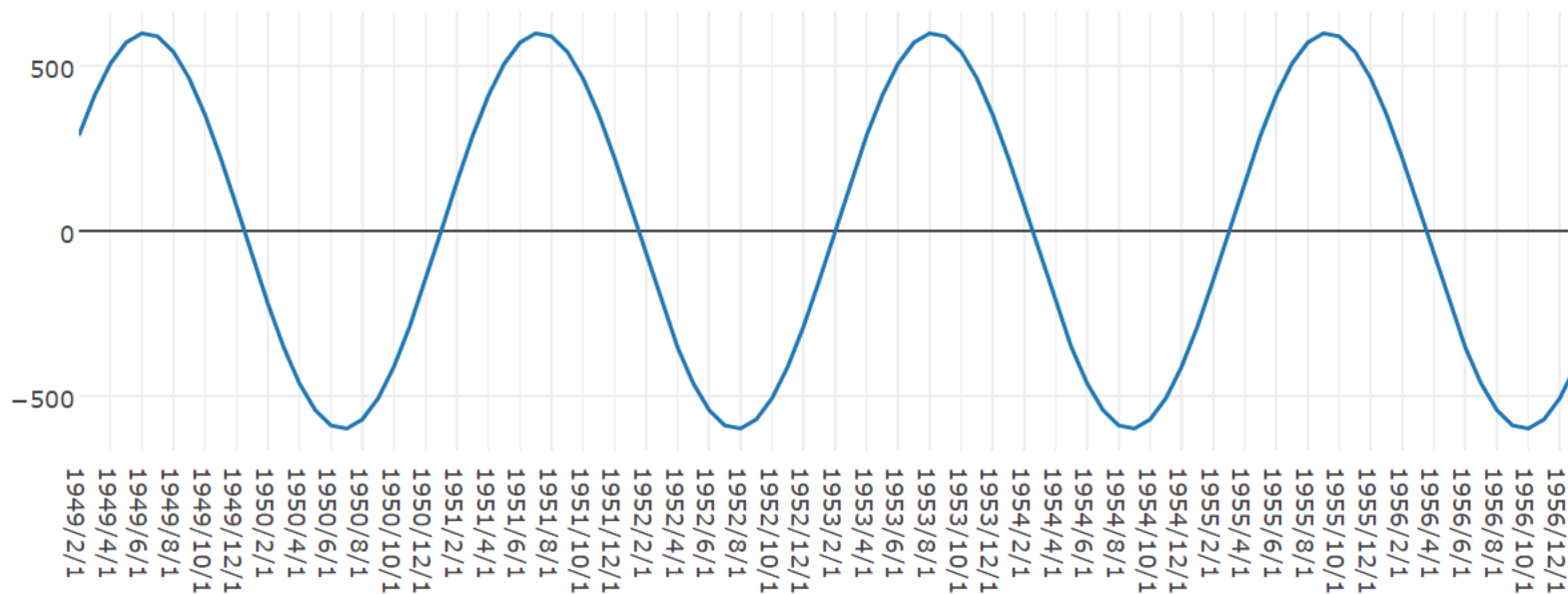
Train

Predict

Save

model-prediction-test

Load



DevTools is now available in Chinese!

Always match Chrome's language

Switch DevTools to Chinese

Don't show again



Elements

Console

Sources



top



Filter

Default levels



No Issues

Array(143)

[0 ... 99]

```
▶ 0: {id: '2', timestamp: '1949/2/1', price: '289.0444'}
▶ 1: {id: '3', timestamp: '1949/3/1', price: '410.7185'}
▶ 2: {id: '4', timestamp: '1949/4/1', price: '506.5872'}
▶ 3: {id: '5', timestamp: '1949/5/1', price: '570.6276'}
▶ 4: {id: '6', timestamp: '1949/6/1', price: '598.8143'}
▶ 5: {id: '7', timestamp: '1949/7/1', price: '589.3781'}
▶ 6: {id: '8', timestamp: '1949/8/1', price: '542.9113'}
▶ 7: {id: '9', timestamp: '1949/9/1', price: '462.3334'}
▶ 8: {id: '10', timestamp: '1949/10/1', price: '352.76'}
▶ 9: {id: '11', timestamp: '1949/11/1', price: '220.92'}
▶ 10: {id: '12', timestamp: '1949/12/1', price: '75.25'}
▶ 11: {id: '13', timestamp: '1950/1/1', price: '-75.14'}
▶ 12: {id: '14', timestamp: '1950/2/1', price: '-220.8'}
▶ 13: {id: '15', timestamp: '1950/3/1', price: '-352.6'}
▶ 14: {id: '16', timestamp: '1950/4/1', price: '-462.2'}
▶ 15: {id: '17', timestamp: '1950/5/1', price: '-542.8'}
▶ 16: {id: '18', timestamp: '1950/6/1', price: '-589.3'}
▶ 17: {id: '19', timestamp: '1950/7/1', price: '-598.8'}
▶ 18: {id: '20', timestamp: '1950/8/1', price: '-570.6'}
```



Console

What's New

Issues



Train

Time Series Prediction

Train

Train

Predict

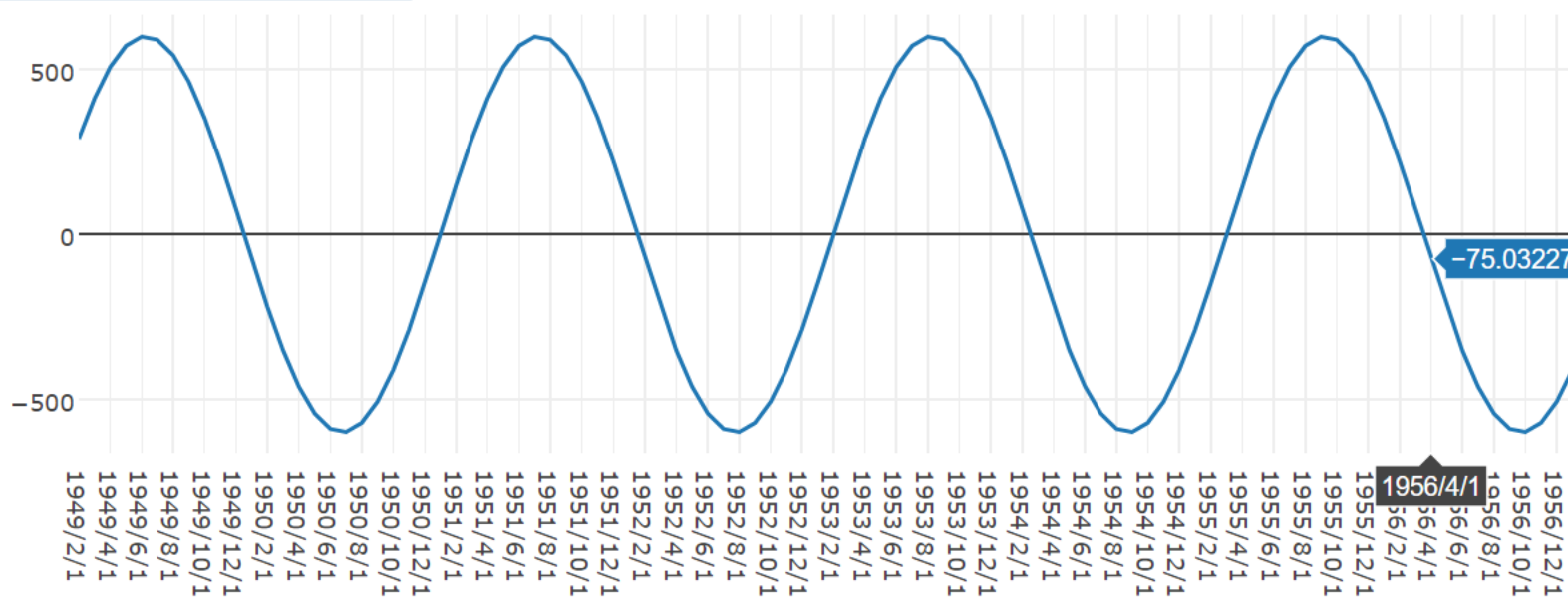
Save

model-prediction-test

Load

select *.csv data file

選擇檔案 timeseriescsv.csv



1956/4/1

DevTools is now available in Chinese!

Always match Chrome's language

Switch DevTools to Chinese

Don't show again

Elements Console Sources >>

top Filter Default levels

No Issues

16 ex12_06_3.html:175
0.07545111715675347 ex12_06_3.html:176
17 ex12_06_3.html:175
0.06990829367367994 ex12_06_3.html:176
18 ex12_06_3.html:175
0.06373849010006302 ex12_06_3.html:176
19 ex12_06_3.html:175
0.057374500078223055 ex12_06_3.html:176
20 ex12_06_3.html:175
0.051102402342838193 ex12_06_3.html:176
21 ex12_06_3.html:175
0.043616641371969196 ex12_06_3.html:176
22 ex12_06_3.html:175
0.0357336617621874 ex12_06_3.html:176

Console What's New Issues

Time Series Prediction

select *.csv data file

選擇檔案 timeseriescsv.csv

Train

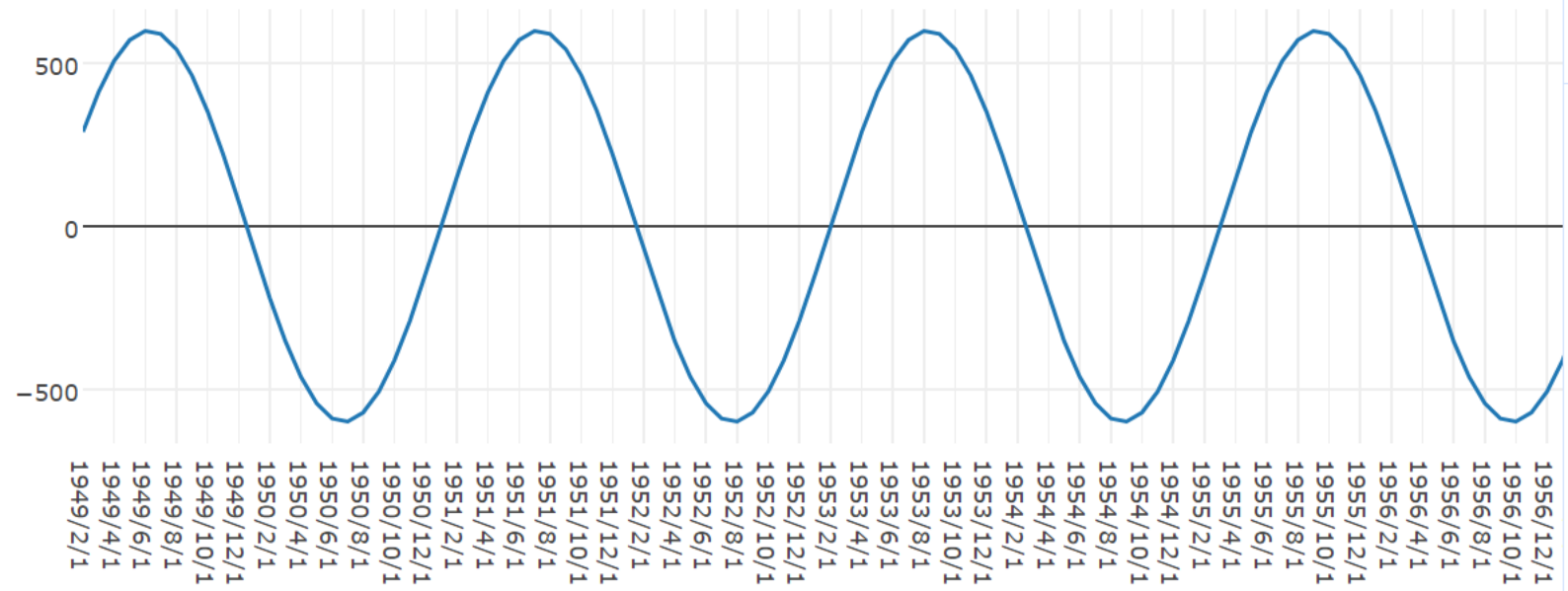
Predict

這個網頁顯示

Your model has been successfully trained...

Training finished

確定



DevTools is now available in Chinese!

ays match Chrome's language Switch DevTools to Chinese

Don't show again

Elements Console Sources >>

top Filter Default levels

No Issues

93	ex12_06_3.html:175
0.0009079801465203571	ex12_06_3.html:176
94	ex12_06_3.html:175
0.0008826408094526934	ex12_06_3.html:176
95	ex12_06_3.html:175
0.0008691060167389908	ex12_06_3.html:176
96	ex12_06_3.html:175
0.0008588849471250017	ex12_06_3.html:176
97	ex12_06_3.html:175
0.0008328493946926698	ex12_06_3.html:176
98	ex12_06_3.html:175
0.000812865152958751	ex12_06_3.html:176
99	ex12_06_3.html:175
0.0007925629823668194	ex12_06_3.html:176

Console What's New Issues

Save

Time Series Prediction

Save

```
select *.csv data file
```

選擇檔案 timeseriescsv.csv

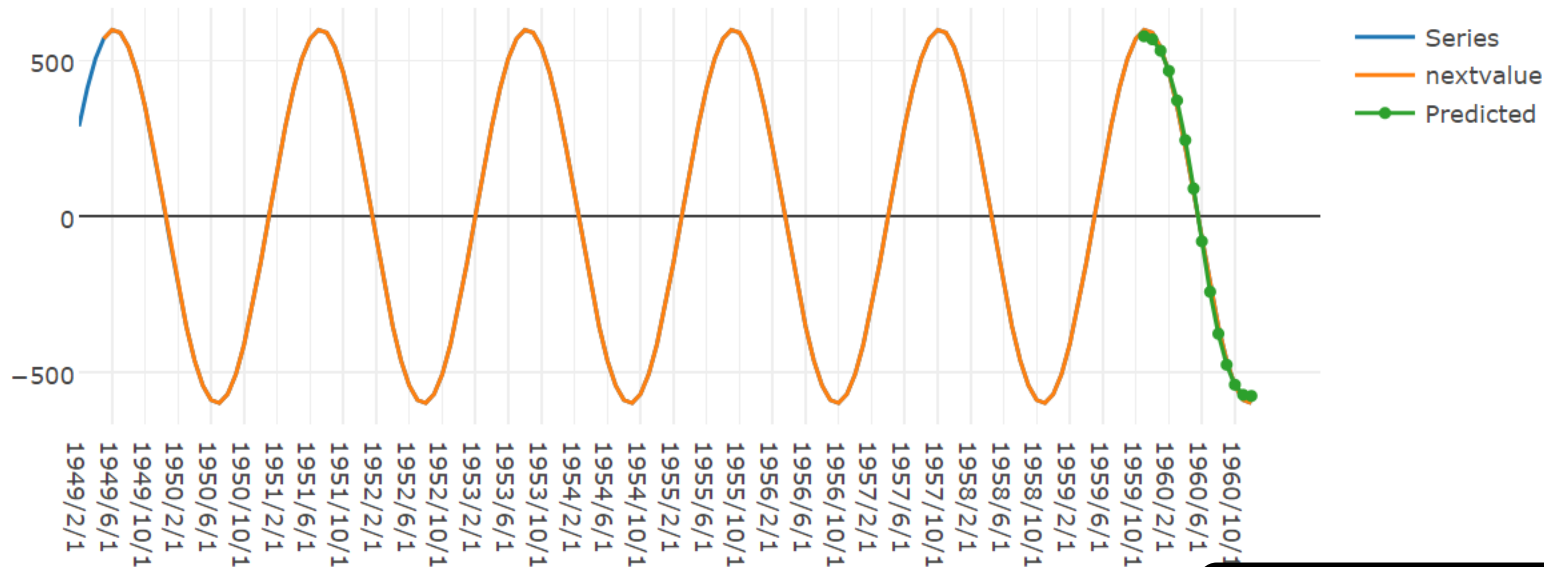
Train

Predict

Save

model-prediction-test

Load



Save address

 DevTools is now available in Chinese!

Always match Chrome's language

Switch DevTools to Chinese

Don't show again

Elements Console Sources >> ⚙️ ⋮ ✕

  top  1 hidden 

Default levels ▼ No Issues

{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}
{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}
{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}
{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}
{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}
{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}
{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}	{...}
{...}	{...}	{...}	{...}	i							

► [0 ... 99]

► [100 ... 139]

```
length: 140
```

- ▶ `[[Prototype]]: Array(0)`

[ex12_06_3.html:221](#)

(14) [578.1585693359375, 568.3432006835938, 531.8678588
867188, 467.25164794921875, 371.9758605957031, 244.7041
3208007812, 89.46929931640625, -79.9439926147461, -241.
71644592285156, -376.5204772949219, -475.862060546875,
-540.0574340820312, -572.476806640625, -576.11956787109
28]

[indexeddb://model-prediction-test](#)

[ex12_06_3.html:271](#)

[ex12_06_3.html:273](#)

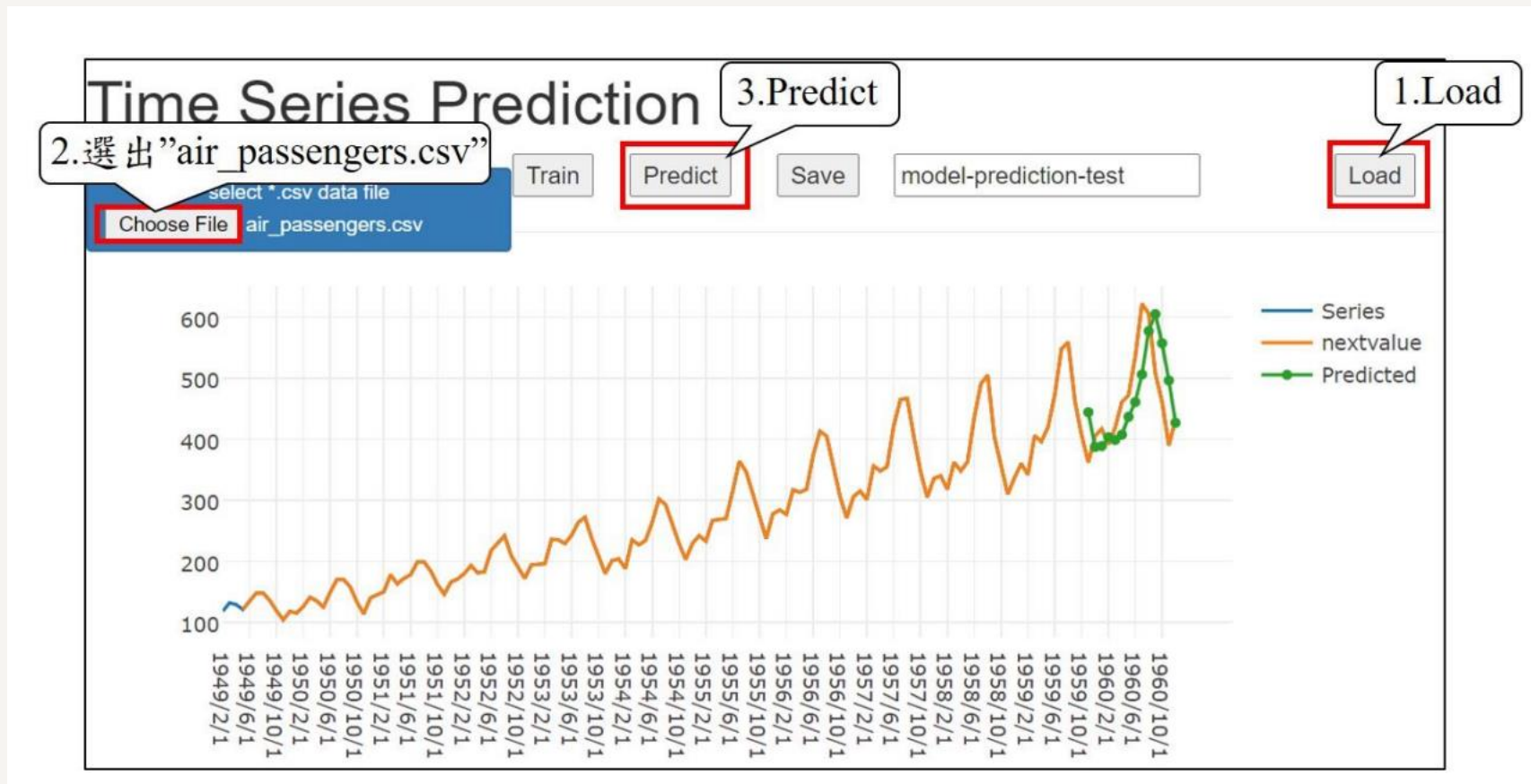
- ▶ `{indexeddb://model-prediction-test: {...}}`



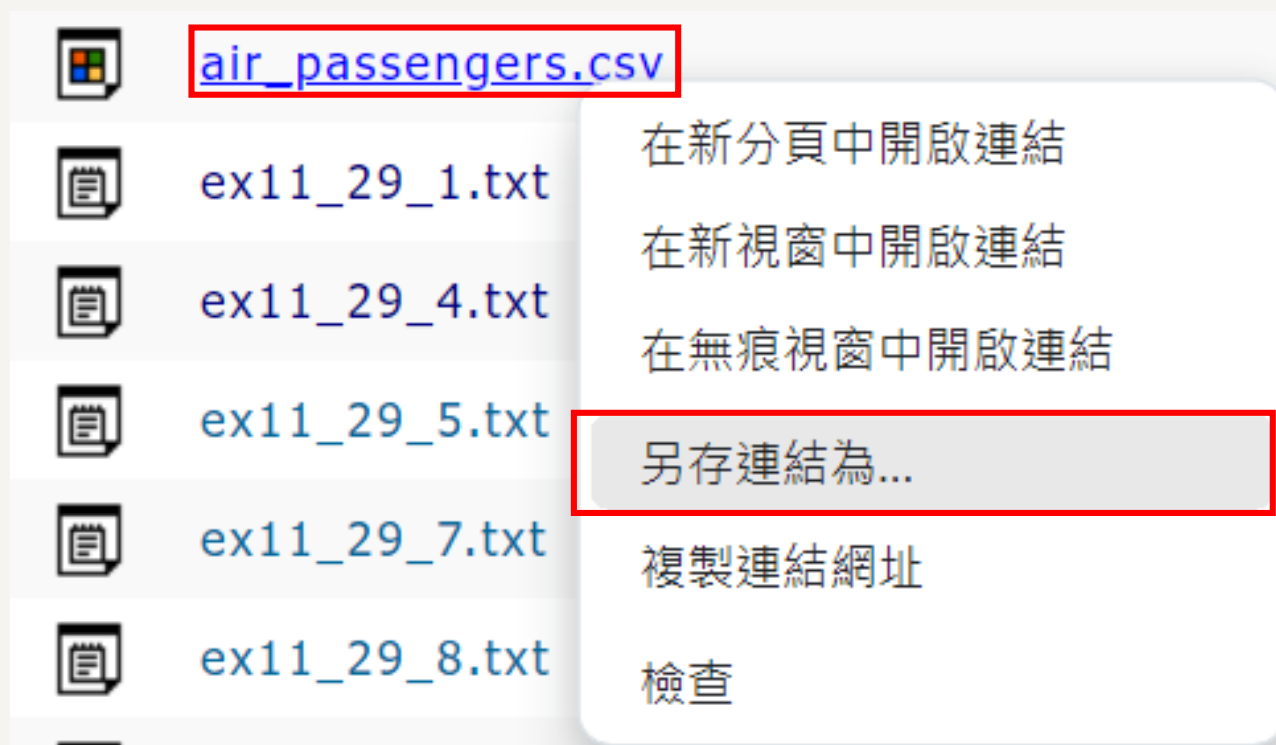
⋮ [Console](#) [What's New](#) [Issues](#)

×

Homework 12-1



Download air_passengers.csv and save as



Time Series Pre

2. Train

Train

Predict

Save

model-prediction-test

Load

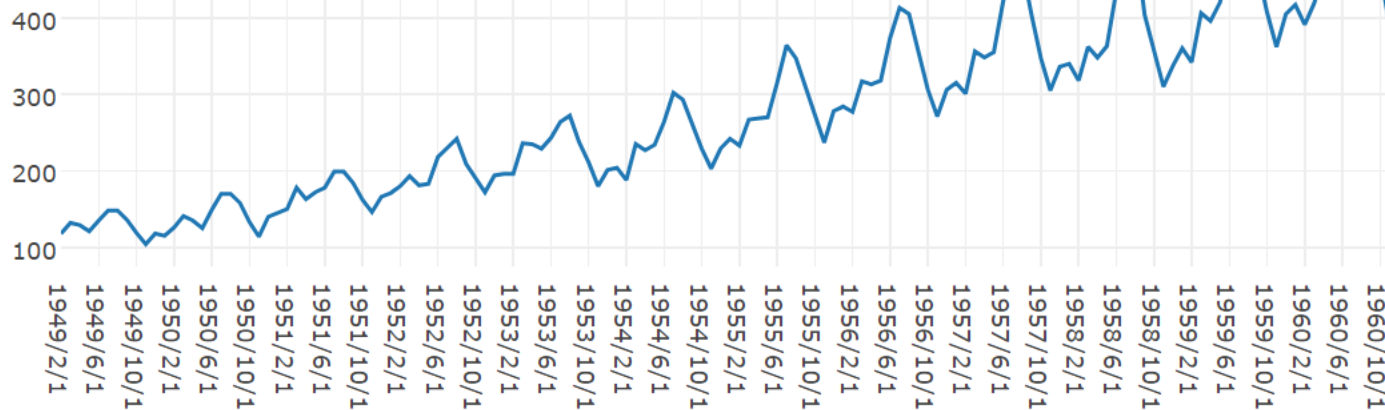
select *.csv data file

選擇檔案

air_passengers.csv

1. 選出"air_passengers.csv"

3. Predict



DevTools is now available in Chinese!

Always match Chrome's language

Switch DevTools to Chinese

Don't show again



Elements

Console

Sources



top



Filter



1 hidden



Default levels



No Issues

lstm_LSTM1 (LSTM)

[null,10,20]

2480

[layer_utils.ts:152](#)

[layer_utils.ts:74](#)

lstm_LSTM2 (LSTM)

[null,20]

3280

[layer_utils.ts:152](#)

[layer_utils.ts:74](#)

dense_Dense2 (Dense)

21

[null,1]

[layer_utils.ts:152](#)

=====

[layer_utils.ts:74](#)

Total params: 8313

[layer_utils.ts:83](#)

Trainable params: 8313

[layer_utils.ts:84](#)

Non-trainable params: 0

[layer_utils.ts:85](#)

[layer_utils.ts:86](#)



Console

What's New

Issues



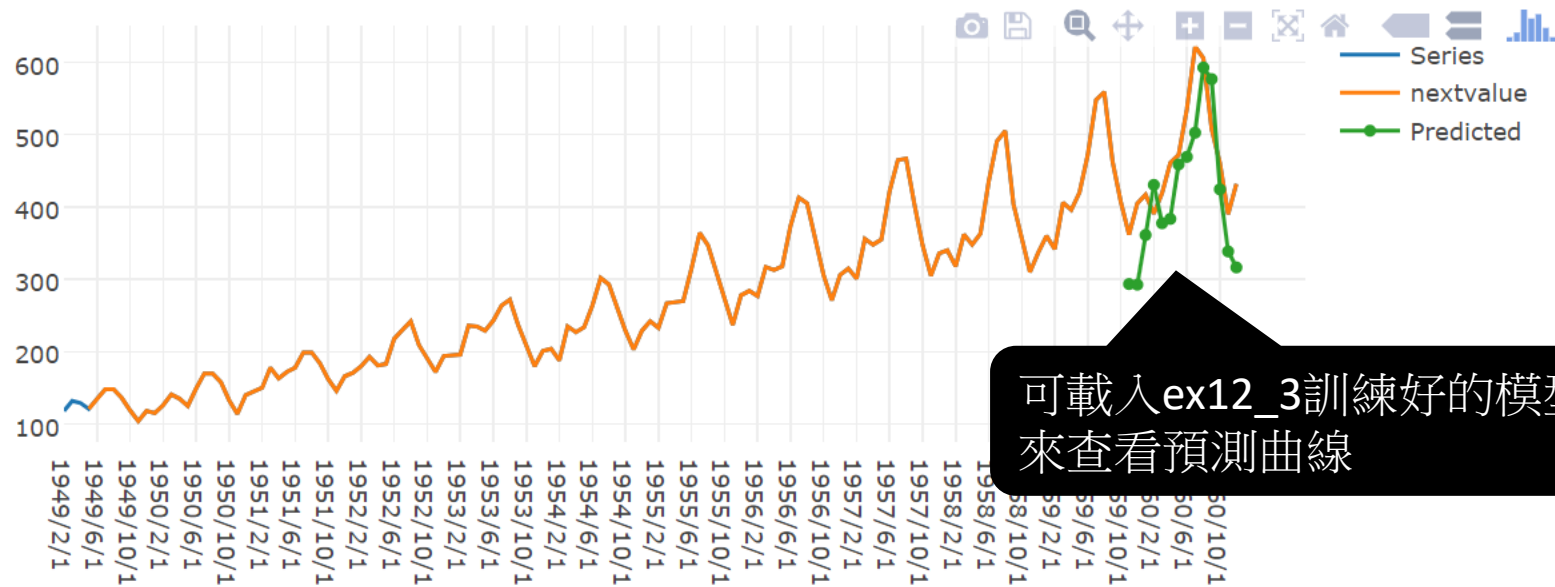
Load


Time Series Prediction

Load

Load

可載入ex12_3訓練好的模型的
來查看預測曲線



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Always match Chrome's language

Switch DevTools to Chinese

Don't show again

Elements Console Sources >> ⚙️ ⋮ ✕

top  Filter 1 hidden 

Default levels ▼ | No Issues

$$\begin{array}{cccccccccccccccc} \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \{ \dots \}, \\ \{ \dots \}, & \{ \dots \}, & \{ \dots \}, & \dots \end{array}$$

r_avgs [ex12_06_3.html:144](#)

[ex12_06_3.html:145](#)

[illegible]

[ex12_06_3.html:221](#)

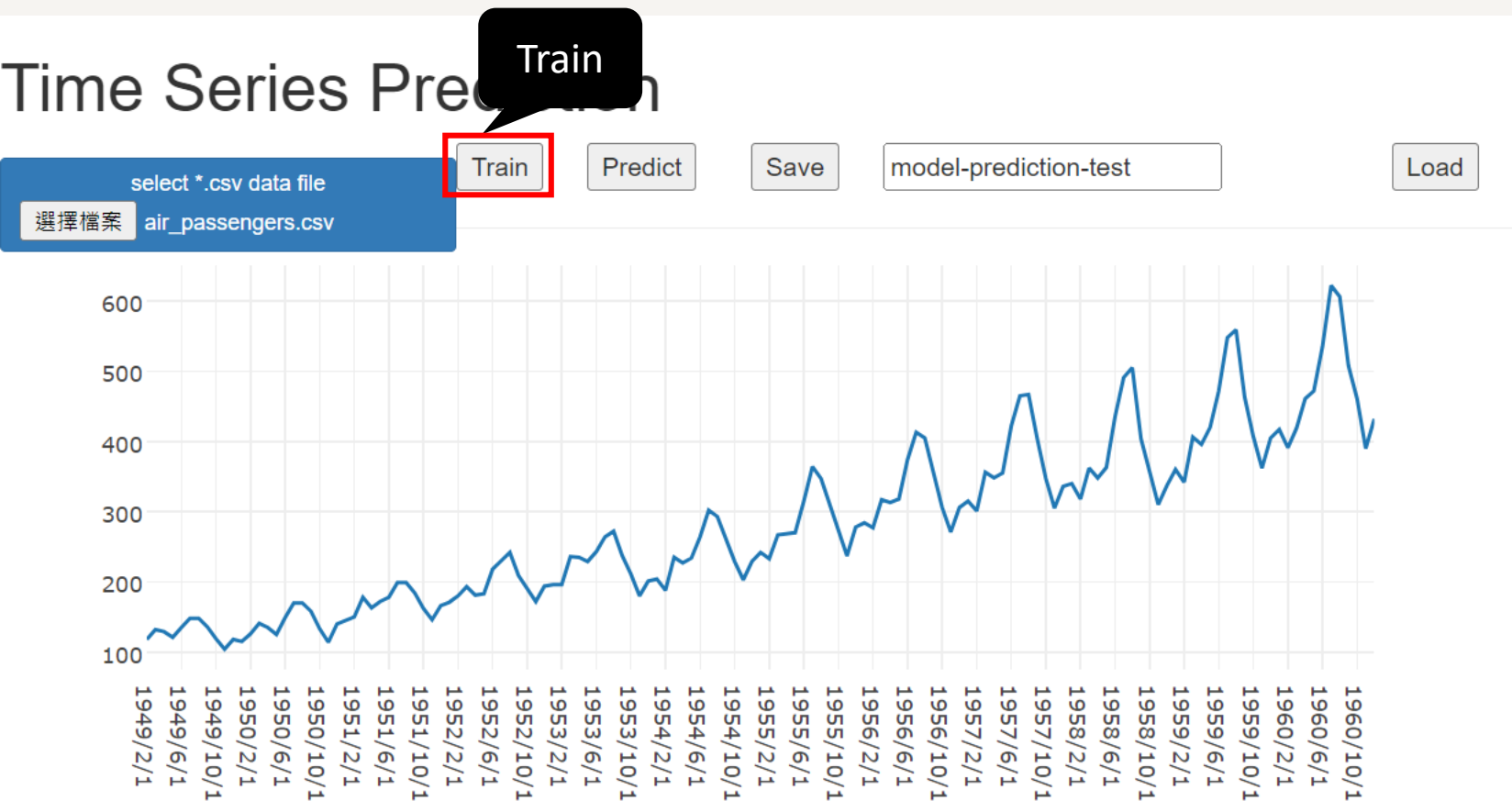
(14) [293.4993591308594, 292.6577453613281, 361.2815240
582031, 430.5862121582031, 377.5903015136719, 383.65420
▶ 53222656, 458.8598327636719, 469.3565368652344, 502.720
0927734375, 592.7865600585938, 576.787353515625, 424.4
17126464844, 338.593994140625, 316.5223083496094]

⋮ [Console](#) [What's New](#) [Issues](#)

Issues

×

Train



Train

訓練進度

DevTools is now available in Chinese!

Always match Chrome's language

Switch DevTools to Chinese

Don't show again



Elements

Console

Sources



top



Filter

1 hidden



Default levels No Issues

```
...  
[[0.7  
[0.786667],  
[0.913334]],
```

```
[[0.786667],  
[0.913334],  
[0.931667]],
```

```
[[0.913334],  
[0.931667],  
[0.771667]]]
```

```
0 ex12_06_3.html:175  
0.21987946739508993 ex12_06_3.html:176  
1 ex12_06_3.html:175  
0.20645273695625957 ex12_06_3.html:176  
2 ex12_06_3.html:175  
0.1911156228965237 ex12_06_3.html:176
```

>



Console

What's New

Issues



這個網頁顯示

Your model has been successfully trained...

DevTools is now available in Chinese!

ays match Chrome's language

Switch DevTools to Chinese

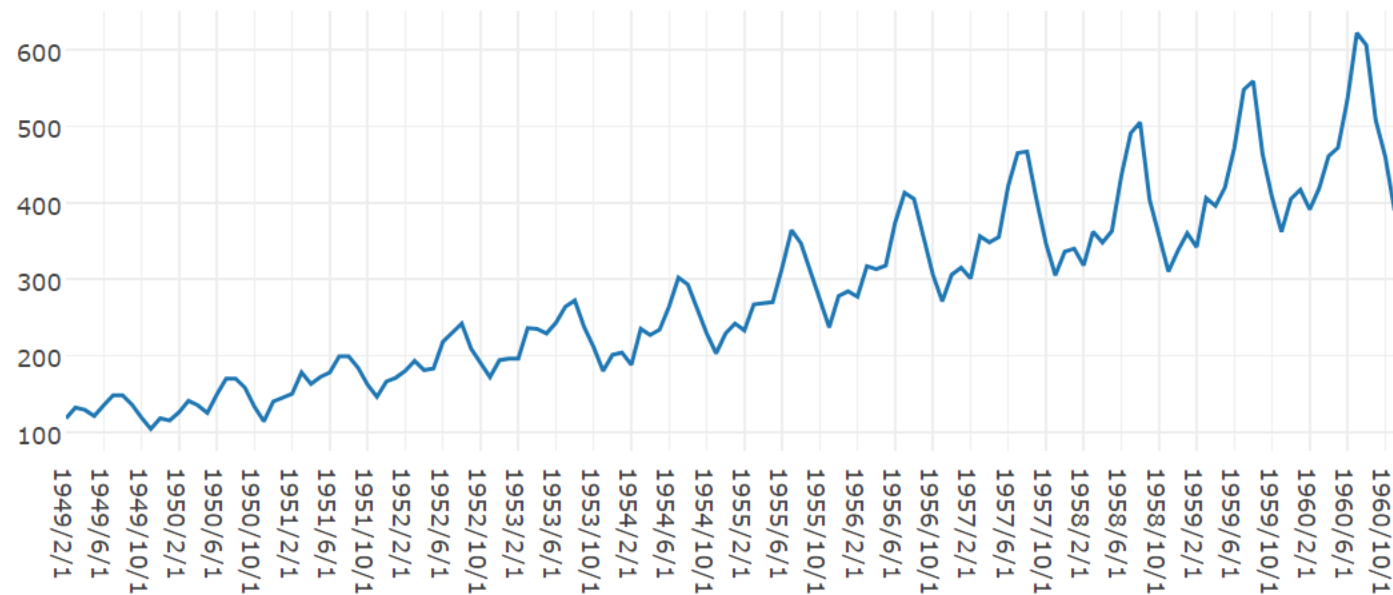
't show again

Train

Predict

選擇檔案

air_passengers.csv



Training finished

確定

Elements Console Sources >>

top  Filter 1 hidden 

Default levels ▼ No Issues

93 [ex12_06_3.html:175](#)

0.004734377074609732 [ex12_06_3.html:176](#)

94 [ex12_06_3.html:175](#)

0.004693741569690968 [ex12_06_3.html:176](#)

95 [ex12_06_3.html:175](#)

0.004786180994299698 [ex12_06_3.html:176](#)

96 [ex12_06_3.html:175](#)

0.004744945871477414 [ex12_06_3.html:176](#)

97 [ex12_06_3.html:175](#)

0.004678767691421811 [ex12_06_3.html:176](#)

98 [ex12_06_3.html:175](#)

0.004629729943622979 [ex12_06_3.html:176](#)

99 [ex12_06_3.html:175](#)

0.004569420799891795 [ex12_06_3.html:176](#)

>

⋮ Console What's New Issues

×

