

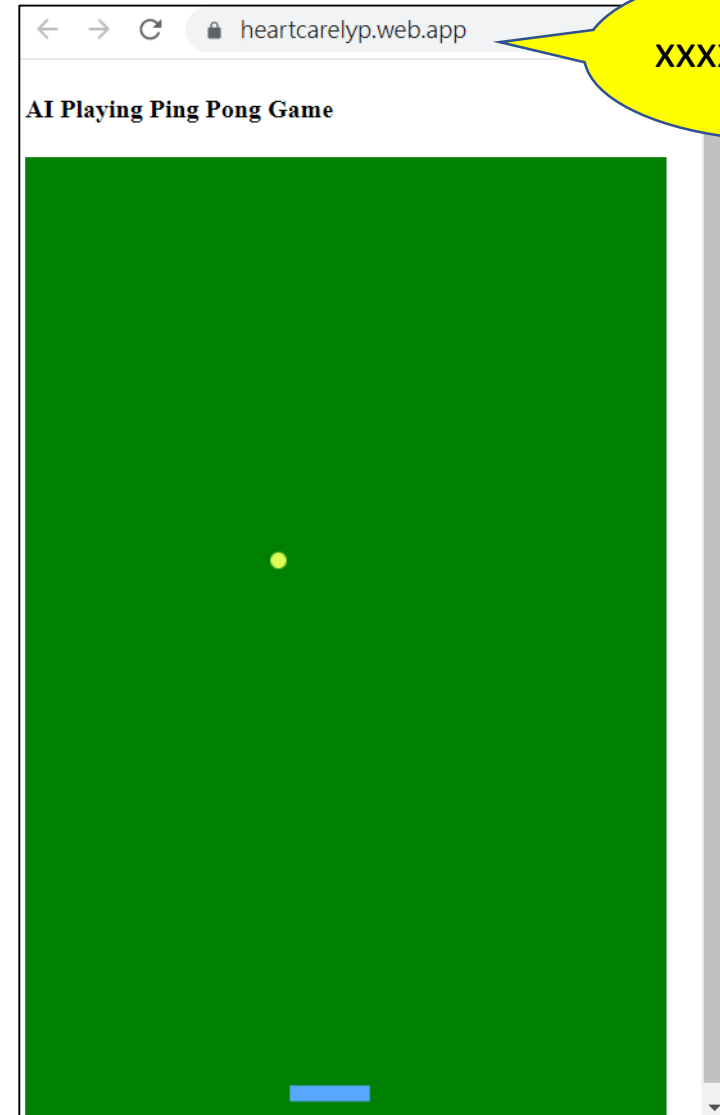
物聯網實務

12_14

AI play ping pong game hosting on firebase

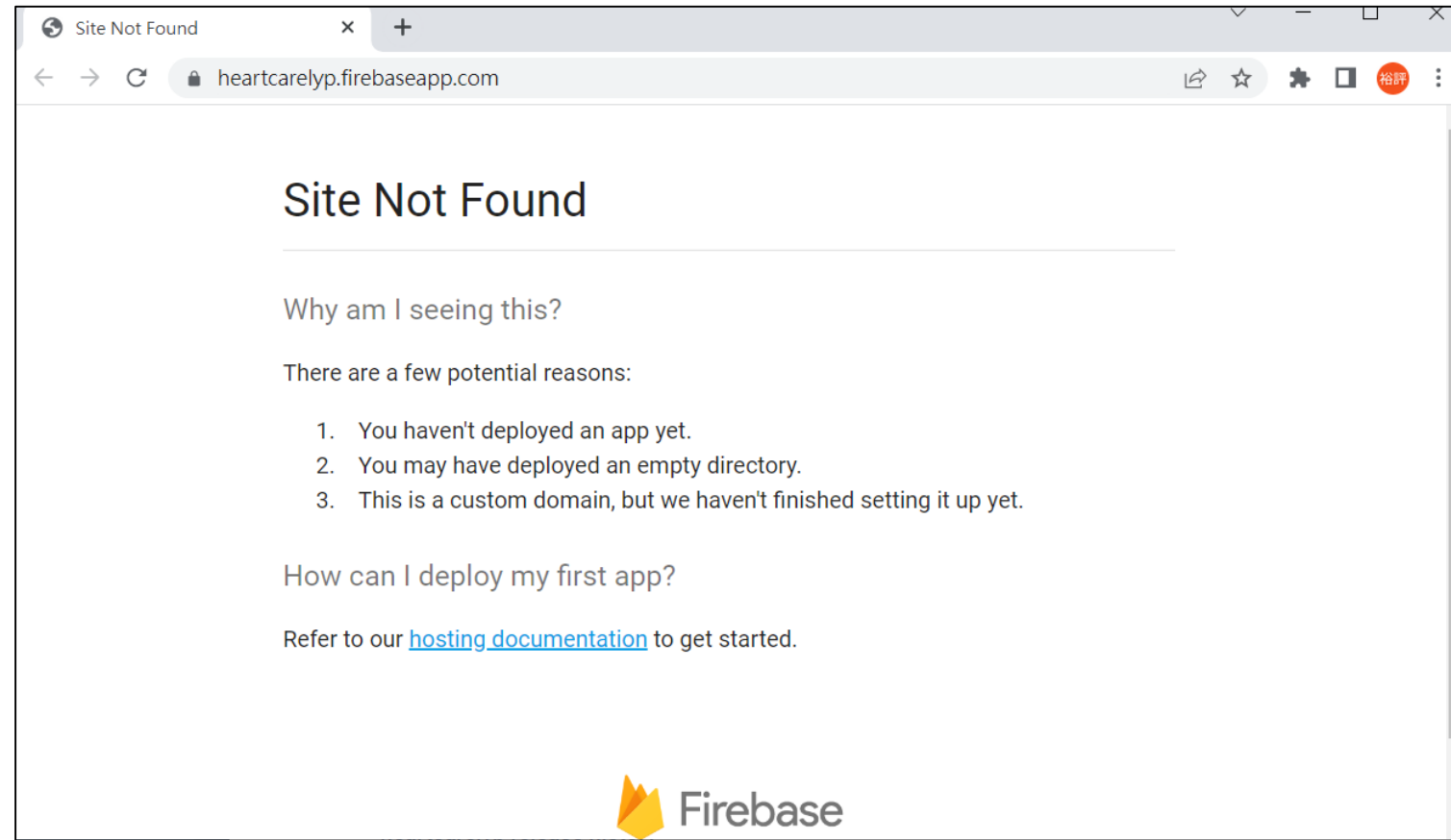


http get
←
→
response



Exercise 13-1

- Start Hosting on Firebase



Firebase

firebase.google.com

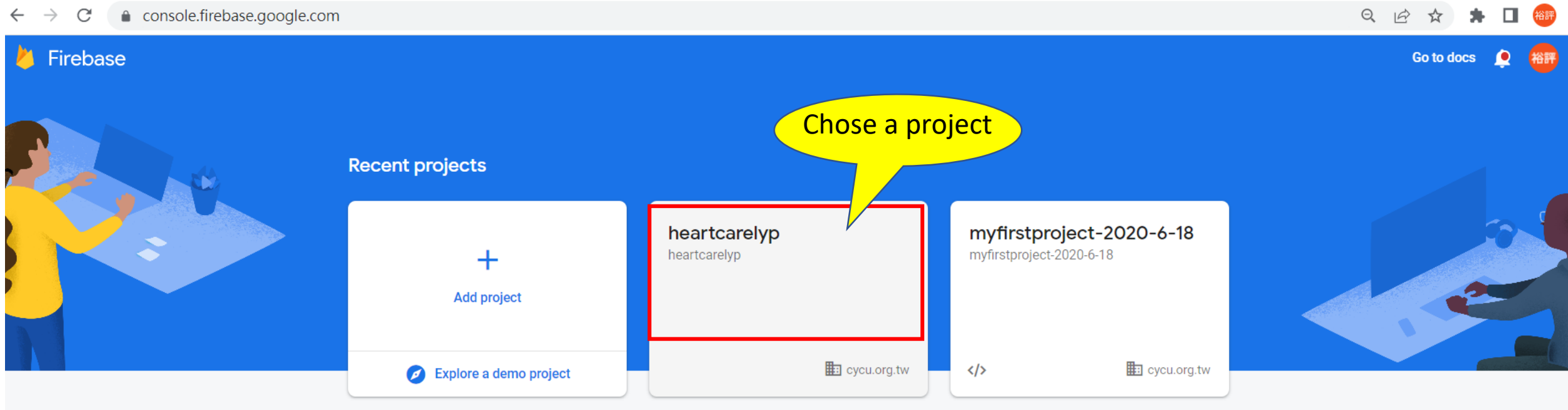
Go to console

The screenshot shows the Firebase website homepage. The browser's address bar displays the URL `firebase.google.com/?gclid=Cj0KCQiA4uCcBhDdARIsAH5jyUkT7ecCLby-Td-fjans5hsGwqOAB...`. The website's navigation bar includes the Firebase logo, links for 'Pricing' and 'More', a search bar, a language selector set to 'English', and a 'Go to console' link which is highlighted with a red rectangle. A yellow callout bubble points to this link with the text 'Go to console'. Another yellow callout bubble points to the address bar with the text 'firebase.google.com'. The main content area has a blue background with the text 'Make your app the best it can be' and a description of Firebase as an app development platform. An illustration of a flashlight beam illuminating a heart icon is also present.

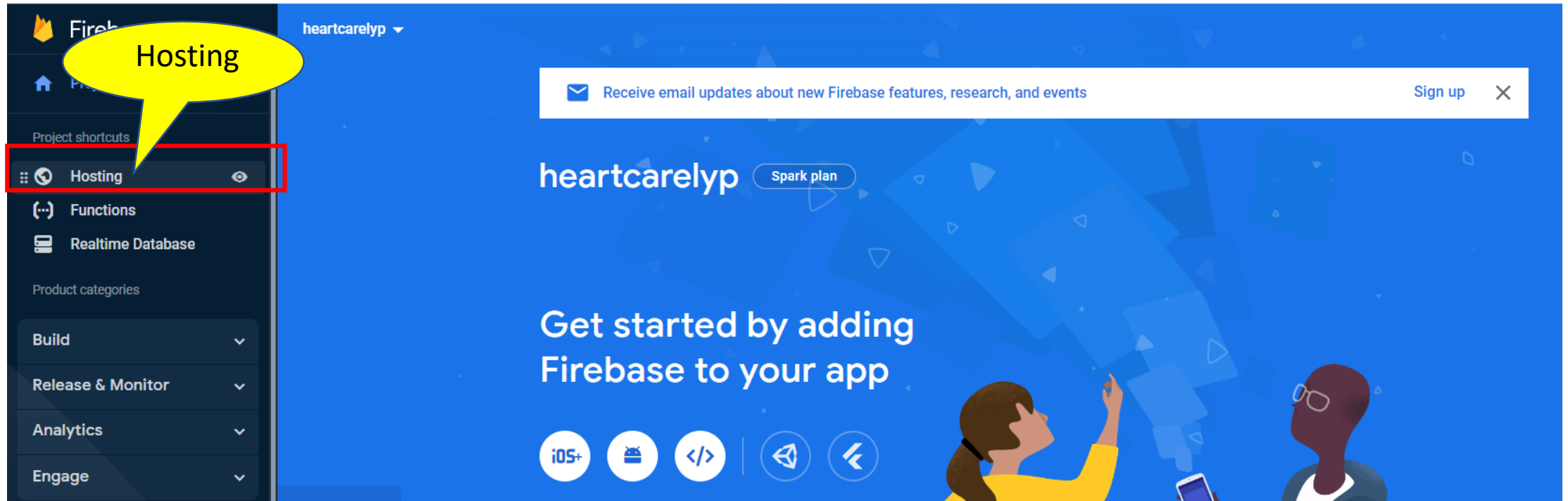
Make your app
the
best it can be

Firebase is an app development platform that helps you build and grow apps and games users love. Backed by Google and trusted by millions of businesses around the world.

Chose a project



Hosting



Get started

The image shows a screenshot of the Firebase Hosting console interface. The browser's address bar at the top displays the URL `console.firebase.google.com/project/heartcarelyp/hosting/sites`. The left sidebar contains the 'Firebase' logo and a navigation menu with 'Project Overview' (selected), 'Project shortcuts' (listing 'Hosting', 'Functions', and 'Realtime Database'), and 'Product categories' (listing 'Build' and 'Release & Monitor'). The main content area has a dark blue background with a stylized Earth graphic and concentric circles representing a global network. The heading 'Hosting' is prominently displayed, followed by the text 'Deploy web and mobile web apps in seconds using a secure global content delivery network'. A white 'Get started' button is located in the lower-left of this section, enclosed in a red rectangular box. A yellow callout bubble with a black border points from the button to the text 'Get started' at the bottom of the image. In the top right corner of the console, there are links for 'Go to docs', a notification bell, and a user profile icon labeled '裕評'.

console.firebase.google.com/project/heartcarelyp/hosting/sites

Go to docs

裕評

Hosting

Deploy web and mobile web apps in seconds using a secure global content delivery network

Get started

Get started

← → ↻ console.firebase.google.com/project/heartcarelyp/hosting/sites

× Set up Firebase Hosting

- 1 Install Firebase CLI**

To host your site with Firebase Hosting, you need the Firebase CLI (a command line tool).
Run the following [npm](#) command to install the CLI or update to the latest CLI version.

```
$ npm install -g firebase-tools
```

Doesn't work? Take a look at the [Firebase CLI reference](#) or change your [npm permissions](#).

☐ Also show me the steps to add the Firebase JavaScript SDK to my web app
The SDK includes Cloud Firestore, Authentication, Performance Monitoring and more. It can be added now or later.

Next
- 2 Initialize your project**
- 3 Deploy to Firebase Hosting**

Paste

npm install -g firebase-tools

Copy

Copy Paste

× Set up Firebase Hosting

✓

 Install Firebase CLI

2

 Initialize your project

Open a terminal window and navigate to or create a root directory for your web app

Sign in to Google

\$ firebase login

Initiate your project

Run this command from your app's root directory:

\$ firebase init

Next

3

 Deploy to Firebase Hosting

Copy

Copy

Paste

firebase login

Paste

firebase init

Copy Paste

× Set up Firebase Hosting

✓

 Install Firebase CLI

✓

 Initialize your project

3

 Deploy to Firebase Hosting

When you're ready, deploy your web app

Put your static files (e.g., HTML, CSS, JS) in your app's deployment directory (the default is "public").

Then, run this command from your app's root directory:

```
$ firebase deploy
```

After deploying, view your app at [heartcarelyp.web.app](#)

Need help? Check out the [Hosting docs](#)

Continue to console

Copy

Paste

firebase deploy

Hosting


heartcarelyp ▾

Hosting

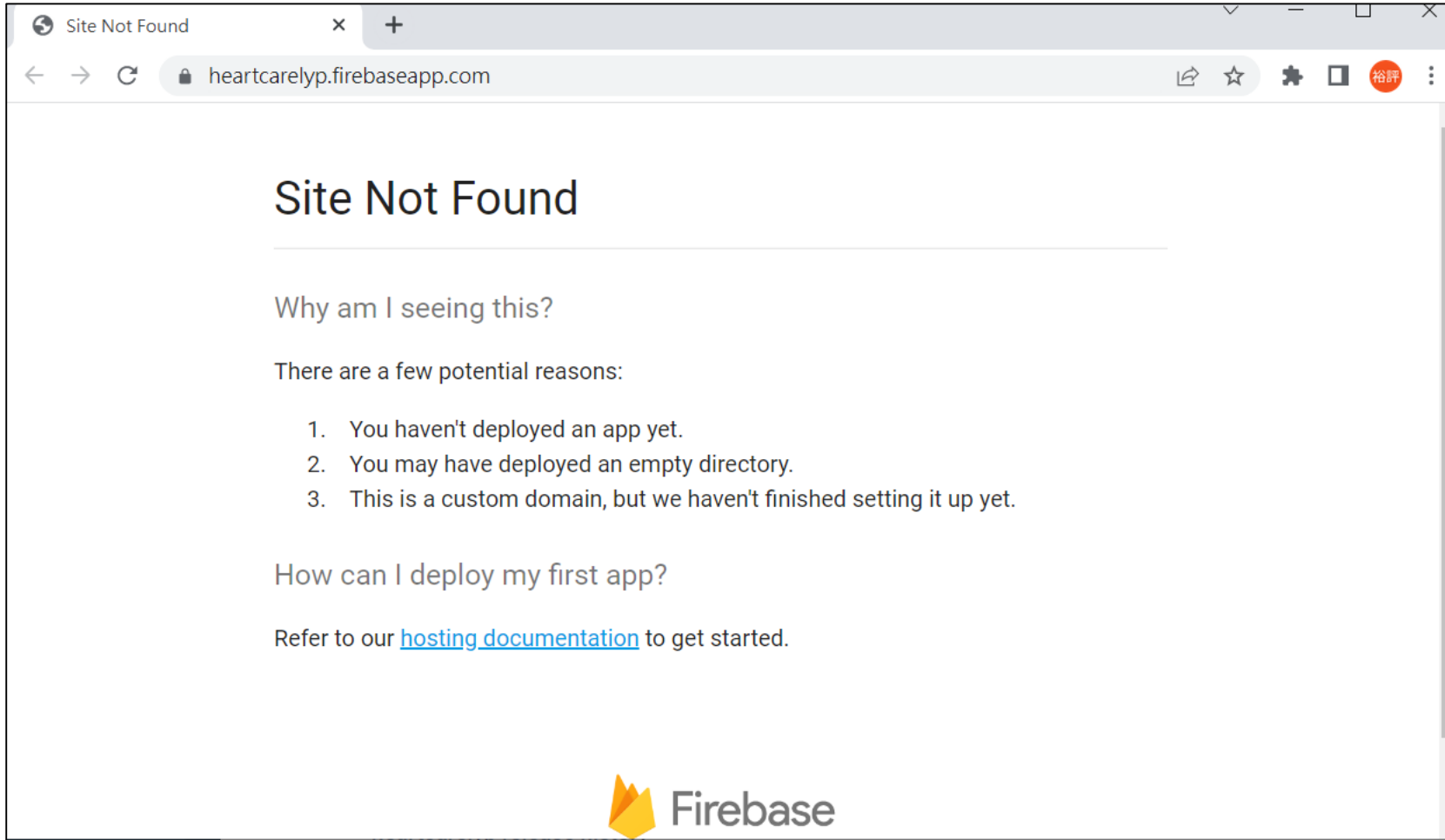
[Dashboard](#) [Usage](#)

Monitor the web requests made to your site with Cloud Logging

heartcarelyp domains

Domain	Status
heartcarelyp.web.app 	Default
heartcarelyp.firebaseio.com	Default

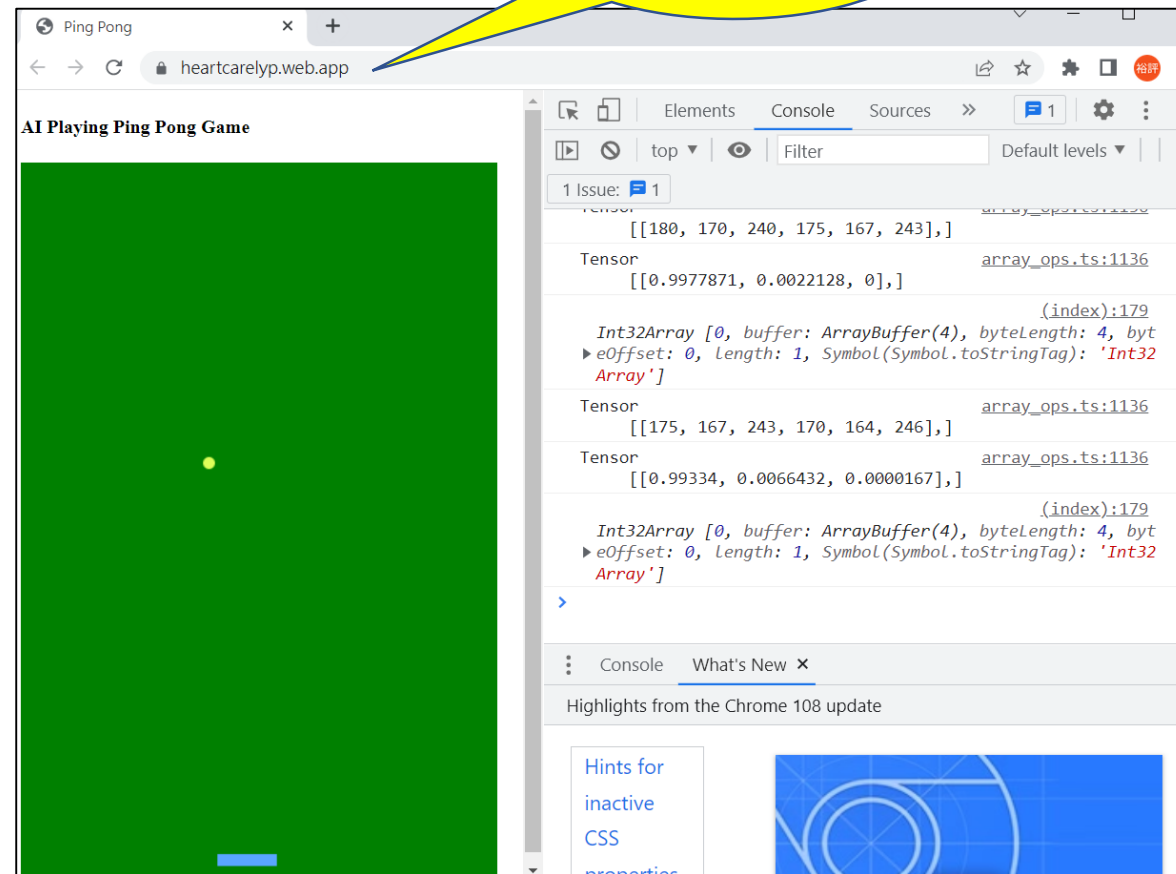
Site Not Found



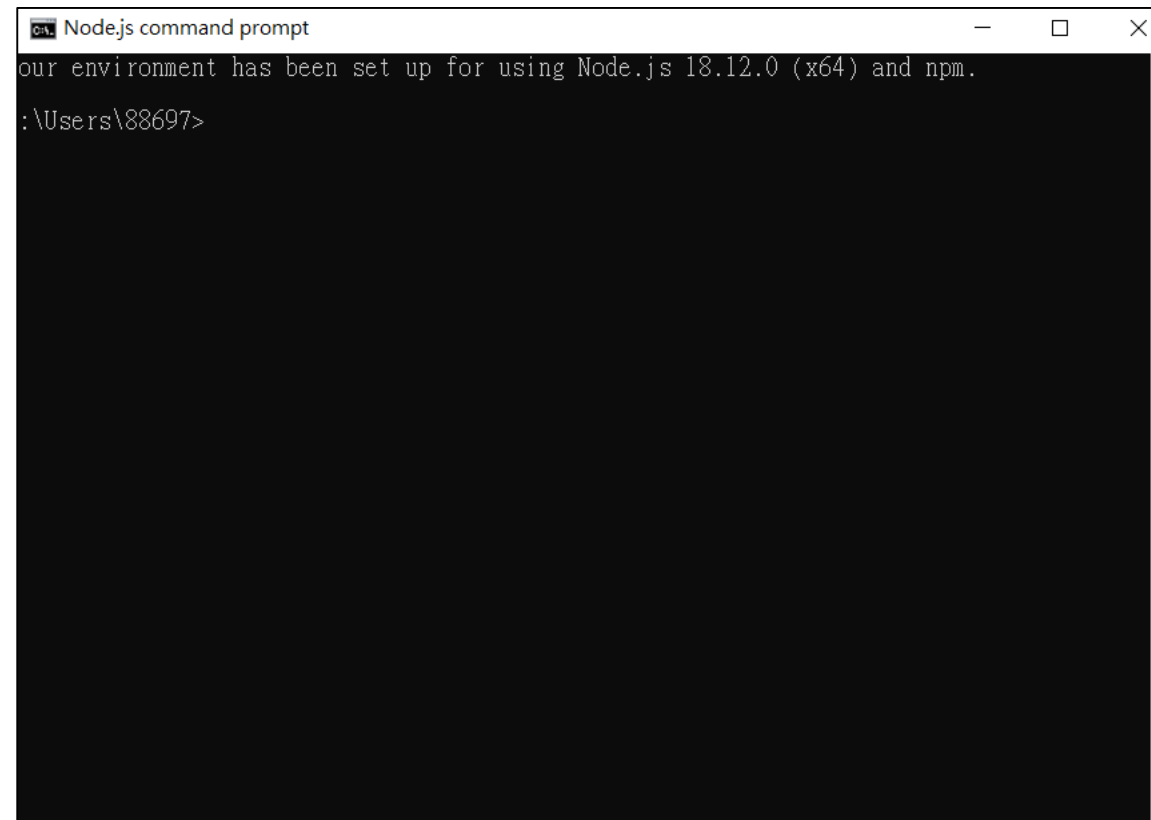
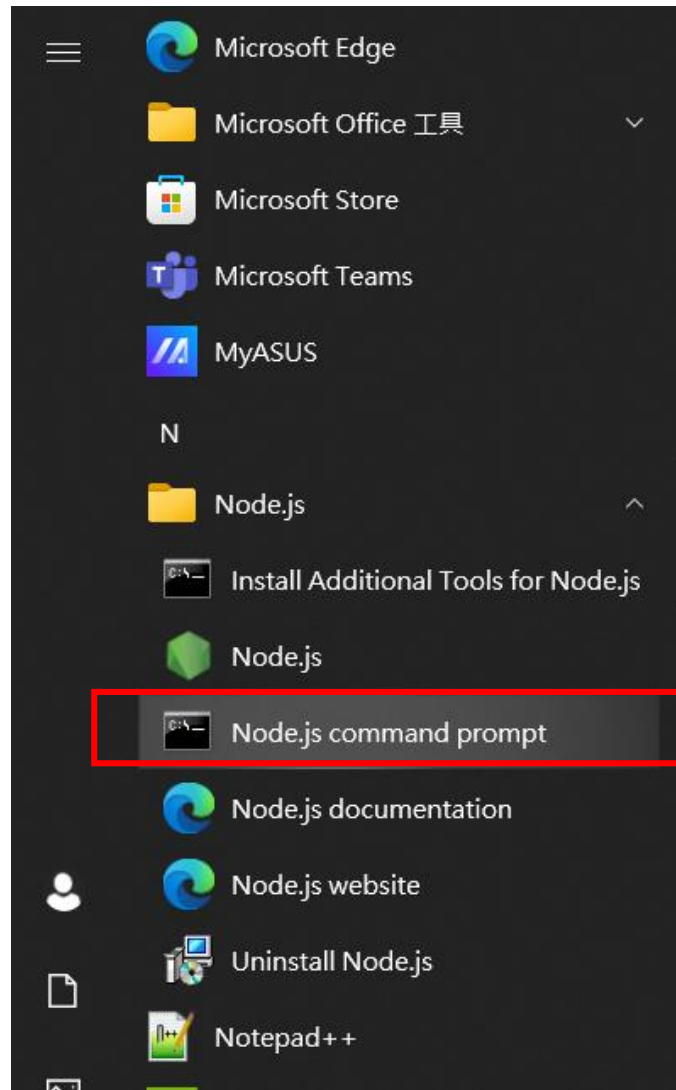
Exercise 13-2

- Hosting your ping pong game

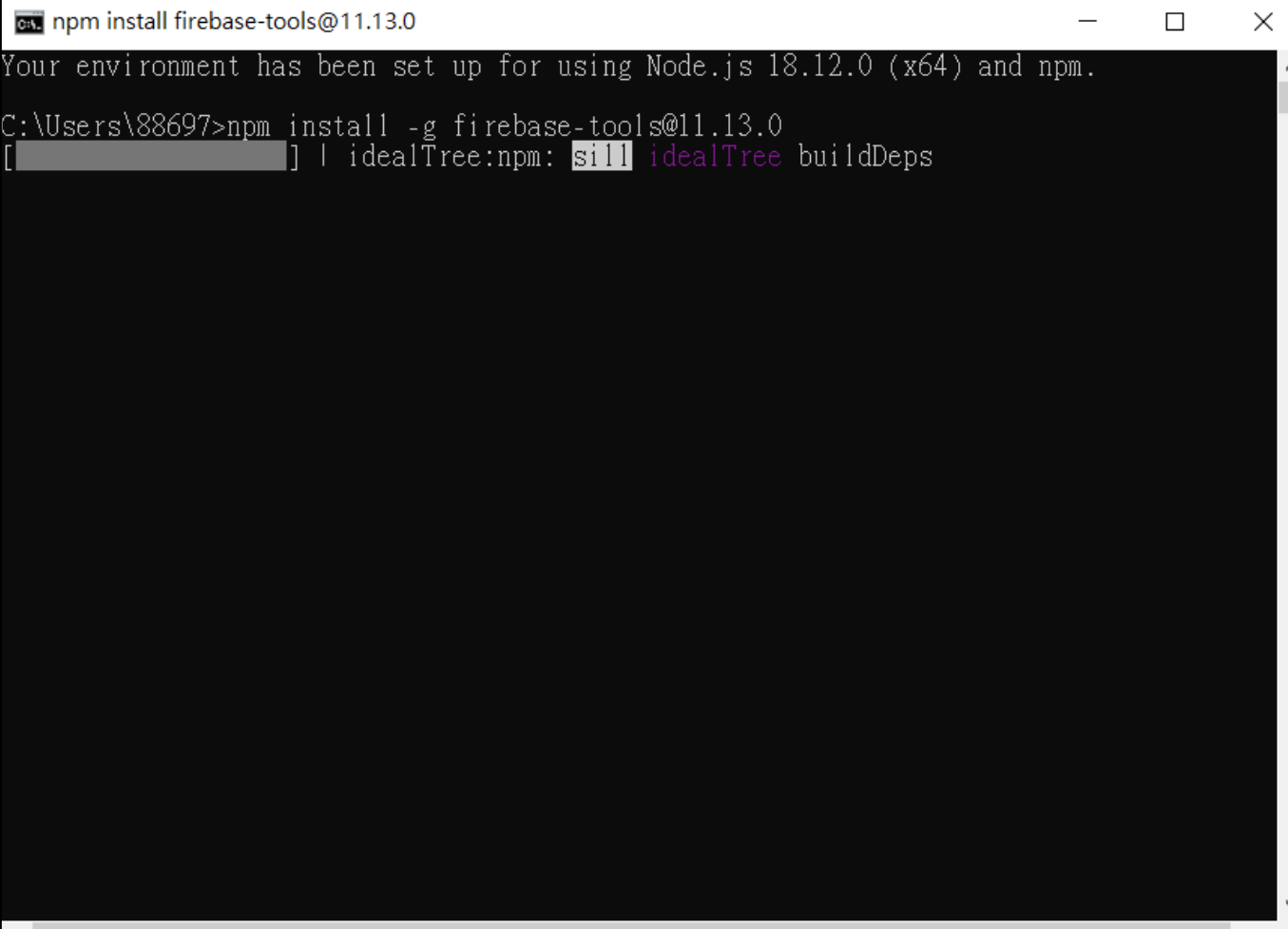
xxxx.web.app



Node.js command prompt



npm install -g firebase-tools@11.13.0



```
npm install firebase-tools@11.13.0
Your environment has been set up for using Node.js 18.12.0 (x64) and npm.
C:\Users\88697>npm install -g firebase-tools@11.13.0
[ ] | idealTree:npm: sill idealTree buildDeps
```

firebase login

```
C:\WINDOWS\system32\cmd.exe - "node" "C:\Users\88697\AppData\Roaming\npm\node..."  
C:\Users\88697>firebase login
```

firebase login

```
C:\WINDOWS\system32\cmd.exe - "node" "C:\Users\88697\AppData\Roaming\npm\node..."  
C:\Users\88697>firebase logout  
+ Logged out from lyp@cycu.org.tw  
  
Update available 11.13.0 → 11.18.0  
To update to the latest version using npm, run  
npm install -g firebase-tools  
For other CLI management options, visit the CLI documentation  
(https://firebase.google.com/docs/cli#update-cli)  
  
C:\Users\88697>firebase login  
i Firebase optionally collects CLI and Emulator Suite usage and error reporting  
information to help improve our products. Data is collected in accordance with Google  
privacy policy (https://policies.google.com/privacy) and is not used to identify  
you.  
? Allow Firebase to collect CLI and Emulator Suite usage and error reporting in  
formation? (Y/n)
```

Y

使用 Google 帳戶登入




選擇帳戶

以繼續使用「**Firebase CLI**」

	廖裕評 lyp@cycu.org.tw	
	評廖 yupingliao2018@gmail.com	未登入
	廖裕評 yupingliao2019forapp@gmail.com	未登入
	Yugoolu Lu yugoolu@gmail.com	未登入

「Firebase CLI」想要存取您的 Google 帳戶

 lyp@cycu.org.tw

這麼做將允許「**Firebase CLI**」進行以下操作：

- 查看、編輯、設定和刪除您的 Google Cloud 資料，以及查看您 Google 帳戶的電子郵件地址。
- 查看及管理您的所有 Firebase 資料和設定
- 查看您的 Cloud Platform 專案

確認「**Firebase CLI**」是您信任的應用程式

這麼做可能會將機密資訊提供給這個網站或應用程式。
您隨時可以前往 [Google 帳戶](#) 頁面查看或移除存取權。

瞭解 Google 如何協助您安全地分享資料。

詳情請參閱「**Firebase CLI**」的《[隱私權政策](#)》和《[服務條款](#)》。

取消

允許

允許

Woohoo!

Firebase CLI Login Successful

You are logged in to the Firebase Command-Line interface. You can immediately close this window and continue using the CLI.

```
C:\WINDOWS\system32\cmd.exe

C:\Users\88697>firebase login
i  Firebase optionally collects CLI and Emulator Suite usage and error reporting in
information to help improve our products. Data is collected in accordance with Google'
privacy policy (https://policies.google.com/privacy) and is not used to identify y
u.

? Allow Firebase to collect CLI and Emulator Suite usage and error reporting inform
tion? Yes
i  To change your data collection preference at any time, run `firebase logout` and
log in again.

Visit this URL on this device to log in:
https://accounts.google.com/o/oauth2/auth?client_id=563584335869-fgrhgmd47bgnekij5i
b5pr03ho849e6.apps.googleusercontent.com&scope=email%20openid%20https%3A%2F%2Fwww.g
oogleapis.com%2Fauth%2Fcloudplatformprojects.readonly%20https%3A%2F%2Fwww.googleapis
.com%2Fauth%2Ffirebase%20https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloud-platform&re
sponse_type=code&state=874304703&redirect_uri=http%3A%2F%2Flocalhost%3A9005

Waiting for authentication...

+  Success! Logged in as lyp@cycu.org.tw

C:\Users\88697>
```

Success

mkdir pingponggame

```
C:\WINDOWS\system32\cmd.exe

C:\Users\88697>firebase login
i  Firebase optionally collects CLI and Emulator Suite usage and error reporting in
ormation to help improve our products. Data is collected in accordance with Google'
privacy policy (https://policies.google.com/privacy) and is not used to identify y
u.


? Allow Firebase to collect CLI and Emulator Suite usage and error reporting inform
tion? Yes
i  To change your data collection preference at any time, run `firebase logout` and
log in again.

Visit this URL on this device to log in:
https://accounts.google.com/o/oauth2/auth?client_id=563584335869-fgrhgmd47bqneki5i
b5pr03ho849e6.apps.googleusercontent.com&scope=email%20openid%20https%3A%2F%2Fwww.g
oogleapis.com%2Fauth%2Fcloudplatformprojects.readonly%20https%3A%2F%2Fwww.googleapis
com%2Fauth%2Ffirebase%20https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloud-platform&re
ponse_type=code&state=874304703&redirect_uri=http%3A%2F%2Flocalhost%3A9005

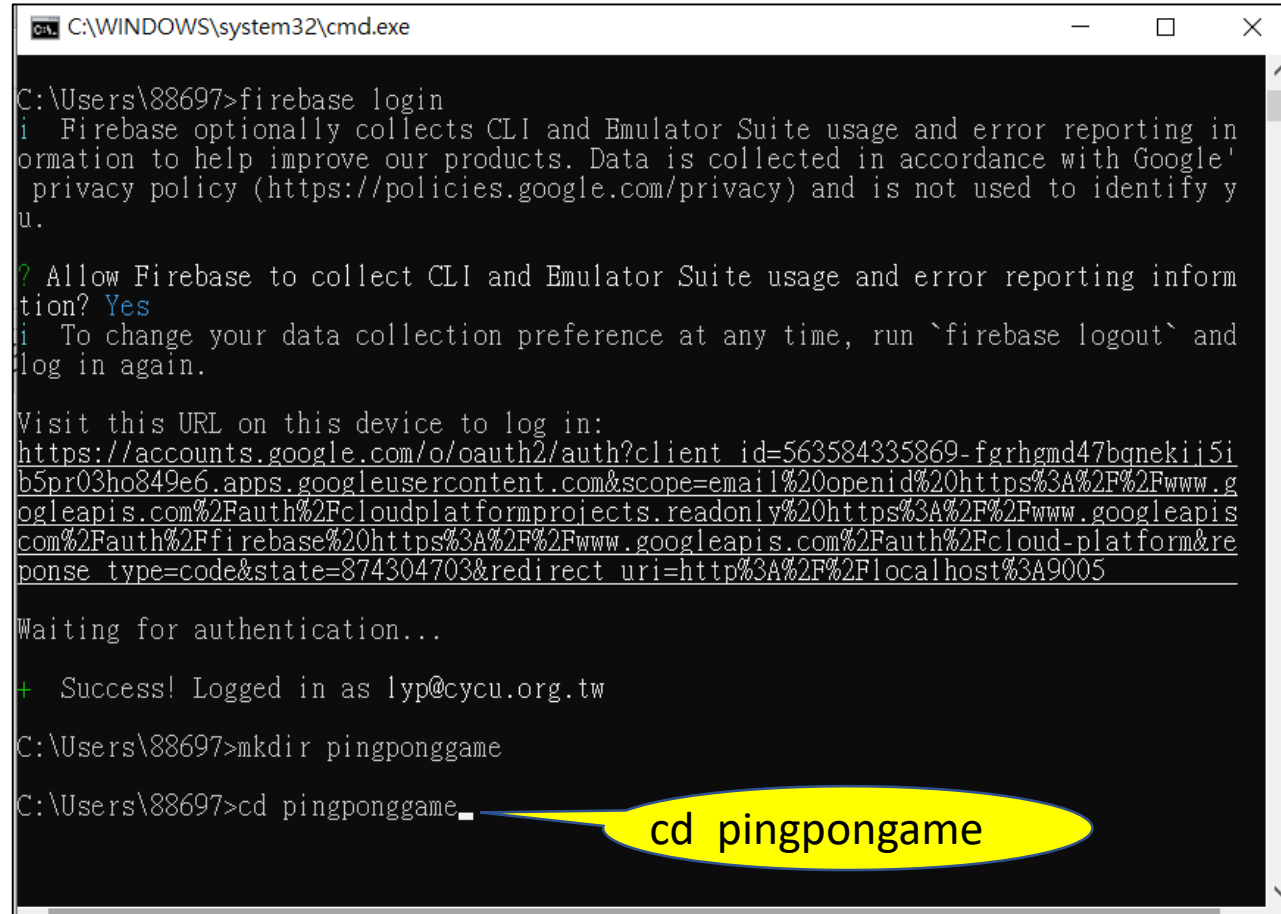
Waiting for authentication...

+  Success! Logged in as lyp@cycu.org.tw

C:\Users\88697>mkdir pingponggame_
```



cd pingponggame



```
C:\WINDOWS\system32\cmd.exe

C:\Users\88697>firebase login
i  Firebase optionally collects CLI and Emulator Suite usage and error reporting in
  ormation to help improve our products. Data is collected in accordance with Google'
  privacy policy (https://policies.google.com/privacy) and is not used to identify y
  u.

? Allow Firebase to collect CLI and Emulator Suite usage and error reporting inform
  tion? Yes
i  To change your data collection preference at any time, run `firebase logout` and
  log in again.

Visit this URL on this device to log in:
https://accounts.google.com/o/oauth2/auth?client_id=563584335869-fgrhgmd47bgnekij5i
b5pr03ho849e6.apps.googleusercontent.com&scope=email%20openid%20https%3A%2F%2Fwww.g
oogleapis.com%2Fauth%2Fcloudplatformprojects.readonly%20https%3A%2F%2Fwww.googleapis
com%2Fauth%2Ffirebase%20https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloud-platform&re
sponse_type=code&state=874304703&redirect_uri=http%3A%2F%2Flocalhost%3A9005

Waiting for authentication...

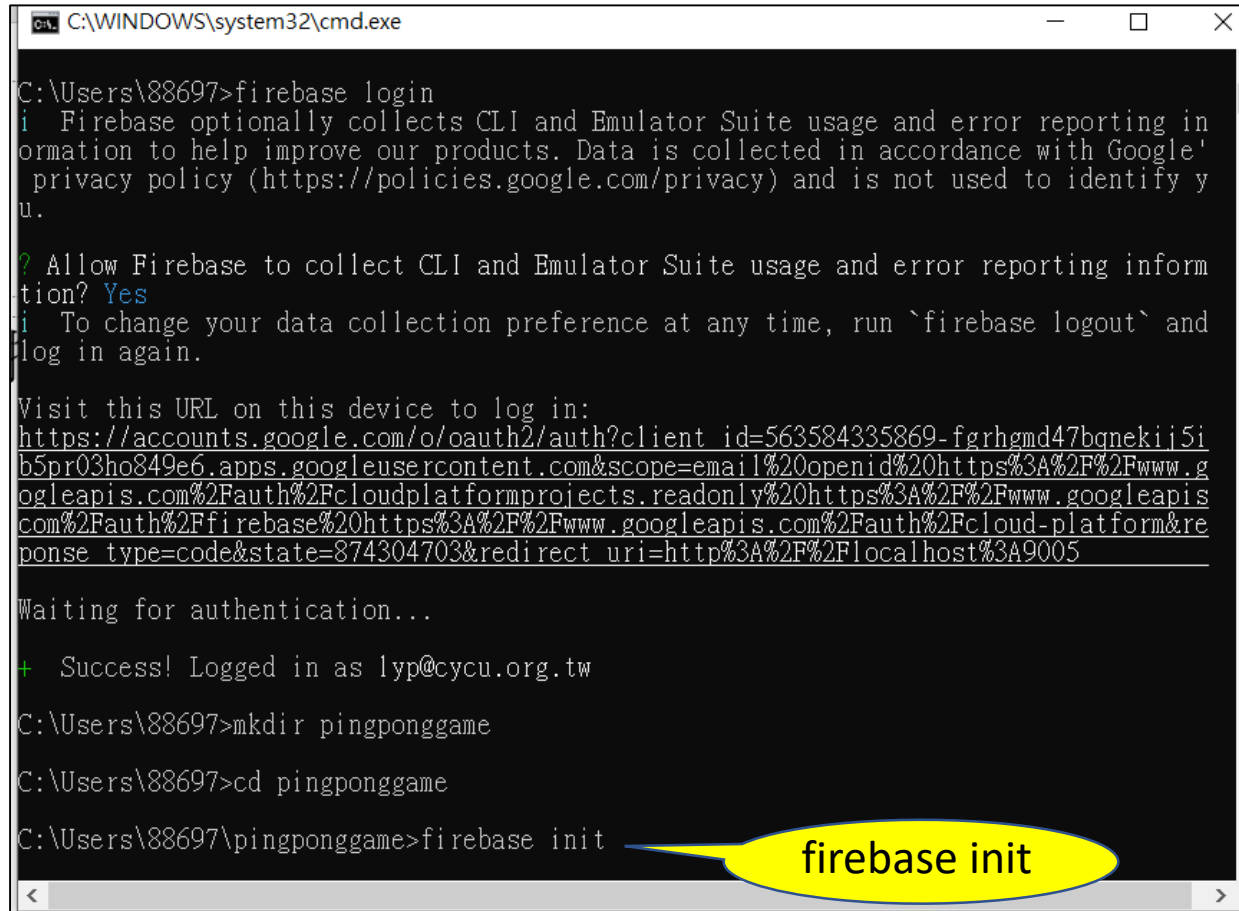
+ Success! Logged in as lyp@cycu.org.tw

C:\Users\88697>mkdir pingponggame

C:\Users\88697>cd pingponggame_
```

cd pingponggame

firebase init



```
C:\WINDOWS\system32\cmd.exe

C:\Users\88697>firebase login
i  Firebase optionally collects CLI and Emulator Suite usage and error reporting in
ormation to help improve our products. Data is collected in accordance with Google'
privacy policy (https://policies.google.com/privacy) and is not used to identify y
u.

? Allow Firebase to collect CLI and Emulator Suite usage and error reporting inform
tion? Yes
i  To change your data collection preference at any time, run `firebase logout` and
log in again.

Visit this URL on this device to log in:
https://accounts.google.com/o/oauth2/auth?client_id=563584335869-fgrhgmd47bgnekij5i
b5pr03ho849e6.apps.googleusercontent.com&scope=email%20openid%20https%3A%2F%2Fwww.g
oogleapis.com%2Fauth%2Fcloudplatformprojects.readonly%20https%3A%2F%2Fwww.googleapis
com%2Fauth%2Ffirebase%20https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloud-platform&re
ponse_type=code&state=874304703&redirect_uri=http%3A%2F%2Flocalhost%3A9005

Waiting for authentication...

+  Success! Logged in as lyp@cycu.org.tw

C:\Users\88697>mkdir pingponggame

C:\Users\88697>cd pingponggame

C:\Users\88697\pingponggame>firebase init
```

firebase init

Y

```
C:\WINDOWS\system32\cmd.exe - "node" "C:\Users\88697\AppData\Roaming\npm\node...
https://accounts.google.com/o/oauth2/auth?client_id=563584335869-fgrhgm47bqnekij5i
b5pr03ho849e6.apps.googleusercontent.com&scope=email%20openid%20https%3A%2F%2Fwww.g
oogleapis.com%2Fauth%2Fcloudplatformprojects.readonly%20https%3A%2F%2Fwww.googleapis
com%2Fauth%2Ffirebase%20https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloud-platform&re
sponse_type=code&state=874304703&redirect_uri=http%3A%2F%2Flocalhost%3A9005

Waiting for authentication...

+ Success! Logged in as lyp@cycu.org.tw

C:\Users\88697>mkdir pingponggame


C:\Users\88697>cd pingponggame

C:\Users\88697\pingponggame>firebase init

#####  #####  #####  #####  #####  #####  #####
##      ##  ##      ##  ##      ##  ##      ##  ##
#####  ##  #####  #####  #####  #####  #####
##      ##  ##      ##  ##      ##  ##      ##  ##
##      #####  ##  #####  #####  ##      ##  #####

You're about to initialize a Firebase project in this directory:

  C:\Users\88697\pingponggame

? Are you ready to proceed? (Y/n) 
```

Hosting

```
C:\WINDOWS\system32\cmd.exe - "node" "C:\Users\88697\AppData\Roaming\npm\node..."
+ Success! Logged in as lyp@cycu.org.tw
C:\Users\88697>mkdir pingponggame
C:\Users\88697>cd pingponggame
C:\Users\88697\pingponggame>firebase init

#####  #####  #####  #####  #####  #####  #####
##      ##      ##      ##      ##      ##      ##
#####  ##  #####  #####  #####  #####  #####
##      ##      ##      ##      ##      ##      ##
##      #####  ##      ##      ##      ##      ##

You're about to initialize a Firebase project in this directory:

  C:\Users\88697\pingponggame

? Are you ready to proceed? Yes
? Which Firebase features do you want to set up for this directory? Press Space to
  elect features, then Enter to confirm your choices. (Press <space> to select, <a> t
  toggle all, <i> to invert selection, and <enter> to proceed)
  (optionally) provision default instance
  ( ) Firestore: Configure security rules and indexes files for Firestore
  ( ) Functions: Configure a Cloud Functions directory and its files
  (x) Hosting: Configure files for Firebase Hosting and (optionally) set up GitHub A
  ction deploys
  ( ) Hosting: Set up GitHub Action deploys
  ( ) Storage: Configure a security rules file for Cloud Storage
```

Space Key

Use an existing project

```
C:\WINDOWS\system32\cmd.exe - "node" "C:\Users\88697\AppData\Roaming\npm\node..."
C:\Users\88697>cd pingponggame
C:\Users\88697\pingponggame>firebase init

#####  #####  #####  #####  #####  #####  #####  #####
##      ##  ##      ##  ##      ##      ##  ##      ##
#####  ##  #####  #####  #####  #####  #####  #####
##      ##  ##      ##  ##      ##      ##  ##      ##
##      #####  ##  #####  #####  ##      ##  #####  #####

You're about to initialize a Firebase project in this directory:

  C:\Users\88697\pingponggame

? Are you ready to proceed? Yes
? Which Firebase features do you want to set up for this directory? Press Space to s
select features, then Enter to confirm your choices. Hosting: Configure files for Fir
base Hosting and (optionally) set up GitHub Action deploys

=== Project Setup

First, let's associate this project directory with a Firebase project.
You can create multiple project aliases by running firebase use --add,
but for now we'll just set up a default project.

? Please select an option: (Use arrow keys)
Use an existing project
Create a new project
Add Firebase to an existing Google Cloud Platform project
Don't set up a default project
```

Use an
existing
project

Chose a project

```
C:\WINDOWS\system32\cmd.exe - "node" "C:\Users\88697\AppData\Roaming\npm\node..."

#####  ####  #####  #####  #####  #####  #####  #####
##      ##  ##      ##  ##      ##      ##  ##      ##
#####  ##  #####  #####  #####  #####  #####  #####
##      ##  ##      ##  ##      ##      ##  ##      ##
##      ####  ##      ##  #####  #####  ##      ##  #####

You're about to initialize a Firebase project in this directory:

  C:\Users\88697\pingponggame

? Are you ready to proceed? Yes
? Which Firebase features do you want to set up for this directory? Press Space to s
select features, then Enter to confirm your choices. Hosting: Configure files for Fir
eabase Hosting and (optionally) set up GitHub Action deploys

=== Project Setup

First, let's associate this project directory with a Firebase project.
You can create multiple project aliases by running firebase use --add,
but for now we'll just set up a default project.

? Please select an option: Use an existing project
? Select a default Firebase project for this directory:
  fornodered-312ce (fornodered)
  gantest-19808 (gantest)
  guitar-81e13 (guitar)
  heartcarelyp (heartcarelyp)
  lab353-15f48 (lab353)
  lab353v2 (lab353v2)
  lyp20201228 (lyp20201228)
(Move up and down to reveal more choices)
```

Chose a
project

public

```
C:\WINDOWS\system32\cmd.exe - "node" "C:\Users\88697\AppData\Roaming\npm\node..."
#####  ## ##### ##### ##### ##### #####
##      ## ##  ## ##      ##      ## ##      ## ##
##      #### ##   ## ##### #####      ##  ##### #####

You're about to initialize a Firebase project in this directory:

  C:\Users\88697\pingponggame

? Are you ready to proceed? Yes
? Which Firebase features do you want to set up for this directory? Press Space to s
select features, then Enter to confirm your choices. Hosting: Configure files for Fir
ebase Hosting and (optionally) set up GitHub Action deploys
o

=== Project Setup

First, let's associate this project directory with a Firebase project.           c
You can create multiple project aliases by running firebase use --add,           c
but for now we'll just set up a default project.

? Please select an option: Use an existing project
? Select a default Firebase project for this directory: heartcarelyp (heartcarelyp)
i Using project heartcarelyp (heartcarelyp)

=== Hosting Setup

Your public directory is the folder (relative to your project directory) that
will contain Hosting assets to be uploaded with firebase deploy. If you
have a build process for your assets, use your build's output directory.

? What do you want to use as your public directory? (public) public
```

N

```
C:\WINDOWS\system32\cmd.exe - "node" "C:\Users\88697\AppData\Roaming\npm\node..."
#####  ## #####  #####  #####  #####  #####  #####
##      ##  ##  ##  ##      ##      ##  ##      ##  ##
##      #### ##      ## #####  #####  ##      ##  #####  #####

You're about to initialize a Firebase project in this directory:

  C:\Users\88697\pingponggame

? Are you ready to proceed? Yes
? Which Firebase features do you want to set up for this directory? Press Space to s
select features, then Enter to confirm your choices. Hosting: Configure files for Fir
ebase Hosting and (optionally) set up GitHub Action deploys
o
=== Project Setup

First, let's associate this project directory with a Firebase project.
You can create multiple project aliases by running firebase use --add,
but for now we'll just set up a default project.
c
c

? Please select an option: Use an existing project
? Select a default Firebase project for this directory: heartcarelyp (heartcarelyp)
i Using project heartcarelyp (heartcarelyp)

=== Hosting Setup

Your public directory is the folder (relative to your project directory) that
will contain Hosting assets to be uploaded with firebase deploy. If you
have a build process for your assets, use your build's output directory.

? What do you want to use as your public directory? public
? Configure as a single-page app (rewrite all urls to /index.html)? (y/N) _
```

N

N

```
C:\WINDOWS\system32\cmd.exe - "node" "C:\Users\88697\AppData\Roaming\npm\node..."
##      #### ##      ## ##### ##### ##      ## ##### #####
You're about to initialize a Firebase project in this directory:
  C:\Users\88697\pingponggame
? Are you ready to proceed? Yes
? Which Firebase features do you want to set up for this directory? Press Space to s
select features, then Enter to confirm your choices. Hosting: Configure files for Fir
ebase Hosting and (optionally) set up GitHub Action deploys
o
=== Project Setup
First, let's associate this project directory with a Firebase project.          c
You can create multiple project aliases by running firebase use --add,         c
but for now we'll just set up a default project.
? Please select an option: Use an existing project
? Select a default Firebase project for this directory: heartcarelyp (heartcarelyp)
i Using project heartcarelyp (heartcarelyp)
=== Hosting Setup
Your public directory is the folder (relative to your project directory) that
will contain Hosting assets to be uploaded with firebase deploy. If you
have a build process for your assets, use your build's output directory.
? What do you want to use as your public directory? public
? Configure as a single-page app (rewrite all urls to /index.html)?
? Set up automatic builds and deploys with GitHub? (y/N) N
```

Complete

```
C:\WINDOWS\system32\cmd.exe

firebase Hosting and (optionally) set up GitHub Action deploys

=== Project Setup

First, let's associate this project directory with a Firebase project.
You can create multiple project aliases by running firebase use --add,
but for now we'll just set up a default project.

? Please select an option: Use an existing project
? Select a default Firebase project for this directory: heartcarelyp (heartcarelyp)
i Using project heartcarelyp (heartcarelyp)

=== Hosting Setup

Your public directory is the folder (relative to your project directory) that
will contain Hosting assets to be uploaded with firebase deploy. If you
have a build process for your assets, use your build's output directory.

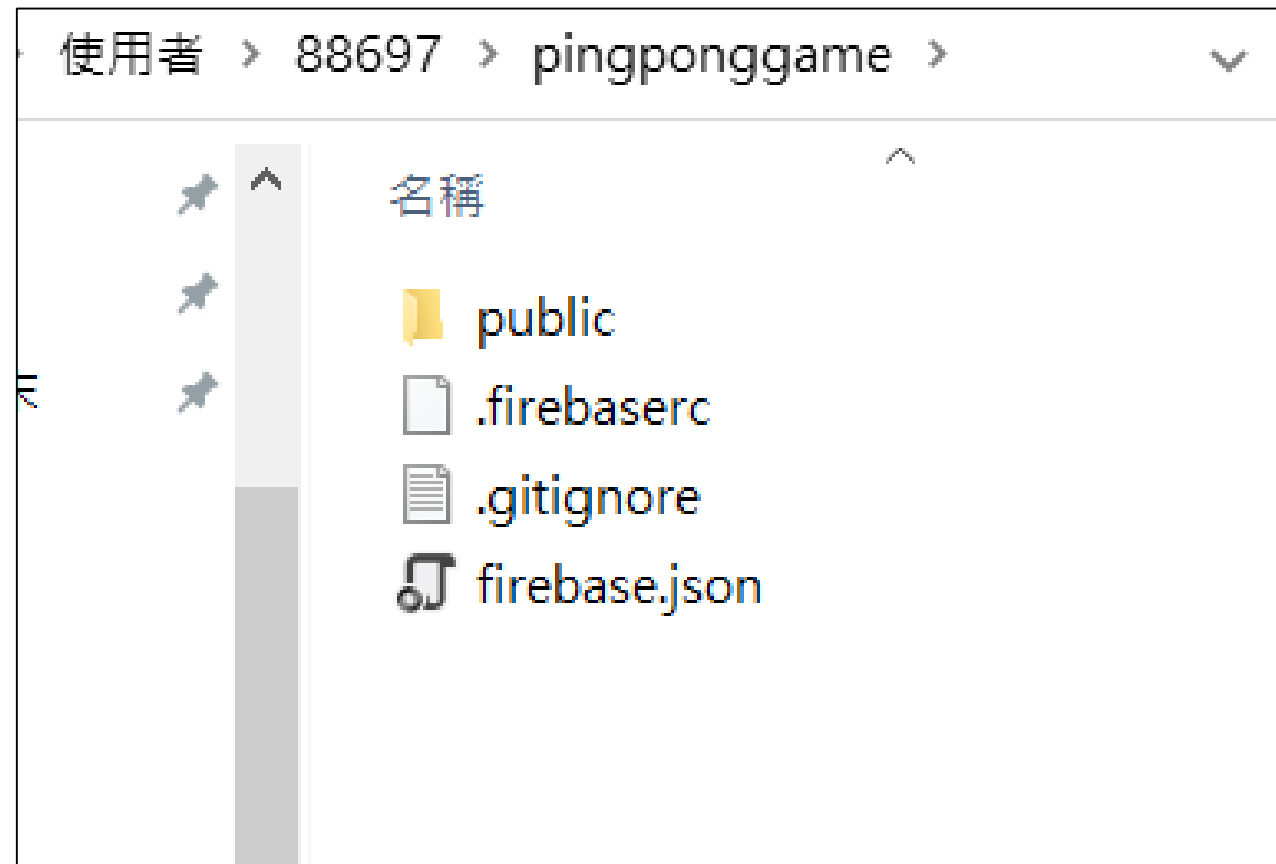
? What do you want to use as your public directory? public
? Configure as a single-page app (rewrite all urls to /index.html)? No
? Set up automatic builds and deploys with GitHub? No
+ Wrote public/404.html
+ Wrote public/index.html

i Writing configuration info to firebase.json...
i Writing project information to .firebaserc...
i Writing gitignore file to .gitignore...

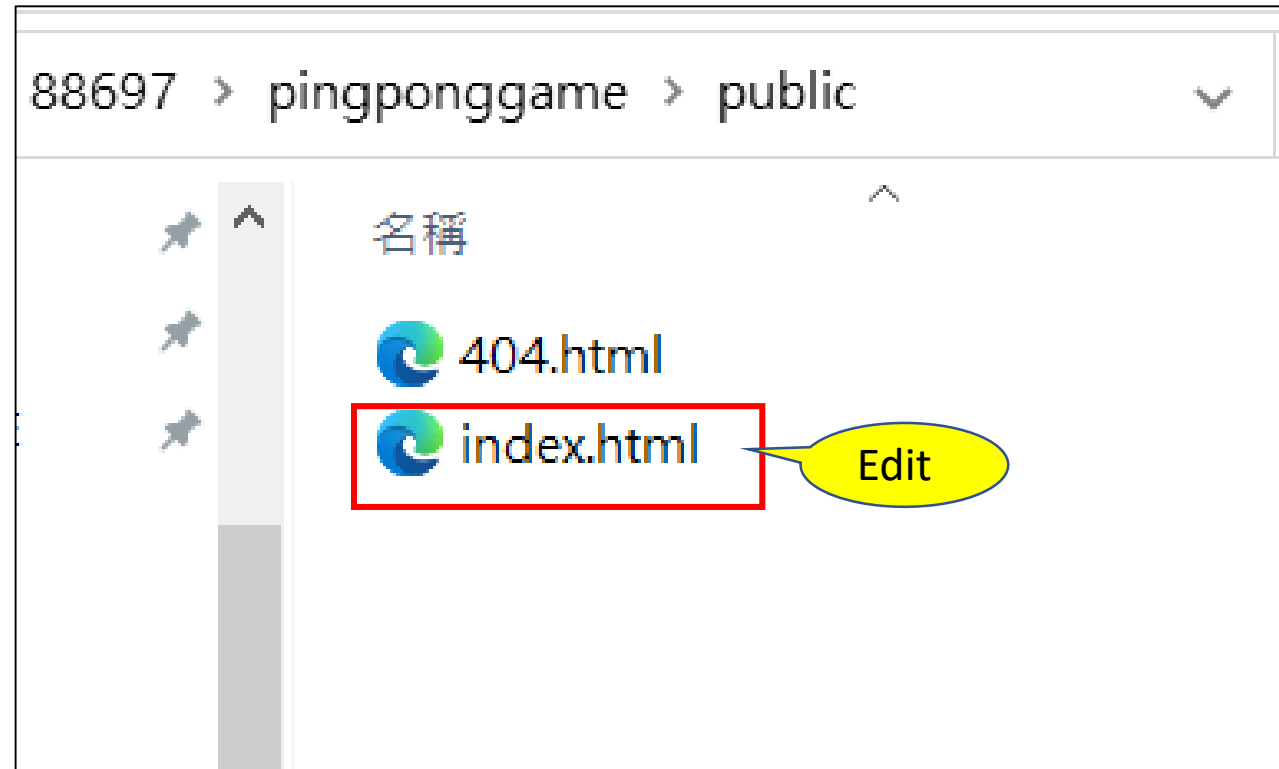
+ Firebase initialization complete!
C:\Users\88697\pingponggame>
```

Complete

pingponggame/



pingponggame/public

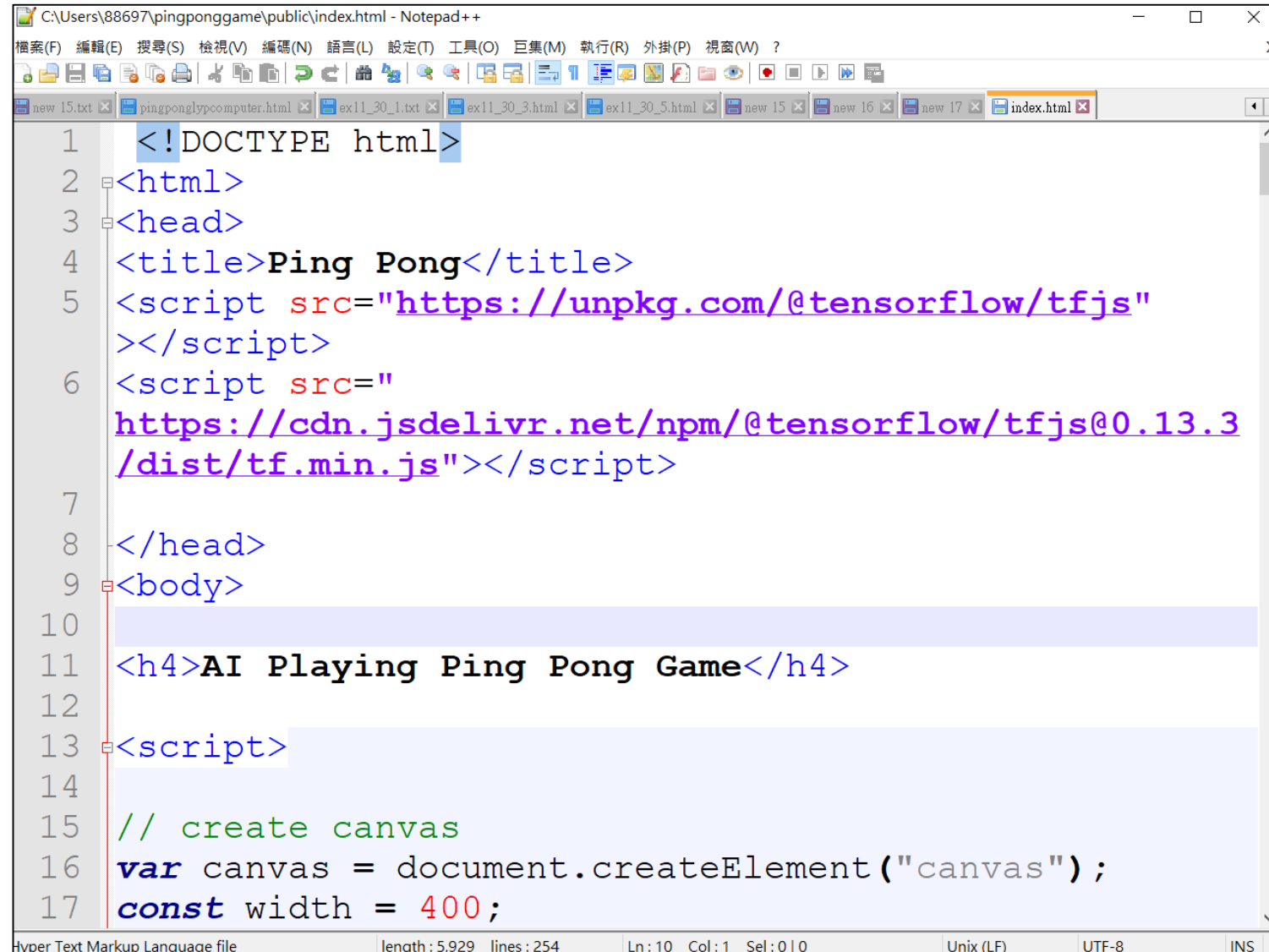


Copy the content of ex12_07_1.txt

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4    <title>Ping Pong</title>
5    <script src="https://unpkg.com/@tensorflow/tfjs"
6    ></script>
7    <script src="
8    https://cdn.jsdelivr.net/npm/@tensorflow/tfjs@0.13.3
9    /dist/tf.min.js"></script>
10
11  </head>
12  <body>
13    <h4>AI Playing Ping Pong Game</h4>
14
15    <script>
16      // create canvas
17      var canvas = document.createElement("canvas");
18      const width = 400;
```

Select All ,
Paste

Save



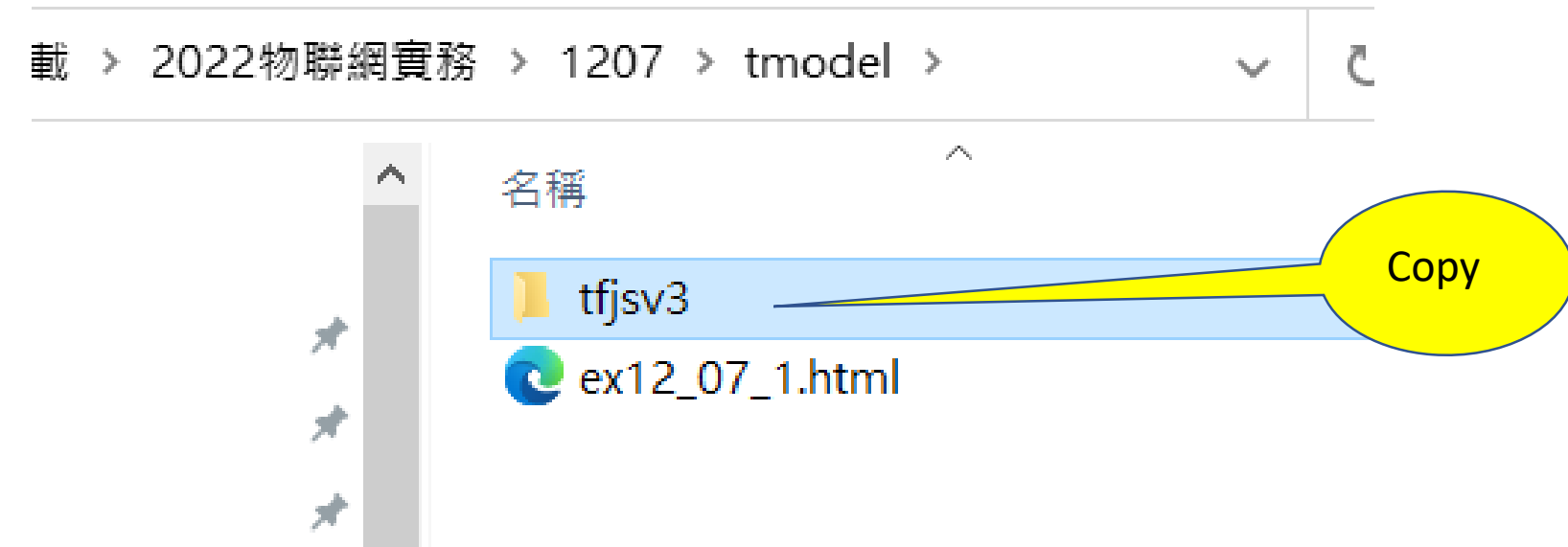
```
C:\Users\88697\pingponggame\public\index.html - Notepad++
檔案(F) 編輯(E) 搜尋(S) 檢視(V) 編碼(N) 語言(L) 設定(T) 工具(O) 巨集(M) 執行(R) 外掛(P) 視窗(W) ?

new 15.txt x pingponglypcomputer.html x ex11_30_1.txt x ex11_30_3.html x ex11_30_5.html x new 15 x new 16 x new 17 x index.html x

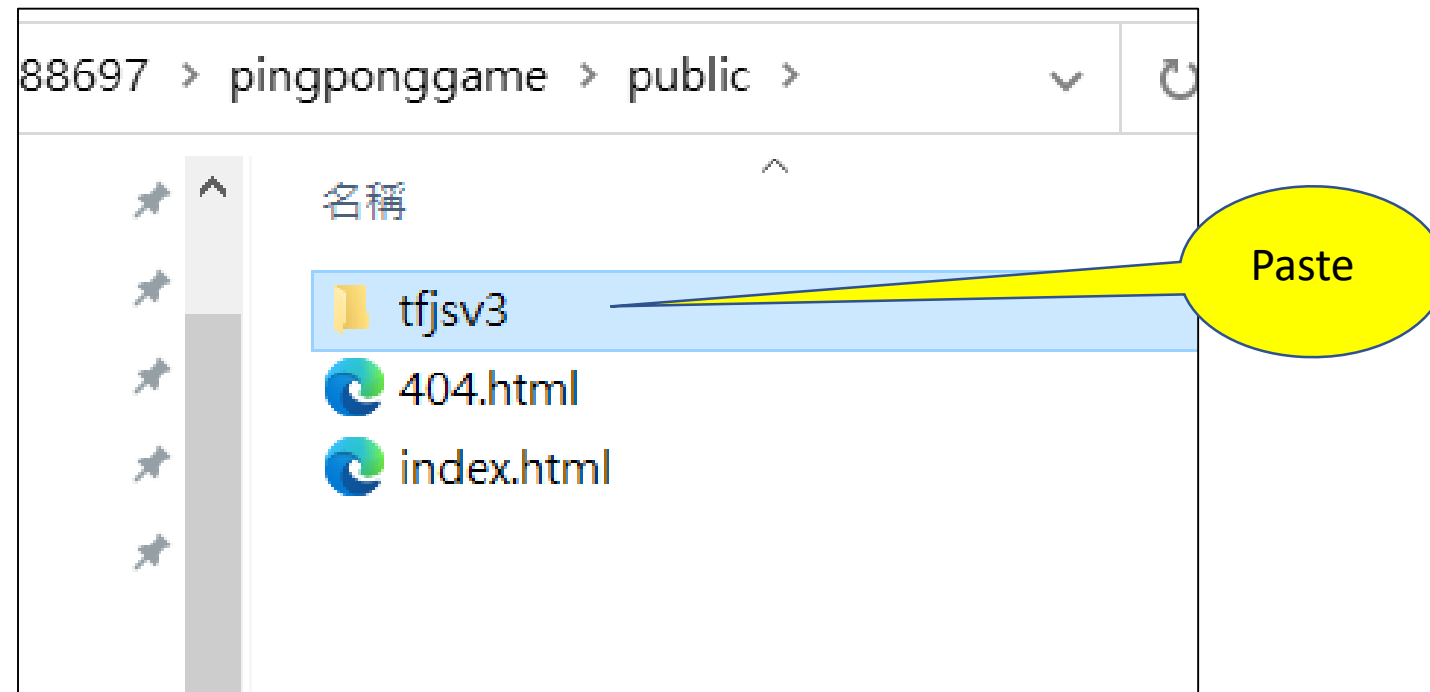
1  <!DOCTYPE html>
2  <html>
3  <head>
4    <title>Ping Pong</title>
5    <script src="https://unpkg.com/@tensorflow/tfjs"
6    ></script>
7    <script src="
8    https://cdn.jsdelivr.net/npm/@tensorflow/tfjs@0.13.3
9    /dist/tf.min.js"></script>
10
11  </head>
12  <body>
13    <h4>AI Playing Ping Pong Game</h4>
14
15  <script>
16    // create canvas
17    var canvas = document.createElement("canvas");
18    const width = 400;
```

Hyper Text Markup Language file length : 5,929 lines : 254 Ln : 10 Col : 1 Sel : 0 | 0 Unix (LF) UTF-8 INS

Copy tfjsv3



Paste



firebase deploy

```
C:\WINDOWS\system32\cmd.exe

firebase Hosting and (optionally) set up GitHub Action deploys

=== Project Setup

First, let's associate this project directory with a Firebase project.
You can create multiple project aliases by running firebase use --add,
but for now we'll just set up a default project.

? Please select an option: Use an existing project
? Select a default Firebase project for this directory: heartcarelyp (heartcarelyp)
i Using project heartcarelyp (heartcarelyp)

=== Hosting Setup

Your public directory is the folder (relative to your project directory) that
will contain Hosting assets to be uploaded with firebase deploy. If you
have a build process for your assets, use your build's output directory.

? What do you want to use as your public directory? public
? Configure as a single-page app (rewrite all urls to /index.html)? No
? Set up automatic builds and deploys with GitHub? No
+ Wrote public/404.html
+ Wrote public/index.html

i Writing configuration info to firebase.json...
i Writing project information to .firebaserc...
i Writing gitignore file to .gitignore...

+ Firebase initialization complete!

C:\Users\88697\pingponggame>firebase deploy_
```

firebase deploy

Deploy complete

```
C:\WINDOWS\system32\cmd.exe
? What do you want to use as your public directory? public
? Configure as a single-page app (rewrite all urls to /index.html)? No
? Set up automatic builds and deploys with GitHub? No
+ Wrote public/404.html
+ Wrote public/index.html

i Writing configuration info to firebase.json...
i Writing project information to .firebaserc...
i Writing gitignore file to .gitignore...

+ Firebase initialization complete!

C:\Users\88697\pingponggame>firebase deploy

=== Deploying to 'heartcarelyp'...

i deploying hosting
i hosting[heartcarelyp]: beginning deploy...
i hosting[heartcarelyp]: found 4 files in public
+ hosting[heartcarelyp]: file upload complete
i hosting[heartcarelyp]: finalizing version...
+ hosting[heartcarelyp]: version finalized
i hosting[heartcarelyp]: releasing new version...
+ hosting[heartcarelyp]: release complete

+ Deploy complete!

Project Console: https://console.firebase.google.com/project/heartcarelyp/overview
Hosting URL: https://heartcarelyp.web.app

C:\Users\88697\pingponggame>
```

Deploy complete

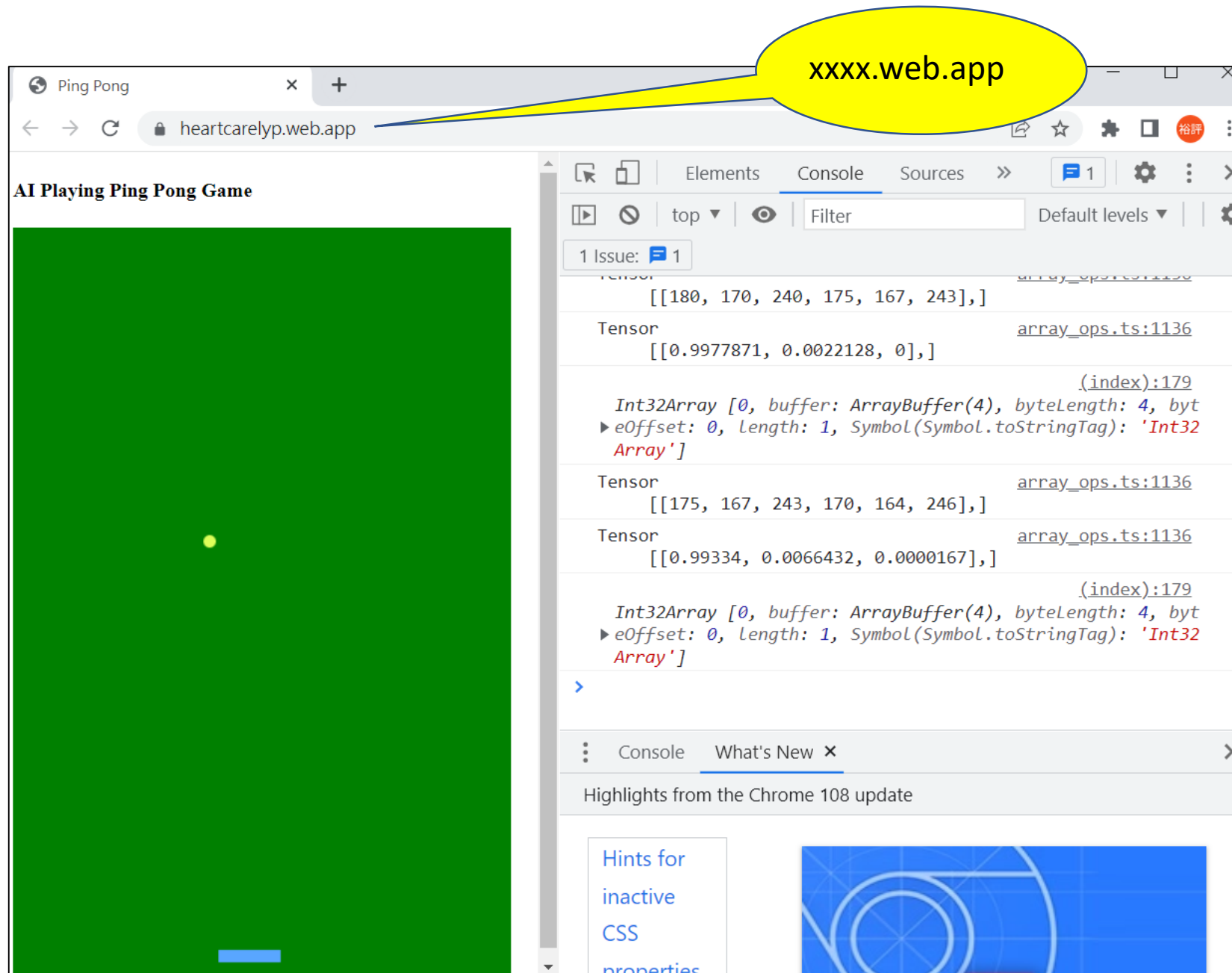
Go to web app

The screenshot shows the Firebase console interface. The left sidebar contains the 'Firebase' logo and navigation links for 'Project Overview', 'Hosting', 'Functions', and 'Realtime Database'. The main content area is titled 'Hosting' for the 'heartcarelyp' project. It features a 'Dashboard' tab and a 'Usage' tab. Below the tabs, there is a section for 'heartcarelyp domains' containing a table with two columns: 'Domain' and 'Status'.

Domain	Status
heartcarelyp.web.app Default	
heartcarelyp.firebaseio.com Default	

A yellow callout bubble points to the 'heartcarelyp.web.app' domain in the table.

xxxx.web.app



OpenSSL

演算法 [編輯]

OpenSSL支援許多不同的加密演算法：

加密

AES、Blowfish、Camellia、Chacha20、Poly1305、SEED、CAST-128、DES、IDEA、RC2、RC4、RC5、TDES、GOST 28147-89^[15]、SM4

密碼雜湊函式

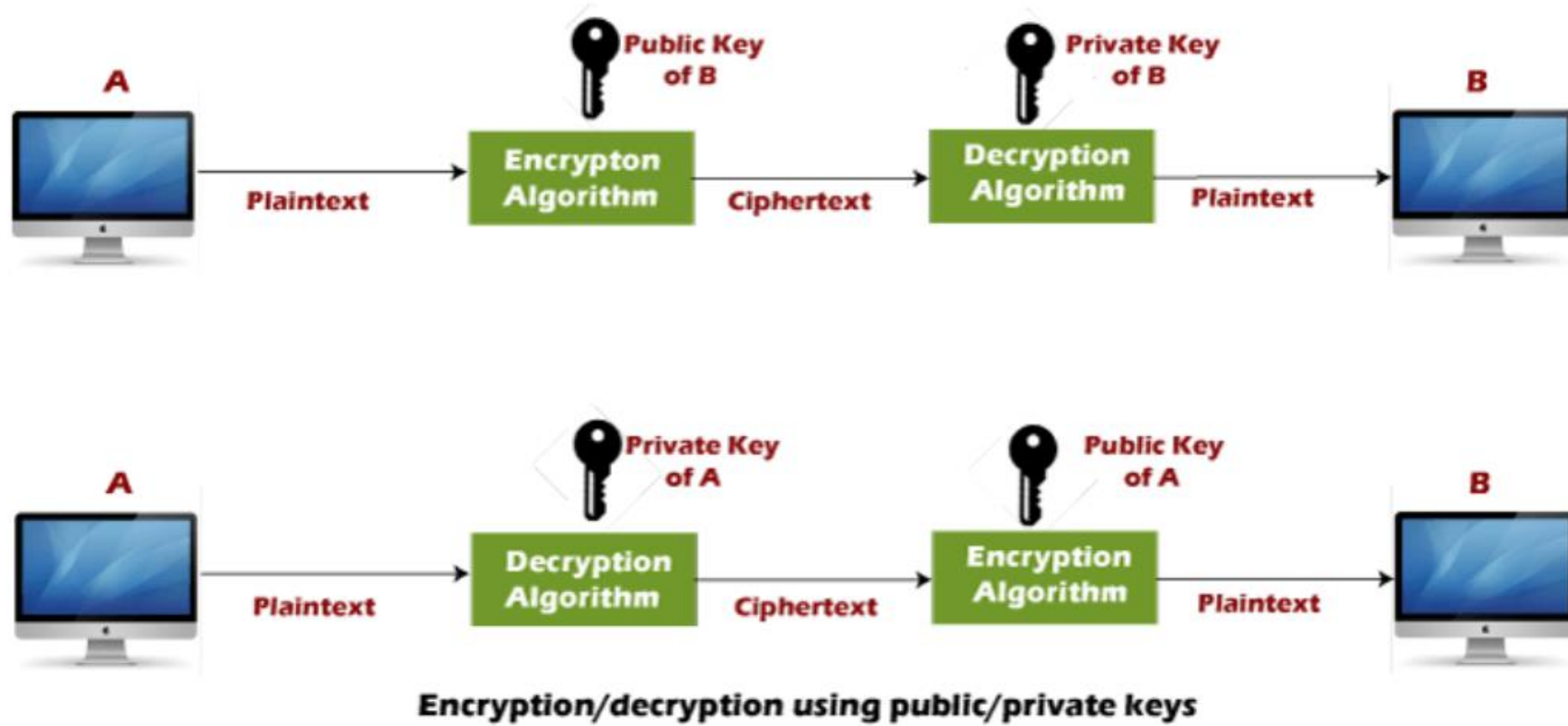
MD5、MD4、MD2、SHA-1、SHA-2、SHA-3、RIPEMD-160、MDC-2、GOST R 34.11-94^[15]、BLAKE2、Whirlpool^[16]、SM3

公開金鑰加密

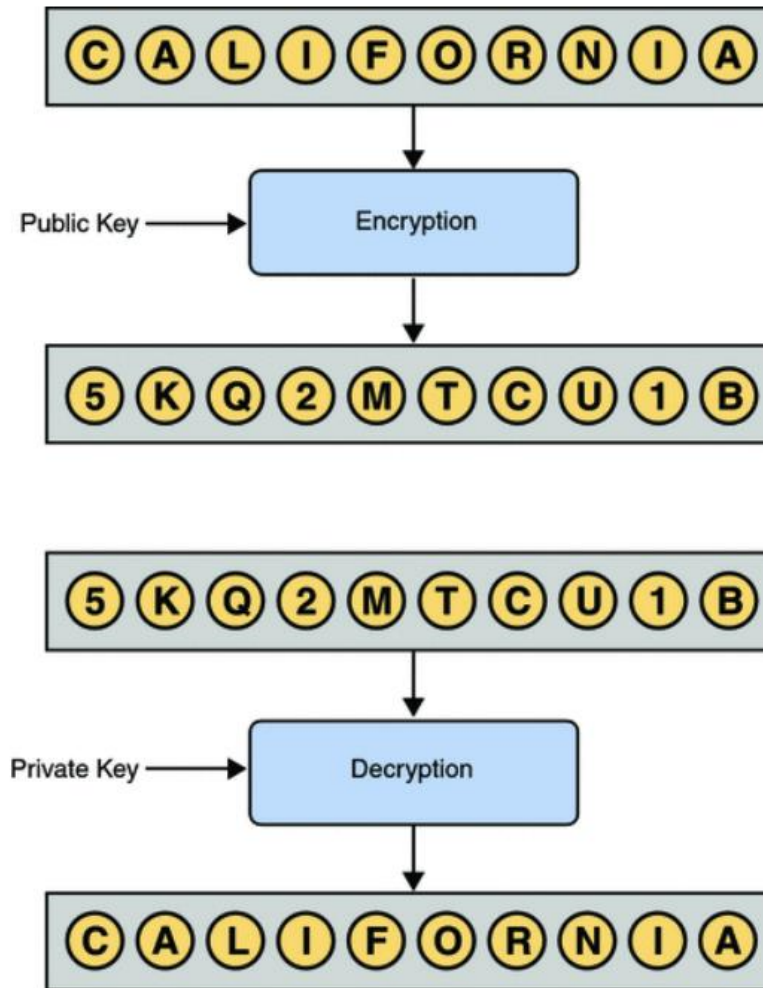
RSA、DSA、ECDSA、ECDHE、迪菲-赫爾曼密鑰交換、橢圓曲線密碼學、X25519、Ed25519、X448、Ed448、GOST R 34.10-2001^[15]、SM2

(從1.0版開始，橢圓曲線迪菲-赫爾曼金鑰交換用於支援前向安全性) ^[17]

Encryption/decryption using public/private keys



public-key cryptography



What is RSA encryption and how does it work?



<https://www.comparitech.com/blog/information-security/rsa-encryption/>

RSA Cryptosystem

$$n = p \times q$$
$$t = (p - 1)(q - 1)$$

p, q 為質數

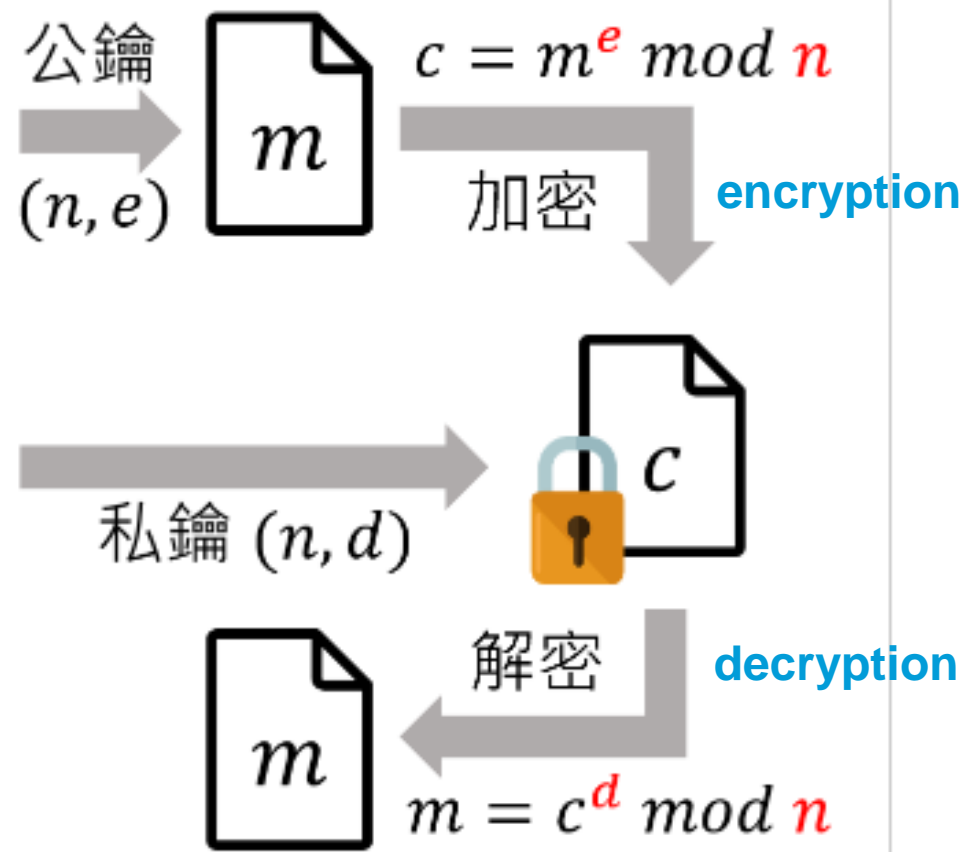


公鑰
Public key
 (n, e)

條件： $e \neq 0 \bmod t$

私鑰
Private key
 (n, d)

條件： $ed = 1 \bmod t$



RSA example

- 公鑰 (Public key) : e, n
私鑰 (Private key) : d, n
訊息 (message) : m
密文 (cyphertext) : c

taking $p = 3$ 、 $q = 11$ ，thus $n = 33$ 。 $t = (3-1)(11-1) = 20$ 。
constrain :
 $ed \equiv 1 \pmod{20}$
so : $ed = 20k + 1$ ，if $k = 1$ ，we can get $e = 3$ 、 $d = 7$ 。

- Thus : Public key $(3, 33)$ ，Private key : $(7, 33)$ 。

While $m = 17$

RSA Encryption : $(17)^3 \pmod{33} = 29$

We can get the cyphertext $c = 29$

RSA decryption : $(29)^7 \pmod{33} = 17$

$$\begin{aligned} n &= p \times q \\ t &= (p-1)(q-1) \\ p, q &\text{為質數} \end{aligned}$$



公鑰

(n, e)

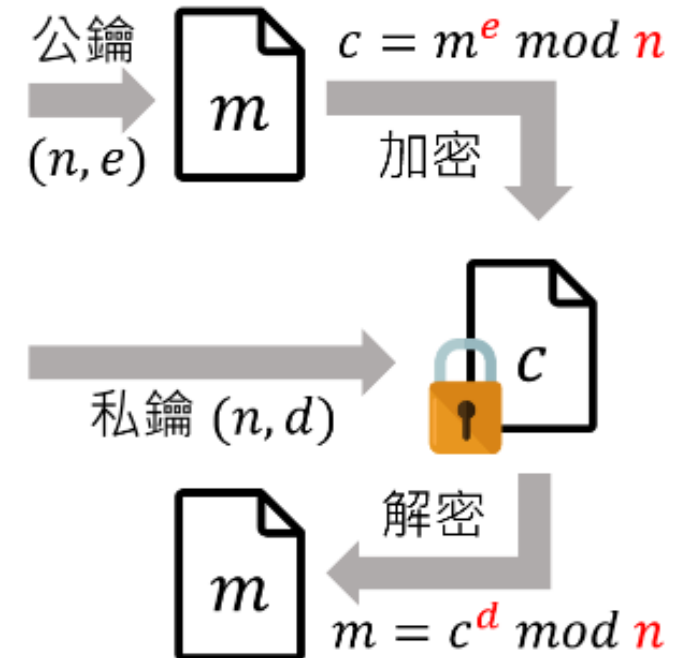
條件 : $e \neq 0 \pmod{t}$



私鑰

(n, d)

條件 : $ed = 1 \pmod{t}$



The RSA trapdoor permutation

G(): choose random primes $p, q \approx 1024$ bits. Set $N=pq$.

choose integers e, d s.t. $e \cdot d = 1 \pmod{\phi(N)}$

output $pk = (N, e)$, $sk = (N, d)$

$F(pk, x)$: $\mathbb{Z}_N^* \rightarrow \mathbb{Z}_N^*$; $RSA(x) = x^e$ (in \mathbb{Z}_N)

$F^{-1}(sk, y) = y^d$; $y^d = RSA(x)^d$ = x^{ed} = $x^{k\phi(N)+1}$ = $(x^{\phi(N)})^k \cdot x$ = x

Handwritten notes:
 $y = RSA(x) = x^e$
 $ed = k \cdot \phi(N) + 1$
 $= 1$

Generate a RSA private key

“key.pem” file

- genrsa

openssl genrsa -out key.pem 2048

file

bit

```
-----BEGIN RSA PRIVATE KEY-----
MIIEpQIBAAKCAQEAA3twsjJQ9UCk9M5WMSX4...hmBxccV4Ti4vu7hyfUlwQHiK3
Di4MCybn8DrZS3vM+vuqWiq9VMLIkKey3f3...h7yiIeYgqPz8DZFM//p3WriOev
S2oXc7yjn2mfZ7iKrZXk626Kcm/110ZlffFe6N12/3ooMu4eAcW5RZQGen5R4ShF
jNQpQfqUT95Ce+xK4Xf4Roc6C/I8EVBHX5LlBaURCvc+lX0jR9aaeAWVnMiXyUYF
V2ViQkoUwUGPRKs/AcX3t4x8Bo/NfKqPrdcaAJx5q1BNqAwLcKhHXtuCCPcIUMeC
fWoYadiTMFq+okuv+4Q4iePHQV6T6URhFS0ryQIDAQABAoIBAQCotA15QcKESyOM
SBpgRoiOuRWye02zeB7dlUmCsOIftWLahTdroyN2azZK0ZGqpYYPPLHBXfdDFrg6
4NREwCsuQxNqeZd8ajhhccAjFC2Yy+fVVGWldj1YnKV37AA7uinFYZE8NtfkDW6u
TH3Q1w4cwHpnfUau/zhx6QaOWDbrRAhr3ThboVUWs2mmA9B6s0dGUUVvf98eTEok
sv0zw0tJ8zMyDTnXQWorkWXnH/oe+3nA8jp3PJouCoGT8Ej9S+yyw03oJRVSpVpi
iiLohpKHqRqFeH5KbnoEmBtm6KBkCAmb6+NuMYabyLuFRSYTh5Wnovia88tUeoab
xm4yX9iBAoGBAPzGyDuACXYkQyLMq/jRr90LZvvpDv1UYv8MirP9UijvI8GGiYzR
QQ+mfwxT8gK8Jw3jHUVd4EdJLZr8JpiZ1io5QhLF+vnAN0B/k6BrEd76G40Rwi/M
IwL3E0WyKueJQ7g6aAo/709NK0X/4Bpe8FeT0xOEhTpJmkuT2EOfWeXRAoGBAOGz
uemRT6RXqEKtQnJgOa8ZQPilVvyZxz1CL410wSz2//nY5d1LiEoy6XYKU/Si+suK
AmCzXjYQ0Y1kRU7d3y37W62GyM129MYkmR9uuiwN+4iT55rpDz3d2SQg9+ublrzh
A7MohPO9BLKCwQ903B74svxMKMkfl+4/DYpb/cx5AoGAf4I6kSEWJL1IDG7YNQx5
PPS6f0piIFIIGgXiH48iebmF/MhD7H/F5QIkxnA1/UEYJiQxq/ljzjHQyoR1Z7b6
PJRjixrJbmCSvntcWaiI/ESHZ1Js9TVxV9aQpzCnyeIJA6cWsdDjWos8QOQ5VyM
unC8IfVQS0XDimpKxkynO3ECgYEAyEBxLBWcZwDLLLLWRRe+wXnX2mmX+5cke50Of
U0+K8b05AlF6KS0SAftJnkytjrlN8V1CnM+oQCoN8vhLMh1THfYNslmLIhlnNblV
DnlsVxes29H2xRARUN/b/90seqOyS2UNplDGHYfQeh3e8zrI7sXT8FWWN9RLNbxF
5EOYXGkCgYEAAnnYN/Qe7yfx8g0008YEBMWBrtadSV5IR44YautL+4dv+NgZv0mml
HsJQ3DnY2gEMfZo6HbVrOS0ewtEj4HW5XTiFjL8dZm8LfkyhuW6q8YPKS91hEecg
6FpxBQsWvS9899U938J4LiHpED+m/L52SYj84h2mDX12UDkc8iYFTgk=
-----END RSA PRIVATE KEY-----
```

<https://bryceknowhow.blogspot.com/2018/05/cryptography-rsa-private-key-public-key.html>

<https://bryceknowhow.blogspot.com/2018/05/cryptography-rsa-private-key-public-key.html>

Generate a RSA public key

- `openssl rsa -in key.pem -pubout -out pubkey.pem`

“pubkey.pem” file

```
-----BEGIN PUBLIC KEY-----
MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA3twsjJQ9UCk9M5WMsX46
BE/hmBxccV4Ti4vu7hyfUlwQHik3Di4MCybn8DrZS3vM+vuqWiq9VMlIkKeY3f3i
TOh7yiIeYgqPz8DZFM//p3WriOevS2oXc7yjn2mfZ7iKrZXk626KCm/1l0ZlfFe
6Nl2/3ooMu4eAcW5RZQGen5R4ShFjNQpQfqUT95Ce+xK4Xf4Roc6C/I8EVBHX5Ll
BaURCvc+lX0jR9aaeAWVnMiXyUYFV2ViQkoUwUGPRKs/AcX3t4x8Bo/NfKqPrdca
AJx5q1BNqAwLcKhHXtuCCPcIUMeCfWoYadiTMFq+okuv+4Q4iePHQV6T6URhFS0r
yQIDAQAB
-----END PUBLIC KEY-----
```

如何使用 OpenSSL 建立開發測試用途的自簽憑證 (Self-Signed Certificate)

📅 2019/02/25 12:57 👤 Will 保哥 📁 Linux, Windows, 介紹好用工具, 系統管理

分享

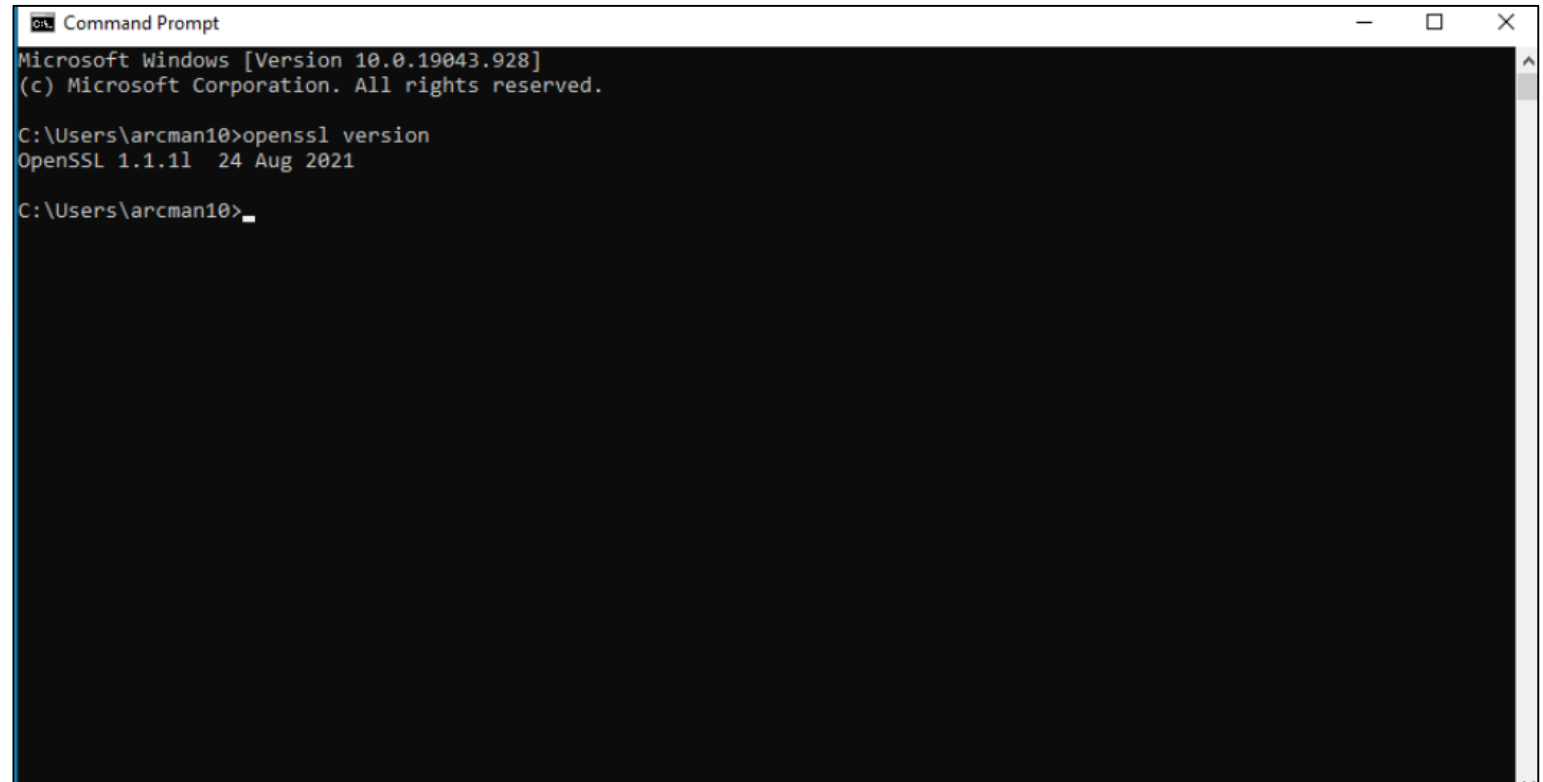
如果要產生開發測試用途的自簽憑證，說到底還是跨平台的 OpenSSL 好用，這篇文章我就來談談如何透過 OpenSSL 工具來產生可信賴的 SSL/TLS 自簽憑證。



<https://blog.miniasp.com/post/2019/02/25/Creating-Self-signed-Certificate-using-OpenSSL>

Exercise 13-3

- Install openssl



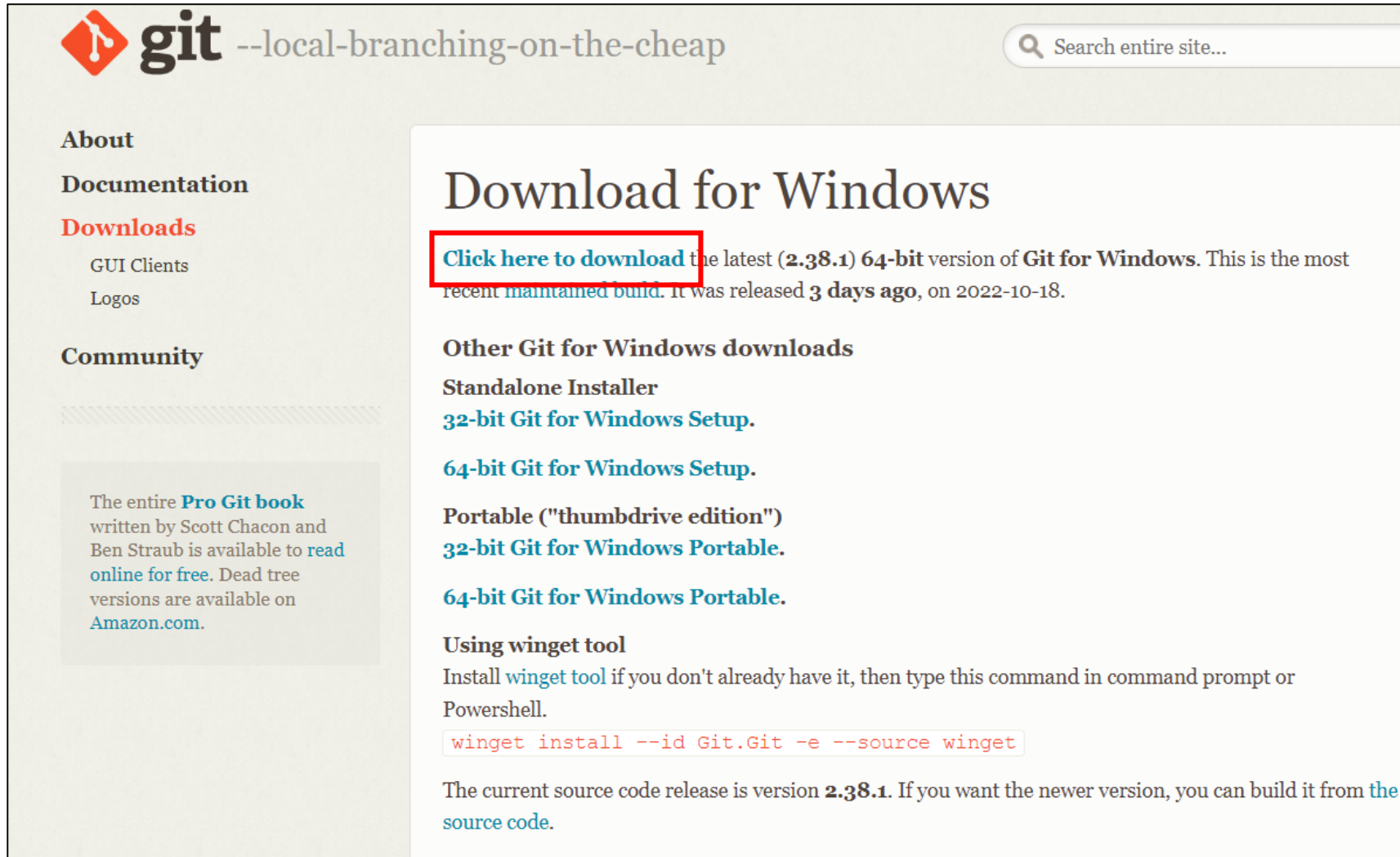
```
Command Prompt
Microsoft Windows [Version 10.0.19043.928]
(c) Microsoft Corporation. All rights reserved.

C:\Users\arcman10>openssl version
OpenSSL 1.1.1l  24 Aug 2021

C:\Users\arcman10>
```

<https://theseccmaster.com/procedure-to-install-openssl-on-the-windows-platform/>

Git for Windows downloads



The screenshot shows the Git for Windows download page. The header features the Git logo and the tagline "--local-branching-on-the-cheap". A search bar is located in the top right corner. The left sidebar contains links for "About", "Documentation", "Downloads" (highlighted in red), "GUI Clients", "Logos", and "Community". The main content area is titled "Download for Windows" and contains a red-bordered box around the link "Click here to download". Below this, there are sections for "Other Git for Windows downloads" including "Standalone Installer", "Portable ('thumbdrive edition')", and "Using winget tool". A code block shows the command to install Git using winget. The footer mentions the current version 2.38.1 and provides a link to the source code.

git --local-branching-on-the-cheap

Search entire site...

About

Documentation

Downloads

GUI Clients

Logos

Community

The entire **Pro Git book** written by Scott Chacon and Ben Straub is available to [read online for free](#). Dead tree versions are available on [Amazon.com](#).

Download for Windows

[Click here to download](#) the latest (**2.38.1**) **64-bit** version of **Git for Windows**. This is the most recent [maintained build](#). It was released **3 days ago**, on 2022-10-18.

Other Git for Windows downloads

Standalone Installer

[32-bit Git for Windows Setup.](#)

[64-bit Git for Windows Setup.](#)

Portable ("thumbdrive edition")

[32-bit Git for Windows Portable.](#)

[64-bit Git for Windows Portable.](#)

Using winget tool

Install [winget tool](#) if you don't already have it, then type this command in command prompt or Powershell.

```
winget install --id Git.Git -e --source winget
```

The current source code release is version **2.38.1**. If you want the newer version, you can build it from [the source code](#).

<https://www.git-scm.com/download/win>

Install



Double click



Git 2.38.1 Setup



Information

Please read the following important information before continuing.



When you are ready to continue with Setup, click Next.

GNU General Public License

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place - Suite 330, Boston, MA 02111-1307, USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away
your freedom to share and change it. By contrast, the GNU General
Public License is intended to guarantee your freedom to share and

Next

<https://gitforwindows.org/>



Only show new options

Next

Cancel



Git 2.38.1 Setup



Select Components

Which components should be installed?



Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.

- ☐ Additional icons
 - ☐ On the Desktop
- ☒ Windows Explorer integration
 - ☒ Git Bash Here
 - ☒ Git GUI Here
- ☒ Git LFS (Large File Support)
- ☒ Associate .git* configuration files with the default text editor
- ☒ Associate .sh files to be run with Bash
- ☐ Check daily for Git for Windows updates
- ☒ (NEW!) Scalar (Git add-on to manage large-scale repositories)

Current selection requires at least 294.6 MB of disk space.

<https://gitforwindows.org/>

☒ Only show new options

Back

Next

Cancel



Git 2.38.1 Setup



Adjusting the name of the initial branch in new repositories

What would you like Git to name the initial branch after "git init"?



☒ **Let Git decide**

Let Git use its default branch name (currently: "master") for the initial branch in newly created repositories. The Git project [intends](#) to change this default to a more inclusive name in the near future.

☐ **Override the default branch name for new repositories**

NEW! Many teams already renamed their default branches; common choices are "main", "trunk" and "development". Specify the name "git init" should use for the initial branch:

This setting does not affect existing repositories.

<https://gitforwindows.org/>

☒ Only show new options

Back

Next

Cancel



Git 2.38.1 Setup



Choosing the SSH executable

Which Secure Shell client program would you like Git to use?



☒ **Use bundled OpenSSH**

This uses ssh.exe that comes with Git.

☐ **Use (Tortoise)Plink**

To use PuTTY, specify the path to an existing copy of (Tortoise)Plink.exe:



☐ Set ssh.variant for Tortoise Plink

☐ **Use external OpenSSH**

NEW! This uses an external ssh.exe. Git will not install its own OpenSSH (and related) binaries but use them as found on the PATH.

<https://gitforwindows.org/>

☒ Only show new options

Back

Next

Cancel



Git 2.38.1 Setup



Choose the default behavior of `git pull`

What should `git pull` do by default?



☒ **Default (fast-forward or merge)**

This is the standard behavior of `git pull`: fast-forward the current branch to the fetched branch when possible, otherwise create a merge commit.

☐ **Rebase**

Rebase the current branch onto the fetched branch. If there are no local commits to rebase, this is equivalent to a fast-forward.

☐ **Only ever fast-forward**

Fast-forward to the fetched branch. Fail if that is not possible.

<https://gitforwindows.org/>

☒ Only show new options

Back

Next

Cancel



Git 2.38.1 Setup



Configuring experimental options

These features are developed actively. Would you like to try them?



Enable experimental support for pseudo consoles.

(NEW!) This allows running native console programs like Node or Python in a Git Bash window without using winpty, but it still has known bugs.



Enable experimental built-in file system monitor

(NEW!) Automatically run a [built-in file system watcher](#), to speed up common operations such as ``git status``, ``git add``, ``git commit``, etc in worktrees containing many files.

<https://gitforwindows.org/>



Only show new options

Back

Install

Cancel

Completing the Git Setup Wizard



Setup has finished installing Git on your computer. The application may be launched by selecting the installed shortcuts.

Click Finish to exit Setup.

- ☐ Launch Git Bash
- ☒ View Release Notes

☒ Only show new options

Finish

C:\Program Files\Git\usr\bin\openssl.exe

本機 > OS (C:) > Program Files > Git > usr > bin >			
名稱	修改日期	類型	
nice	2022/10/7 下午 1...	應用程式	
nl	2022/10/7 下午 1...	應用程式	
nohup	2022/10/7 下午 1...	應用程式	
notepad	2022/10/7 下午 1...	檔案	
nproc	2022/10/7 下午 1...	應用程式	
numfmt	2022/10/7 下午 1...	應用程式	
od	2022/10/7 下午 1...	應用程式	
openssl	2022/10/7 下午 1...	應用程式	
p11-kit	2022/10/7 下午 1...	應用程式	
passwd	2022/10/7 下午 1...	應用程式	



系統

← → ▾ ↑

控制台 > 系統及安全性 > 系統

搜尋控制台

控制台首頁

裝置管理員

遠端設定

系統保護


進階系統設定

檢視電腦的基本資訊

Windows 版本

Windows 10 家用版

© 2018 Microsoft Corporation. 著作權所有，並保留一切權利。




系統

製造商:	ASUSTek Computer Inc.
處理器:	Intel(R) Core(TM) i7-8550U CPU @ 1.80GHz 1.99 GHz
已安裝記憶體 (RAM)	8.00 GB (7.89 GB 可用)
系統類型:	64 位元作業系統, x64 型處理器
手寫筆與觸控:	此顯示器不提供手寫筆或觸控式輸入功能。

ASUSTek Computer Inc. 支援

網站:	線上支援
-----	----------------------

電腦名稱、網域及工作群組設定

電腦名稱:	DESKTOP-D0PON1N	 變更設定
完整電腦名稱:	DESKTOP-D0PON1N	
電腦描述:		
工作群組:	WORKGROUP	

Windows 啟用

Windows 已啟用 [閱讀 Microsoft 軟體授權條款](#)

請參閱

安全性與維護

系統內容



電腦名稱

硬體

進階

系統保護

遠端

您必須以系統管理員的身分登入，才能變更這裡的大部分設定。

效能

視覺效果、處理器排程、記憶體使用量和虛擬記憶體

設定(S)...

使用者設定檔

關於您登入時的桌面設定

設定(E)...

啟動及修復

系統啟動、系統失敗、及偵錯資訊

設定(T)...

環境變數(N)...

確定

取消

套用(A)

環境變數



lyp 的使用者變數(U)

變數	值
OneDrive	C:\Users\lyp\OneDrive
Path	C:\Users\lyp\AppData\Local\Programs\Pyth...
PyCharm	C:\Program Files\JetBrains\PyCharm 2019.1...
PyCharm Commun...	C:\Program Files\JetBrains\PyCharm Comm...
OSYS_ROOTDIR	D:\altera\15.0\quartus\sopc_builder\bin

新增(N)...

編輯(E)...

刪除(D)

系統變數(S)

變數	值
ANDROID_HOME	C:\Users\lyp\AppData\Local\Android\Sdk
ComSpec	C:\WINDOWS\system32\cmd.exe
DriverData	C:\Windows\System32\Drivers\DriverData
JAVA_HOME	C:\Program Files\Java\jdk1.8.0_144
NUMBER OF PRO...	8

新增(W)...

編輯(I)...

刪除(L)

確定

取消

lyp

編輯環境變數

✕

變

Or

Pa

Py

Py

OS

系統

變

AN

Co

Dr

JA

NU

C:\Users\lyp\AppData\Local\Programs\Python\Python38-32\Scripts\
C:\Users\lyp\AppData\Local\Programs\Python\Python38-32\
C:\Users\lyp\AppData\Local\Programs\Python\Python36\Scripts\
C:\Users\lyp\AppData\Local\Programs\Python\Python36\
%USERPROFILE%\AppData\Local\Microsoft\WindowsApps
D:\altera_lite\16.0\modelsim_ase\win32aloem
%ALTERAOCLSDKROOT%\bin
%ALTERAOCLSDKROOT%\host\windows64\bin
%PyCharm%
%PyCharm Community Edition%
C:\Program Files (x86)\Graphviz2.38\bin
C:\Program Files\heroku\bin
C:\Users\lyp\AppData\Roaming\npm
C:\Program Files\Git\usr\bin

新增(N)

編輯(E)

瀏覽(B)...

刪除(D)

上移(U)

下移(O)

編輯文字(T)...

確定

取消

C:\Program Files\Git\usr\bin

系統內容



電腦名稱

硬體

進階

系統保護

遠端

您必須以系統管理員的身分登入，才能變更這裡的大部分設定。

效能

視覺效果、處理器排程、記憶體使用量和虛擬記憶體

設定(S)...

使用者設定檔

關於您登入時的桌面設定

設定(E)...

啟動及修復

系統啟動、系統失敗、及偵錯資訊

設定(T)...

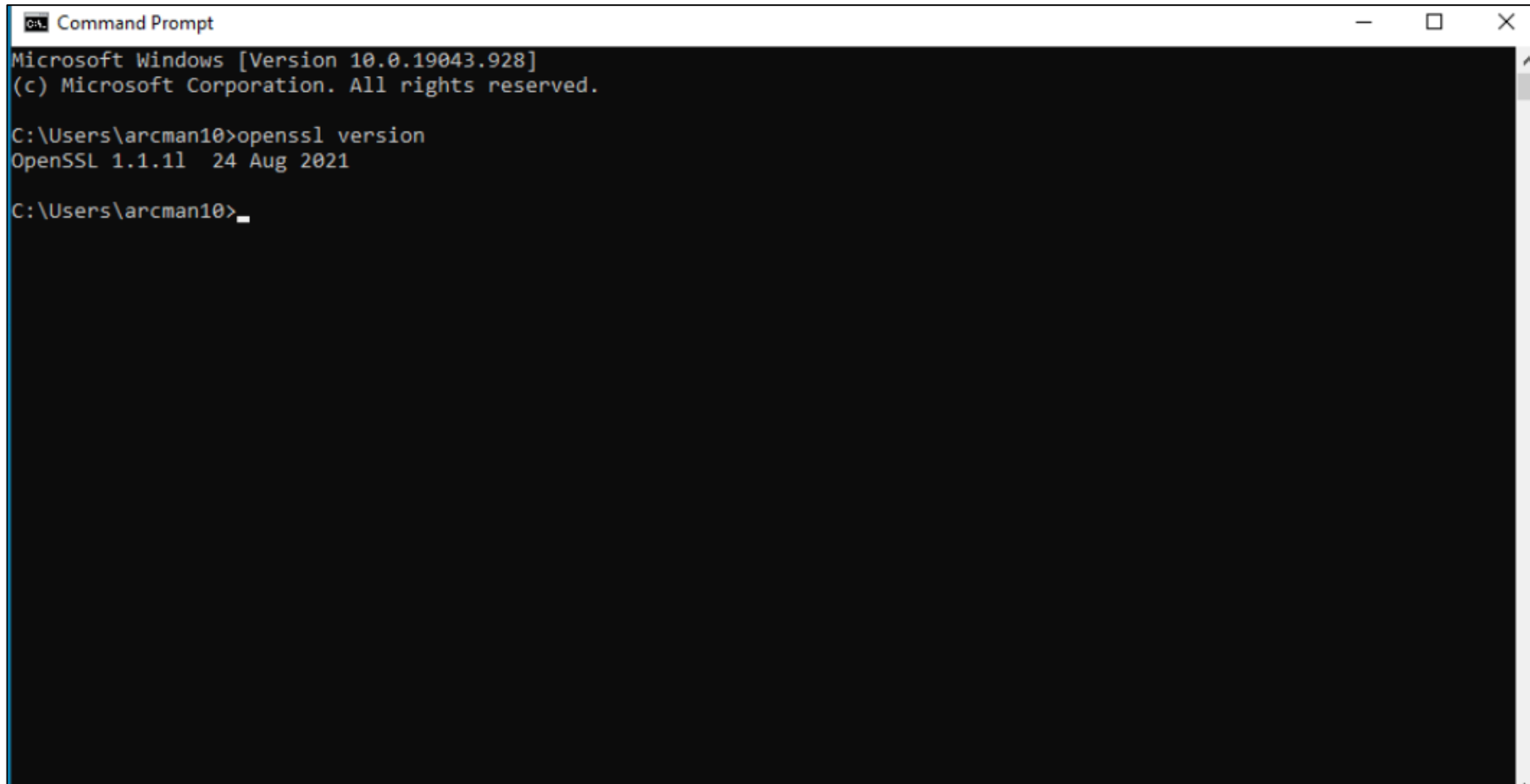
環境變數(N)...

確定

取消

套用(A)

Run OpenSSL

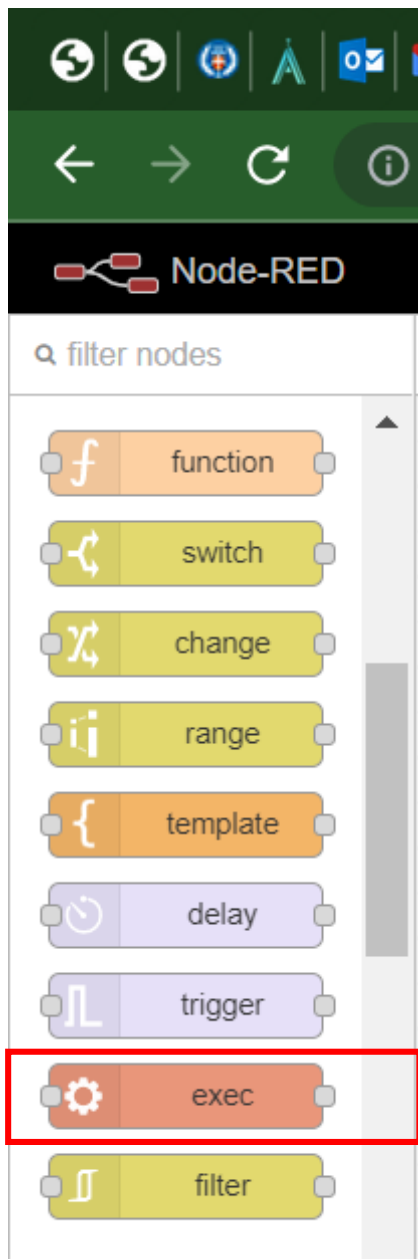


```
Command Prompt
Microsoft Windows [Version 10.0.19043.928]
(c) Microsoft Corporation. All rights reserved.

C:\Users\arcman10>openssl version
OpenSSL 1.1.1l  24 Aug 2021

C:\Users\arcman10>
```

exec Node



A screenshot of the Node-RED help panel for the 'exec' node. The panel is titled 'help' and has a search bar. The 'exec' node is selected in the list of nodes. The help text for the 'exec' node is displayed below the list. The entire help panel content is enclosed in a red rectangular box.

exec

Runs a system command and returns its output.

The node can be configured to either wait until the command completes, or to send its output as the command generates it.

The command that is run can be configured in the node or provided by the received message.

▼ Inputs

payload string
if configured to do so, will be appended to the executed command.

kill string
the type of kill signal to send an existing exec node process.

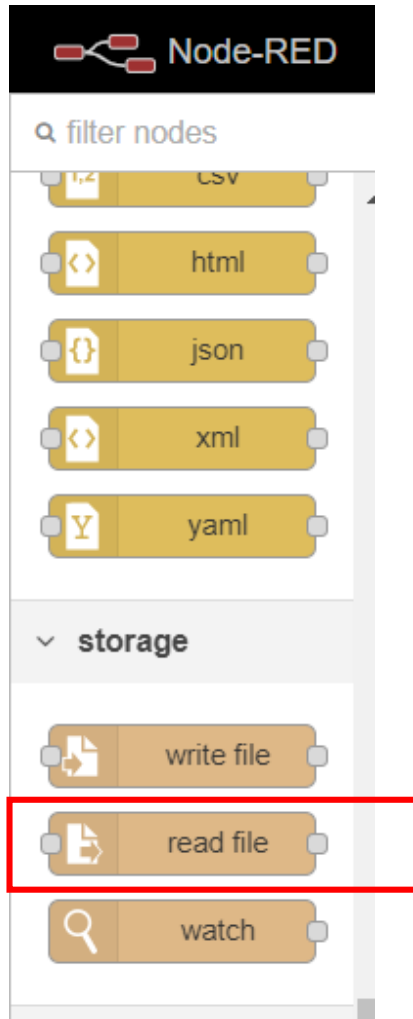
pid number|string
the process ID of an existing exec node process to kill.

▼ Outputs

1. Standard output

payload string
the standard output of the command.

read file node



read file

Reads the contents of a file as either a string or binary buffer.

Inputs

filename string

The name of the file to be read can be provided in the node configuration, or as a message property. By default it will use `msg.filename` but this can be customised in the node.

Outputs

payload string | buffer

The contents of the file as either a string or binary buffer.

filename string

If not configured in the node, this optional property sets the name of the file to be read.

Details

The filename should be an absolute path, otherwise it will be relative to the working directory of the Node-RED process.

On Windows, path separators may need to be escaped, for

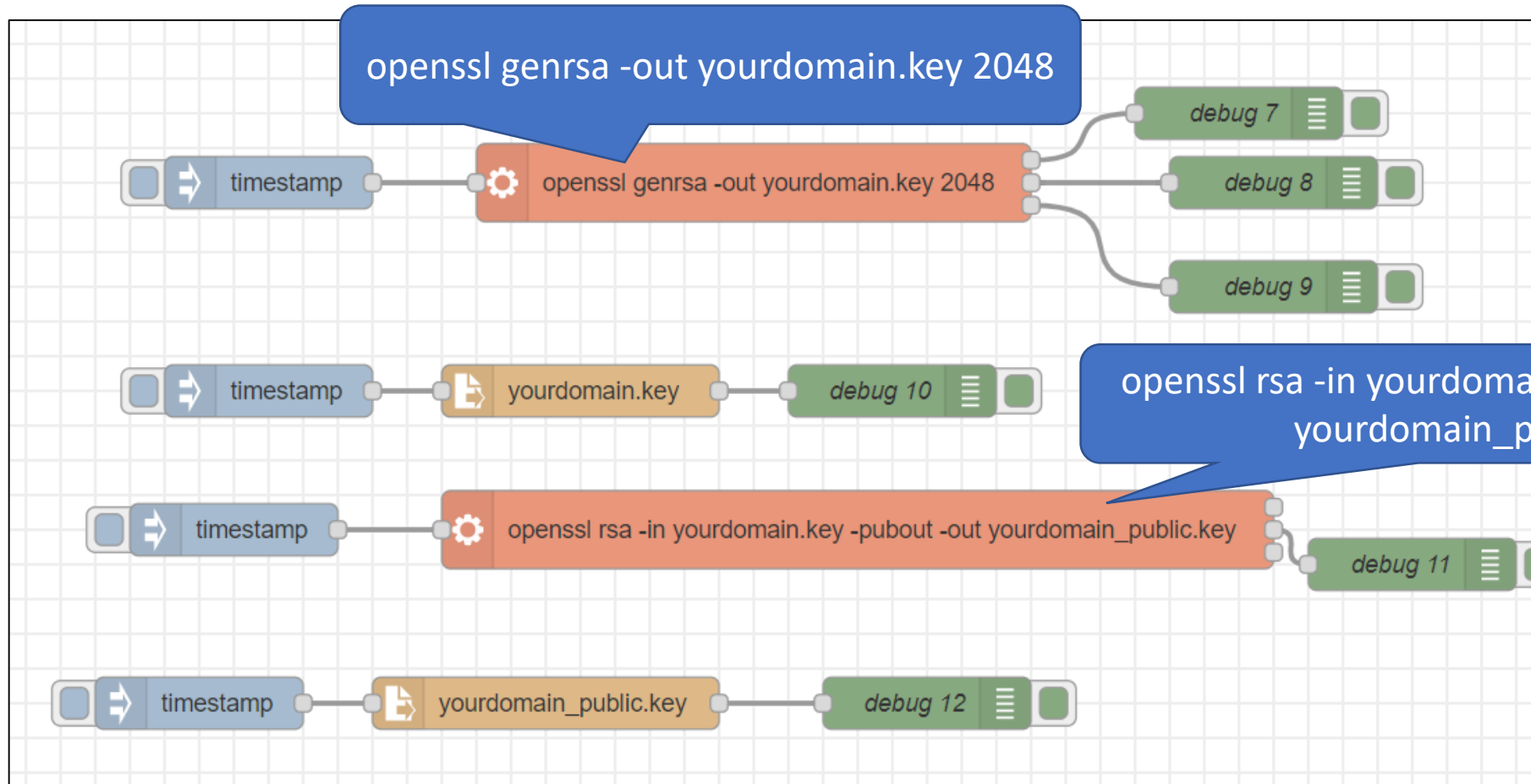
Exercise 13-4

- Generate a new pub/priv keypair

```
openssl genrsa -out yourdomain.key 2048
```

```
openssl rsa -in yourdomain.key -pubout -out yourdomain_public.key
```

Node-RED flows



Debug

The workflow editor displays four parallel tasks:

- Task 1: `timestamp` → `openssl genrsa -out yourdomain.key 2048` → `debug 7`, `debug 8`, `debug 9`
- Task 2: `timestamp` → `yourdomain.key` → `debug 10`
- Task 3: `timestamp` → `openssl rsa -in yourdomain.key -pubout -out yourdomain_public.key` → `debug 11`
- Task 4: `timestamp` → `yourdomain_public.key` → `debug 12`

The right panel shows the output of `debug 11`:

```
10/21/2022, 11:33:57 PM node: debug 11
msg.payload : string[16]
▶ "writing RSA key"

10/21/2022, 11:35:00 PM node: debug 12
msg.payload : string[451]
▶ "-----BEGIN PUBLIC KEY-----
MIIEowIBAAKCAQEASrcRl+pLbwRLyIPCWdcW3djWP9Dcd7L2nalyB
PhrZfhIyQ+Y+HlwK15KjyIvRgog0sKOYA7ImLN4NQ9uqFjsyd9eQLt
nK8SVGwm+QhJWu3DZzEXApWwPvKdfbrKJjFEAgUfdMJ0m6UwceM5Q
7iLFYHuvGqn9kBS4k5NcPi9YLaKUcuGhV+nGUZipNcoJROvkdiJa94
Eu6/QwfRgYIS8HYI2/+baGAP5eQ4pxBHGereXHNCH8Q1+zoMtmsArW
DTnze7OUrFTD2nYmzt3BJKX3302P60FzQDcp0EnNxCqiqhi181Z9au
5+u3m2fm0TnCPckbN3hDnTPeDfePpLolzv20gyoQIDAQABoIBAFz8
v/yIk+qkwp6I+bfFa1WDQF5yRfW/ZqjPcyih/yt+abUUqoHfLwLfEsy
xJT0BfyKbpf1S74KGBAHuv+Fzhq14axvQ0E/sR+j4J3oLpW/KkIOQ
vgNuow+ajVtVY5BNHunpgqoefmxBAeuE91+mSEbZ+HeiW3Cd1+YH4q
UG1Hy7Ro5XhVXcXDg674idKJxbGvDXWnod+WAIvSbst4+MOu1AgHt
Hc1iEbaBTBEXds7nPRJ0EW+B1C1SHCWAt+kI0P00r0q/W3tyh6fhq
gS+Mzb3FSho7BK1Ruh1SSWZqt578ni9emGtneARm4gYwWMDp9xUG2Z
ccVrV1sP/OG2R+Ha/1FqECgYEA9dou5mIH7N7XGSKIAe0hbB9k+4RK
hZ169MAH3dzKG+zuEjKsDoS8+N32zmAJzIbQ1K6EuyQnYkn6Cmwxw6
UEbKg00JTukQrY7Jjv6jlgc7VRohFXZPVF/
+gxAzxZbDgKfTkeEUSqnLEoXdhHhYyoC1YXRJE+EJR8ZPeIKl0wHi
9UCgYEA8Dzw+AGiSM8FKv8ALxzYuFME1cBMNDC8kMhpcfQesfYvaHu
eqcEmJhKgT4FKaah..."
```