App Inventor2 連接 Firebase資料庫 與聊天室製作

國立臺中教育大學 大學部人工智慧應用
數位系三年級

吳智鴻

教學網站：HTTP://120.108.221.55/PROFCHWU/DCTEC
FB社團： 106 數位系人工智慧
APP INVENTOR PROJECT: FIREBASE_CHATROOM

Firebase資料庫簡介

成立

- 2011/9月， 2014年被google買下。

免費方案

同時100個連線

1GB容量

10GB流量限制

可以與很多程式連結使用

ex. App Inventor2, Webduino, python, …..

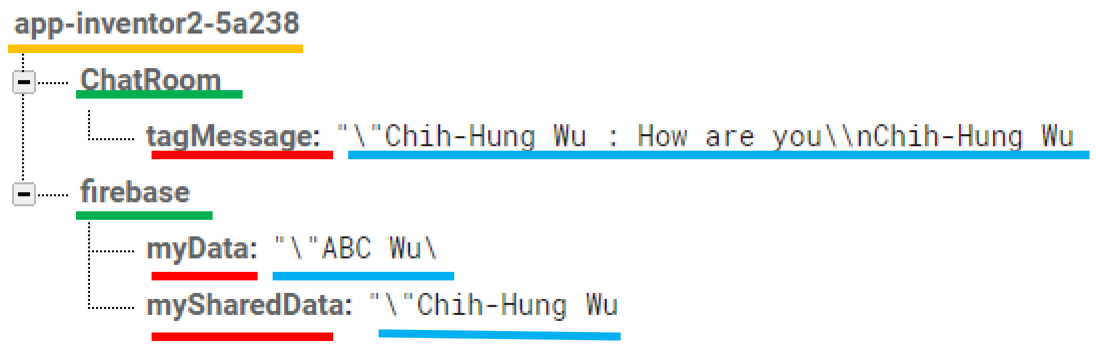
Firebase的儲存資料方式

FIREBASE的資料長這樣

他是以TAG方式來儲存資料。

屬於NOSQL資料庫。

非傳統關連式資料庫。



```
app-inventor2-5a238
 ⊟ ChatRoom
    └ tagMessage: "\"Chih-Hung Wu  : How are you\\nChih-Hung Wu
 ⊟ firebase
    ├ myData: "\"ABC Wu\
    └ mySharedData: "\"Chih-Hung Wu
```

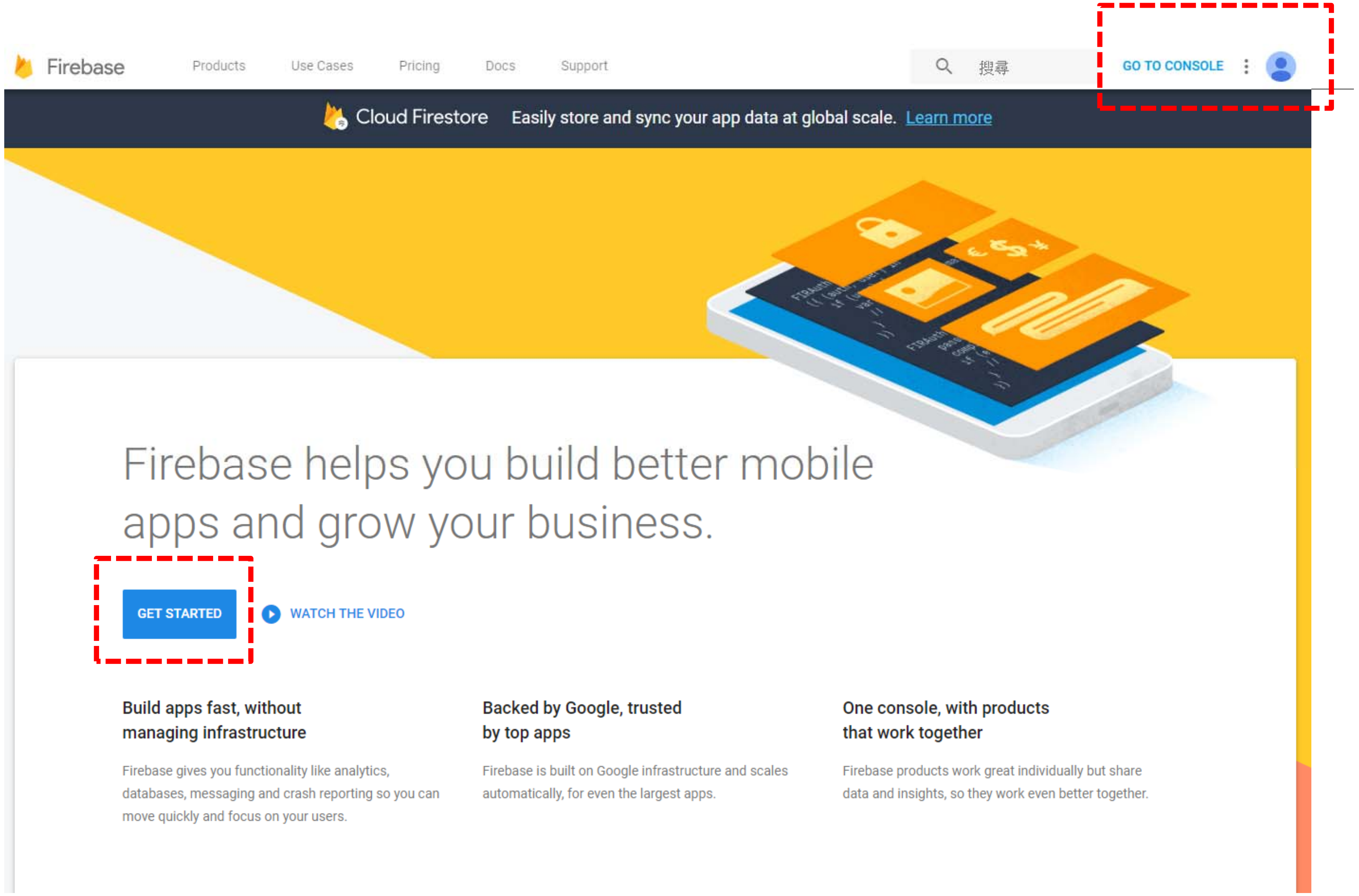
TAG就像是關連式資料庫的主鍵key。利用TAG名稱來辨識出每一筆資料。

「紅色線條」部分就是TAG名稱

「藍色線條」部分是資料內容

「綠色線條」部分是ProjectBucket的名稱。「橘色」的是專案名稱。

Step 1. Login
https://firebase.google.com/



Easily store and sync your app data at global scale. Learn more

Firebase helps you build better mobile apps and grow your business.

Build apps fast, without managing infrastructure

Firebase gives you functionality like analytics, databases, messaging and crash reporting so you can move quickly and focus on your users.

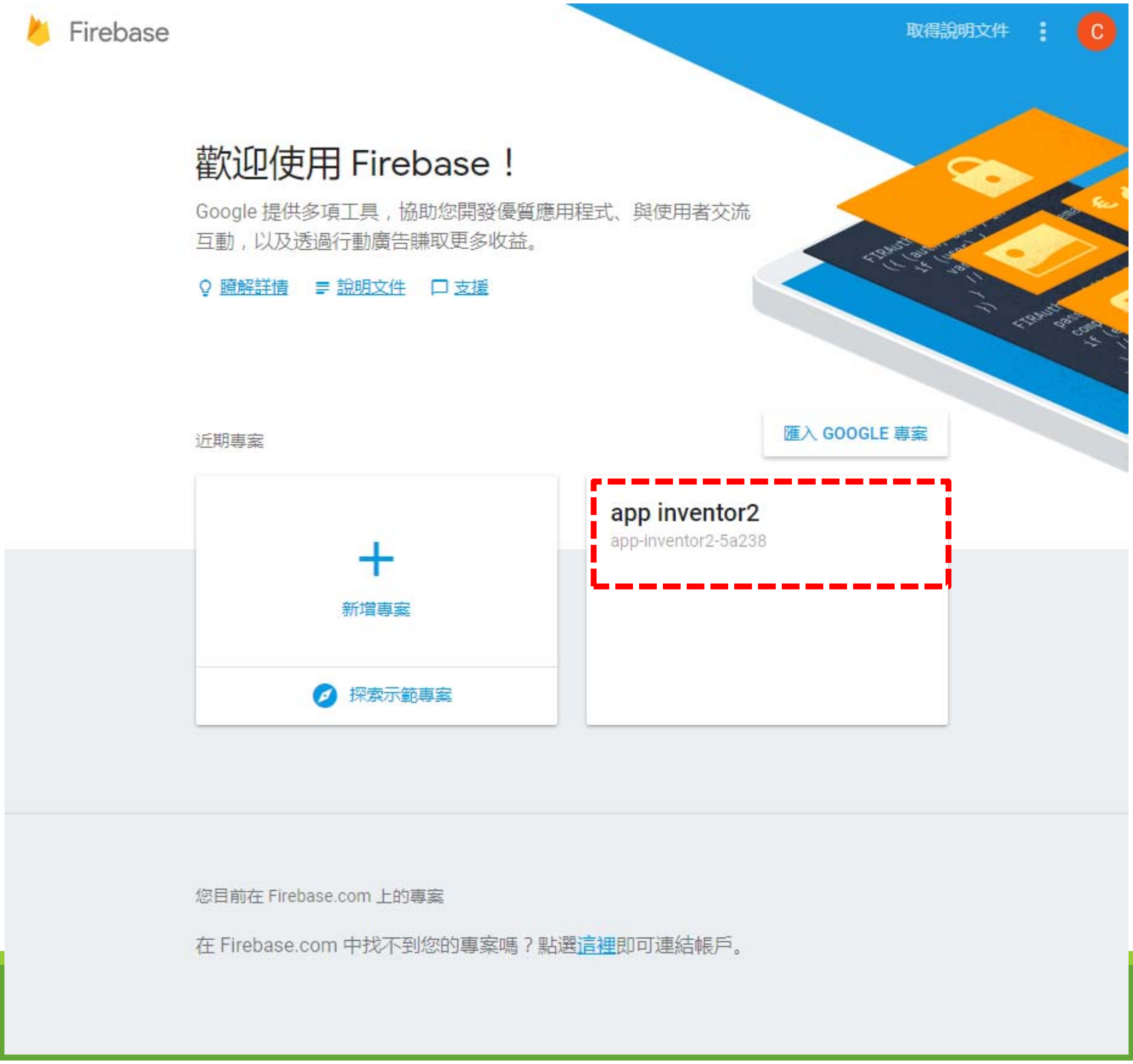
Backed by Google, trusted by top apps

Firebase is built on Google infrastructure and scales automatically, for even the largest apps.

One console, with products that work together

Firebase products work great individually but share data and insights, so they work even better together.

Step #2 新增專案



歡迎使用 Firebase！

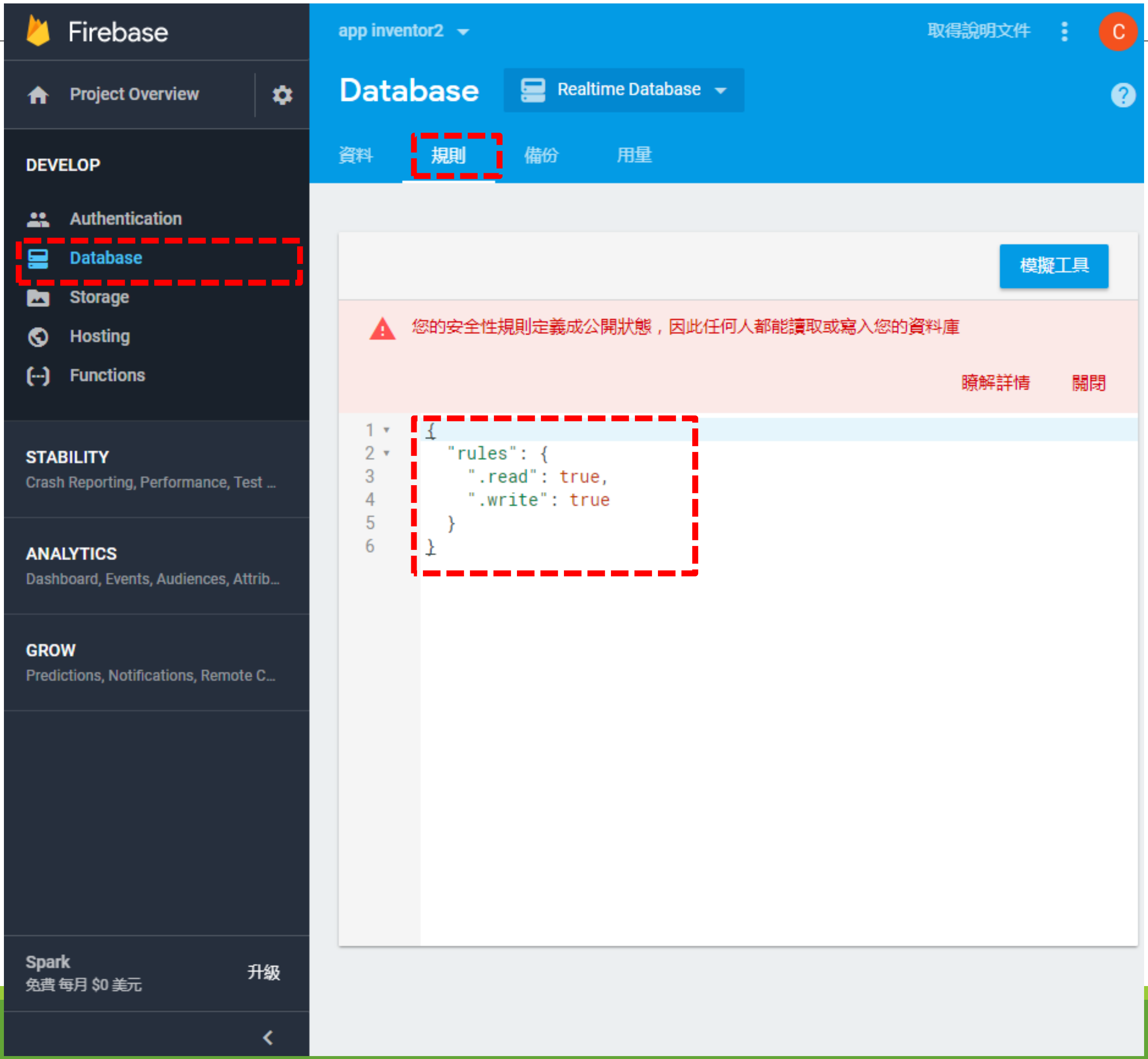
Google 提供多項工具，協助您開發優質應用程式、與使用者交流互動，以及透過行動廣告賺取更多收益。

app inventor2
app-inventor2-5a238

您目前在 Firebase.com 上的專案

在 Firebase.com 中找不到您的專案嗎？點選這裡即可連結帳戶。

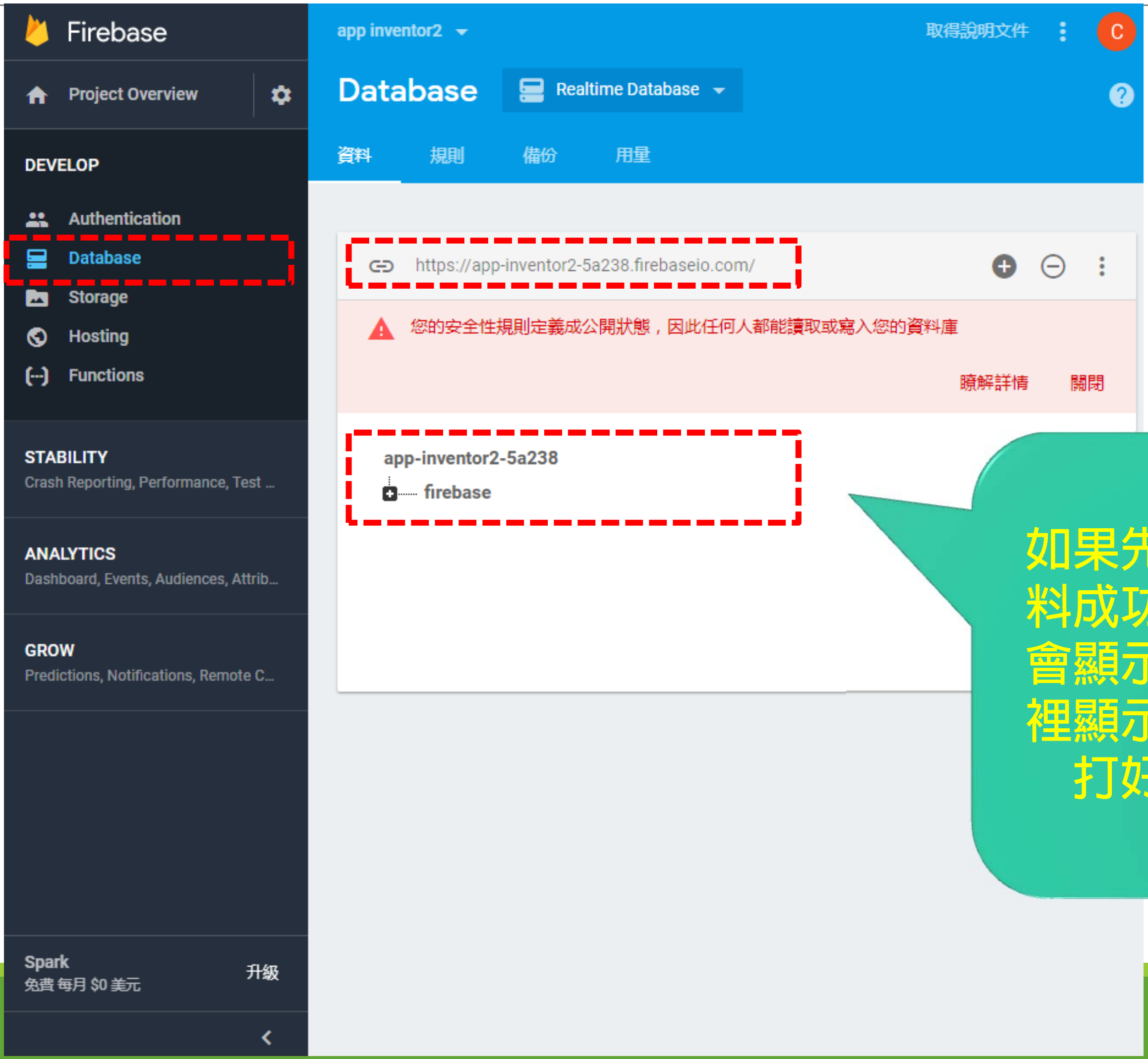
Step # 3
規則，設定為開放。將read, write都改為true



您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫

```
{
  "rules": {
    ".read": true,
    ".write": true
  }
}
```

Step #4 選擇Database
可以看到裡面的資料，以及連結此資料的網址



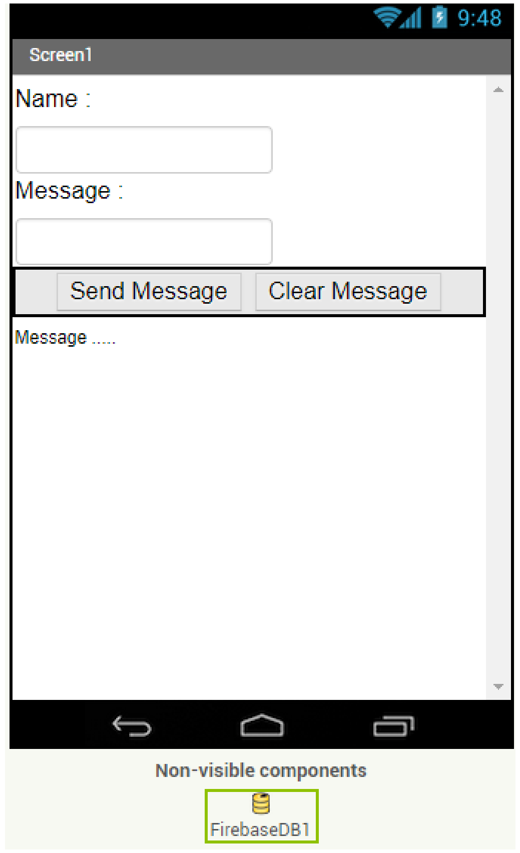
https://app-inventor2-5a238.firebaseio.com/

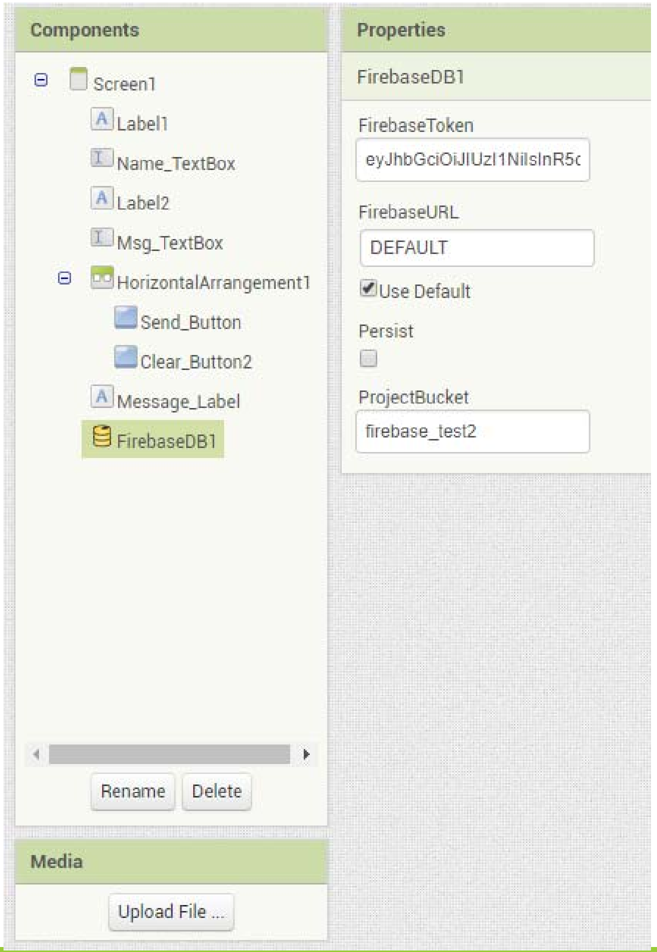
您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫

app-inventor2-5a238
firebase

如果先前有存過資料成功的話，資料會顯示在這邊。這裡顯示的預先自己打好的資料。

Step #5.
App Inventor 2 螢幕設計





FirebaseDB1

FirebaseToken: eyJhbGciOiJIUzI1NiIsInR5c

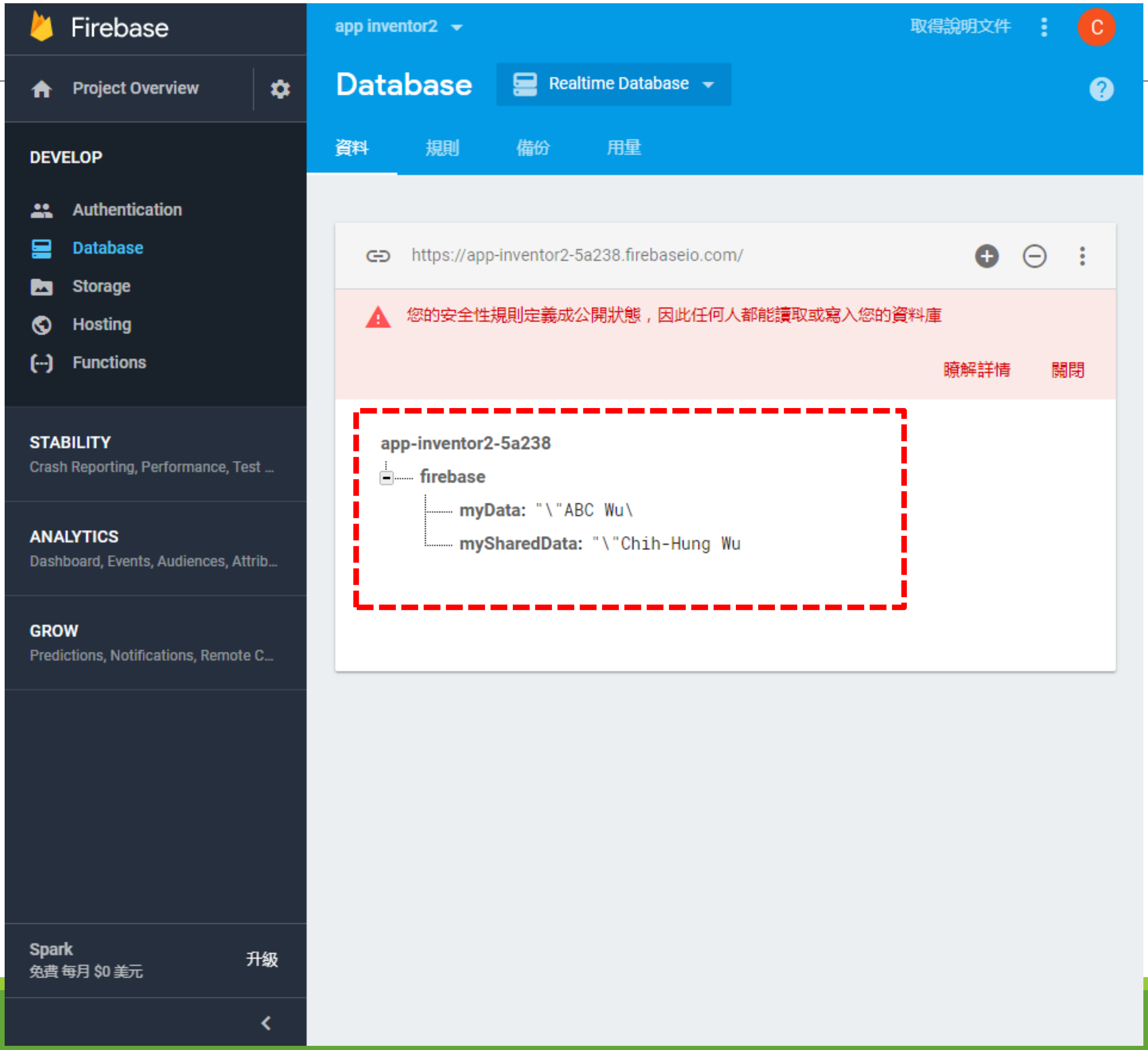
FirebaseURL: DEFAULT

[✓] Use Default

Persist: ☐

ProjectBucket: firebase_test2

Firebase的資料長這樣：先輸入這樣的資料

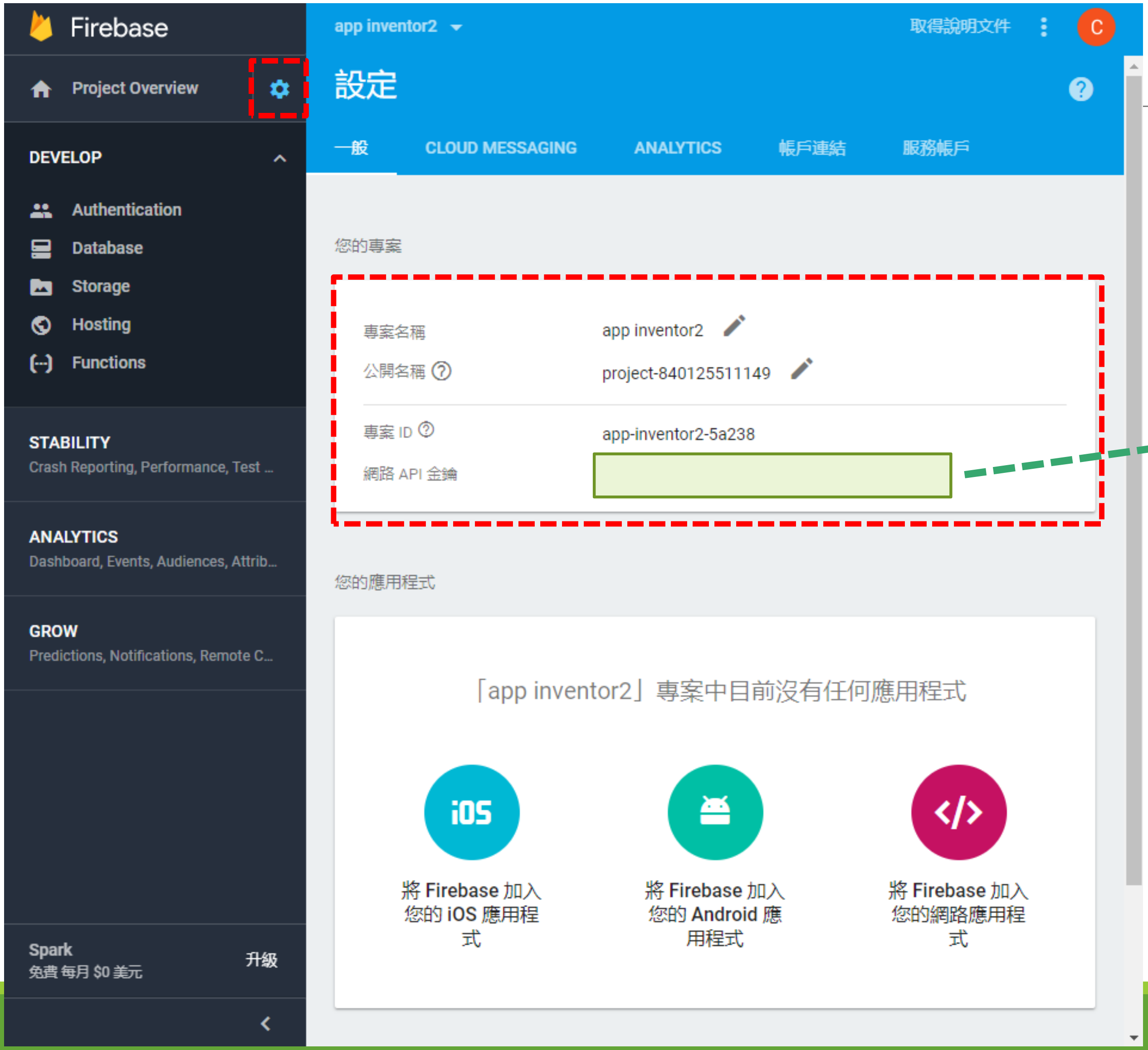


https://app-inventor2-5a238.firebaseio.com/

您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫

```
app-inventor2-5a238
 firebase
   myData: "\"ABC Wu\
   mySharedData: "\"Chih-Hung Wu
```

Step #6. 設定那邊可以找到必要的資訊，並輸入App Inventor2



Firebase

app inventor2

取得說明文件

Project Overview

設定

一般 | CLOUD MESSAGING | ANALYTICS | 帳戶連結 | 服務帳戶

DEVELOP
- Authentication
- Database
- Storage
- Hosting
- Functions

STABILITY
Crash Reporting, Performance, Test ...

ANALYTICS
Dashboard, Events, Audiences, Attrib...

GROW
Predictions, Notifications, Remote C...

Spark
免費 每月 $0 美元
升級

您的專案

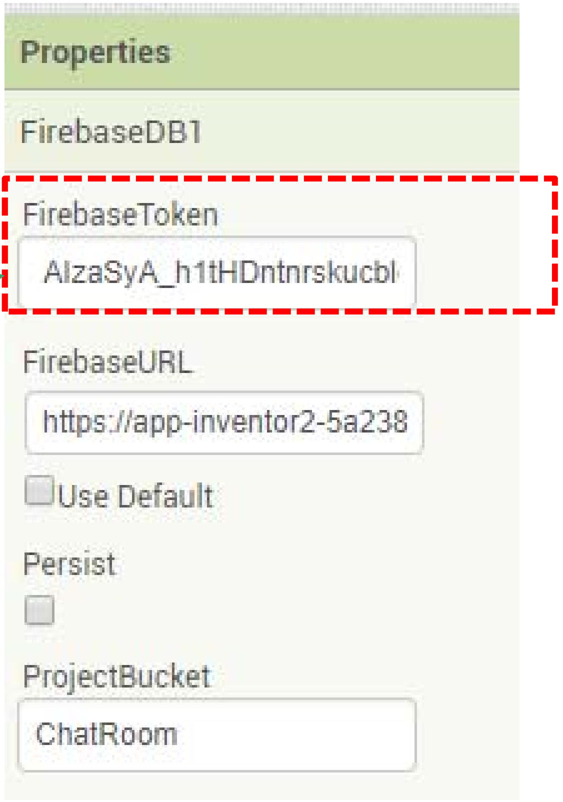
專案名稱	app inventor2
公開名稱	project-840125511149
專案 ID	app-inventor2-5a238
網路 API 金鑰	

您的應用程式

「app inventor2」專案中目前沒有任何應用程式

將 Firebase 加入您的 iOS 應用程式
將 Firebase 加入您的 Android 應用程式
將 Firebase 加入您的網路應用程式

App Inventor 2
裡面的設定

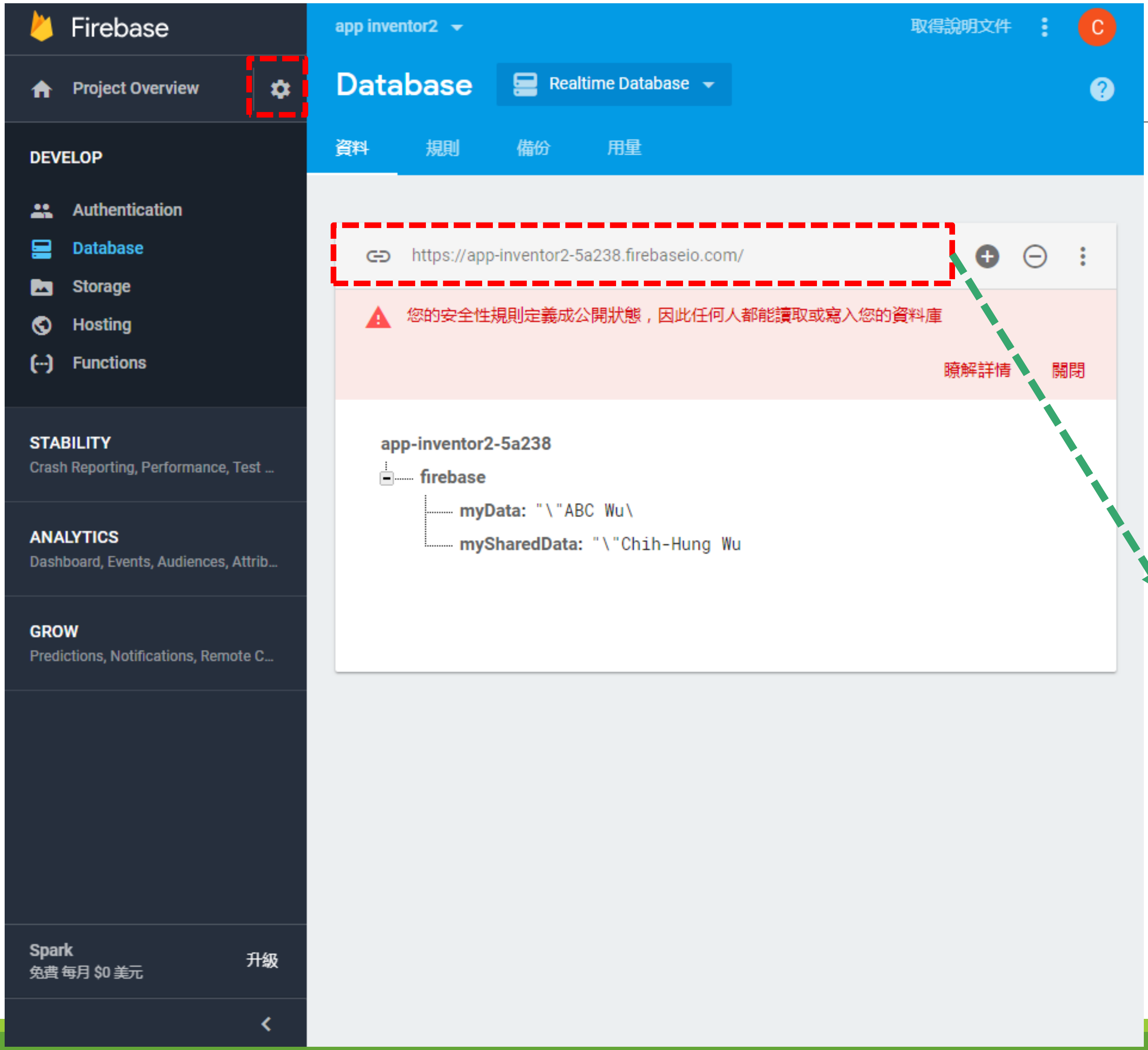


Properties

FirebaseDB1

FirebaseToken	AIzaSyA_h1tHDntnrskucbl
FirebaseURL	https://app-inventor2-5a238
Use Default	☐
Persist	☐
ProjectBucket	ChatRoom

Step #6. 設定那邊可以找到必要的資訊，並輸入App Inventor2

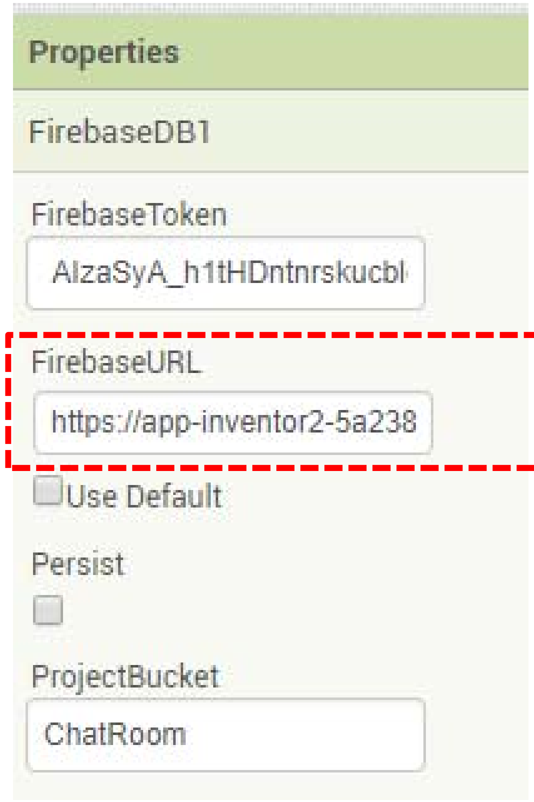


https://app-inventor2-5a238.firebaseio.com/

您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫

```
app-inventor2-5a238
firebase
    myData: "\"ABC Wu\
    mySharedData: "\"Chih-Hung Wu
```

App Inventor 2 裡面的設定



Properties

FirebaseDB1

FirebaseToken: AIzaSyA_h1tHDntnrskucbl

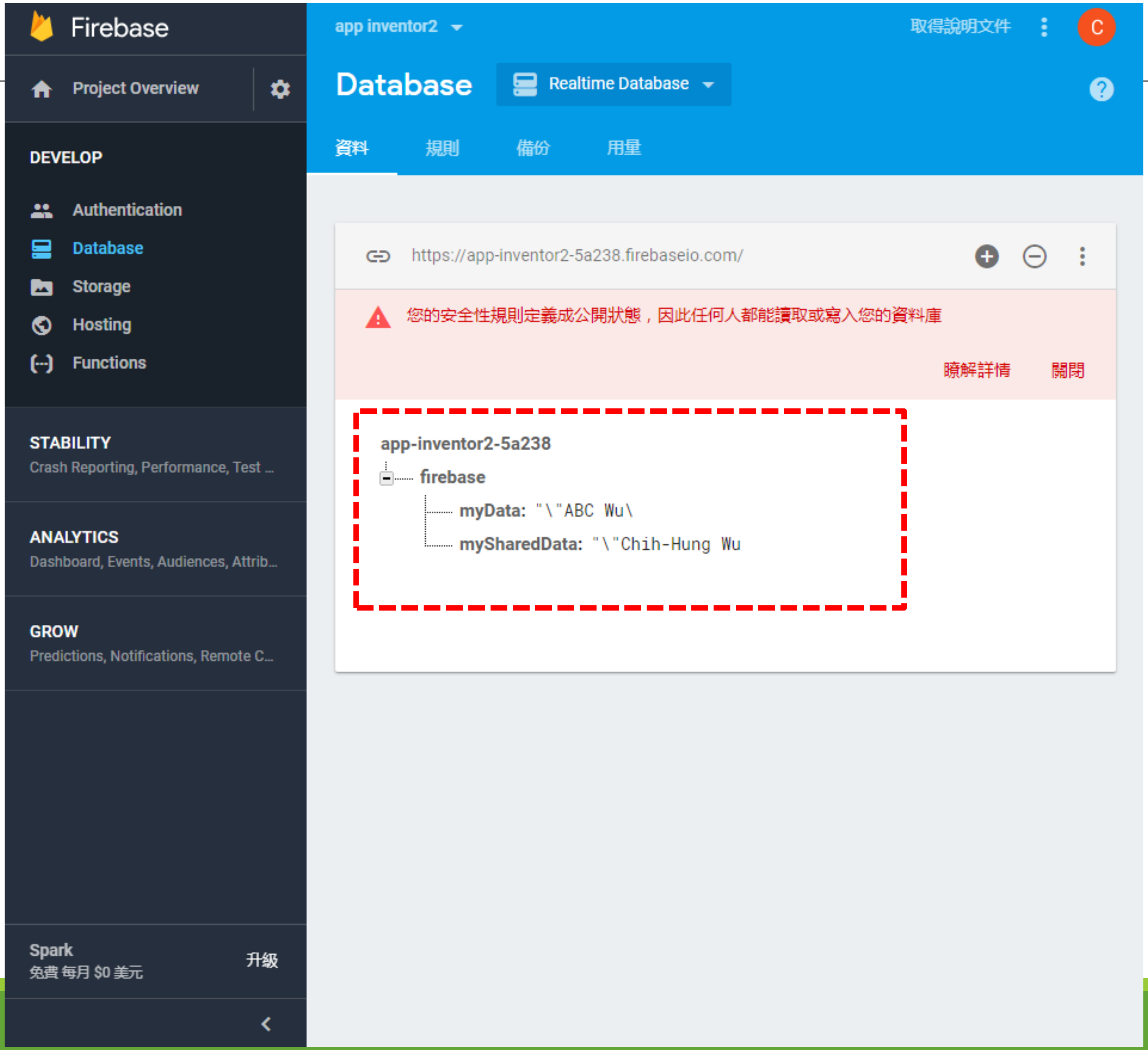
FirebaseURL: https://app-inventor2-5a238

☐ Use Default

Persist: ☐

ProjectBucket: ChatRoom

Firebase的資料長這樣：先輸入這樣的資料

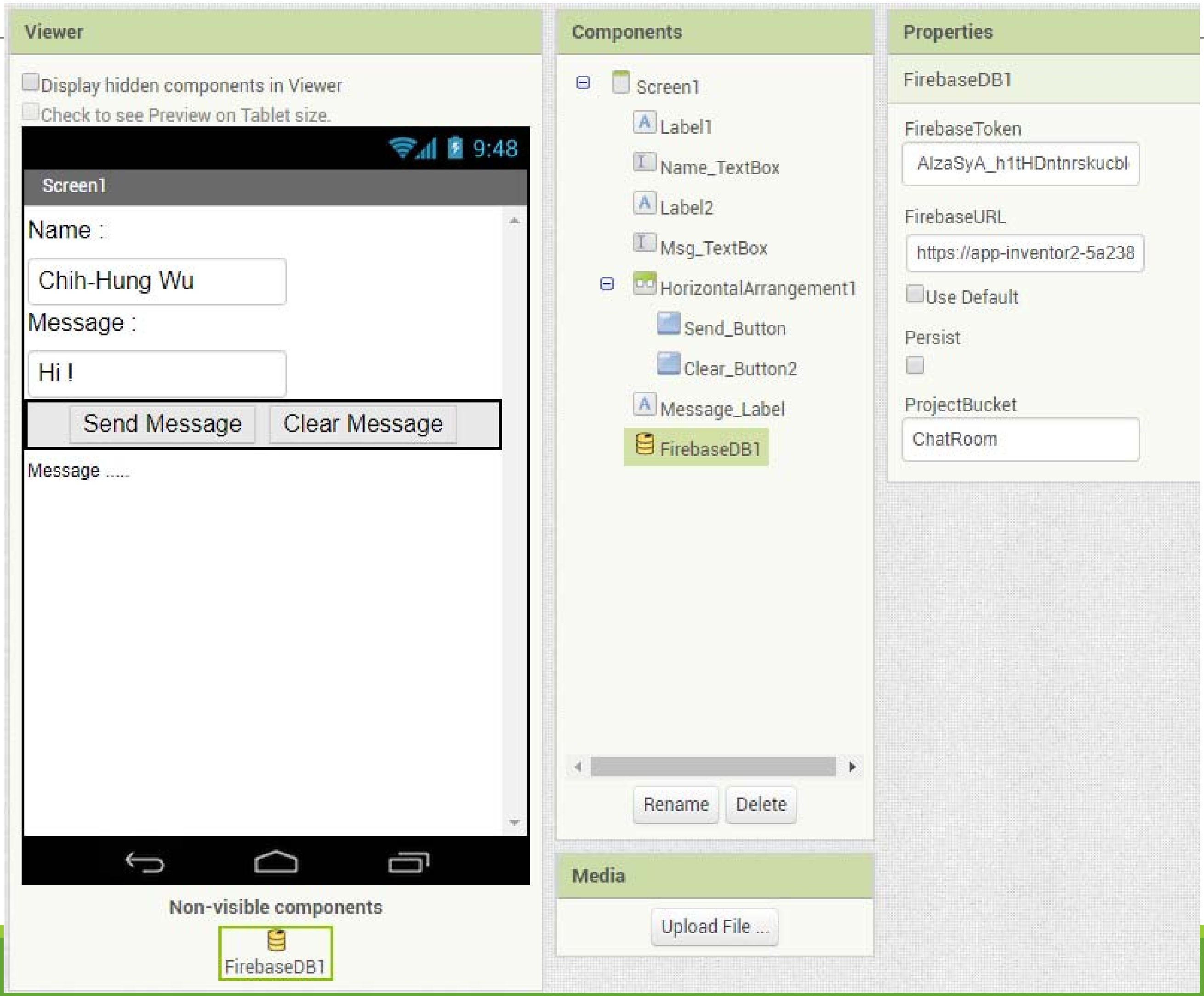


https://app-inventor2-5a238.firebaseio.com/

您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫

```
app-inventor2-5a238
 firebase
    myData: "\"ABC Wu\
    mySharedData: "\"Chih-Hung Wu
```

App Inventor 2的螢幕設計與Firebase元件的設定



Viewer

Display hidden components in Viewer

Check to see Preview on Tablet size.

Screen1

Name :

Chih-Hung Wu

Message :

Hi !

Send Message | Clear Message

Message .....

Non-visible components

FirebaseDB1

Components

- Screen1
  - Label1
  - Name_TextBox
  - Label2
  - Msg_TextBox
  - HorizontalArrangement1
    - Send_Button
    - Clear_Button2
  - Message_Label
  - FirebaseDB1

Rename | Delete

Media

Upload File ...

Properties

FirebaseDB1

FirebaseToken: AIzaSyA_h1tHDntnrskucbl

FirebaseURL: https://app-inventor2-5a238

Use Default: ☐

Persist: ☐

ProjectBucket: ChatRoom

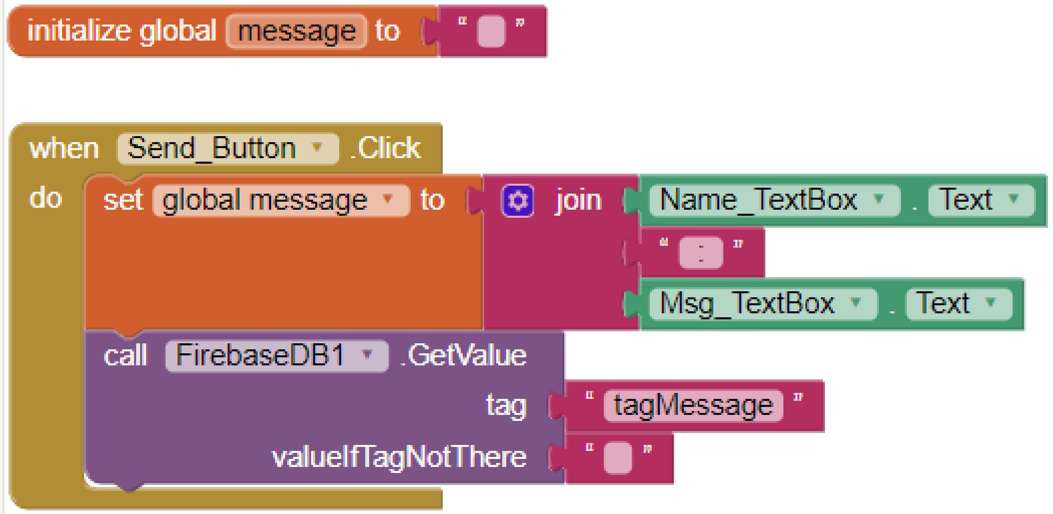
Prg#1 送出訊息的程式

送出按鈕時

把姓名與訊息合併成一個。

Ex. 吳智鴻： Hi

呼叫firebase，抓取tag名稱為「tagMessage」的資料



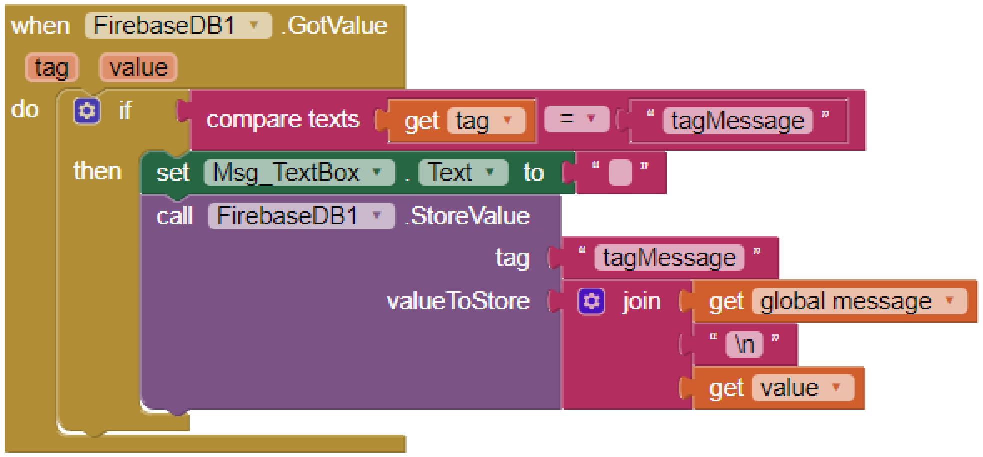
```
initialize global message to " "

when Send_Button .Click
do  set global message to join  Name_TextBox . Text
                                " : "
                                Msg_TextBox . Text
    call FirebaseDB1 .GetValue
                          tag  " tagMessage "
            valueIfTagNotThere " "
```

Prg#2 從firebase取得資料

當取得資料時

若資料tag名稱=tagMessage時

呼叫firebase，儲存資料，
將資料存入以tag名稱為
「tagMessage」的資料列中。



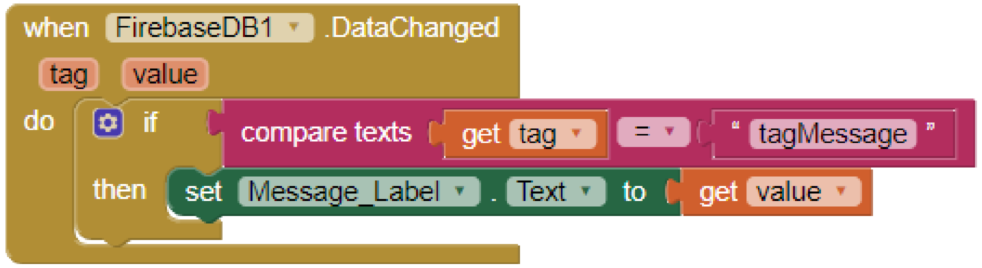
```
when FirebaseDB1 .GotValue
  tag  value
do  if  compare texts  get tag  =  " tagMessage "
    then  set Msg_TextBox . Text to " "
          call FirebaseDB1 .StoreValue
                          tag  " tagMessage "
                 valueToStore  join  get global message
                                     " \n "
                                     get value
```

Prg#3 從firebase取得資料

當資料庫資料有異動時

若資料tag名稱=tagMessage時

呼叫firebase，把抓出來的資料顯示在螢幕中。

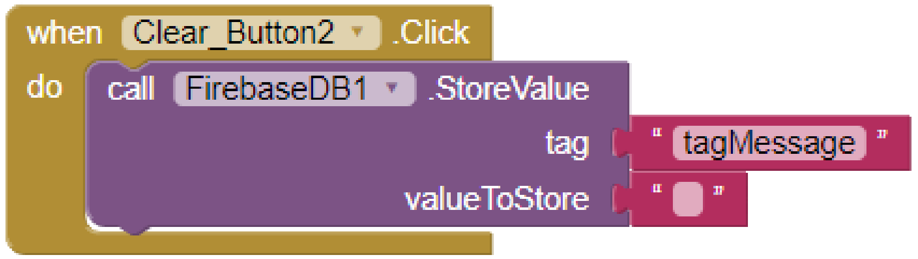


```
when FirebaseDB1 .DataChanged
  tag  value
do  if  compare texts  get tag  =  " tagMessage "
    then  set Message_Label . Text to  get value
```

Prg#4 從firebase清除資料

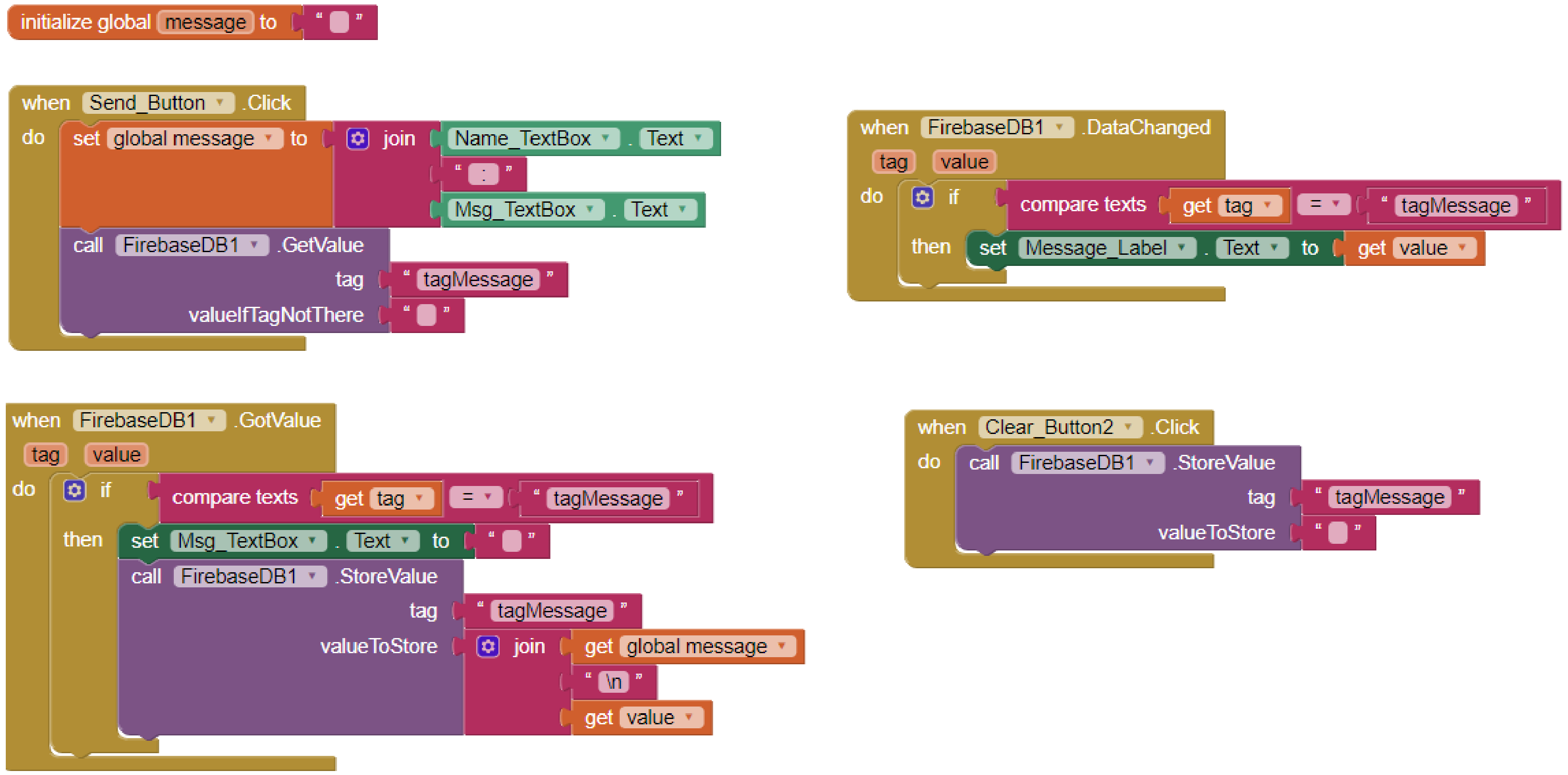
清除資料

呼叫firebase，把tag名稱=tagMessage的資料存入空白值。



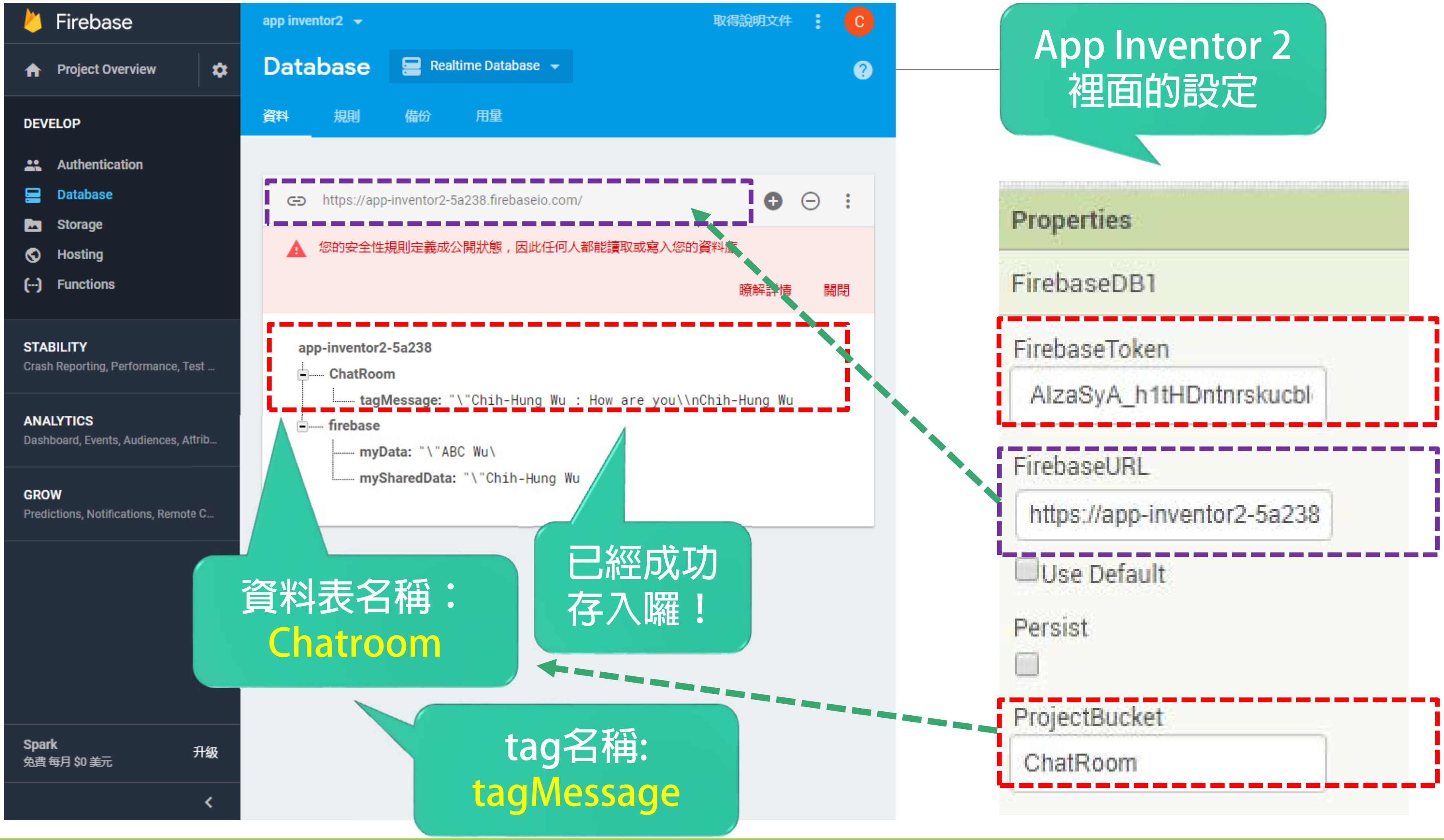
```
when Clear_Button2 .Click
do  call FirebaseDB1 .StoreValue
                      tag " tagMessage "
             valueToStore " "
```

Step 7. 輸入程式碼
全部的程式碼



```
initialize global message to " "

when Send_Button.Click
do  set global message to  join  Name_TextBox.Text
                                  " : "
                                  Msg_TextBox.Text
    call FirebaseDB1.GetValue
                     tag  " tagMessage "
         valueIfTagNotThere  " "

when FirebaseDB1.DataChanged
  tag  value
do  if  compare texts  get tag  =  " tagMessage "
    then  set Message_Label.Text to  get value

when FirebaseDB1.GotValue
  tag  value
do  if  compare texts  get tag  =  " tagMessage "
    then  set Msg_TextBox.Text to  " "
          call FirebaseDB1.StoreValue
                           tag  " tagMessage "
                  valueToStore  join  get global message
                                      " \n "
                                      get value

when Clear_Button2.Click
do  call FirebaseDB1.StoreValue
                     tag  " tagMessage "
            valueToStore  " "
```

Step #8.
在firebase檢視資料是否已經存入



https://app-inventor2-5a238.firebaseio.com/

您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫

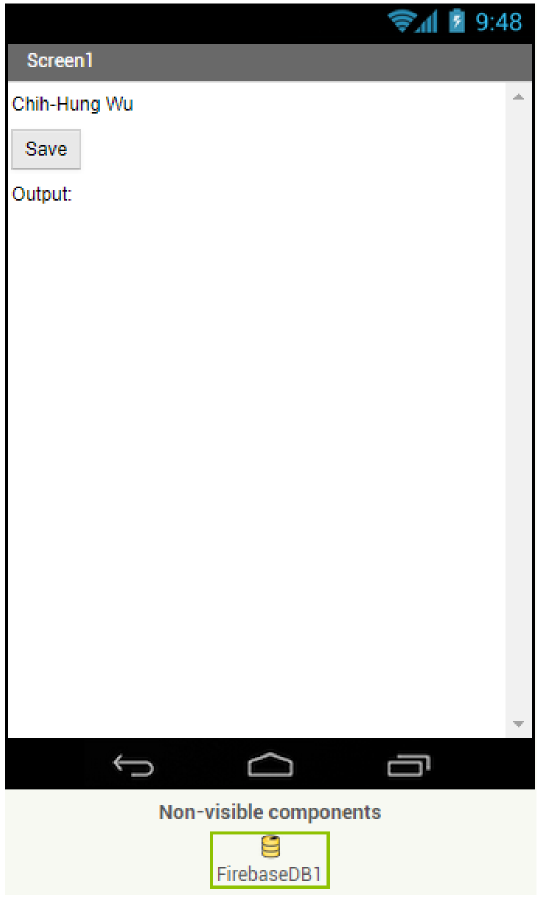
```
app-inventor2-5a238
  ChatRoom
    tagMessage: "\"Chih-Hung Wu : How are you\\nChih-Hung Wu
  firebase
    myData: "\"ABC Wu\
    mySharedData: "\"Chih-Hung Wu
```

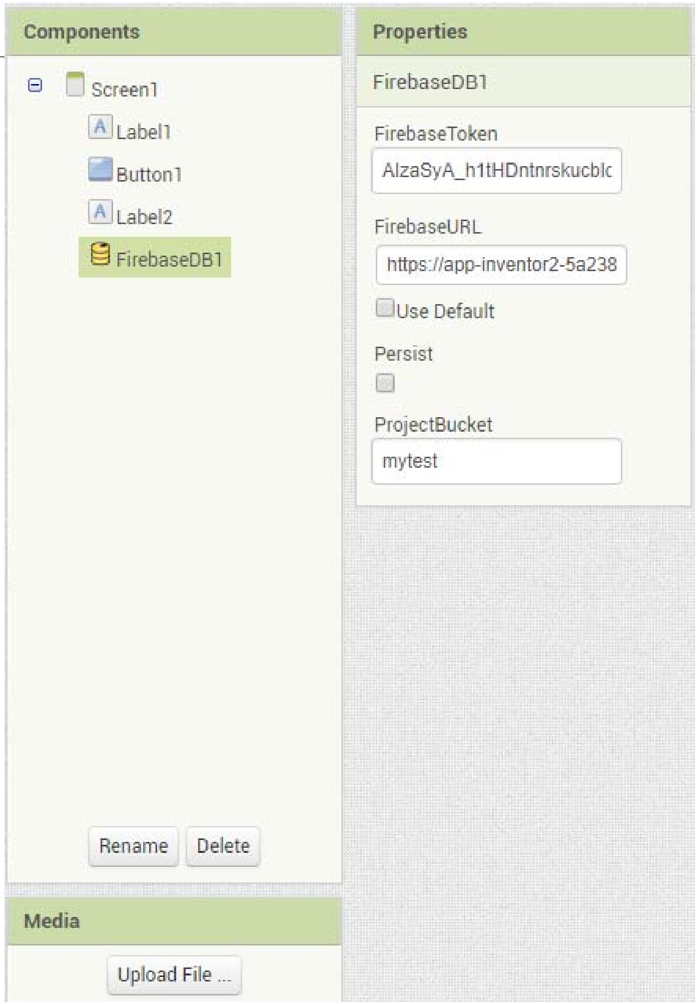
FirebaseDB1
FirebaseToken: AIzaSyA_h1tHDntnrskucbl
FirebaseURL: https://app-inventor2-5a238
Use Default
Persist
ProjectBucket: ChatRoom

雛形範例
先從最簡單的程式來開始

雛形範例：儲存固定資料，然後將資料從firebase取出並顯示

螢幕設計





FirebaseToken: AIzaSyA_h1tHDntnrskucblc

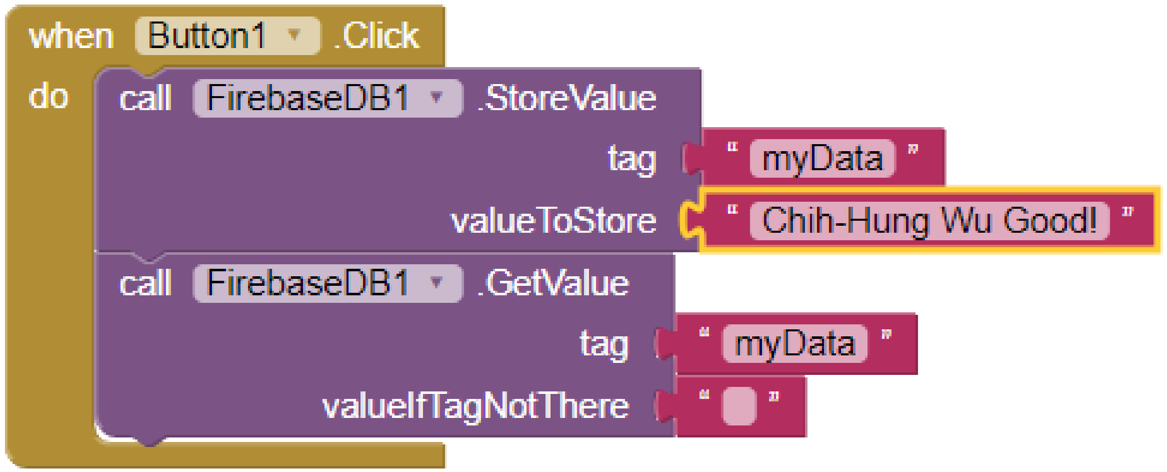
FirebaseURL: https://app-inventor2-5a238

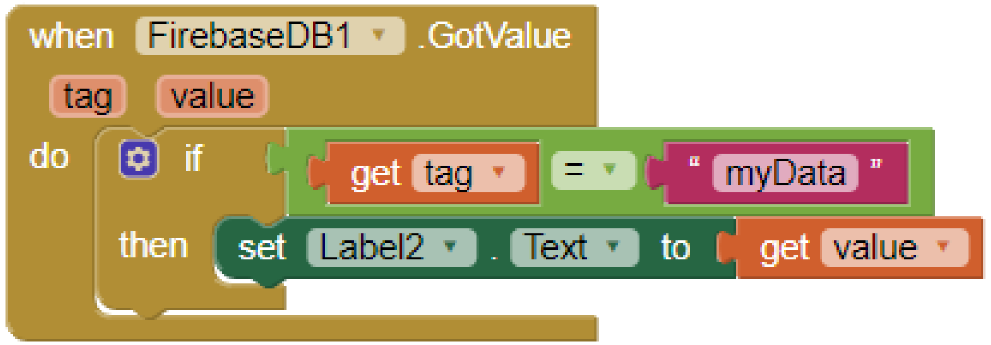
Use Default: ☐

Persist: ☐

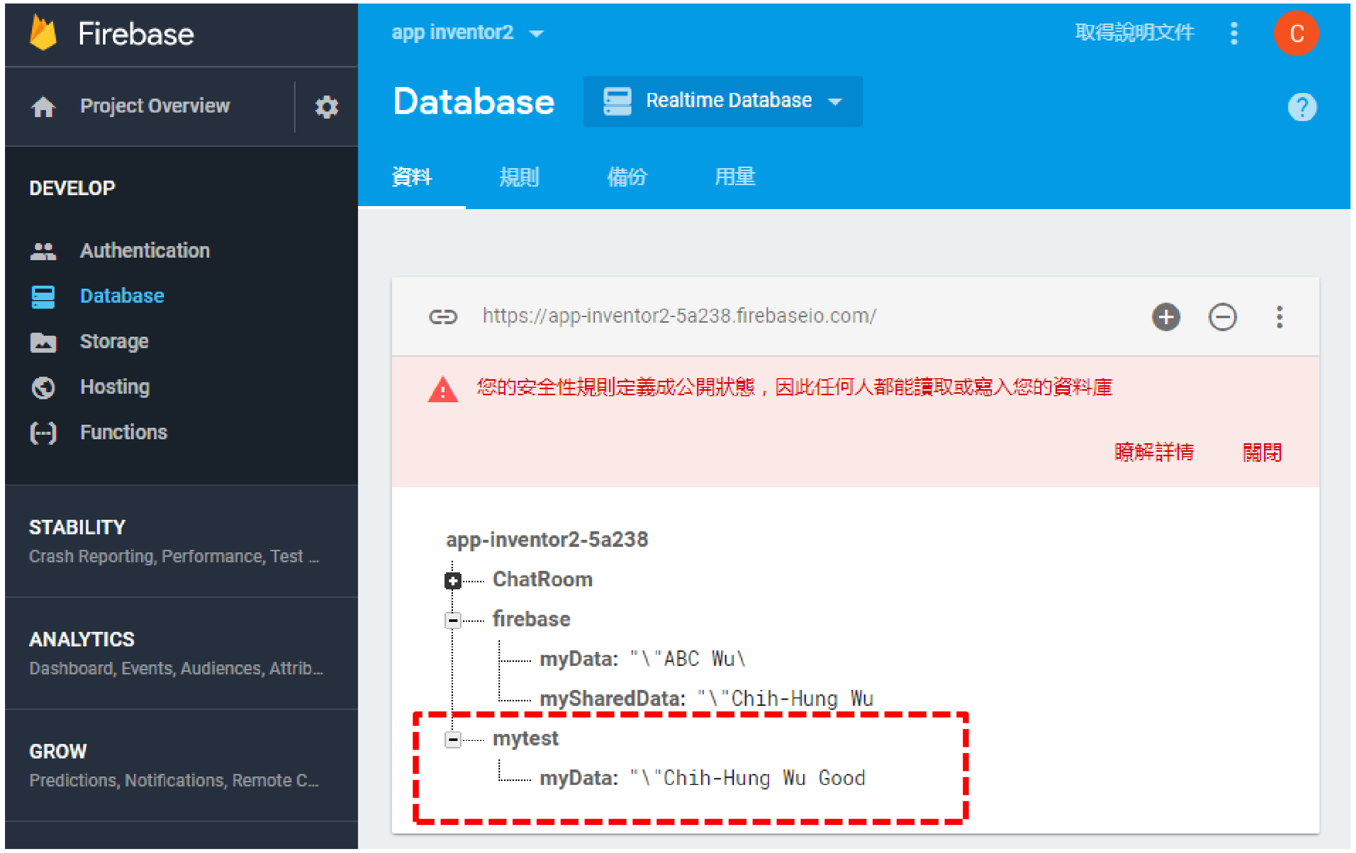
ProjectBucket: mytest

程式碼


```
when Button1 .Click
do  call FirebaseDB1 .StoreValue
                         tag  " myData "
                valueToStore  " Chih-Hung Wu Good! "
    call FirebaseDB1 .GetValue
                         tag  " myData "
           valueIfTagNotThere  "  "
```


```
when FirebaseDB1 .GotValue
 tag  value
do  if    get tag = " myData "
    then  set Label2 . Text to  get value
```

資料已經儲存至Firebase 資料表mytest，tag=myData

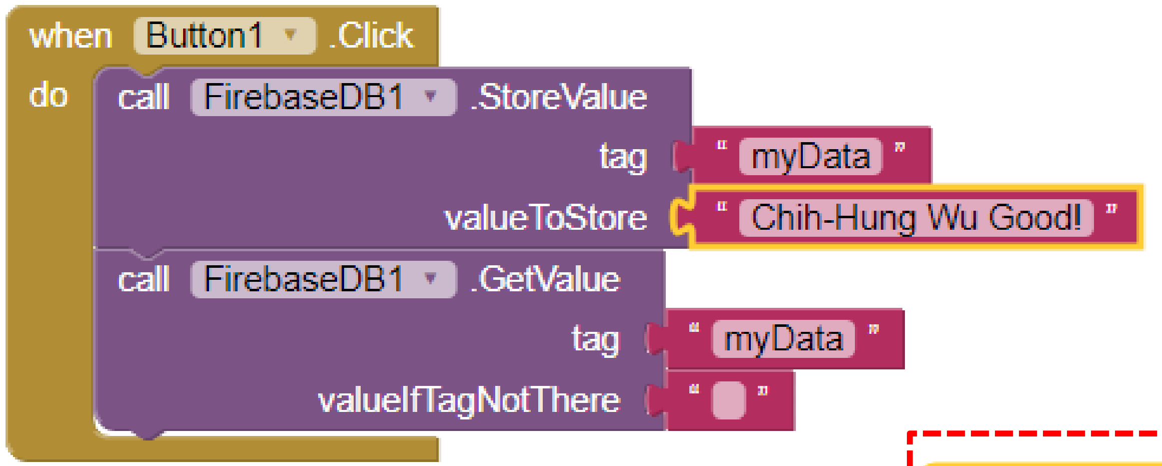


https://app-inventor2-5a238.firebaseio.com/

您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫

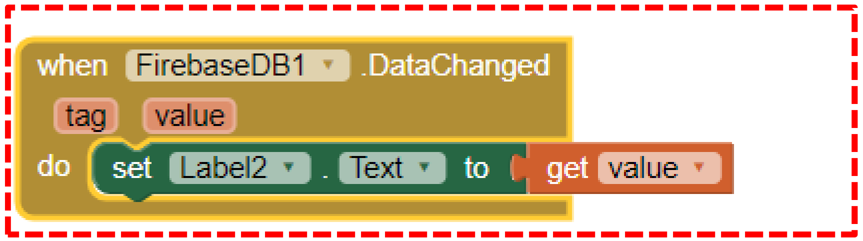
```
app-inventor2-5a238
+ ChatRoom
- firebase
    myData: "\"ABC Wu\
    mySharedData: "\"Chih-Hung Wu
- mytest
    myData: "\"Chih-Hung Wu Good
```

也可以用這個函數

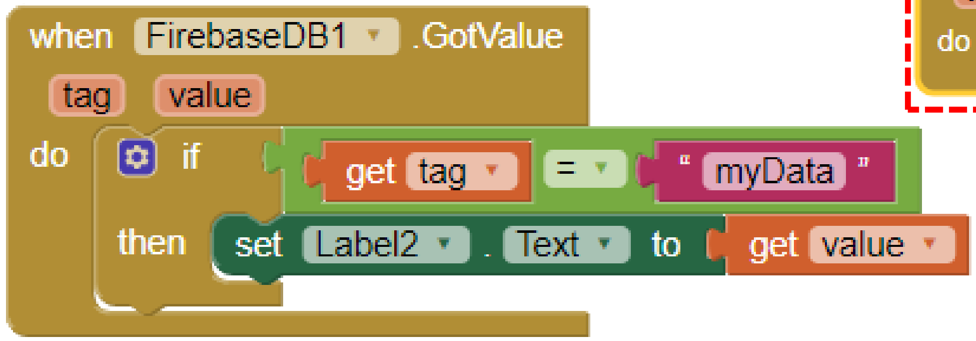


```
when Button1 .Click
do  call FirebaseDB1 .StoreValue
                     tag " myData "
            valueToStore " Chih-Hung Wu Good! "
    call FirebaseDB1 .GetValue
                     tag " myData "
       valueIfTagNotThere " "
```

當偵測到資料有
改變時，執行



```
when FirebaseDB1 .DataChanged
  tag  value
do  set Label2 . Text to  get value
```



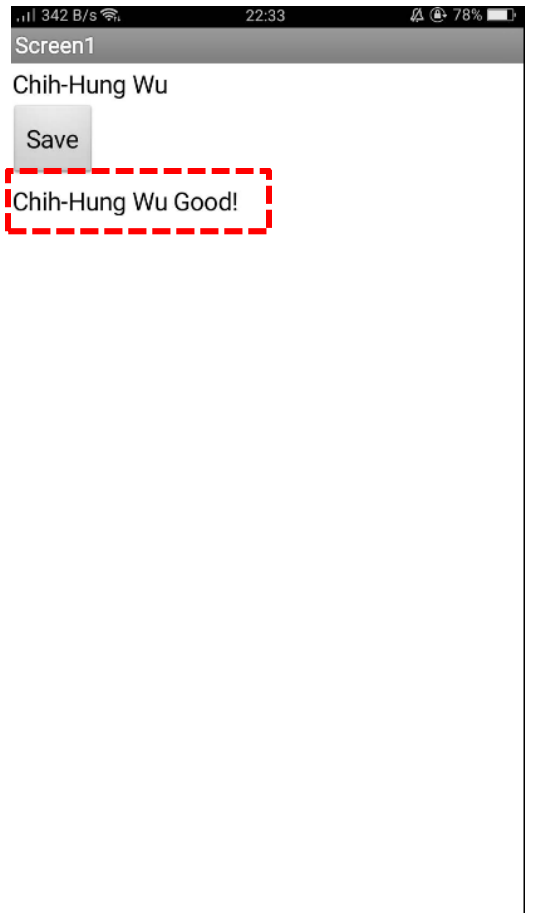
```
when FirebaseDB1 .GotValue
  tag  value
do  if    get tag = " myData "
    then  set Label2 . Text to  get value
```

執行結果

按下Save按鈕後，

程式寫入Chih-Hung Wu Good至firebase。

然後讀取firebase中的資料，並顯示在螢幕上。

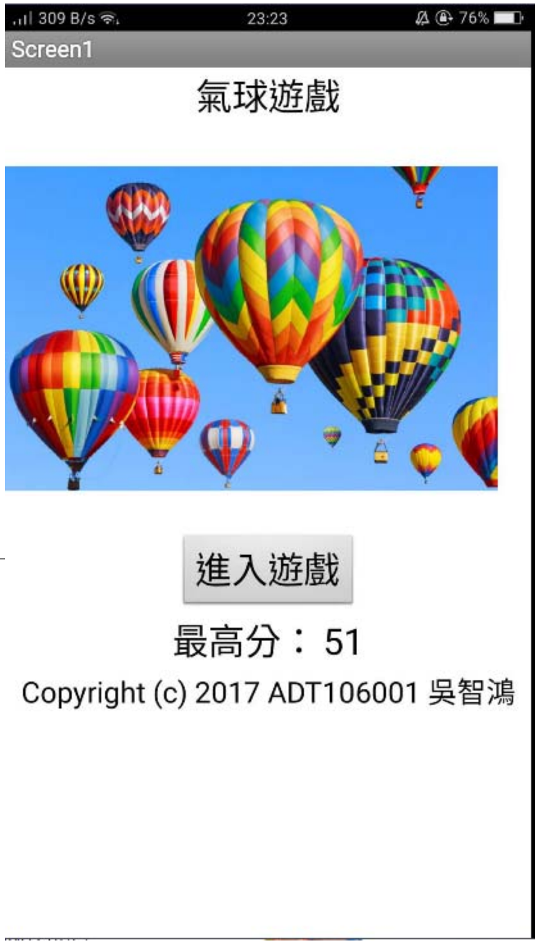


Chih-Hung Wu Good!

期中作品
思考一下，如何將這個功能結合在水平儀遊戲呢？

將最高分數儲存在FIREBASE中

專案名稱：BALLOON_DATABASE_OK



考慮重點

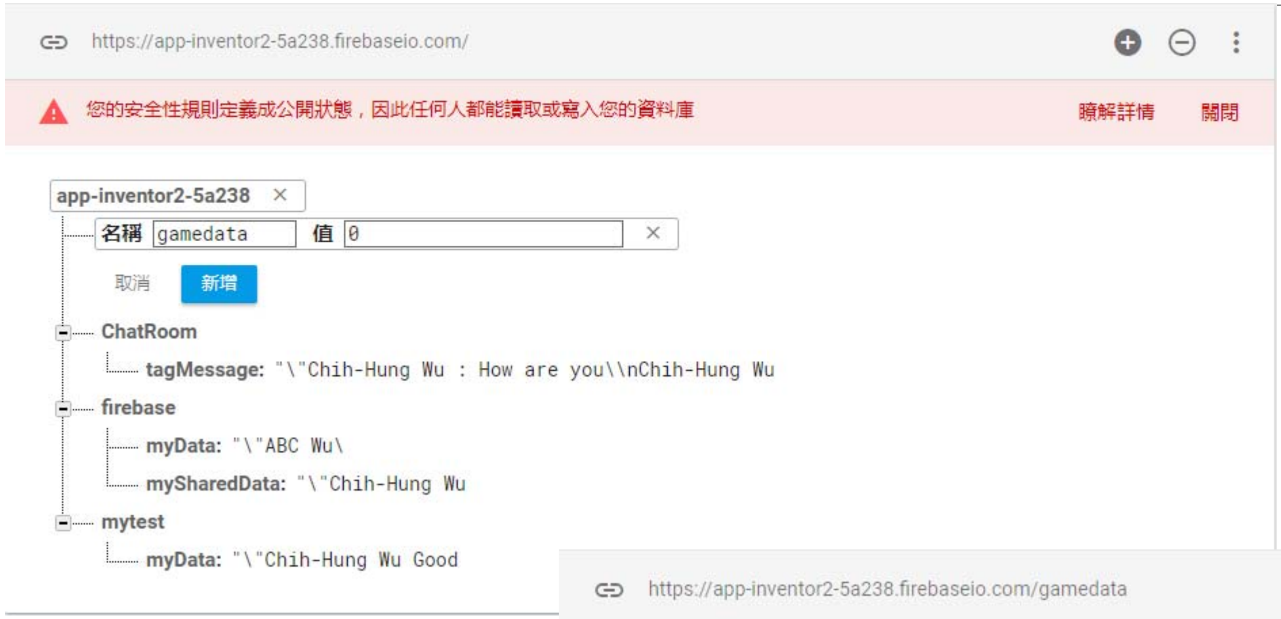
將分數從firebase取出

若目前分數 > firebase裡面的分數，則寫入新的最高分數

自己想一下要
怎麼做呢？

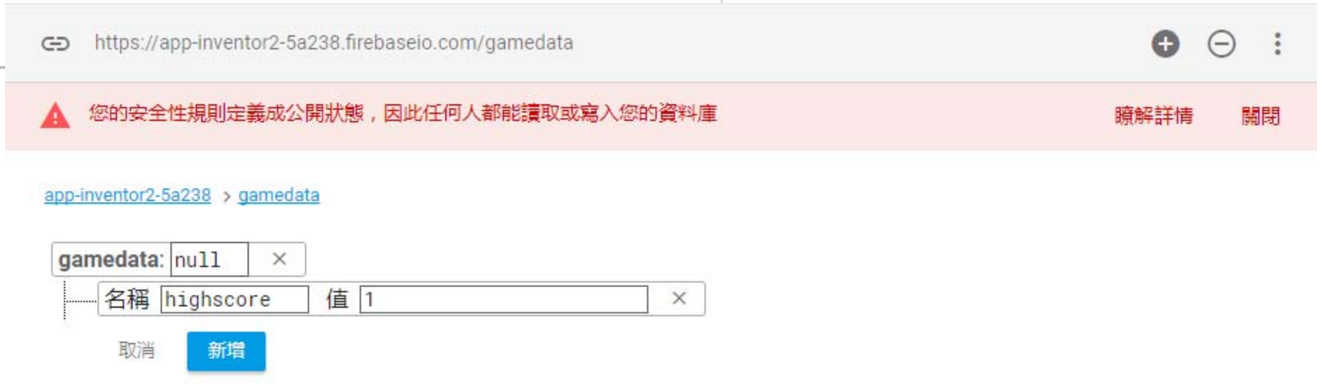
盡量不要先往下看，先自己做做看吧！

先在firebase新增資料如下，避免第一次玩沒有資料


https://app-inventor2-5a238.firebaseio.com/

您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫　瞭解詳情　關閉

app-inventor2-5a238
- 名稱 gamedata　值 0
- 取消　新增
- ChatRoom
  - tagMessage: "\"Chih-Hung Wu : How are you\\nChih-Hung Wu
- firebase
  - myData: "\"ABC Wu\
  - mySharedData: "\"Chih-Hung Wu
- mytest
  - myData: "\"Chih-Hung Wu Good

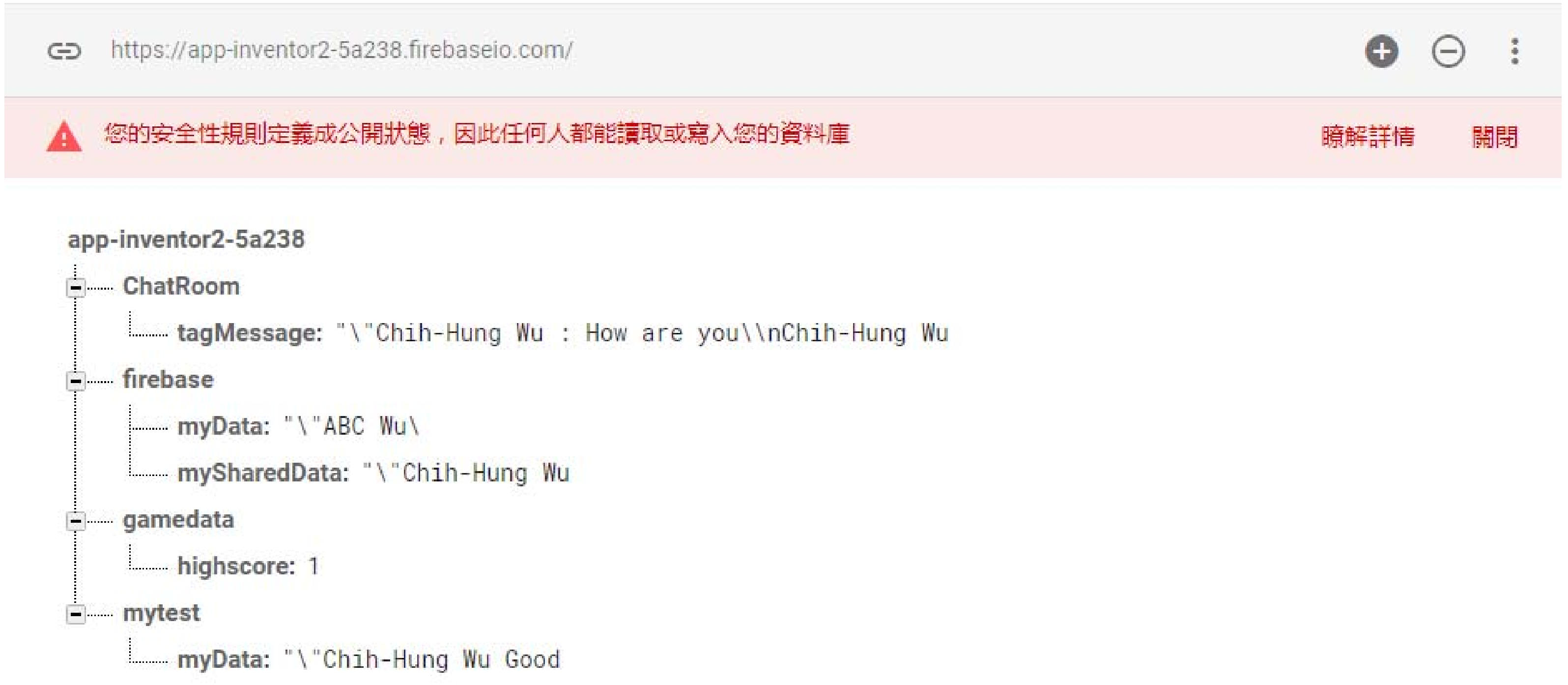

https://app-inventor2-5a238.firebaseio.com/gamedata

您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫　瞭解詳情　關閉

app-inventor2-5a238 > gamedata

gamedata: null
- 名稱 highscore　值 1
- 取消　新增

完成後資料會像這樣



https://app-inventor2-5a238.firebaseio.com/

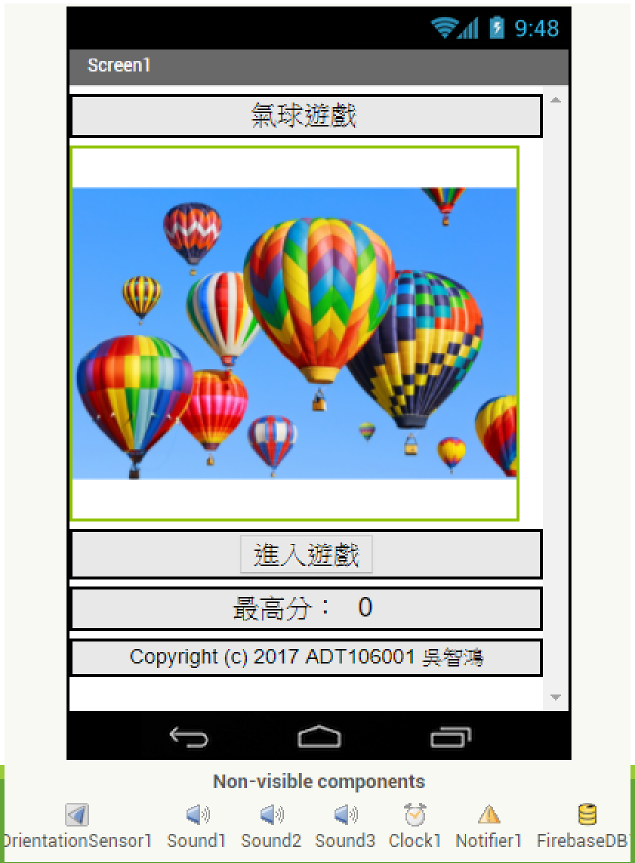
您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫 瞭解詳情 關閉

```
app-inventor2-5a238
├── ChatRoom
│   └── tagMessage: "\"Chih-Hung Wu : How are you\\nChih-Hung Wu
├── firebase
│   ├── myData: "\"ABC Wu\
│   └── mySharedData: "\"Chih-Hung Wu
├── gamedata
│   └── highscore: 1
└── mytest
    └── myData: "\"Chih-Hung Wu Good
```

螢幕與元件屬性

螢幕設計

加入firebase元件



9:48

Screen1

氣球遊戲

進入遊戲

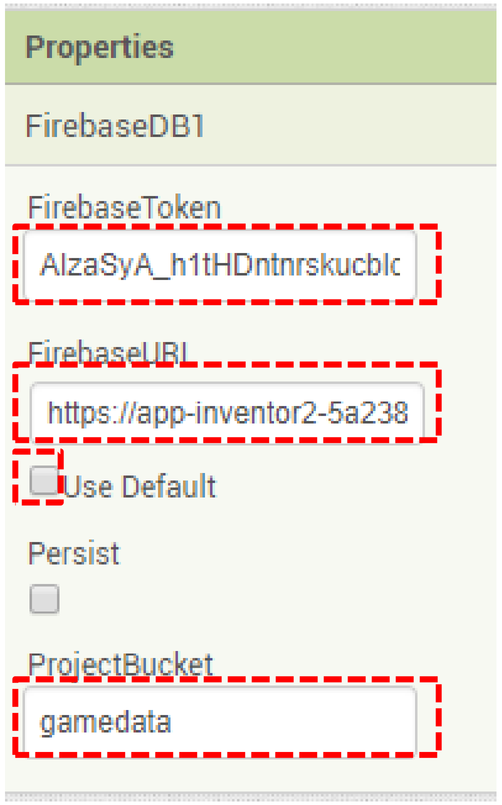
最高分： 0

Copyright (c) 2017 ADT106001 吳智鴻

Non-visible components

OrientationSensor1 Sound1 Sound2 Sound3 Clock1 Notifier1 FirebaseDB

修改這些地方



Properties

FirebaseDB1

FirebaseToken

AIzaSyA_h1tHDntnrskucblc

FirebaseURL

https://app-inventor2-5a238

Use Default

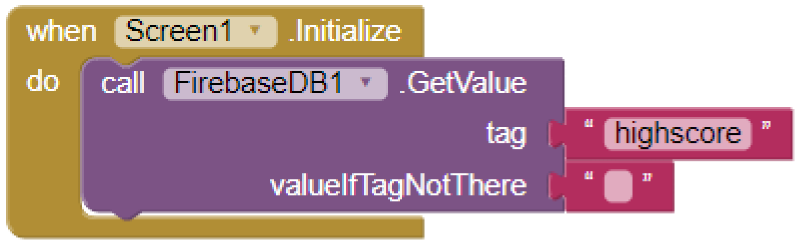
Persist

ProjectBucket

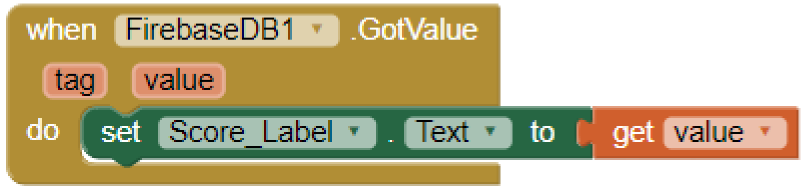
gamedata

加入讀取資料庫程式

一進入APP時，就先讀取最高成績



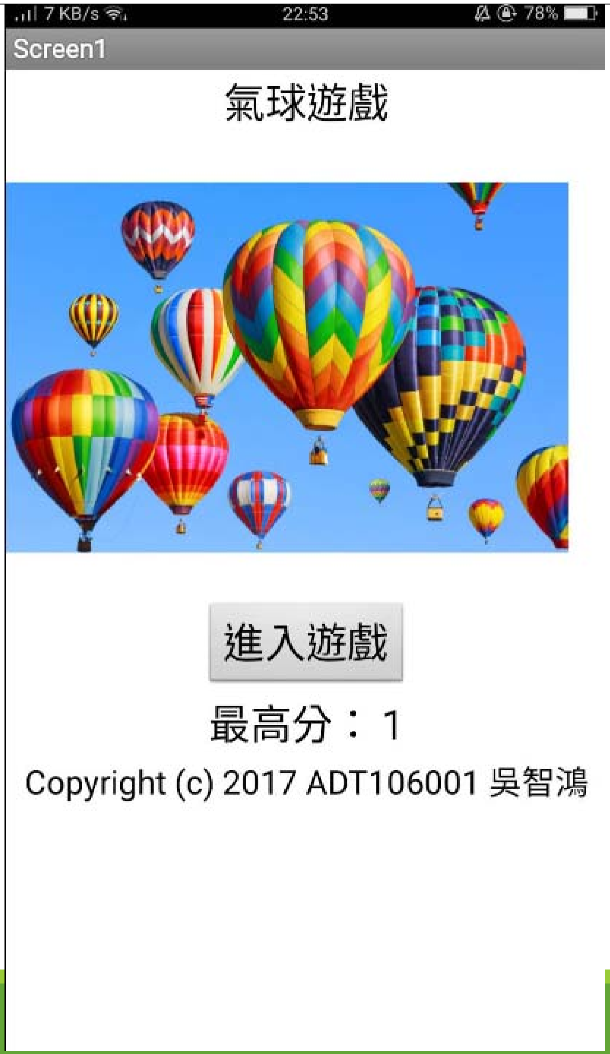
```
when Screen1 .Initialize
do  call FirebaseDB1 .GetValue
                         tag  " highscore "
            valueIfTagNotThere  " "
```



```
when FirebaseDB1 .GotValue
  tag  value
do  set Score_Label . Text to  get value
```

正常的話APP應該會像這樣

最高分應該是1分。

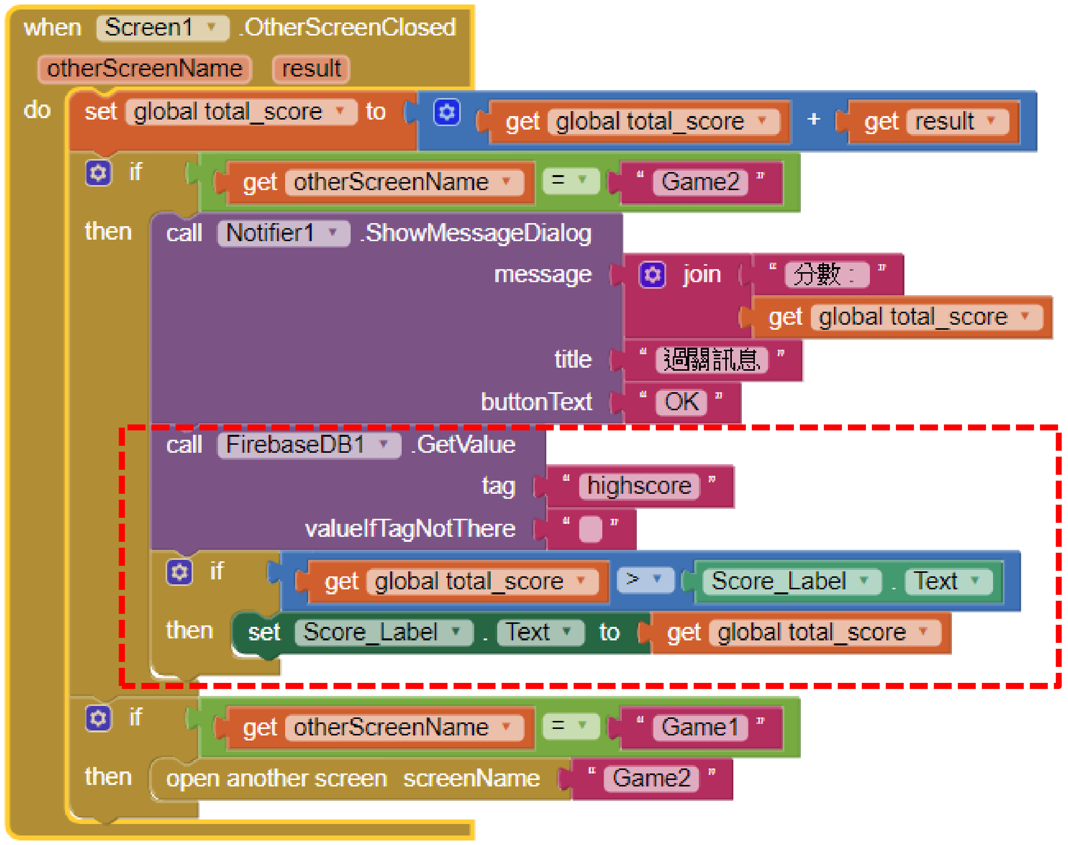


氣球遊戲

最高分：1

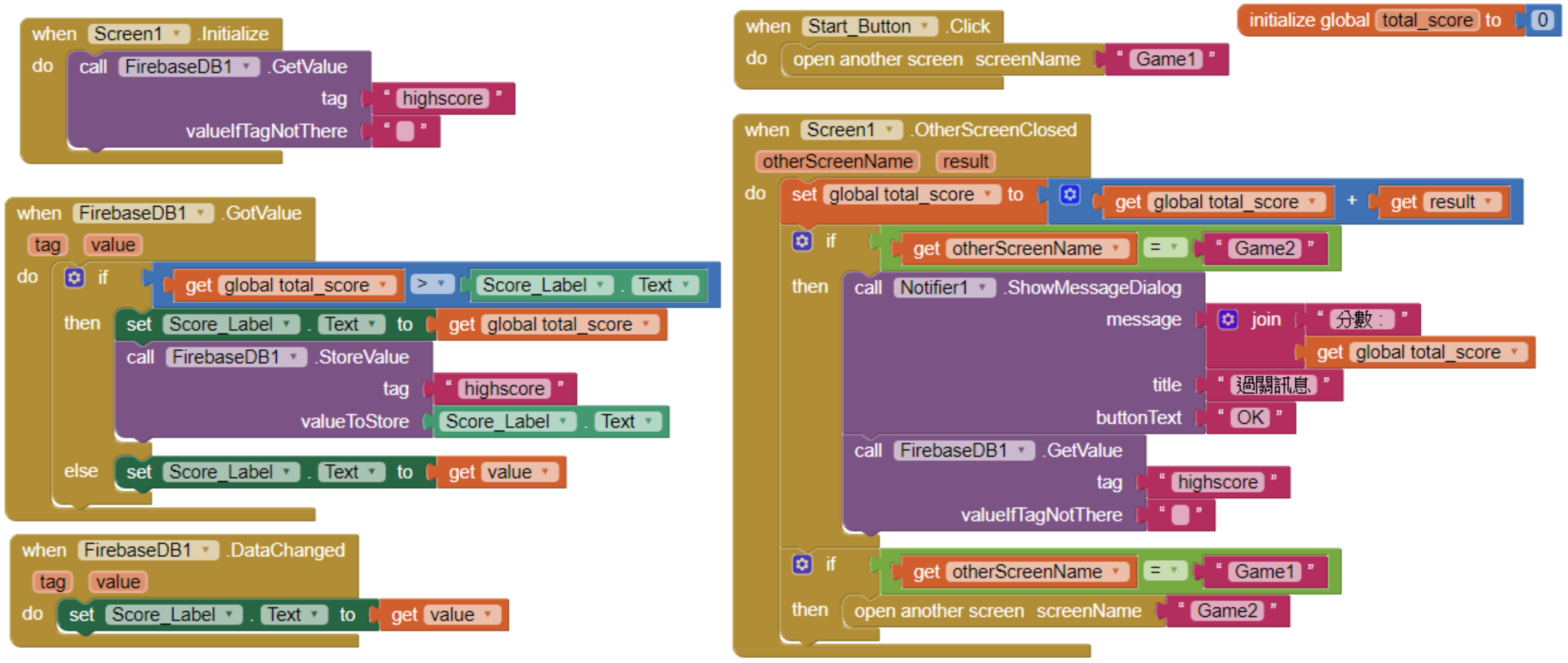
Copyright (c) 2017 ADT106001 吳智鴻

加入判斷最高分的程式



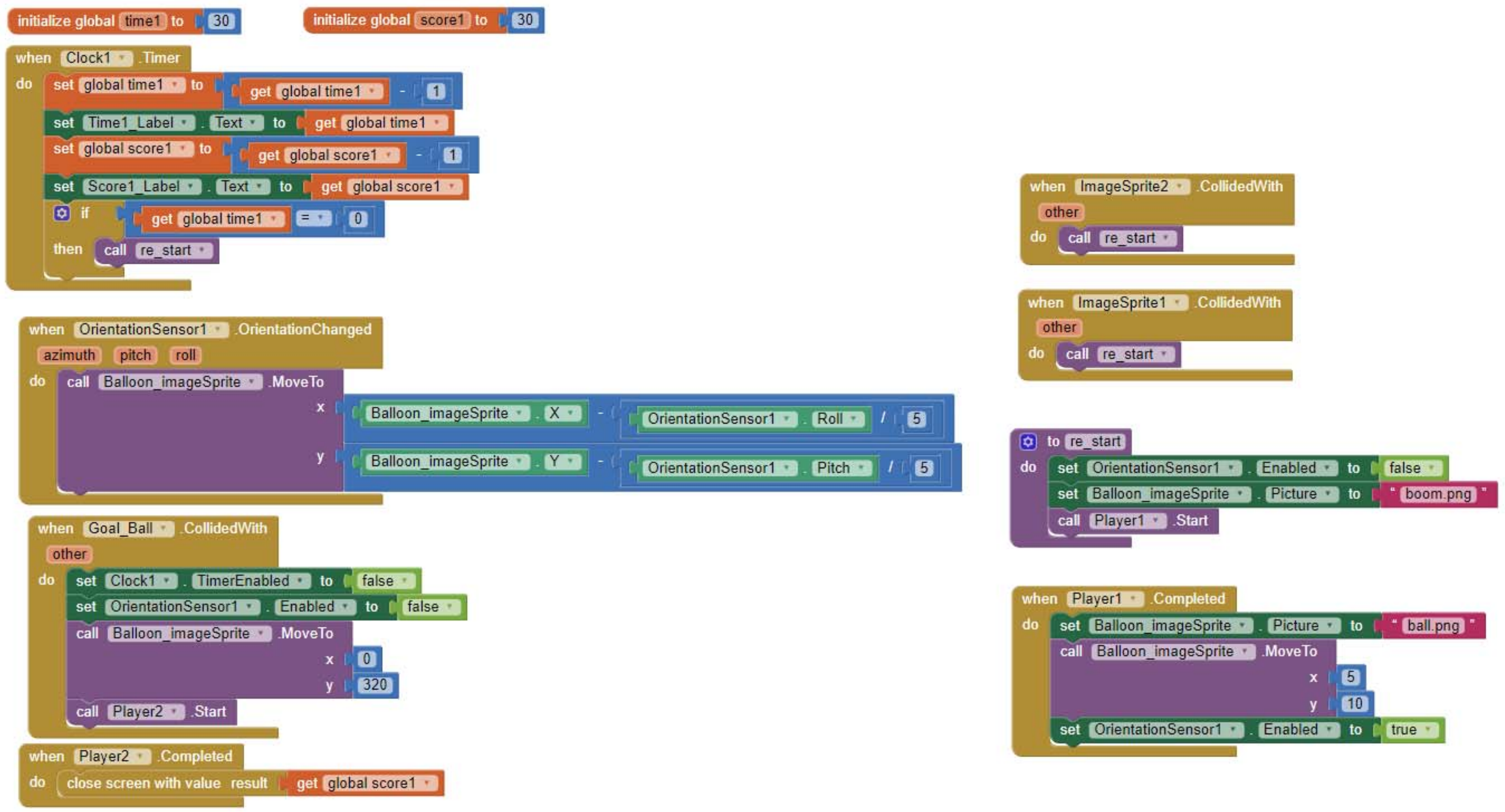
```
when Screen1 .OtherScreenClosed
  otherScreenName  result
do  set global total_score to ( get global total_score + get result )
    if  get otherScreenName = "Game2"
    then  call Notifier1 .ShowMessageDialog
                     message  join "分數："
                                   get global total_score
                       title  "過關訊息"
                  buttonText  "OK"
          call FirebaseDB1 .GetValue
                          tag  "highscore"
            valueIfTagNotThere  ""
          if  get global total_score > Score_Label . Text
          then  set Score_Label . Text to get global total_score
    if  get otherScreenName = "Game1"
    then  open another screen  screenName  "Game2"
```

全部程式（Screen1)



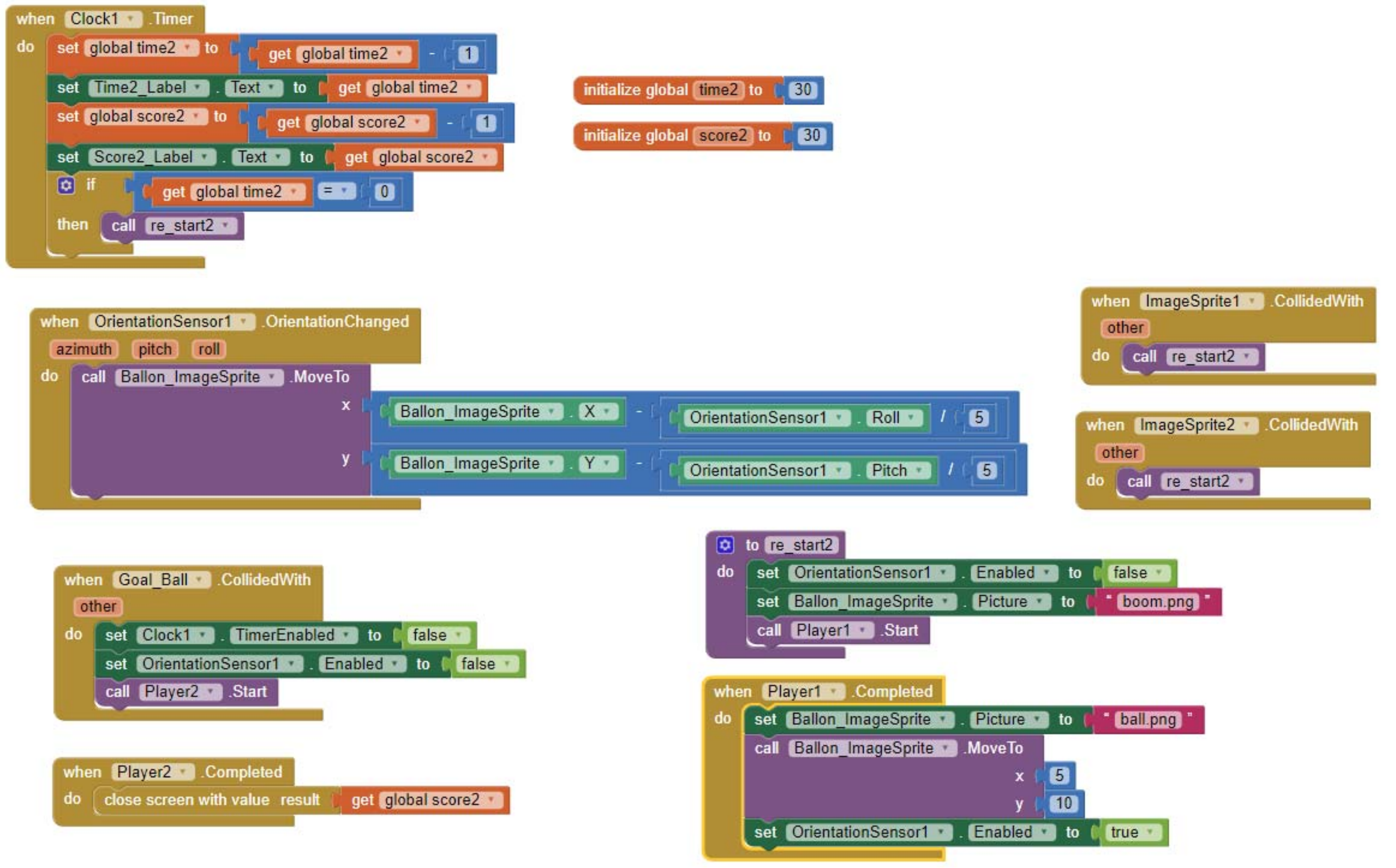
```
when Screen1 .Initialize
do  call FirebaseDB1 .GetValue
                         tag  " highscore "
           valueIfTagNotThere  "  "

when FirebaseDB1 .GotValue
  tag  value
do  if    get global total_score  >  Score_Label . Text
    then  set Score_Label . Text to  get global total_score
          call FirebaseDB1 .StoreValue
                          tag  " highscore "
                 valueToStore  Score_Label . Text
    else  set Score_Label . Text to  get value

when FirebaseDB1 .DataChanged
  tag  value
do  set Score_Label . Text to  get value

when Start_Button .Click
do  open another screen  screenName  " Game1 "

initialize global total_score to  0

when Screen1 .OtherScreenClosed
  otherScreenName  result
do  set global total_score to   get global total_score  +  get result
    if    get otherScreenName  =  " Game2 "
    then  call Notifier1 .ShowMessageDialog
                   message  join  " 分數： "
                                  get global total_score
                     title  " 過關訊息 "
                buttonText  " OK "
          call FirebaseDB1 .GetValue
                          tag  " highscore "
           valueIfTagNotThere  "  "
    if    get otherScreenName  =  " Game1 "
    then  open another screen  screenName  " Game2 "
```

全部程式（Game1)



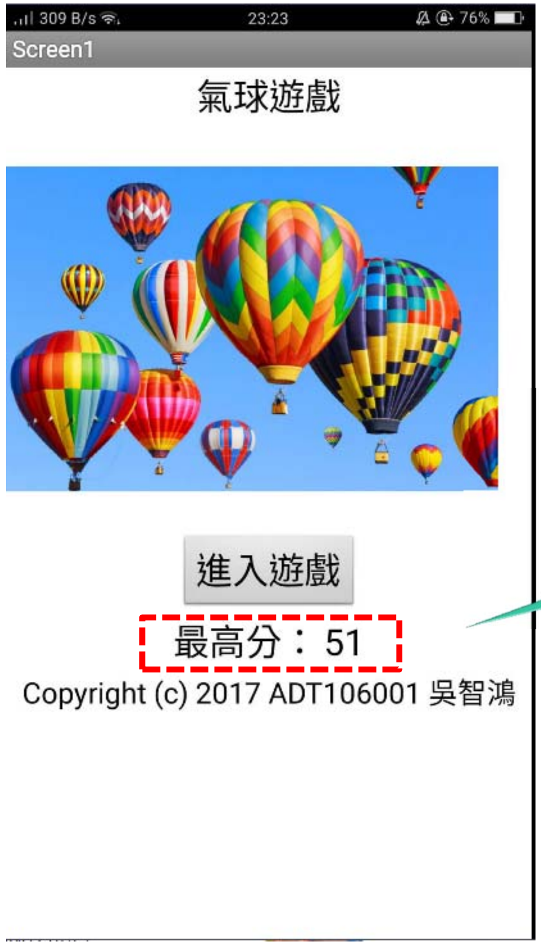
```
initialize global time1 to 30

initialize global score1 to 30

when Clock1 .Timer
do  set global time1 to  get global time1 - 1
    set Time1_Label . Text to  get global time1
    set global score1 to  get global score1 - 1
    set Score1_Label . Text to  get global score1
    if    get global time1 = 0
    then  call re_start

when OrientationSensor1 .OrientationChanged
 azimuth  pitch  roll
do  call Balloon_imageSprite .MoveTo
                     x  Balloon_imageSprite . X - OrientationSensor1 . Roll / 5
                     y  Balloon_imageSprite . Y - OrientationSensor1 . Pitch / 5

when Goal_Ball .CollidedWith
 other
do  set Clock1 . TimerEnabled to false
    set OrientationSensor1 . Enabled to false
    call Balloon_imageSprite .MoveTo
                     x  0
                     y  320
    call Player2 .Start

when Player2 .Completed
do  close screen with value result  get global score1

when ImageSprite2 .CollidedWith
 other
do  call re_start

when ImageSprite1 .CollidedWith
 other
do  call re_start

to re_start
do  set OrientationSensor1 . Enabled to false
    set Balloon_imageSprite . Picture to " boom.png "
    call Player1 .Start

when Player1 .Completed
do  set Balloon_imageSprite . Picture to " ball.png "
    call Balloon_imageSprite .MoveTo
                     x  5
                     y  10
    set OrientationSensor1 . Enabled to true
```

全部程式（Game2)



```
when Clock1 .Timer
do  set global time2 to  get global time2 - 1
    set Time2_Label . Text to  get global time2
    set global score2 to  get global score2 - 1
    set Score2_Label . Text to  get global score2
    if  get global time2 = 0
    then  call re_start2

initialize global time2 to 30

initialize global score2 to 30

when OrientationSensor1 .OrientationChanged
 azimuth  pitch  roll
do  call Ballon_ImageSprite .MoveTo
         x  Ballon_ImageSprite . X - OrientationSensor1 . Roll / 5
         y  Ballon_ImageSprite . Y - OrientationSensor1 . Pitch / 5

when ImageSprite1 .CollidedWith
 other
do  call re_start2

when ImageSprite2 .CollidedWith
 other
do  call re_start2

when Goal_Ball .CollidedWith
 other
do  set Clock1 . TimerEnabled to false
    set OrientationSensor1 . Enabled to false
    call Player2 .Start

to re_start2
do  set OrientationSensor1 . Enabled to false
    set Ballon_ImageSprite . Picture to " boom.png "
    call Player1 .Start

when Player2 .Completed
do  close screen with value  result  get global score2

when Player1 .Completed
do  set Ballon_ImageSprite . Picture to " ball.png "
    call Ballon_ImageSprite .MoveTo
         x 5
         y 10
    set OrientationSensor1 . Enabled to true
```

完成畫面



氣球遊戲

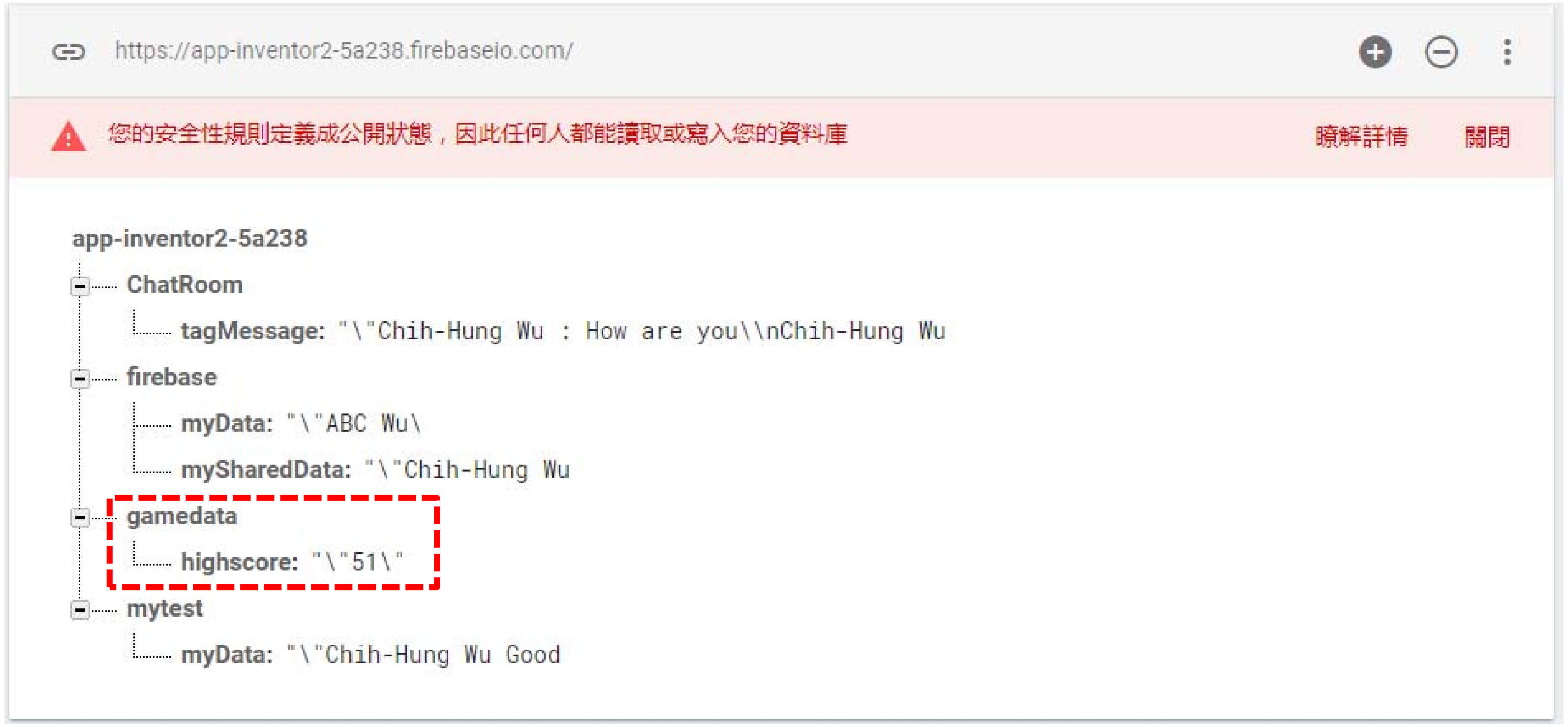
進入遊戲

最高分：51

Copyright (c) 2017 ADT106001 吳智鴻

有最高分的紀錄了！

最高分資料也正確寫入了


https://app-inventor2-5a238.firebaseio.com/

您的安全性規則定義成公開狀態，因此任何人都能讀取或寫入您的資料庫 瞭解詳情 關閉

```
app-inventor2-5a238
  ChatRoom
    tagMessage: "\"Chih-Hung Wu : How are you\\nChih-Hung Wu
  firebase
    myData: "\"ABC Wu\
    mySharedData: "\"Chih-Hung Wu
  gamedata
    highscore: "\"51\"
  mytest
    myData: "\"Chih-Hung Wu Good
```

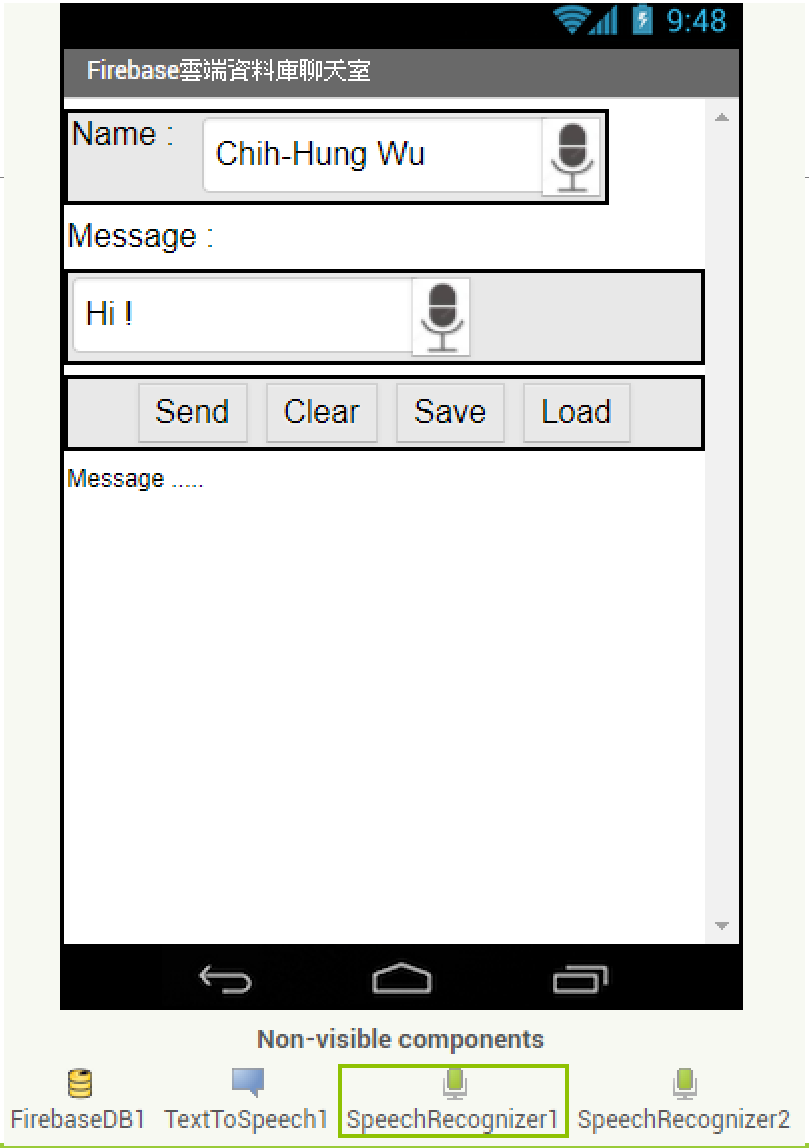
補充說明

經過測試後，發現以AI2 Companion方式測試時，每一關的分數無法正確的回傳到主程式。

但變成apk之後，安裝在手機後，程式執行結果就正確了！

聊天室新增語音辨識功能

螢幕設計


Firebase雲端資料庫聊天室

Name : Chih-Hung Wu

Message :

Hi !

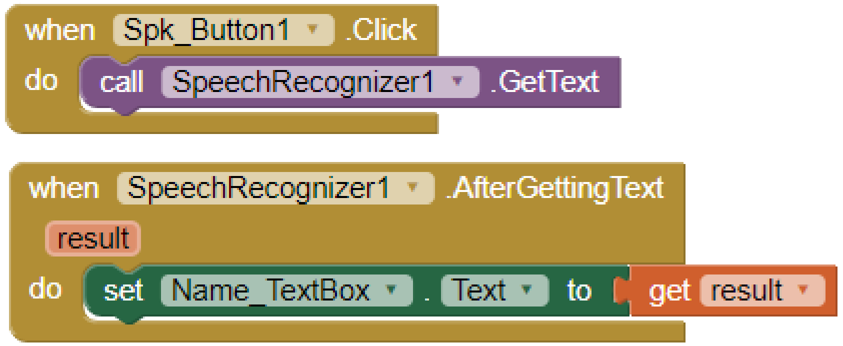
新增兩個語音辨識按鈕

新增兩個語音辨識器

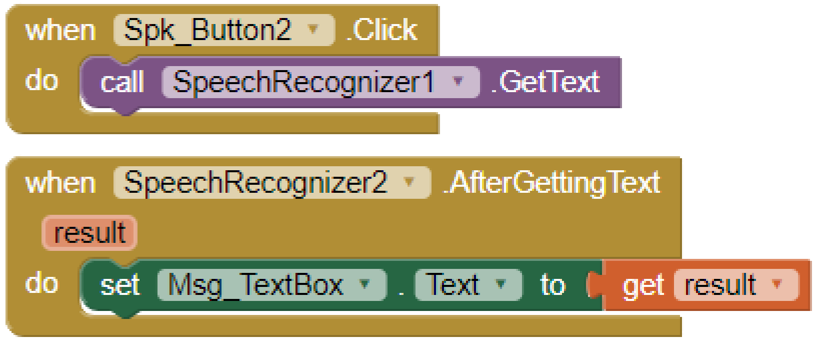
加入語音辨識功能

兩個按鈕的

語音辨識程式碼



```
when Spk_Button1 .Click
do  call SpeechRecognizer1 .GetText

when SpeechRecognizer1 .AfterGettingText
  result
do  set Name_TextBox . Text to get result
```



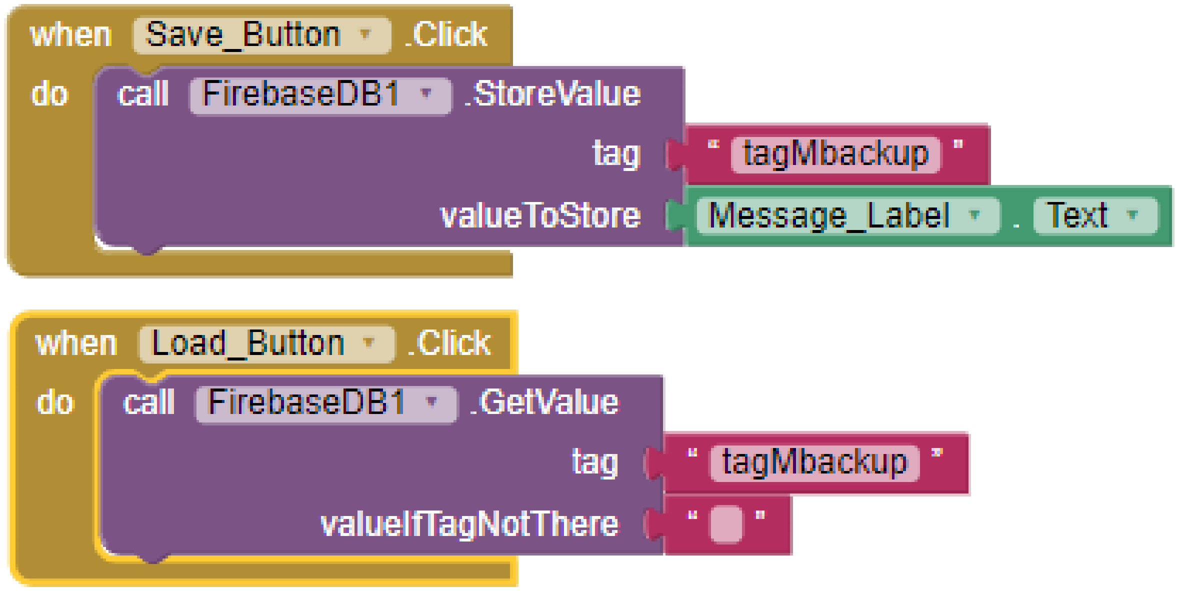
```
when Spk_Button2 .Click
do  call SpeechRecognizer1 .GetText

when SpeechRecognizer2 .AfterGettingText
  result
do  set Msg_TextBox . Text to get result
```

加上 訊息 Save & Load功能

自己試試看應該如何做到吧。

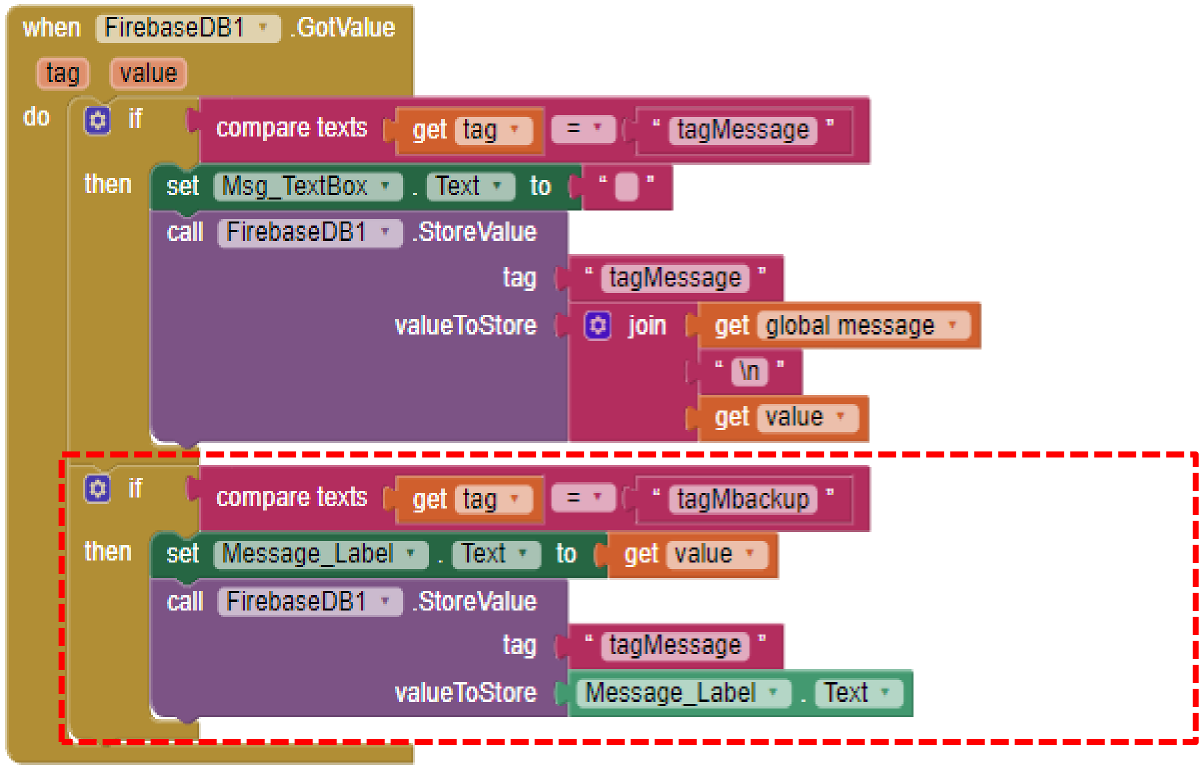
新增訊息儲存與載入功能

Save & Load


```
when Save_Button .Click
do  call FirebaseDB1 .StoreValue
                       tag  " tagMbackup "
              valueToStore  Message_Label . Text

when Load_Button .Click
do  call FirebaseDB1 .GetValue
                       tag  " tagMbackup "
          valueIfTagNotThere  " "
```

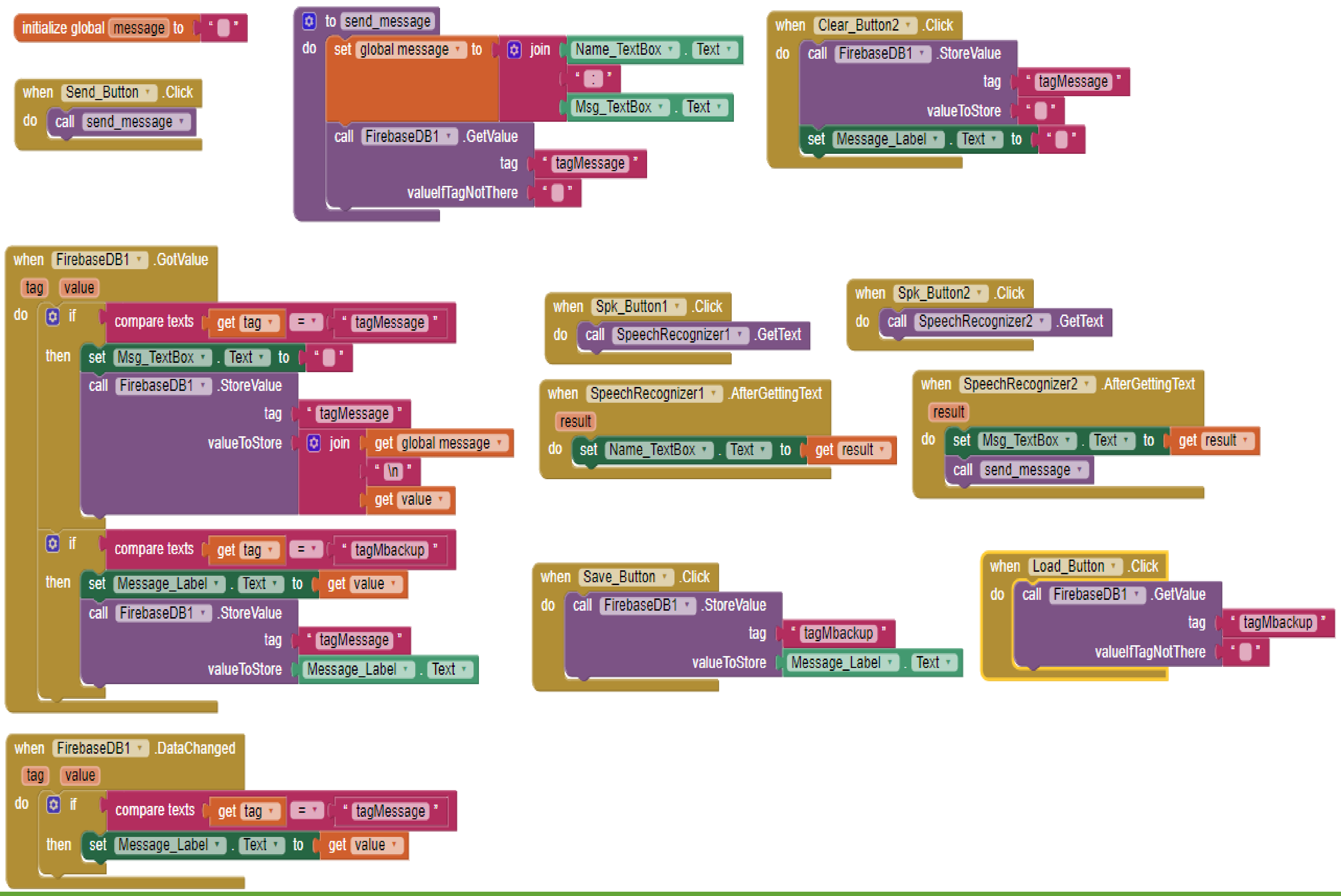
修改資料庫載入部分

新增讀入備份訊息tag=tagMessage_backup



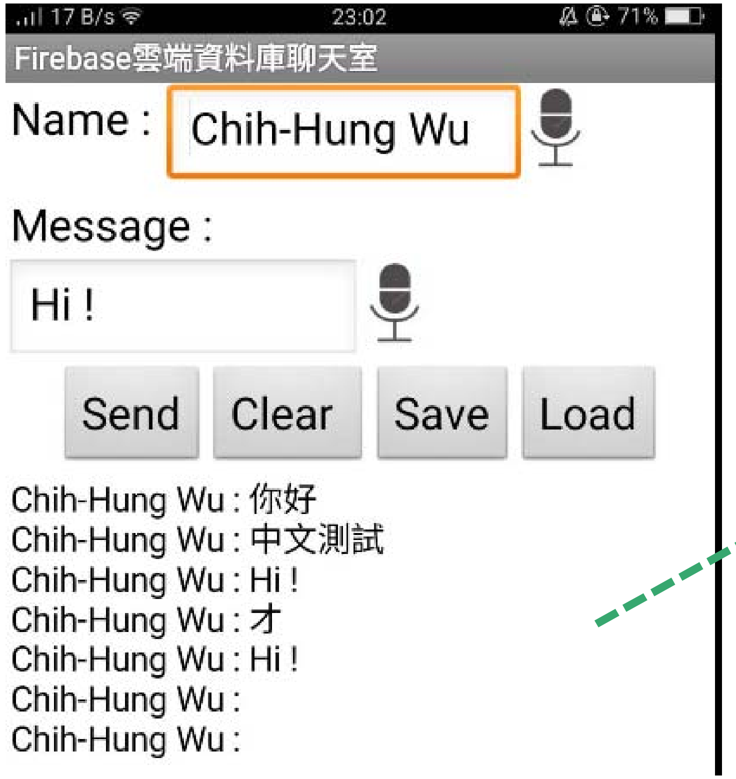
```
when FirebaseDB1 .GotValue
  tag  value
do  if  compare texts  get tag  =  " tagMessage "
    then  set Msg_TextBox . Text to " "
          call FirebaseDB1 .StoreValue
                   tag  " tagMessage "
          valueToStore  join  get global message
                              " \n "
                              get value
    if  compare texts  get tag  =  " tagMbackup "
    then  set Message_Label . Text to  get value
          call FirebaseDB1 .StoreValue
                   tag  " tagMessage "
          valueToStore  Message_Label . Text
```

全部程式



```
initialize global message to " "

when Send_Button .Click
do  call send_message

to send_message
do  set global message to  join  Name_TextBox . Text
                                 " : "
                                 Msg_TextBox . Text
    call FirebaseDB1 .GetValue
                     tag  " tagMessage "
         valueIfTagNotThere  " "

when Clear_Button2 .Click
do  call FirebaseDB1 .StoreValue
                     tag  " tagMessage "
             valueToStore  " "
    set Message_Label . Text to " "

when FirebaseDB1 .GotValue
 tag  value
do  if  compare texts  get tag  =  " tagMessage "
    then  set Msg_TextBox . Text to " "
          call FirebaseDB1 .StoreValue
                           tag  " tagMessage "
                   valueToStore  join  get global message
                                       " \n "
                                       get value
    if  compare texts  get tag  =  " tagMbackup "
    then  set Message_Label . Text to  get value
          call FirebaseDB1 .StoreValue
                           tag  " tagMessage "
                   valueToStore  Message_Label . Text

when Spk_Button1 .Click
do  call SpeechRecognizer1 .GetText

when Spk_Button2 .Click
do  call SpeechRecognizer2 .GetText

when SpeechRecognizer1 .AfterGettingText
 result
do  set Name_TextBox . Text to  get result

when SpeechRecognizer2 .AfterGettingText
 result
do  set Msg_TextBox . Text to  get result
    call send_message

when Save_Button .Click
do  call FirebaseDB1 .StoreValue
                     tag  " tagMbackup "
             valueToStore  Message_Label . Text

when Load_Button .Click
do  call FirebaseDB1 .GetValue
                     tag  " tagMbackup "
         valueIfTagNotThere  " "

when FirebaseDB1 .DataChanged
 tag  value
do  if  compare texts  get tag  =  " tagMessage "
    then  set Message_Label . Text to  get value
```

存入firebase的資料表結構與內容



Firebase雲端資料庫聊天室

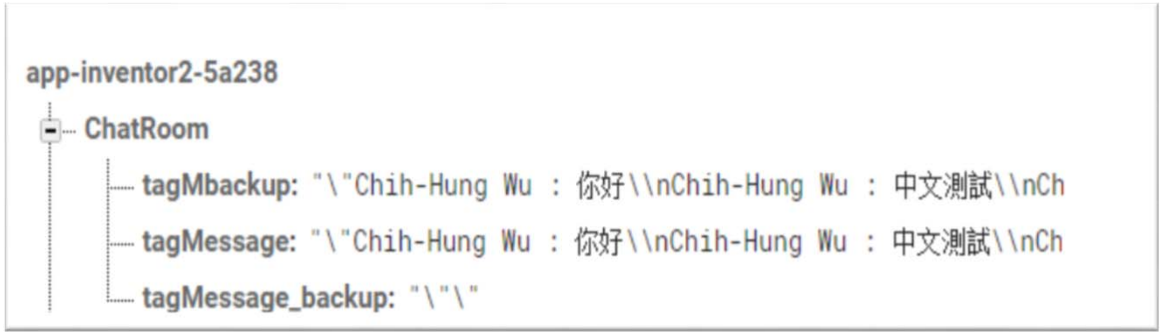
Name : Chih-Hung Wu

Message :

Hi !

Chih-Hung Wu : 你好
Chih-Hung Wu : 中文測試
Chih-Hung Wu : Hi !
Chih-Hung Wu : 才
Chih-Hung Wu : Hi !
Chih-Hung Wu :
Chih-Hung Wu :

Firebase



```
app-inventor2-5a238
⊟ ChatRoom
    tagMbackup: "\"Chih-Hung Wu : 你好\\nChih-Hung Wu : 中文測試\\nCh
    tagMessage: "\"Chih-Hung Wu : 你好\\nChih-Hung Wu : 中文測試\\nCh
    tagMessage_backup: "\"\"
```