

Tibame ETL 實作班

David Chiu
2015/11/07

關於我



- 大數軟體有限公司創辦人
- 前趨勢科技工程師
- ywchiu.com
- 大數學堂
<http://course.largitdata.com/>
- 粉絲頁
<https://www.facebook.com/largitdata>
- Machine Learning With R Cookbook
<https://www.packtpub.com/big-data-and-business-intelligence/machine-learning-r-cookbook>

課程資料

- 所有課程補充資料、投影片皆位於
 - ▣ https://github.com/ywchiu/tibame_etl

應用ETL進行文字探勘

針對商品與品牌進行監控

商品監控？

對手監控？



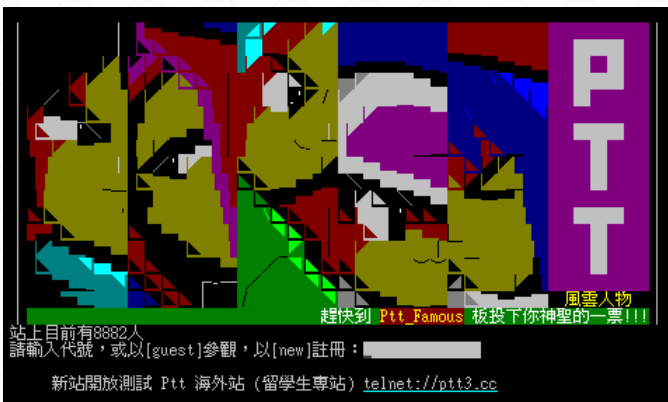
品牌監控？

使用者反應？



監控社群媒體與新聞資料

- 監控各社群的網路言論
- 可以設定關鍵字與警示提醒和有新文章
- 使用統計報表觀察每天相關文章數量



蘋果, nownews, udn,
中央跟風傳媒 還有
其他財經媒體

每日統計報表

[首頁](#) [關鍵字](#) [監控網頁](#) [反向追蹤](#)

設定查詢條件

起始日期

2014-10-01

終止日期

2014-11-15

監控來源

ptt

排序

date

設定關鍵字

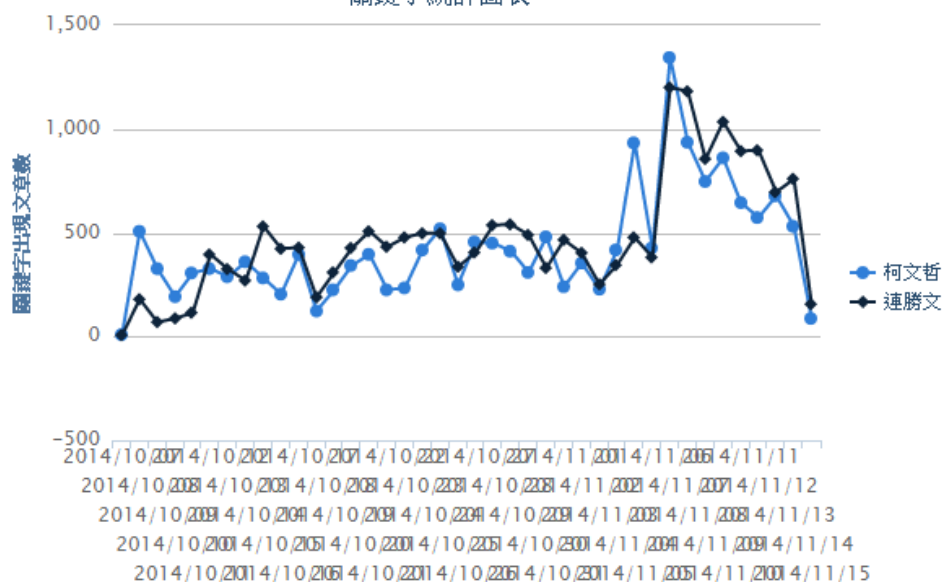
× 連勝文 × 柯文哲 × MG149

× 台北市長選舉

查詢

統計圖表

關鍵字統計圖表



反問與否定

資料萃取、轉換與儲存

數據分析的步驟

- 使用不同工具與方法，以從資料中找出有意義的結果
- 目的在於從資料中找出規律或固定模式
- 幫助從過去的資料，了解業務未來可能碰到的不確定因素與未來走向



蒐集資料

整理資料

分析資料

資料 ETL 如同做一道佳餚



原始資料

Raw Data



ETL腳本

ETL Script



結構化資料

Tidy Data



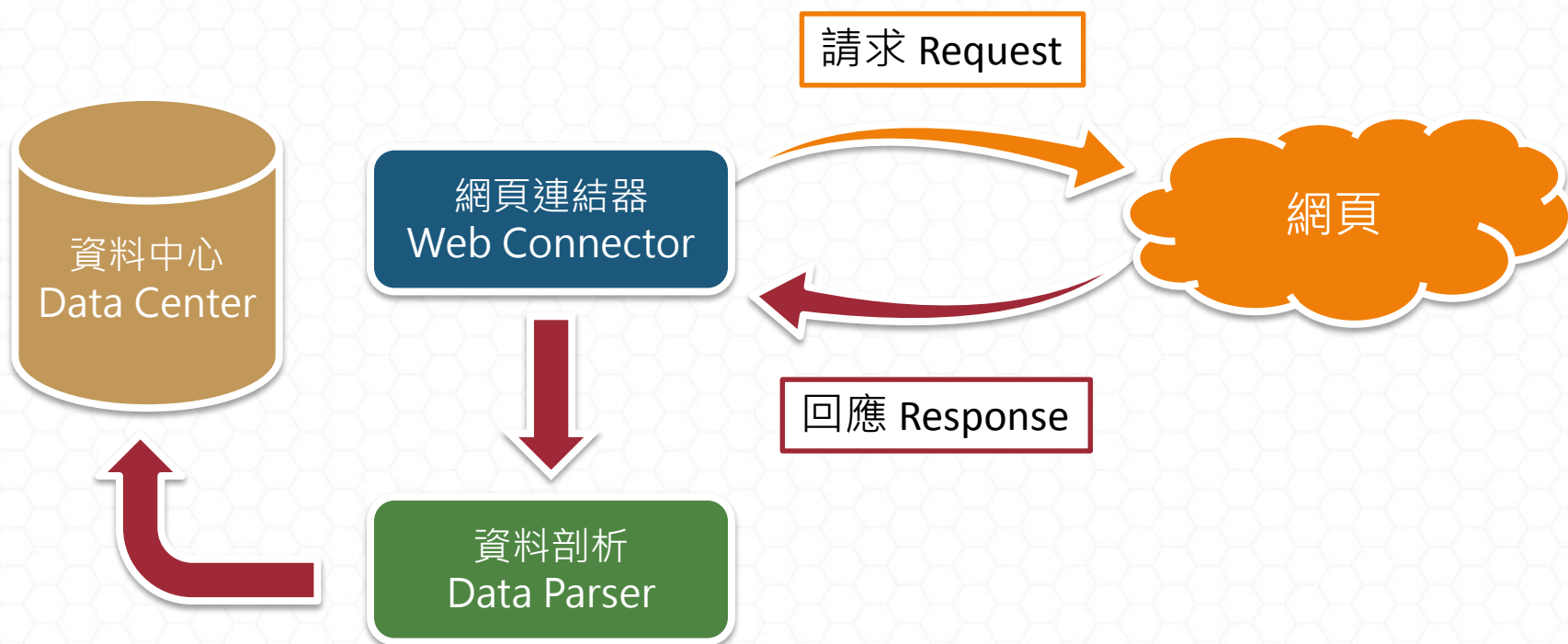
網路爬蟲



將非結構化的網頁資料
轉成結構化資訊

| | category | popularity | time | title | url |
|----|----------|------------|-------|-------------------------|---|
| 2 | 搜奇 | 0 | 10:36 | 定康~準岳母跌狗吃屎 美男浪求婿成鬧劇 | http://www.appledaily.com.tw/realtimenews/arti... |
| 7 | 國際 | 5867 | 10:11 | 女客乘車遭猥褻 司機竟回「妳沒脫褲怎逃去... | http://www.appledaily.com.tw/realtimenews/arti... |
| 9 | 財經 | 1293 | 10:00 | 【財訊】4個財報密碼 讓你5分鐘嗅出關鍵 | http://www.appledaily.com.tw/realtimenews/arti... |
| 11 | FUN | 4640 | 10:00 | 路人搶到手機狂拍照 自動上傳證據讓人笑了 | http://www.appledaily.com.tw/realtimenews/arti... |
| 16 | 政治 | 4598 | 09:39 | 政風處查洩密 徐毅煌批：本末倒置到極點！ | http://www.appledaily.com.tw/realtimenews/arti... |
| 18 | 社會 | 51059 | 09:33 | 【更新】桃園平鎮兇殺 互砍？他殺？警方釐... | http://www.appledaily.com.tw/realtimenews/arti... |
| 21 | 生活 | 29288 | 09:01 | 「靠北男友」的洋蔥文 網友淚流不止 | http://www.appledaily.com.tw/realtimenews/arti... |
| 24 | 娛樂 | 2023 | 09:00 | 【特企】炎亞綸路跑初體驗獻《蘋果》雞排... | http://www.appledaily.com.tw/realtimenews/arti... |

網路爬蟲架構



課前預備

■ Eclipse

- <https://eclipse.org/downloads/>

■ Jsoup

- <http://jsoup.org/packages/jsoup-1.8.3.jar>

■ MySQL

- <https://dev.mysql.com/get/Downloads/MySQLInstaller/mysql-installer-community-5.6.26.0.msi>

抓取wikipedia 網頁



Main page
Contents
Featured content
Current events
Random article
Donate to Wikipedia
Wikipedia store

Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact page

Tools
What links here
Related changes
Upload file
Special pages
Permanent link
Page information
Wikidata item

Print/export

Create account Not logged in Talk Contributions Log in

Main Page **Talk**

Read

View source

View history

Search



Welcome to Wikipedia,

the free encyclopedia that anyone can edit.
4,969,903 articles in English

- Arts
- Biography
- Geography
- History
- Mathematics
- Science
- Society
- Technology
- All portals

From today's featured article



Forrest Highway is a 95-kilometre-long (59 mi) highway in Western Australia's Peel and South West regions, extending Perth's Kwinana Freeway from east of Mandurah down to Bunbury. The highway begins in Ravenswood, continues around

the Peel Inlet to Lake Clifton, and heads south to finish at Bunbury's Eelup Roundabout. Old Coast Road was the original Mandurah–Bunbury route, dating back to the 1840s. Since the 1980s the state government has been upgrading the main Perth to Bunbury route by extending Kwinana Freeway south from Perth, and constructing a dual carriageway on Old Coast Road north of Bunbury, including bypasses around Australind, Dawesville, and Mandurah. Construction of the New Perth Bunbury Highway project, which became Forrest Highway and the final Kwinana Freeway extension, began in December 2006, and the new highway was opened on 20 September 2009. Within one year of opening, the number of road accidents in the area had decreased significantly, but tourism and businesses in the towns on bypassed routes were also affected. In June 2014, Forrest Highway was extended south to Bunbury by renaming much of Old Coast Road as well as Australind Bypass

In the news

- **A magnitude-8.3 earthquake** strikes in the Pacific off the coast of Chile, killing at least ten people and prompting the evacuation of at least one million others.
- Burkina Faso's Regiment of Presidential Security dissolves the nation's government in **a coup d'état**.
- **Malcolm Turnbull** (*pictured*) becomes Prime Minister of Australia after **replacing** Tony Abbott as the Liberal Party leader.
- **An explosion** in Petlawad, Madhya Pradesh, India, kills more than one hundred people and injures many more.
- The ruling **People's Action Party**, led by **Lee Hsien Loong**, retains its majority in the **Singaporean general election**.

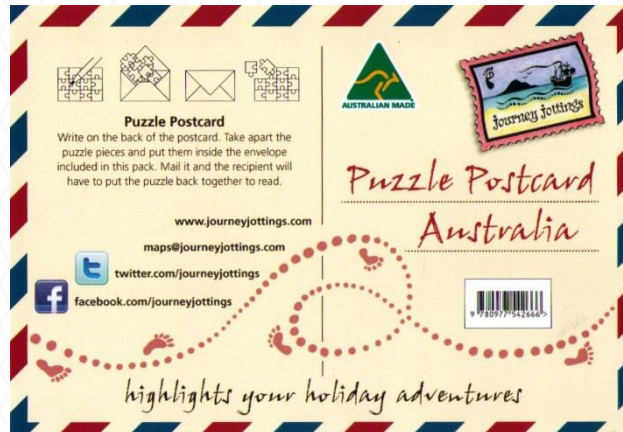


Malcolm Turnbull

Ongoing events: European migrant crisis

Recent deaths: Moses Malone · Adrian Frutiger

什麼是GET?



GET
內容寫在上頭

<http://en.wikipedia.org>

使用Jsoup 做 get

```
Document doc;  
doc = Jsoup.connect("http://en.wikipedia.org/").get();  
String html = doc.html();  
  
System.out.println(html);
```

以台灣高鐵為例

← → ↺ 🏠 www.thsrc.com.tw/tw/TimeTable/SearchResult ☆ 🔍 📄 📱 📧 📞



繁體中文 | 日本語 | English

優惠活動

購票資訊

乘車指南

關於高鐵

高鐵假期

24h 網路訂票

首頁 > 購票資訊 > 快速查詢 > 時刻表與票價查詢

字體大小

📄 列印本頁



時刻表與票價查詢

請選擇查詢條件

出發站:

日期:

到達站:

時間:

立即查詢

一週內時刻表

- 南下時刻表
- 北上時刻表

時刻表下載

- 2014暑期時刻表
- 2013/12/23起適用時刻表

您的查詢結果

台北站 ▶ 嘉義站 2014/06/18(周三) 10:30 出發

檢視 2014/06/18 時刻表 (含南下/北上車次)

什麼是POST?

StartStation:

977abb69-413a-4ccf-a109-0272c24fd490

EndStation:

fb828d8-b1da-4b06-a3bd-680cdca4d2cd

SearchDate:

2015/04/19

SearchTime:

17:30

SearchWay:

DepartureInMandarin



POST
內容寫在信紙，包在信封內

<https://www.thsrc.com.tw/tw/TimeTable/SearchResult>

使用Jsoup 做post

```
Document doc;  
doc = Jsoup.connect("http://www.thsrc.com.tw/tw/TimeTable/SearchResult")  
    .data("StartStation", "977abb69-413a-4ccf-a109-0272c24fd490")  
    .data("EndStation", "60831846-f0e4-47f6-9b5b-46323ebdcef7")  
    .data("SearchDate", "2014/06/18")  
    .data("SearchTime", "10:30")  
    .data("SearchWay", "DepartureInMandarin")  
    .post();  
String html = doc.html();  
System.out.println(html);
```

任務一 如何透過JSoup取得蘋果新聞網頁



The screenshot shows the Apple Daily website homepage. At the top, there is a navigation bar with the Apple Daily logo and various links. Below the navigation bar is a grid of category buttons. The main content area features a large headline about the Sun Yat-sen Memorial Hall renovation, a sidebar with a medical-themed advertisement, and a bottom section with a promotional banner for an online store. The date and time are displayed in the bottom left corner.

昨日瀏覽量:17466897 • 蘋果日報自律委員會 • NEXT media 台灣 | 香港

蘋果即時 蘋果足球 蘋果日報 蘋果LIVE 動新聞 寶島 飲食男女

| | | | | | | | | | | |
|-----|----|----|----|----|-----|----|----|----|----|----|
| 動即時 | 最新 | 焦點 | 熱門 | 動物 | FUN | 瘋哈 | 搜奇 | 影片 | 正妹 | 體育 |
| 娛樂 | 時尚 | 生活 | 社會 | 國際 | 財經 | 地產 | 政治 | 論壇 | 陣線 | Q |

Gmail 商用版
Google 為您代客客製化電子郵件。30 天免費試用，即刻體驗！

北市府同意遠雄
7月底前完成大巨蛋大底工程

醫靠 無界
無國界醫生之旅 攝影展
6.12~6.21 敦南誠品
11:00~21:00 免費入場 詳情>>

Create an Online Store Today!
✓ Zero Setup Fee
✓ Zero Bandwidth Fees
✓ 0% Transaction Fees*
✓ Unlimited SKU's
✓ Unlimited Storage
✓ \$100 Adwords Credit
✓ Discount Codes
START FREE TRIAL

動即時 按 看蘋果

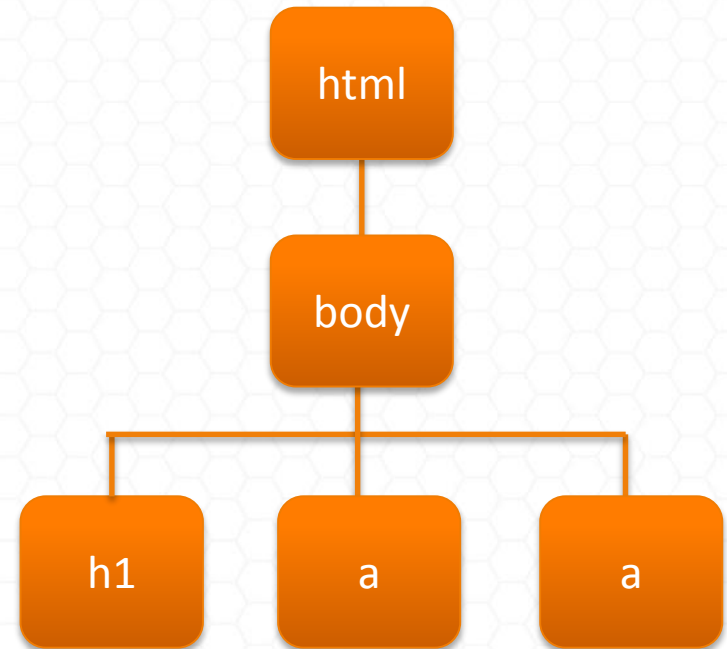
2015 / 05 / 25
23:00

<http://www.appledaily.com.tw/realtimenews/section/new/>

DOM Tree

```
<html>
<body>
<h1 id="title">Hello World</h1>
<a href="#" class="link">This is link1</a>
<a href="# link2" class="link">This is link2</a>
</body>
</html>
```

Document Object Model



剖析範例

■ 將網頁讀進JSoup 中

```
Document doc;
```

```
doc =
```

```
Jsoup.connect("http://en.wikipedia.org/").get();
```

```
String title = doc.select("h1").text();
```

```
System.out.println(title);
```

尋找CSS 的定位

- Chrome 開發人員工具

- Firefox 開發人員工具

- InfoLite

- ▣ <https://chrome.google.com/webstore/detail/infolite/ipjbadabbpedegielkhgpiekdImfpgal>

任務二 如何透過JSoup取得蘋果新聞網頁

www.appledaily.com.tw/realtimenews/section/new/1

使用requests.get 取得頁面內容

2015 / 05 / 25

- | | | |
|-------|----|--------------------------------|
| 23:00 | 國際 | 中國明發布 軍事戰略白皮书(0) |
| 22:57 | 財經 | 美元強強滾！ 油價續游走60美元之下(24) |
| 22:50 | 國際 | 打擊登革熱 中國釋放50萬隻絕育蚊(797) |
| 22:44 | 娛樂 | 【更新】Jolin安室合體高潮2分10秒...(79730) |
| 22:39 | 國際 | 全球市佔率前十大啤酒 中國佔4名(1506) |
| 22:39 | 財經 | 柏南克今抵台 明專題演講與彭淮南、張忠謀...(18) |
| 22:23 | 生活 | 豪雨造成農業損失617萬元 (510) |
| 22:15 | 社會 | 【更新】新商場偷設基地台 埔里居民抗議(5682) |
| 22:15 | 政治 | 【公庫】拒絕修憲議題綁架 國民黨自打嘴...(863) |
| 22:14 | 社會 | 【更新】驚！休旅車竄出大火 車上2人燙傷...(24129) |
| 22:14 | 政治 | 藍遊說選立委 阿娟：熱愛新聞捨不得改變(6506) |
| 22:13 | 生活 | 【更新】七車連環撞 中山高大打結(8834) |
| 22:12 | 社會 | 【公庫】RCA受害勞工 |
| 22:11 | 社會 | 國道七隊偵查佐涉賭遭 |
| 22:10 | 政治 | 【公庫】容美濫發！破 |

娛樂最 Hot 看更多

| | |
|------------------|-------|
| 余苑綺 大姊哈菸陪放風 病... | 65686 |
| 布裘新婚告急吵不停 解危凍... | 40514 |
| Jolin美人魚360度發... | 39039 |
| 阿妹靜悄悄返台 遇鐵粉嚇一... | 38603 |
| 白家綺辣玩繩繩滑水 好身材... | 36500 |

f 蘋果粉絲團 好友分享

蘋果日報 2,151,390

蘋果日報 5分鐘前

這裡面，你喝過哪些呢？我還是喜歡台灣製的啤酒.....
(飲酒過量，有害健康、傷害感情)

使用開發者工具檢視每則新聞的分隔
發現都以.rtd dt做分隔

<http://www.appledaily.com.tw/realtimenews/section/new/>

正規表達式

```
String patternStr = "(.+)\n((\\d+)\n)";  
Pattern pattern = Pattern.compile(patternStr);  
Matcher matcher = pattern.matcher(popularity);  
boolean matchFound = matcher.find();  
if (matchFound) {  
    System.out.println(title + " " +  
        Integer.parseInt(matcher.group(2)));  
}
```

任務三 使用正規表達式取得瀏覽人氣



轉換日期資訊

```
String dateStr = "2015-08-26";  
SimpleDateFormat formatter = new  
SimpleDateFormat("yyyy-MM-dd");  
Date dt = formatter.parse(dateStr);
```

或使用JODA 做轉換

```
import org.joda.time.DateTime;  
import org.joda.time.format.DateTimeFormat;  
import org.joda.time.format.DateTimeFormatter;  
DateTimeFormatter fmt =  
DateTimeFormat.forPattern("yyyy年MM月dd日  
HH:mm");  
DateTime dt = DateTime.parse(time, fmt);  
System.out.println(dt.toDate().getTime());
```

<https://github.com/JodaOrg/joda-time/releases>

任務四 轉換日期資訊

政治

20150920 07:25
柱柱姐談副手 「口
袋名單有4、5位」
(2200)

20150920 07:03
賴清德化身小小
兵 不唱芭那那改
抓蟲(1854)

20150920 06:48
九月二十日各報頭條
搶先報(2109)

20150920 00:03

字級： **A-** **A** **A+**

 分享FB  分享g+  分享Plurk  分享Twitter

2015年09月20日07:03  傳送  讚 { 2 }  G+ { 0 }

台南市登革熱疫情延燒不退，市長賴清德動輒得咎！

今日出版的《蘋果日報》報導，上週四賴清德到高雄幫立委邱議瑩站台輔選，結果挨批「疫情失控，還當政治明星趴趴走。」賴清德昨解釋，是處理公務行程結束後才到高雄，沒有影響防疫工作；另為澄清民眾對下水道可能藏子子的疑慮，賴清德更穿上青蛙裝，進雨水下水道查子子。

任務五 抓取每日新聞摘要

連環撞 中山
高大打結
(4822)

20150525 21:41
北市府同意 遠雄
七月底前完成大巨
蛋大底(8991)

20150525 21:21
入夜雨勢再起 屏
東西大武山雨量
441毫米(3148)

20150525 21:07
【毀毀?】煙囪
雲覆蓋 中南
部大雨不停
(8765)

20150525 21:06
【晴雨娃】鋒面徘
徊 南部及山區嚴
防豪雨(2529)

20150525 20:55
【BRT違規?】
BRT到發車站前走
在一般道路(2461)

20150525 20:52
5月25日台灣彩券
開獎號碼(2660)

2015年05月25日22:13

(更新:新增影片)

天雨路滑, 交通事故也頻傳。國道一號北上高雄鼎金交流道上午就傳出一起七車連環撞的交通事故, 造成北上車道大打結, 車流一直回堵到接近九公里外的國道末端, 直到一小時後警方將事故排除, 才逐漸緩解車流。

國道五隊岡山分隊分隊長葉斌偉表示, 上午9時40分左右國道一號北上鼎金系統交流道發生一起七車追撞事故, 一輛小貨車行駛至中山高北上363.3公里處, 鼎金系統交流道匯出國10開道口附近時, 疑因天雨路滑車主又急煞導致車輛打滑失控, 打橫在車道上的小貨車遭後方車輛追撞, 而事故後方一輛聯結車又剎車不及, 連續推撞前方車輛, 導致七車連環事故。

葉斌偉說, 該起事故雖未造成人員受傷, 但整起車禍位於國道一號匯往國道十號開道口, 導致後方欲前往旗山及左營等方向車流回堵, 國道警方於上午10時許接獲報案後, 直到上午10時48分後將事故排除, 國一北上路段塞車狀況才獲得紓解。(劉智維/高雄報導)

出版時間: 17:56

更新時間: 22:13



娛樂最 Hot

余苑綺 大姊哈蔡陪放風

布袋新廣告急吵不停解

Jolin美人魚360度發...

阿妹靜悄悄返台 過鐵粉嚇一...

白家綺辣玩鐵繩溜水 好身材...



蘋果粉絲團

好友分



蘋果日報



2,151,180



蘋果日報

覺得不

知所措



知所措



知所措



知所措



知所措



知所措



知所措



知所措



知所措



知所措



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知所措



知所措



知所措



知所措



知所措



知所措



知所措

InfoLite Username Password Login X ?

Submit

#summary Clear (1) Add

位在#summary 中

任務六 建立新聞資料表

■ 表格名稱

□ news_main

■ 欄位名稱

□ id

□ title

□ content

□ time

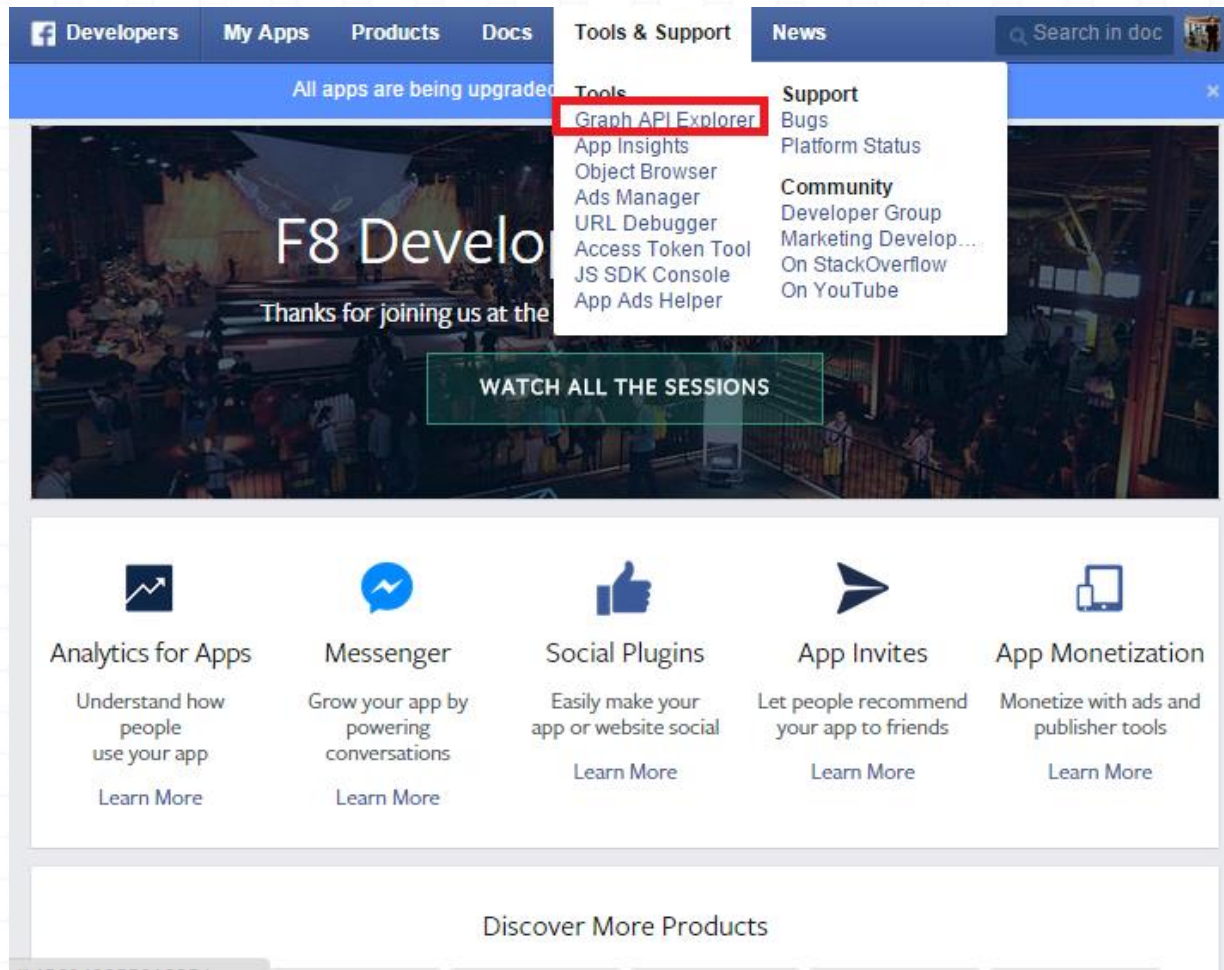
□ view_cnt

□ category

```
CREATE TABLE `news_main` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `title` varchar(1000) DEFAULT NULL,  
  `content` text,  
  `time` datetime DEFAULT NULL,  
  `view_cnt` int(11) DEFAULT NULL,  
  `category` varchar(10) DEFAULT NULL,  
  PRIMARY KEY (`id`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```


如何抓取留言資訊

使用Graph API Explorer



擷取評論

Developers My Apps Products Docs Tools & Support News Search in docs

All apps are being upgraded to Graph API v2.0 or above. [Learn more.](#)

Graph API Explorer Application: Graph API Explorer Locale: English (US) API Version: v2.3

Access Token: CAACEdEose0cBAD3RQLbhmFfHSDZCt6bVWihofZBtPxNMtRoeYnICOhY91G97LSVI41ep2o6xef7Isl Debug

Get Token

Graph API FQL Query

GET → /v2.3/938417442844934/comments Debug Enabled Submit

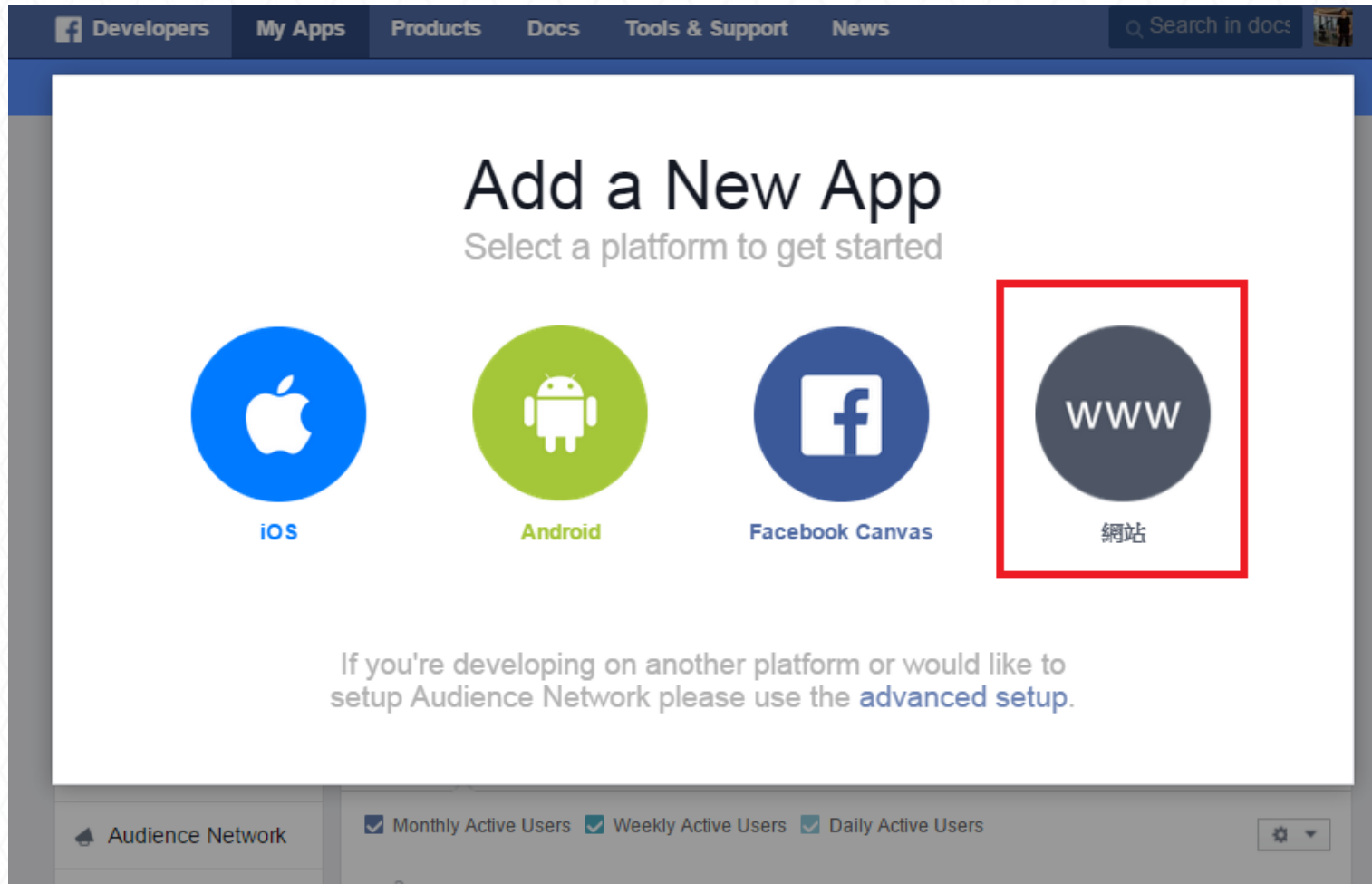
Learn more

Edge: (No fields expansion available).

```
{
  "id": "938417442844934_938572532829425",
  "can_remove": false,
  "created_time": "2015-05-25T17:44:09+0000",
  "from": {
    "id": "10202650348480969",
    "name": "Joy Chien"
  },
  "like_count": 0,
  "message": "看影片發現小貨車會急煞打滑\n是因為前車急煞\n小貨車打滑後前車煞車燈還亮著\n然後飛速往前行駛\n所以雨天車多時還是盡量保持安全距離吧",
  "user_likes": false
},
{
  "id": "938417442844934_938538919499453",
  "can_remove": false,
  "created_time": "2015-05-25T15:48:54+0000",
```

利用文章ID/comments取得評論內容

新增一個App



取得APP ID 跟 Secret

The screenshot shows the Facebook Developers dashboard for an application named 'newscomment'. The interface includes a top navigation bar with links to Developers, My Apps, Products, Docs, Tools & Support, and News. A search bar is located on the right. A blue banner at the top of the main content area states: 'All apps are being upgraded to Graph API v2.0 or above. Learn more.' The left sidebar contains a menu with options: Dashboard, Settings, Status & Review, App Details, Roles, Open Graph, Alerts, Localize, Canvas Payments, and Audience Network. The main content area is titled 'Dashboard' and features the app's logo, name, and a status indicator 'This app is in development mode'. Below this, a table displays the App ID (409090199295451), API Version (v2.3), and App Secret (represented by dots). A red rectangle highlights the App ID and App Secret fields. A 'Show' button is next to the App Secret. Below the dashboard section is a 'Getting Started' section with a 'Getting Started' button. At the bottom, there is a 'Facebook Login' section with a 'Active Login Users' trend and checkboxes for 'Monthly Active Users', 'Weekly Active Users', and 'Daily Active Users'.

Developers My Apps Products Docs Tools & Support News Search in docs

All apps are being upgraded to Graph API v2.0 or above. [Learn more.](#)

newscomment

Dashboard

newscomment

This app is in development mode

| App ID | API Version | App Secret |
|-----------------|-------------|----------------------------|
| 409090199295451 | v2.3 | Show |

Getting Started

The quickstart guides cover what you need to do in order to be able to start using the Facebook SDK for iOS, Android, Canvas and Websites. [Getting Started](#)

Facebook Login

Active Login Users Trend

☒ Monthly Active Users ☒ Weekly Active Users ☒ Daily Active Users

json-simple

<https://json-simple.googlecode.com/files/json-simple-1.1.1.jar>



json-simple

JSON.simple - A simple Java toolkit for JSON

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| ☆ | json-simple-1.1-bundle.jar | 1.1 maven bundle | Jul 2009 | | 30.2 KB | 8401 | |
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| ☆ | json_simple-1.0.2.jar | jar binary | Jan 2009 | | 9.5 KB | 4701 | |
| ☆ | json_simple.zip | Initial version of JSON.simple source and binary | Jan 2009 | | 49.7 KB | 11483 | |
| | | | | | | | 1 - 8 of 8 |

使用json-simple讀取json資訊

```
JSONParser parser = new JSONParser();  
Object obj = parser.parse(doc);  
JSONObject jsonObject = (JSONObject) obj;  
JSONArray dt = (JSONArray)  
jsonObject.get("data");
```

使用SQL Wordbench瀏覽資料庫

The screenshot displays the SQL Wordbench application interface. On the left, the 'Navigator' pane shows the 'appledaily' database schema with the 'news_main' table selected. Below it, the 'Information' pane lists the columns of 'news_main': id (int(11) AI PK), title (varchar(1000)), content (text), time (datetime), view_cnt (varchar(45)), and category (varchar(10)).

The central 'Query 2' pane shows a SQL query: `select * from news_main`. Below the query editor, the 'Result Grid' displays the query results. The columns are 'id', 'content', 'time', 'view_cnt', and 'category'. The first row shows a news entry with 'id' 1, 'content' '公庫】黃益... 本內容由公庫提供 文／公庫特約記者呂曼...', 'time' NULL, 'view_cnt' NULL, and 'category' '政'.

On the right, the 'SQL Additions' pane contains a message: 'Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.'

At the bottom, the 'Output' pane shows a log of actions and messages. The actions include 'Apply changes to news_main' and 'select * from news_main LIMIT 0, 1000'. The messages indicate 'Error 1060: Duplicate column name 'content'' and 'Changes applied'. The final message shows '25 row(s) returned' and a duration of '0.047 sec / 0.000 sec'.

| id | content | time | view_cnt | category |
|----|--|------|----------|----------|
| 1 | 公庫】黃益... 本內容由公庫提供 文／公庫特約記者呂曼... | NULL | NULL | 政 |
| 2 | 歐國家加強入境管制 難民淪人球 (0) 來自北非、中東的難民在東歐國家加強入境... | NULL | NULL | 國 |
| 3 | 更新】蔣智賢周思齊包辦10打點 中信1..... 中信兄弟今火力全開，全場共擊出21支安打... | NULL | NULL | 體 |

| Time | Action | Message | Duration / Fetch |
|------------|---------------------------------------|---|-----------------------|
| 2 22:40:57 | Apply changes to news_main | | |
| 3 22:44:17 | Apply changes to news_main | Error 1060: Duplicate column name 'content' SQL Statement: CREAT... | |
| 4 22:44:49 | Apply changes to news_main | Changes applied | |
| 5 23:07:13 | select * from news_main LIMIT 0, 1000 | 25 row(s) returned | 0.047 sec / 0.000 sec |

任務七 分析各分類最熱門文章

| | category | popularity | time | title | url |
|----|----------|------------|-------|-----------------------------|---|
| 3 | 生活 | 0 | 00:27 | 美妝即期品開賣 每人只能買2件 | http://www.appledaily.com.tw/realtimenews/arti... |
| 12 | 社會 | 22141 | 00:21 | 【囂張】柯P地盤近百黑衣人砸服飾店 | http://www.appledaily.com.tw/realtimenews/arti... |
| 16 | 體育 | 23 | 00:17 | 台灣一哥盧彥勳法網首戰 周二下午5點 FO... | http://www.appledaily.com.tw/realtimenews/arti... |
| 19 | 動物 | 696 | 00:14 | 獵殺老犀牛 是為防止犀牛絕種？ | http://www.appledaily.com.tw/realtimenews/arti... |
| 24 | 娛樂 | 3442 | 00:10 | 【狗仔偷拍】安室缺席Jolin慶功宴 獨... | http://www.appledaily.com.tw/realtimenews/arti... |

聯絡方式

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- tr.ywchiu@gmail.com

The background features a light blue hexagonal grid pattern. Overlaid on this is a large, faint, light blue circular graphic composed of concentric rings and radial lines, resembling a stylized spiral or a target. A solid dark blue horizontal line runs across the top of the image.

THANK YOU