

EXCEL/Google sheet

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Agenda

1. Dos and don'ts before doing data analysis
2. Google sheet basic introduction
3. Basic - Useful functions
4. Advanced functions
5. Excel

1

Dos and don'ts
before doing data analysis

Before doing data analysis, you should understand...

- What are the goal of the analysis? You are doing this work for what?
- Who are you working for/with?
- What kind of data you are dealing with?
- What should the final work be like?
- How much time do you have?

Tools

Base on your goal and what kind of data you have, you can choose the tools which fit your needs.

- R
- Python
- SAS
- Excel/Google sheet

Download Excel

• iNCCU

景雲的頁面1 × **景雲的頁面2** 新增頁面 | 新增工具 | 佈景主題 | 回復初始設定

校園新聞

- 比令·亞布、馬躍·比吼暢談實驗教育 盼找回原住民教育主體性 [推](#)
- 選研中心講座 尹麗喬解析民調當中平衡及扈從概念之應用 [推](#)
- 【政大校友】億萬流量金牌製作人陳芷涵 打造臺灣戲劇王國 [推](#)
- 社科院職涯講座 解析疫情衝擊與就業出路抉擇 [推](#)
- 【政大校友】戴瑞宏：正確的事情重複做離成功就不遠 [推](#)

行事曆

學校 校園活動 全校行事曆 前月 本月 次月

2020 年 10 月

日期	事項
1(四)~2(五)	中秋節/調整放假
5(一)~14(三)	碩博士班集中網路申報論文題目
7(三)	行政會議
9(五)~10(六)	補假/國慶日
19(一)	第 1 次教務會議
23(五)	學期 1/3 退費基準日

我的校務資訊服務

教師 學生 行政 全部

- 成績查詢
- 入帳明細查詢
- 宿舍郵局包裹信件查詢
- 獎助學金查詢
- 個人獎助學金查詢
- 工讀申請登錄及工讀機會查詢
- 全校課程查詢

其他更多系統...

校園公告

- 10/17(六) 民族系碩博研究生論文大綱暨部分章節及田野成果發表會 [推](#)
- 109學年度全校史學論文獎 徵文公告 [推](#)
- 圖書資訊學研究回顧與前瞻學術研討會 [推](#)
- 10/20(二)12:30語言學/英語教學學術工作坊 [推](#)
- 選舉研究中心109年10月第1波電訪案 [推](#)

NCCU郵件信箱

基於資安考量及系統改版，即日起進入本校電子郵件系統需重新輸入帳號密碼後登入使用。

...進入nccu郵件信箱

個人訊息

您有 1 個新訊息，共 1 個訊息
 提醒您參加 109/09/29 的「【E享學集成網平台教育訓練】」活動/課程。

...瀏覽所有訊息

校園資訊系統

隱藏圖示 | 排序



 圖書館

 WM5數位學習

 校務系統 Web入口

 校園授權軟體

 全校課程查

 VPN

Download Office

English | 電算中心 | 政大直頁

校園授權軟體
NCCU Campus-Authorized Softwares

下載軟體及序號限校內IP哦!
(校外請用VPN)

搜尋軟體 GO

歡迎! 莊景雲 | 登出
IP來源: 140.119.96.163

下 載 軟 體 軟體清單 常見問題 授權宣告

作業系統
防毒軟體
文書處理軟體
統計軟體
影像編輯軟體
多媒體編輯軟體
字型及輸入法
網頁編輯軟體
學習輔助軟體
其它軟體

免費小工具]
文書工具
[OpenOffice](#)
[LibreOffice](#)
燒錄軟體
[ImageBurn](#)
[CDBurnerXP](#)
虛擬光碟
[Virtual Clone](#)
Drive
FTP傳輸
[FileZilla](#)
PDF轉檔

文書處理軟體 更多文書處理軟體

此類軟體共12筆

Office 2019 Pro Plus(繁體中文版)

學生授權使用地點 家中 宿舍 教室 | 序號: [啟用程式](#)

微軟 20190417

下載軟體 檔案01 檔案02
安裝注意 如有安裝解壓縮軟體，開啟方式請參照此篇

下載哪個檔案？
Microsoft 建議使用 32 位元 (x86) 版的 Office 2019 應用程式做為所有平台的預設選項。
檔案01為32位元(檔案大小為1.74 GB)
檔案02為64位元(檔案大小為1.94 GB)。

安裝和啟用
如您的電腦有Office Starter、試用版等其他版本，務必先移除，再安裝本軟體。
1. 安裝：在所下載的iso檔點兩下、開啟 Office2019 ProPlus 資料夾，執行 `install_Office2019.bat` 以開始自動安裝程序，詳見[示範影片](#)。
2. 啟用：安裝過程中不需輸入序號，安裝後需執行「啟用程式」，否則30天後功能受限制，詳見[示範影片](#)。

*如要登入mail3帳號，請先啟用授權，再行登入

重大公告
給本站打分數
虛擬光碟軟體讀ISO檔
校外需透過VPN下載軟體
線上提問(FB Messenger)

新增軟體
 EverCam 8.1
 Avira授權更新

熱門下載

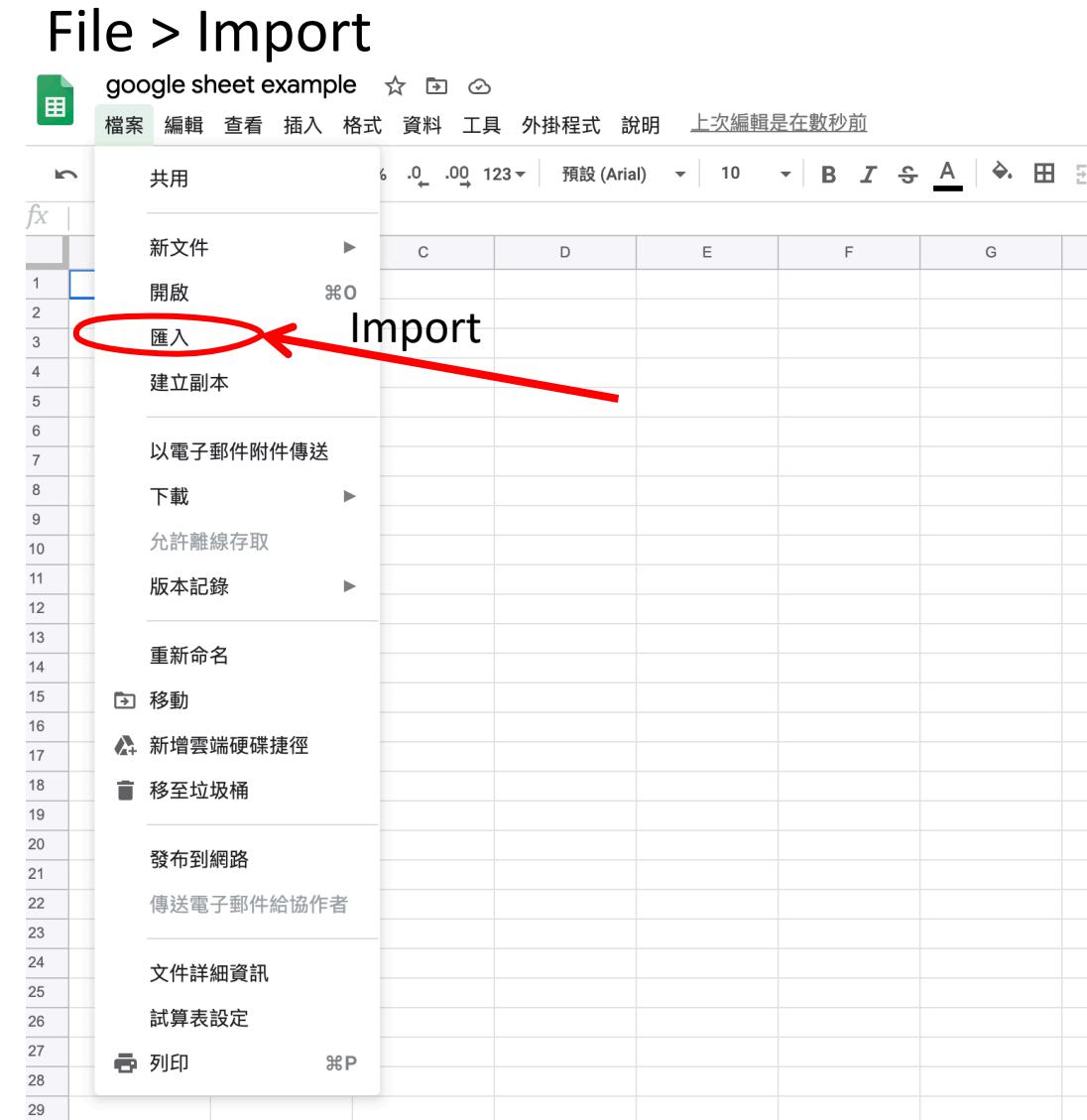
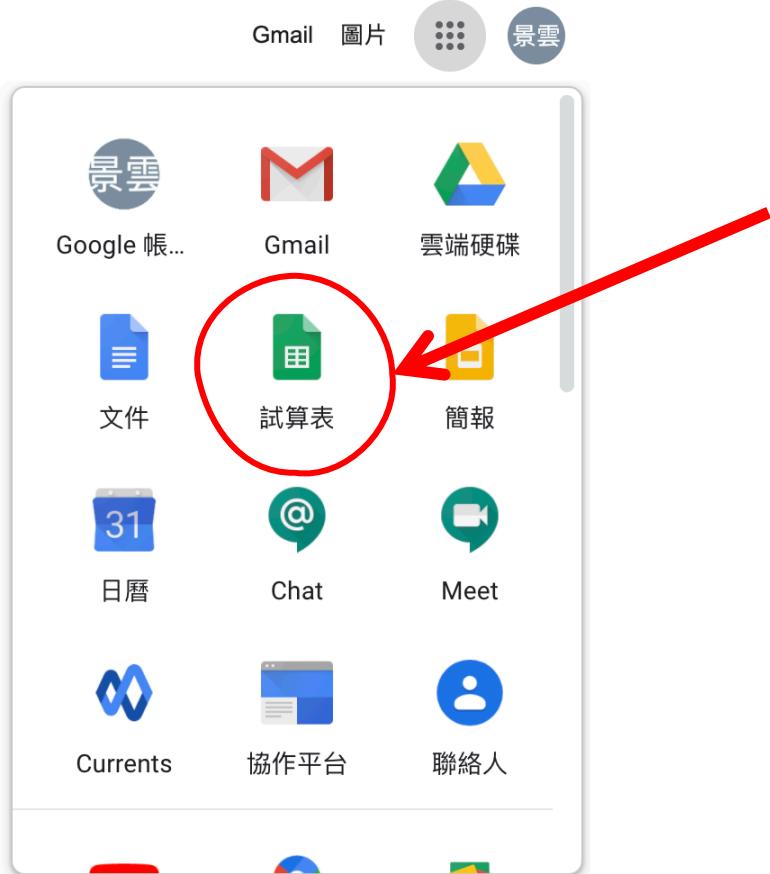
1. Office 2016 Pro Plus
2. 譯典通Dr. eye 7.0
3. Office 2016 for MAC
4. Office 2019 Pro Plus
5. SAS 9.4

個人下載記錄

2

Google sheet basic introduction

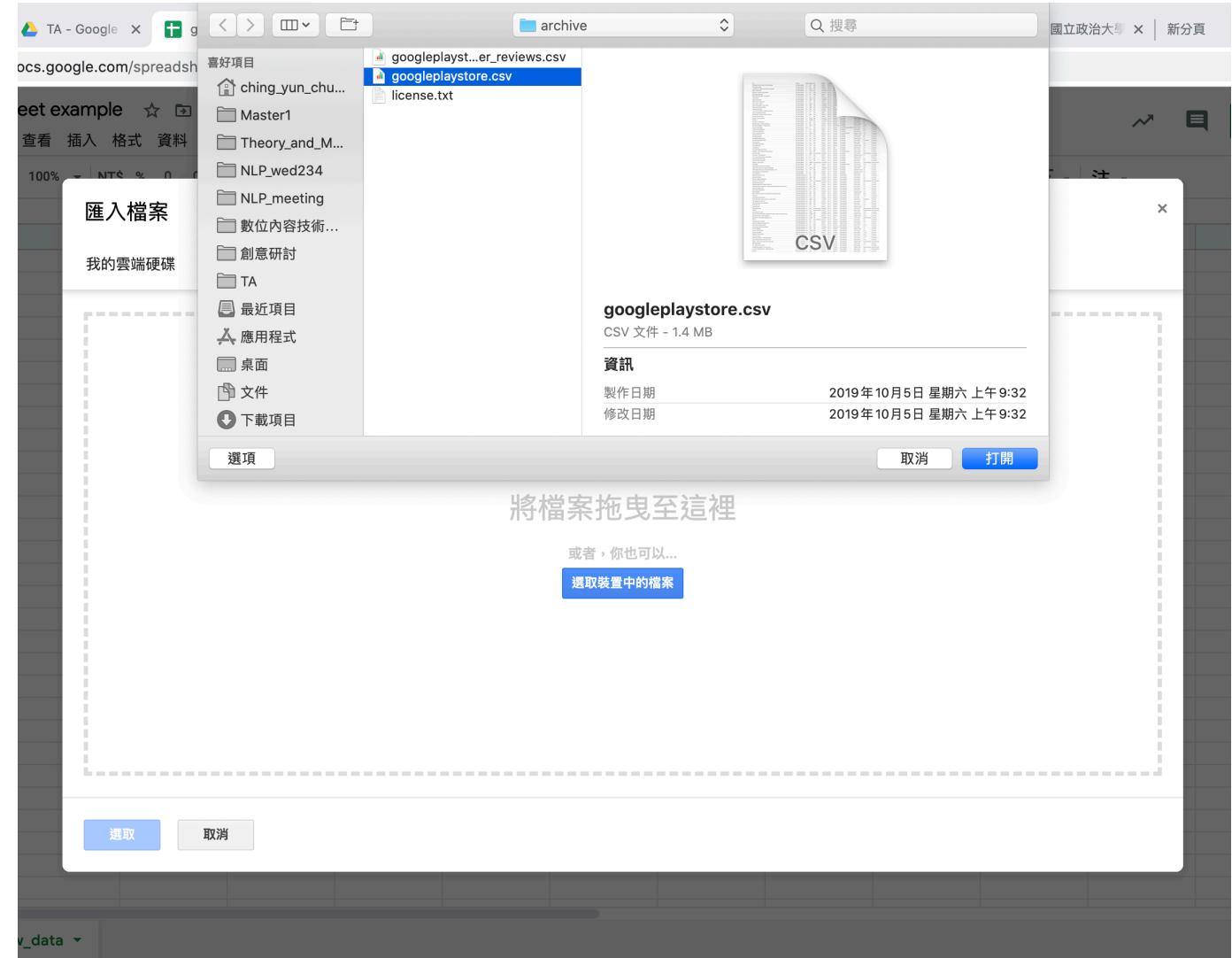
Import data into Google sheet



Import data into Google sheet

Choose the dataset you need

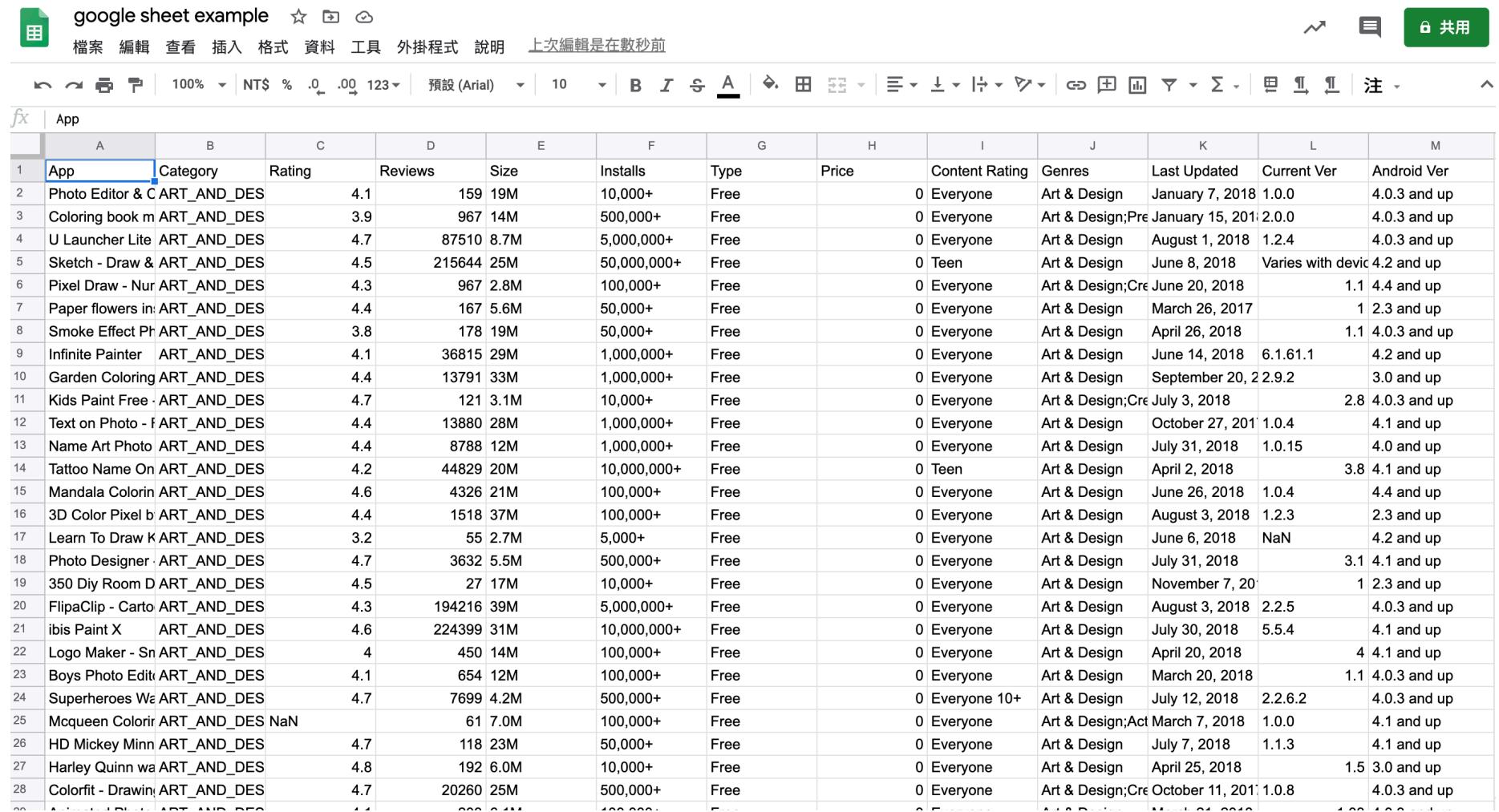
- <https://www.kaggle.com/lava18/google-play-store-apps>
- googleplaystore.csv
- google sheet example
- google sheet practice
- googleplaystore



Google sheet practice

Take a look at your data

- App
- Category
- Rating
- Reviews
- Size
- Installs
- Type
- Price
- Content
- Rating
- Genres
- Last Updated
- Current Ver
- Android Ver



The screenshot shows a Google Sheets document with the title "google sheet example". The spreadsheet contains a table with 28 rows of data, each representing an app. The columns are labeled A through M, corresponding to the following data fields:

A	B	C	D	E	F	G	H	I	J	K	L	M	
App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver	
Photo Editor & C	ART_AND_DES	4.1	159	19M	10,000+	Free		0 Everyone	Art & Design	January 7, 2018	1.0.0	4.0.3 and up	
Coloring book m	ART_AND_DES	3.9	967	14M	500,000+	Free		0 Everyone	Art & Design;Pre	January 15, 201	2.0.0	4.0.3 and up	
U Launcher Lite	ART_AND_DES	4.7	87510	8.7M	5,000,000+	Free		0 Everyone	Art & Design	August 1, 2018	1.2.4	4.0.3 and up	
Sketch - Draw & ART_AND_DES		4.5	215644	25M	50,000,000+	Free		0 Teen	Art & Design	June 8, 2018	Varies with devic	4.2 and up	
Pixel Draw - Nur	ART_AND_DES	4.3	967	2.8M	100,000+	Free		0 Everyone	Art & Design;Cre	June 20, 2018		1.1 4.4 and up	
Paper flowers in:	ART_AND_DES	4.4	167	5.6M	50,000+	Free		0 Everyone	Art & Design	March 26, 2017		1 2.3 and up	
Smoke Effect Ph	ART_AND_DES	3.8	178	19M	50,000+	Free		0 Everyone	Art & Design	April 26, 2018		1.1 4.0.3 and up	
Infinite Painter	ART_AND_DES	4.1	36815	29M	1,000,000+	Free		0 Everyone	Art & Design	June 14, 2018	6.1.61.1	4.2 and up	
Garden Coloring	ART_AND_DES	4.4	13791	33M	1,000,000+	Free		0 Everyone	Art & Design	September 20, 201	2.9.2	3.0 and up	
Kids Paint Free - ART_AND_DES		4.7	121	3.1M	10,000+	Free		0 Everyone	Art & Design;Cre	July 3, 2018		2.8 4.0.3 and up	
Text on Photo - F	ART_AND_DES	4.4	13880	28M	1,000,000+	Free		0 Everyone	Art & Design	October 27, 201	1.0.4	4.1 and up	
Name Art Photo	ART_AND_DES	4.4	8788	12M	1,000,000+	Free		0 Everyone	Art & Design	July 31, 2018	1.0.15	4.0 and up	
Tattoo Name On	ART_AND_DES	4.2	44829	20M	10,000,000+	Free		0 Teen	Art & Design	April 2, 2018		3.8 4.1 and up	
Mandala Colorin	ART_AND_DES	4.6	4326	21M	100,000+	Free		0 Everyone	Art & Design	June 26, 2018	1.0.4	4.4 and up	
3D Color Pixel b	ART_AND_DES	4.4	1518	37M	100,000+	Free		0 Everyone	Art & Design	August 3, 2018	1.2.3	2.3 and up	
Learn To Draw K	ART_AND_DES	3.2	55	2.7M	5,000+	Free		0 Everyone	Art & Design	June 6, 2018	NaN	4.2 and up	
Photo Designer .	ART_AND_DES	4.7	3632	5.5M	500,000+	Free		0 Everyone	Art & Design	July 31, 2018		3.1 4.1 and up	
350 Diy Room D	ART_AND_DES	4.5	27	17M	10,000+	Free		0 Everyone	Art & Design	November 7, 201		1 2.3 and up	
FlipaClip - Carto	ART_AND_DES	4.3	194216	39M	5,000,000+	Free		0 Everyone	Art & Design	August 3, 2018	2.2.5	4.0.3 and up	
ibis Paint X	ART_AND_DES	4.6	224399	31M	10,000,000+	Free		0 Everyone	Art & Design	July 30, 2018	5.5.4	4.1 and up	
Logo Maker - Sn	ART_AND_DES	4	450	14M	100,000+	Free		0 Everyone	Art & Design	April 20, 2018		4 4.1 and up	
Boys Photo Edit	ART_AND_DES	4.1	654	12M	100,000+	Free		0 Everyone	Art & Design	March 20, 2018		1.1 4.0.3 and up	
Superheroes Wz	ART_AND_DES	4.7	7699	4.2M	500,000+	Free		0 Everyone	10+	Art & Design	July 12, 2018	2.2.6.2	4.0.3 and up
Mcqueen Colorir	ART_AND_DES	Nan		61	7.0M	100,000+	Free		0 Everyone	Art & Design;Act	March 7, 2018	1.0.0	4.1 and up
HD Mickey Minn	ART_AND_DES	4.7	118	23M	50,000+	Free		0 Everyone	Art & Design	July 7, 2018	1.1.3	4.1 and up	
Harley Quinn wa	ART_AND_DES	4.8	192	6.0M	10,000+	Free		0 Everyone	Art & Design	April 25, 2018		1.5 3.0 and up	
Colorfit - Drawing	ART_AND_DES	4.7	20260	25M	500,000+	Free		0 Everyone	Art & Design;Cre	October 11, 201	1.0.8	4.0.3 and up	

Create a filter

2

Screenshot of a Microsoft Excel spreadsheet titled "App". The table contains 18 rows of data about various mobile apps, including their names, categories, ratings, reviews, sizes, installs, types, prices, content ratings, genres, last updated dates, current versions, and Android requirements.

The "Category" column is currently selected, indicated by a blue border around the cell range A2:A18. The "Filter" icon (a funnel symbol) in the top ribbon is circled in red, highlighting the feature being demonstrated.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
2	Photo Editor & C	ART_AND_DES	4.1	159	19M	10,000+	Free		0 Everyone	Art & Design	January 7, 2018	1.0.0	4.0.3 and up
3	Coloring book m	ART_AND_DES	3.9	967	14M	500,000+	Free		0 Everyone	Art & Design;Pre	January 15, 201	2.0.0	4.0.3 and up
4	U Launcher Lite	ART_AND_DES	4.7	87510	8.7M	5,000,000+	Free		0 Everyone	Art & Design	August 1, 2018	1.2.4	4.0.3 and up
5	Sketch - Draw &	ART_AND_DES	4.5	215644	25M	50,000,000+	Free		0 Teen	Art & Design	June 8, 2018	Varies with devic	4.2 and up
6	Pixel Draw - Nur	ART_AND_DES	4.3	967	2.8M	100,000+	Free		0 Everyone	Art & Design;Cre	June 20, 2018		1.1 4.4 and up
7	Paper flowers in:	ART_AND_DES	4.4	167	5.6M	50,000+	Free		0 Everyone	Art & Design	March 26, 2017		1 2.3 and up
8	Smoke Effect Ph	ART_AND_DES	3.8	178	19M	50,000+	Free		0 Everyone	Art & Design	April 26, 2018		1.1 4.0.3 and up
9	Infinite Painter	ART_AND_DES	4.1	36815	29M	1,000,000+	Free		0 Everyone	Art & Design	June 14, 2018	6.1.61.1	4.2 and up
0	Garden Coloring	ART_AND_DES	4.4	13791	33M	1,000,000+	Free		0 Everyone	Art & Design	September 20, 2018	2.9.2	3.0 and up
1	Kids Paint Free -	ART_AND_DES	4.7	121	3.1M	10,000+	Free		0 Everyone	Art & Design;Cre	July 3, 2018		2.8 4.0.3 and up
2	Text on Photo - F	ART_AND_DES	4.4	13880	28M	1,000,000+	Free		0 Everyone	Art & Design	October 27, 2011	1.0.4	4.1 and up
3	Name Art Photo	ART_AND_DES	4.4	8788	12M	1,000,000+	Free		0 Everyone	Art & Design	July 31, 2018	1.0.15	4.0 and up
4	Tattoo Name On	ART_AND_DES	4.2	44829	20M	10,000,000+	Free		0 Teen	Art & Design	April 2, 2018		3.8 4.1 and up
5	Mandala Colorin	ART_AND_DES	4.6	4326	21M	100,000+	Free		0 Everyone	Art & Design	June 26, 2018	1.0.4	4.4 and up
6	3D Color Pixel b	ART_AND_DES	4.4	1518	37M	100,000+	Free		0 Everyone	Art & Design	August 3, 2018	1.2.3	2.3 and up
7	Learn To Draw K	ART_AND_DES	3.2	55	2.7M	5,000+	Free		0 Everyone	Art & Design	June 6, 2018	NaN	4.2 and up
8	Photo Designer	ART_AND_DES	4.7	3632	5.5M	500,000+	Free		0 Everyone	Art & Design	July 31, 2018		3.1 4.1 and up

Create a filter

Select all

The screenshot shows a Google Sheets interface with the title "google sheet example". The menu bar includes "檔案", "編輯", "查看", "插入", "格式", "資料", "工具", "外掛程式", and "說明". The toolbar above the sheet includes various icons for file operations, zoom, and font styles. A red circle highlights the top-left corner cell (A1). The sheet has columns labeled A through M and rows labeled 1 through 29. In row 18, cell A18 contains the text "這是在 7 分鐘前". A "Change the format" dialog box is open over the sheet, showing a preview of the selected range F27:G28 and a dropdown menu for applying a grid style. The style dropdown shows several options, with the first one highlighted.

Create your dashboard

Merge cells

The screenshot shows a Microsoft Excel interface with the following elements:

- Top ribbon:** Includes font size (10), bold (B), italic (I), and merge cells (田) buttons.
- Color palette:** A floating window titled "重設" (Reset) displays a grid of colors for changing cell formats.
- Table:** A table with columns C, D, E, F, G. The first three columns (C, D, E) are merged into a single wide column.
- Context menu:** A right-clicked context menu for the merged cells includes options like "刪除" (Delete), "複製" (Copy), "複製到" (Copy to), "重新命名" (Rename), "變更顏色" (Change color), "受保護的工作表" (Protected sheet), "隱藏工作表" (Hide sheet), "查看評論" (View comments), "向右移" (Move right), and "向左移" (Move left).
- Bottom navigation:** Includes tabs for "Overview" and "工作表3".

Change color and name of the sheet

Category	Basic overview				
	Number	Rating > 4	Rating > 3	Rating > 2	Rating < 2
ART_AND DESIGN					
AUTO_AND_VEHICLES					
BEAUTY					
BOOKS_AND_REFERENCE					
BUSINESS					
COMICS					
COMMUNICATION					
DATING					
EDUCATION					
ENTERTAINMENT					
EVENTS					
FINANCE					
FOOD_AND_DRINK					
HEALTH_AND_FITNESS					
HOUSE_AND_HOME					
LIBRARIES_AND_DEMO					
LIFESTYLE					
GAME					
FAMILY					
MEDICAL					
SOCIAL					
SHOPPING					
PHOTOGRAPHY					
SPORTS					
TRAVEL_AND_LOCAL					
TOOLS					

3

Basic - Useful functions

Function list

- Google sheet function list

Functions and formulas > Google Sheets function list

The screenshot shows the 'Google Sheets function list' page. At the top, there's a search bar with placeholder text 'Filter with a few keywords ...' and a 'Narrow by ...' dropdown menu. Below this is a table with four columns: 'Type', 'Name', 'Syntax', and 'Description'. The table contains three rows of data:

Type	Name	Syntax	Description
Array	ARRAY_CONSTRAIN	<code>ARRAY_CONSTRAIN(input_range, num_rows, num_cols)</code>	Constrains an array result to a specified size. Learn more
Array	FREQUENCY	<code>FREQUENCY(data, classes)</code>	Calculates the frequency distribution of a one-column array into specified classes. Learn more
Array	GROWTH	<code>GROWTH(known_data_y, [known_data_x], [new_data_x], [b])</code>	Given partial data about an exponential growth trend, fits an ideal exponential growth trend and/or predicts further

Functions and formulas

- Add formulas & functions
- See the sum & average
- Reference data from other sheets
- Google Sheets function list

UNIQUE

- How to see all of Category in google play store?

UNIQUE(B:B)

A	B	C	D	E	F	G	H	I	J	K	L
App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver
Photo Editor & Candy Camera	ART_AND DESIGN	4.1	159	19M	10,000+	Free		0 Everyone	Art & Design	January 7, 2018	1.0.0
Coloring book moana	ART_AND DESIGN	3.9	967	14M	500,000+	Free		0 Everyone	Art & Design;Pre	January 15, 2011	2.0.0
U Launcher Lite – FREE Live C	ART_AND DESIGN	4.7	87510	8.7M	5,000,000+	Free		0 Everyone	Art & Design	August 1, 2018	1.2.4
Sketch - Draw & Paint	ART_AND DESIGN	4.5	215644	25M	50,000,000+	Free		0 Teen	Art & Design	June 8, 2018	Varies with de
Pixel Draw - Number Art Colori	ART_AND DESIGN	4.3	967	2.8M	100,000+	Free		0 Everyone	Art & Design;Cr	June 20, 2018	1
Paper flowers instructions	ART_AND DESIGN	4.4	167	5.6M	50,000+	Free		0 Everyone	Art & Design	March 26, 2017	
Smoke Effect Photo Maker - S	ART_AND DESIGN	3.8	178	19M	50,000+	Free		0 Everyone	Art & Design	April 26, 2018	1
Infinite Painter	ART_AND DESIGN	4.1	36815	29M	1,000,000+	Free		0 Everyone	Art & Design	June 14, 2018	6.1.61.1
Garden Coloring Book	ART_AND DESIGN	4.4	13791	33M	1,000,000+	Free		0 Everyone	Art & Design	September 20, 2018	2.2.9.2
Kids Paint Free - Drawing Fun	ART_AND DESIGN	4.7	121	3.1M	10,000+	Free		0 Everyone	Art & Design;Cr	July 3, 2018	2
Text on Photo - Fonteee	ART_AND DESIGN	4.4	13880	28M	1,000,000+	Free		0 Everyone	Art & Design	October 27, 2011	1.0.4
Name Art Photo Editor - Focus	ART_AND DESIGN	4.4	8788	12M	1,000,000+	Free		0 Everyone	Art & Design	July 31, 2018	1.0.15
Tattoo Name On My Photo Edit	ART_AND DESIGN	4.2	44829	20M	10,000,000+	Free		0 Teen	Art & Design	April 2, 2018	3
Mandala Coloring Book	ART_AND DESIGN	4.6	4326	21M	100,000+	Free		0 Everyone	Art & Design	June 26, 2018	1.0.4
3D Color Pixel by Number - Sa	ART_AND DESIGN	4.4	1518	37M	100,000+	Free		0 Everyone	Art & Design	August 3, 2018	1.2.3
Learn To Draw Kawaii Characte	ART_AND DESIGN	3.2	55	2.7M	5,000+	Free		0 Everyone	Art & Design	June 6, 2018	NaN
Photo Designer - Write your na	ART_AND DESIGN	4.7	3632	5.5M	500,000+	Free		0 Everyone	Art & Design	July 31, 2018	3
350 Diy Room Decor Ideas	ART_AND DESIGN	4.5	27	17M	10,000+	Free		0 Everyone	Art & Design	November 7, 2011	
FlipaClip - Cartoon animation	ART_AND DESIGN	4.3	194216	39M	5,000,000+	Free		0 Everyone	Art & Design	August 3, 2018	2.2.5
ibis Paint X	ART_AND DESIGN	4.6	224399	31M	10,000,000+	Free		0 Everyone	Art & Design	July 30, 2018	5.5.4
Logo Maker - Small Business	ART_AND DESIGN	4	450	14M	100,000+	Free		0 Everyone	Art & Design	April 20, 2018	
Boys Photo Editor - Six Pack &	ART_AND DESIGN	4.1	654	12M	100,000+	Free		0 Everyone	Art & Design	March 20, 2018	1
Superheroes Wallpapers 4K B	ART_AND DESIGN	4.7	7699	4.2M	500,000+	Free		0 Everyone 10+	Art & Design	July 12, 2018	2.2.6.2
Mcqueen Coloring pages	ART_AND DESIGN	Nan	61	7.0M	100,000+	Free		0 Everyone	Art & Design;Act	March 7, 2018	1.0.0
HD Mickey Minnie Wallpapers	ART_AND DESIGN	4.7	118	23M	50,000+	Free		0 Everyone	Art & Design	July 7, 2018	1.1.3
Harley Quinn wallpapers HD	ART_AND DESIGN	4.8	192	6.0M	10,000+	Free		0 Everyone	Art & Design	April 25, 2018	1
Colorfit - Drawing & Colorina	ART_AND DESIGN	4.7	20260	25M	500,000+	Free		0 Everyone	Art & Design;Cr	October 11, 2011	1.0.8

P	Q
Category	
ART_AND DESIGN	
AUTO_AND_VEHICLES	
BEAUTY	
BOOKS_AND_REFERENCE	
BUSINESS	
COMICS	
COMMUNICATION	
DATING	
EDUCATION	
ENTERTAINMENT	
EVENTS	
FINANCE	
FOOD_AND_DRINK	
HEALTH_AND_FITNESS	
HOUSE_AND_HOME	
LIBRARIES_AND_DEMO	
LIFESTYLE	
GAME	
FAMILY	
MEDICAL	
SOCIAL	
SHOPPING	
PHOTOGRAPHY	
SPORTS	
TRAVEL_AND_LOCAL	
TOOLS	
PERSONALIZATION	
PRODUCTIVITY	

COUNTUNIQUE

3

- How many **Category** does google play store have?

COUNTUNIQUE(B:B)

COUNTIF

Category	Number	Basic overview
ART_AND DESIGN	65	
AUTO_AND VEHICLES	85	
BEAUTY	53	
BOOKS_AND REFERENCE	231	
BUSINESS	460	
COMICS	60	
COMMUNICATION	387	
DATING	234	
EDUCATION	156	
ENTERTAINMENT	149	
EVENTS	64	
FINANCE	366	
FOOD_AND DRINK	127	
HEALTH_AND FITNESS	341	
HOUSE_AND HOME	88	
LIBRARIES_AND DEMO	85	
LIFESTYLE	382	
GAME	1144	
FAMILY	1972	
MEDICAL	463	
SOCIAL	295	
SHOPPING	260	
PHOTOGRAPHY	335	
SPORTS	384	
TRAVEL_AND LOCAL	258	
TOOLS	813	

COUNTIF(range, criterion)

EX:

- COUNTIF(A1:A10,">20")
- COUNTIF(A1:A10,"Paid")

Practice :

Try to count the number of apps of each category.

COUNTIF

Category	Number
ART_AND DESIGN	65
AUTO_AND VEHICLES	85
BEAUTY	53
BOOKS_AND REFERENCE	231
BUSINESS	460
COMICS	60
COMMUNICATION	387
DATING	234
EDUCATION	156
ENTERTAINMENT	149
EVENTS	64
FINANCE	366
FOOD_AND DRINK	127
HEALTH_AND FITNESS	341
HOUSE_AND HOME	88
LIBRARIES_AND DEMO	85
LIFESTYLE	382
GAME	1144
FAMILY	1972
MEDICAL	463
SOCIAL	295
SHOPPING	260
PHOTOGRAPHY	335
SPORTS	384
TRAVEL_AND LOCAL	258
TOOLS	813

Practice :

Try to count the number of apps of each category.

Ans :

=COUNTIF(raw_data!B:B,B4)

Category	Number
ART_AND DESIGN	? =COUNTIF(raw_data!B:B,B4)
AUTO_AND VEHICLES	85
BEAUTY	53
BOOKS_AND REFERENCE	231
BUSINESS	460

COUNTIFS

`COUNTIFS(criteria_range1, criterion1, [criteria_range2, criterion2, ...])`

- `COUNTIFS(A1:A10, ">20", B1:B10, "<30")`
- `COUNTIFS(A7:A24, ">6", B7:B24, "<"&DATE(1969,7,20))`
- `COUNTIFS(B8:B27, ">" & B12, C8:C27, "<" & C13, D8:D27, "=>10")`

Category	Basic overview				
	Number	Rating > 4	Rating > 3	Rating > 2	Rating < 2
ART_AND DESIGN	65				
AUTO_AND VEHICLES	85				
BEAUTY	53				
BOOKS_AND_REFERENCE	231				
BUSINESS	460				
COMICS	60				
COMMUNICATION	387				
DATING	234				
EDUCATION	156				
ENTERTAINMENT	149				
EVENTS	64				
FINANCE	366				
FOOD_AND_DRINK	107				

Practice :

Try to count the number of apps of each category by

- Rating ≥ 4
- Rating $\geq 3, < 4$
- Rating $\geq 2, < 3$
- Rating < 2

COUNTIFS

Ans :

Category	Basic overview				
	Number	Rating > 4	Rating > 3	Rating > 2	Rating < 2
ART_AND DESIGN	65	=COUNTIFS(raw_data!\$C:\$C, ">=4", raw_data!\$B:\$B, B4)	55	16	2
AUTO_AND_VEHICLES	85		16	2	0
BEAUTY	53	35	7	0	0
BOOKS_AND_REFERENCE	231	149	28	1	0
BUSINESS	460	223	63	15	2

Category	Basic overview				
	Number	Rating > 4	Rating > 3	Rating > 2	Rating < 2
ART_AND DESIGN	65	55	=COUNTIFS(raw_data!\$C:\$C, ">=3", raw_data!\$C:\$C, "<4", raw_data!\$B:\$B, B4)	16	2
AUTO_AND_VEHICLES	85	55	16	2	0
BEAUTY	53	35	7	0	0
BOOKS AND REFERENCE	231	149	28	1	0

Category	Basic overview				
	Number	Rating > 4	Rating > 3	Rating > 2	Rating < 2
ART_AND DESIGN	65	55	7	=COUNTIFS(raw_data!\$C:\$C, "<2", raw_data!\$B:\$B, B4)	2
AUTO_AND_VEHICLES	85	55	16	2	0
BEAUTY	53	35	7	0	0

SPARKLINE

- SPARKLINE(A1:A5, {"charttype","column"; "color", "red"})

Basic overview					
Number	Rating > 4	Rating > 3	Rating > 2	Rating < 2	
65	55	7	0	0	H4
85	55	16	2	0	
53	35	7	0	0	
231	149	28	1	0	
460	223	63	15	2	
--	--	--	.	-	

Little tip - Freeze

google sheet example

檔案 編輯 **查看** 插入 格式 資料 工具 外掛程式 說明 上次編輯是在 2 分鐘前

凍結

- 格線
- 保護範圍
- 公式列
- 顯示公式 Ctrl+`
- 隱藏的工作表 ▶
- 縮放 ▶
- 全螢幕

	E	F	G
3	2	1	
Overview			
Rating > 3	Rating > 2	Rating < 2	
7	0	0	
16	2	0	
7	0	0	
28	1	0	
63	15	2	
17	1	0	

Basic overview					
Category	Number	Rating > 4	Rating > 3	Rating > 2	Rating < 2
ART_AND DESIGN	65	55	7	0	0
AUTO_AND VEHICLES	85	55	16	2	0
BEAUTY	53	35	7	0	0
BOOKS_AND REFERENCE	231	149	28	1	0
BUSINESS	460	223	63	15	2
COMICS	60	40	17	1	0

SUM

`SUM(value1, [value2, ...])`

Ex :

- `SUM(A2:A100)`
- `SUM(1,2,3,4,5)`
- `SUM(1,2,A2:A50)`

Category	Number	Basic overview				
		Rating > 4	Rating > 3	Rating > 2	Rating < 2	Count
PHOTOGRAPHY	335	264	42	11	0	0
SPORTS	384	265	49	4	1	1
TRAVEL_AND_LOCAL	258	165	55	6	0	0
TOOLS	843	505	185	35	9	9
PERSONALIZATION	392	282	31	1	0	0
PRODUCTIVITY	424	291	49	8	3	3
PARENTING	60	41	8	1	0	0
WEATHER	82	59	16	0	0	0
VIDEO_PLAYERS	175	105	49	4	2	2
NEWS_AND_MAGAZINES	283	173	50	9	1	1
MAPS_AND_NAVIGATION	137	84	34	5	1	1
<code>=SUM(C4:C36)</code>		7368	1711	231	56	

SUMIF

SUMIF(range, criterion, [sum_range])

- range - The range which is tested against criterion.
- criterion - The pattern or test to apply to range.

Ex :

- SUMIF(A1:A10,>20")
- SUMIF(A1:A10,"Paid",B1:B10)

Category	Reviews overview				
	Total reviews#	Rating > 4	Rating > 3	Rating > 2	Rating < 2
ART_AND DESIGN	1714440				
AUTO_AND VEHICLES					
BEAUTY					
BOOKS_AND_REFERENCE					
BUSINESS					
COMICS					
COMMUNICATION					

Practice :

Please try to get the total reviews number for each type.

SUMIF

Category	Reviews overview				
	Total reviews#	Rating > 4	Rating > 3	Rating > 2	Rating < 2
ART_AND DESIGN	=SUMIF(raw_data!\$B:\$B,\$B4,raw_data!\$D:\$D)				
AUTO_AND VEHICLES					
BEAUTY					
BOOKS_AND_REFERENCE					
BUSINESS					
COMICS					

Practice :

Please try to get the total reviews number for each type.

Ans :

=SUMIF(raw_data!\$B:\$B,\$B4,raw_data!\$D:\$D)

SUMIFS

- SUMIFS(sum_range, criteria_range1, criterion1, [criteria_range2, criterion2, ...])
- sum_range - The range to be summed.
- criteria_range1 - The range to check against criterion1.
- criterion1 - The pattern or test to apply to criteria_range1.
- criteria_range2, criterion2, ...

Category	Reviews overview				
	Totsl reviews#	Rating > 4	Rating > 3	Rating > 2	Rating < 2
ART_AND DESIGN	1714440				
AUTO_AND VEHICLES	1163666				
BEAUTY	396240				
BOOKS_AND REFERENCE	21959069				
BUSINESS	13954552				
COMICS	3383276				
COMMUNICATION	815462260				
DATING	7291278				
EDUCATION	39595786				
ENTERTAINMENT	59178154				
EVENTS	161018				
FINANCE	17550728				
FOOD_AND DRINK	8883330				
HEALTH_AND FITNESS	37893743				
HOUSE_AND HOME	3976385				
LIBRARIES_AND DEMO	1037118				
LIFESTYLE	12882784				
GAME	1585422349				
FAMILY	410226330				

Practice :

Try to get the reviews number of each category by

- Rating ≥ 4
- Rating $\geq 3, < 4$
- Rating $\geq 2, < 3$
- Rating < 2

SUMIFS

Category	Reviews overview				
	Total reviews#	Rating > 4	Rating > 3	Rating > 2	Rating < 2
ART_AND DESIGN	1714440	1709780	4592	0	0
AUTO_AND_VEHICLES	1163666	1146411	17131	88	0
BEAUTY	396240	=SUMIFS(raw_data!\$D:\$D, raw_data!\$C:\$C, ">="&K\$1, raw_data!\$B:\$B, \$B6)			
BOOKS_AND_REFERENCE	21959069	20503914	1454678	68	0
BUSINESS	13954552	13679457	265116	9428	85
COMICS	3383276	3207105	174835	5	0
COMMUNICATION	815462260	814759823	701001	970	5

Ans :

```
=SUMIFS(raw_data!$D:$D, raw_data!$C:$C, ">="&K$1, raw_data!$B:$B, $B6)
```

RANK

`RANK(value, data, [is_descending])`

- value - The value whose rank will be determined.
- data - The array or range containing the dataset to consider.
- is_descending - [OPTIONAL - 0 by default]

If this is 0, the greatest value in data will have rank 1; if this is 1, the least value in data will have rank 1.

Ex :

- `RANK(A2,A2:A100)`
- `RANK(4,A2:A100,1)`

Practice :

Try to get the rank of each category by their total reviews.

Category	Reviews overview					Rank
	Total reviews#	Rating > 4	Rating > 3	Rating > 2	Rating < 2	
ART_AND DESIGN	1714440	1709780	4592	0	0	0
AUTO_AND VEHICLES	1163666	1146411	17131	88	0	0
BEAUTY	396240	350753	44380	0	0	0
BOOKS_AND_REFERENCE	21959069	20503914	1454678	68	0	0
BUSINESS	13954552	13679457	265116	9428	85	
COMICS	3383276	3207105	174835	5	0	
COMMUNICATION	815462260	814759823	701001	970	5	
DATING	7291278	7017197	259594	11387	2861	
EDUCATION	39595786	39561436	33574	0	0	
ENTERTAINMENT	59178154	53742099	5436055	0	0	
EVENTS	161018	160424	159	7	0	
FINANCE	17550728	16865815	681431	3033	127	
FOOD_AND_DRINK	8883330	8315514	567309	155	31	
HEALTH_AND_FITNESS	37893743	36992592	892415	8570	45	
HOUSE_AND_HOME	3976385	3849395	126604	5	0	
LIBRARIES_AND_DEMO	1037118	751749	281786	0	0	
LIFESTYLE	12882784	12484433	378321	18009	1006	
GAME	1585422349	1580689382	4727845	2316	34	
FAMILY	410226330	403082665	6964851	170239	5326	

RANK

`RANK(value, data, [is_descending])`

- value - The value whose rank will be determined.
- data - The array or range containing the dataset to consider.
- is_descending - [OPTIONAL - 0 by default]

If this is 0, the greatest value in data will have rank 1; if this is 1, the least value in data will have rank 1.

Ex :

- `RANK(A2,A2:A100)`
- `RANK(4,A2:A100,1)`

Ans :

`=RANK(J4,J$4:J$36)`

Category	Reviews overview					Rank
	Total reviews#	Rating > 4	Rating > 3	Rating > 2	Rating < 2	
ART_AND DESIGN	1714440	1709780	4592	0	0	=RANK(J4,J\$4:J\$36)
AUTO_AND VEHICLES	1163666	1146411	17131	88	0	29
BEAUTY	396240	350753	44380	0	0	32
BOOKS_AND_REFERENCE	21959069	20503914	1454678	68	0	18
BUSINESS	13954552	13679457	265116	9428	85	21
COMICS	3383276	3207105	174835	5	0	26
COMMUNICATION	815462260	814759823	701001	970	5	2
DATING	7291278	7017197	259594	11387	2861	24
EDUCATION	39595786	39561436	33574	0	0	15
ENTERTAINMENT	59178154	53742099	5436055	0	0	13
EVENTS	161018	160424	159	7	0	33

4

Advanced functions

INDEX - MATCH

4

IMPORTRANGE

IMPORTRANGE(spreadsheet_url, range_string)

Ex:

```
IMPORTRANGE("https://docs.google.com/spreadsheets/d/1vN1PCPgKHQF8b_tQikNzuv0CyNJINNvUVRX9QHTb2m0/edit#gid=0", "user_reviews!A1:E100")
```

	A	B	C	D	E	F
1	App	Translated_Review	Sentiment	Sentiment_Polar	Sentiment_Subjectivity	
2	10 Best Foods fc I like eat delicious	Positive		1	0.5333333333	
3	10 Best Foods fc This help eating	Positive		0.25	0.2884615385	
4	10 Best Foods fc nan	nan	nan	nan	nan	
5	10 Best Foods fc Works great esp	Positive		0.4	0.875	
6	10 Best Foods fc Best idea us	Positive		1	0.3	
7	10 Best Foods fc Best way	Positive		1	0.3	
8	10 Best Foods fc Amazing	Positive		0.6	0.9	
9	10 Best Foods fc nan	nan	nan	nan	nan	
10	10 Best Foods fc Looking forward	Neutral		0	0	
11	10 Best Foods fc It helpful site ! It	Neutral		0	0	
12	10 Best Foods fc good you.	Positive		0.7	0.6	
13	10 Best Foods fc Useful informatic	Positive		0.2	0.1	
14	10 Best Foods fc Thank you! Great	Positive		0.75	0.875	
15	10 Best Foods fc Greatest ever Cool	Positive		0.9921875	0.8666666667	
16	10 Best Foods fc Good health.....	Positive		0.55	0.5111111111	
17	10 Best Foods fc nan	nan	nan	nan	nan	
18	10 Best Foods fc Health It's important	Positive		0.45	1	
19	10 Best Foods fc Mrs sunita bhati	Positive		0.6	0.6666666667	
20	10 Best Foods fc Very Useful in diet	Positive		0.295	0.1	
21	10 Best Foods fc One greatest app	Positive		1	1	
22	10 Best Foods fc good nice	Positive		0.65	0.8	
23	10 Best Foods fc Healthy Really healthy	Positive		0.35	0.35	
24	10 Best Foods fc God health	Neutral		0	0	
25	10 Best Foods fc HEALTH SHOUT	Positive		0.78125	0.5	
26	10 Best Foods fc An excellent App	Positive		0.65	0.5	
27	10 Best Foods fc I found lot wealth	Neutral		0	0	
28	10 Best Foods fc Because I found	Positive		0.4	1	
29	10 Best Foods fc Healthy Eating	Positive		0.5	0.5	

=IMPORTRANGE("https://docs.google.com/spreadsheets/d/1vN1PCPgKHQF8b_tQikNzuv0CyNJINNvUVRX9QHTb2m0/edit#gid=0", "user_reviews!A1:E100")
10 Best Foods fc This help eating Positive
10 Best Foods fc nan nan
10 Best Foods fc Works great esp Positive
10 Best Foods fc Best idea us Positive
10 Best Foods fc Best way Positive
10 Best Foods fc Amazing Positive
10 Best Foods fc nan nan
10 Best Foods fc Looking forward Neutral
10 Best Foods fc It helpful site ! It Neutral
10 Best Foods fc good you. Positive
10 Best Foods fc Useful informatic Positive
10 Best Foods fc Thank you! Great Positive
10 Best Foods fc Greatest ever Cool Positive
10 Best Foods fc Good health..... Positive
10 Best Foods fc nan nan
10 Best Foods fc Health It's important Positive
10 Best Foods fc Mrs sunita bhati Positive
10 Best Foods fc Very Useful in diet Positive
10 Best Foods fc One greatest app Positive
10 Best Foods fc good nice Positive
10 Best Foods fc Healthy Really healthy Positive
10 Best Foods fc God health Neutral
10 Best Foods fc HEALTH SHOUT Positive
10 Best Foods fc An excellent App Positive
10 Best Foods fc I found lot wealth Neutral
10 Best Foods fc Because I found Positive
10 Best Foods fc Healthy Eating Positive

Insert chart - 1

Hide the column that we do not need.

google sheet example

Name	Category
Facebook	SOCIAL
WhatsApp Messenger	COMMUNICATION
Instagram	SOCIAL
Messenger – Text and Video Chat for Free	COMMUNICATION
Clash of Clans	GAME
Clean Master- Space Cleaner & Antivirus	TOOLS
Subway Surfers	GAME
YouTube	VIDEO_PLAYERS
Security Master - Antivirus, VPN, AppLock, Booster	TOOLS
Clash Royale	GAME
Candy Crush Saga	GAME
UC Browser - Fast Download Private & Secure	COMMUNICATION
Snapchat	SOCIAL
360 Security - Free Antivirus, Booster, Cleaner	TOOLS
My Talking Tom	GAME
8 Ball Pool	GAME
DU Battery Saver - Battery Charger & Battery Life	TOOLS
BBM - Free Calls & Messages	COMMUNICATION
Cache Cleaner-DU Speed Booster (booster & cleaner)	TOOLS
Twitter	NEWS_AND_MAGAZINES
Viber Messenger	COMMUNICATION
Shadow Fight 2	GAME
Google Photos	PHOTOGRAPHY

剪下 ⌘X

複製 ⌘C

貼上 ⌘V

選擇性貼上 ▶

向左插入 1 欄

向右插入 1 欄

刪除欄

清除欄

隱藏欄

調整欄的大小

將欄分組

將欄取消分組

排序工作表 (A → Z)

排序工作表 (Z → A)

隨機範圍

取得這個範圍的連結

定義已命名範圍

受保護的範圍

Installs

06 1,000,000,000+
 16 1,000,000,000+
 13 1,000,000,000+
 17 1,000,000,000+
 23 100,000,000+
 26 500,000,000+
 34 1,000,000,000+
 05 1,000,000,000+
 09 500,000,000+
 08 100,000,000+
 77 500,000,000+
 22 500,000,000+
 37 500,000,000+
 35 100,000,000+
 23 500,000,000+
 97 100,000,000+
 33 100,000,000+
 30 100,000,000+
 33 100,000,000+
 03 500,000,000+
 99 500,000,000+
 32 100,000,000+
 56 1,000,000,000+

Insert chart - 2

Choose the cells that you need and insert a chart.

Name	Rating
Facebook	4.1
WhatsApp Messenger	4.4
Instagram	4.5
Messenger – Text and Video Chat for Free	4
Clash of Clans	4.6
Clean Master- Space Cleaner & Antivirus	4.7
Subway Surfers	4.5
YouTube	4.3
Security Master - Antivirus, VPN, AppLock, Booster	4.7
Clash Royale	4.6
Candy Crush Saga	4.4
UC Browser - Fast Download Private & Secure	4.5
Snapchat	4
360 Security - Free Antivirus, Booster, Cleaner	4.6
My Talking Tom	4.5
8 Ball Pool	4.5
DU Battery Saver - Battery Charger & Battery Life	4.5
BBM - Free Calls & Messages	4.3
Cache Cleaner-DU Speed Booster (booster & cleaner)	4.5
Twitter	4.3
Viber Messenger	4.3
Shadow Fight 2	4.6
Google Photos	4.5
LINE: Free Calls & Messages	4.2

+ raw_data Overview user_reviews

Top 3

google sheet example

檔案 編輯 查看 插入 格式 資料 工具 外掛程式 說明 上次編輯是在數秒前

向上插入 31 列 向下插入 31 列

向左插入 3 檯 向右插入 3 檯

插入儲存格，並將現有的儲存格往下移
插入儲存格，並將現有的儲存格往右移

圖表 圖片 繪圖 表單

Σ 函式 插入連結

核取方塊 註解 備註 新的工作表

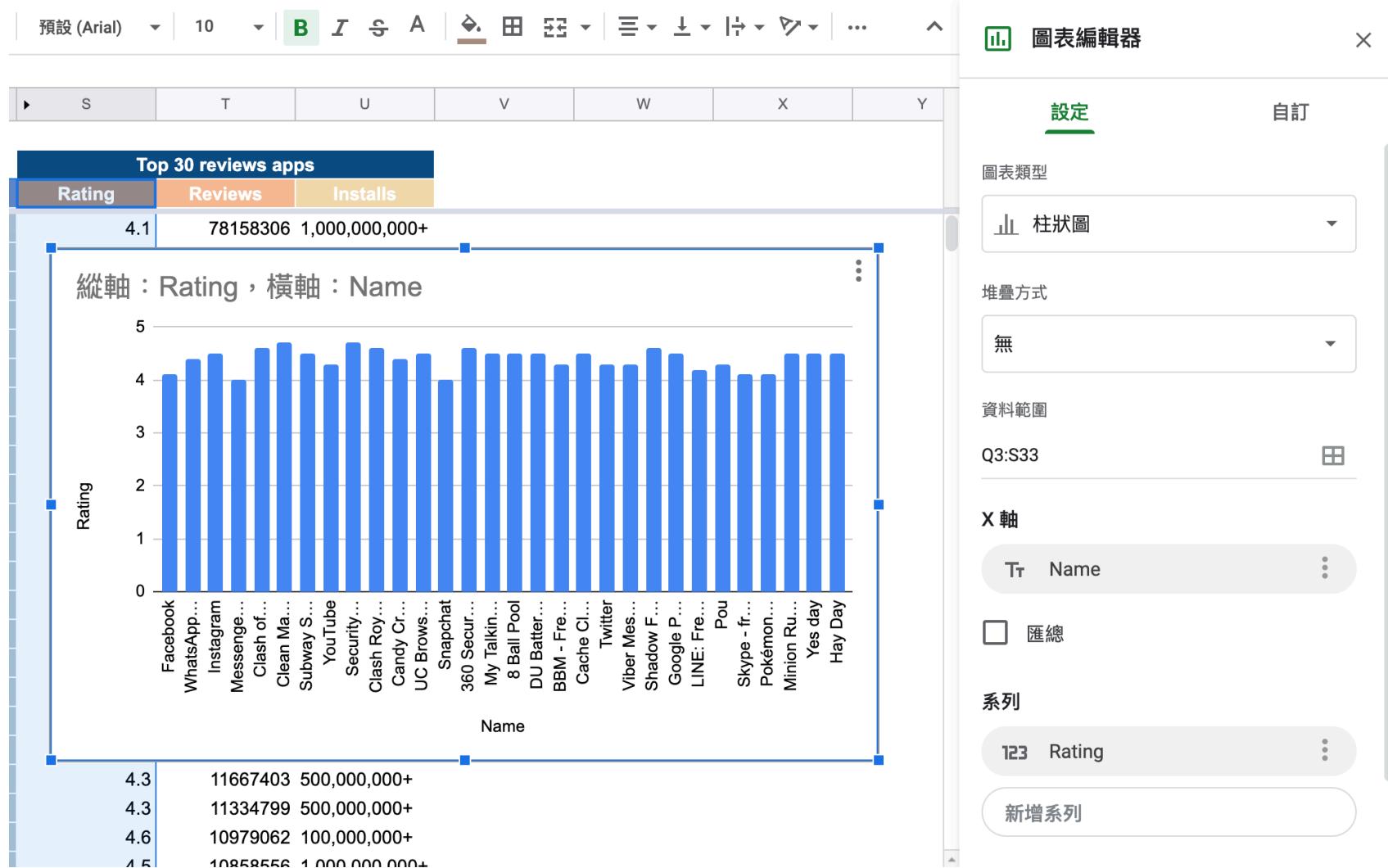
30 reviews apps

Reviews	Installs
78158306	1,000,000,000+
69119316	1,000,000,000+
66577313	1,000,000,000+
56642847	1,000,000,000+
44891723	100,000,000+
42916526	500,000,000+
27722264	1,000,000,000+
25655305	1,000,000,000+
24900999	500,000,000+
23133508	100,000,000+
22426677	500,000,000+
17712922	500,000,000+
17014787	500,000,000+
16771865	100,000,000+
14891223	500,000,000+
14198297	100,000,000+
13479633	100,000,000+
12842860	100,000,000+
12759663	100,000,000+
11667403	500,000,000+
11334799	500,000,000+
10979062	100,000,000+
10858556	1.000.000.000+

Insert chart - 3

4

You can use chart editor to setup and customize your chart.



5

Excel

Excel map

活頁簿1

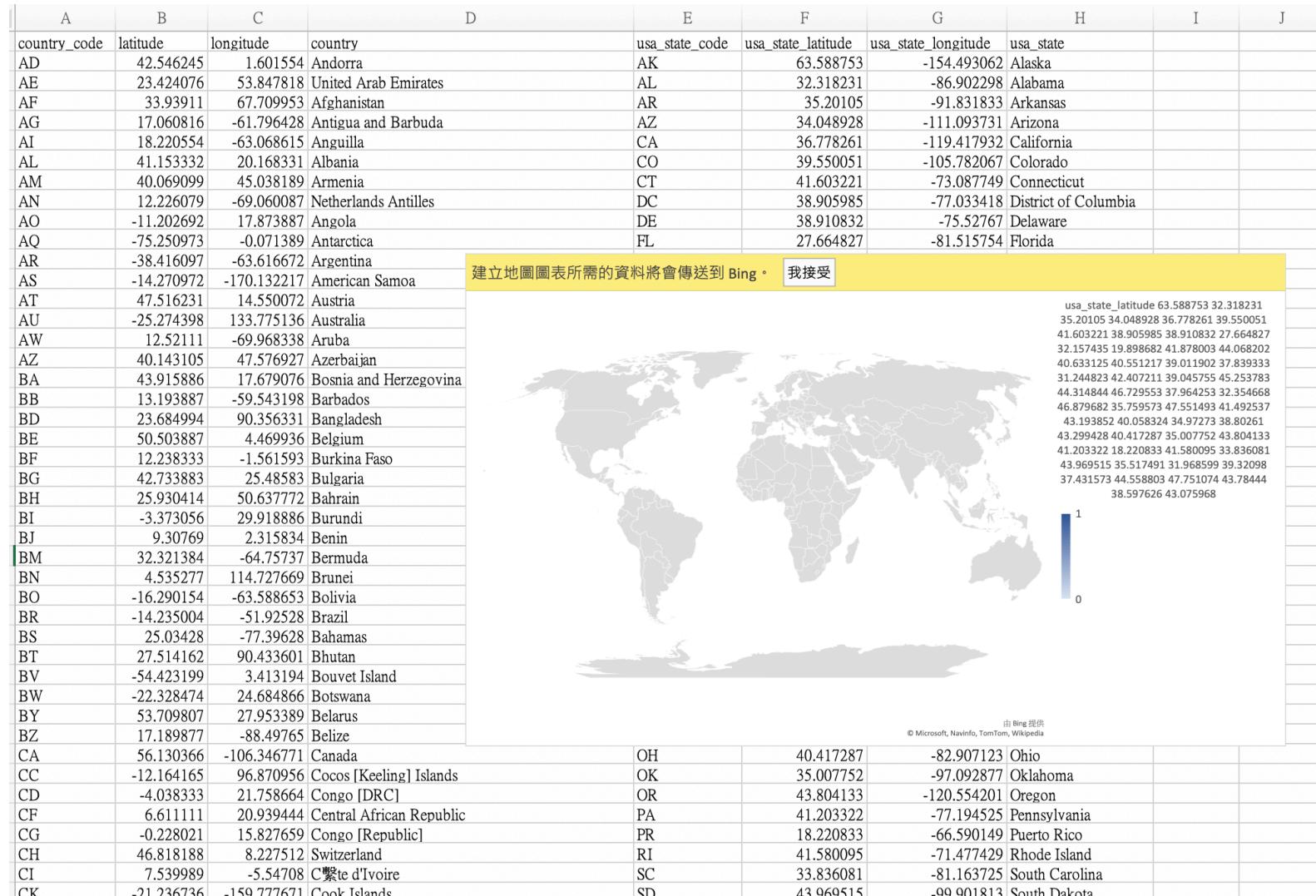
常用 插入 繪圖 頁面配置 公式 資料 校閱 檢視

樞紐 分析表 建議的 樞紐分析表 表格 來自圖片 的資料 圖片 圖形 圖示 取得增益集 我的增益集 建議的 圖表 地圖 樞紐 走勢圖 插入地圖圖表

B2 42.546245

	A	B	C	D	E	F	G	H	I
1	country_code	latitude	longitude	country	usa_state_code	usa_state_latitude	usa_state_longitude	usa_state	
2	AD	42.546245	1.601554	Andorra	AK	63.588753	-154.493062	Alaska	
3	AE	23.424076	53.847818	United Arab Emirates	AL	32.318231	-86.902298	Alabama	
4	AF	33.93911	67.709953	Afghanistan	AR	35.20105	-91.831833	Arkansas	
5	AG	17.060816	-61.796428	Antigua and Barbuda	AZ	34.048928	-111.093731	Arizona	
6	AI	18.220554	-63.068615	Anguilla	CA	36.778261	-119.417932	California	
7	AL	41.153332	20.168331	Albania	CO	39.550051	-105.782067	Colorado	
8	AM	40.069099	45.038189	Armenia	CT	41.603221	-73.087749	Connecticut	
9	AN	12.226079	-69.060087	Netherlands Antilles	DC	38.905985	-77.033418	District of Columbia	
10	AO	-11.202692	17.873887	Angola	DE	38.910832	-75.52767	Delaware	
11	AQ	-75.250973	-0.071389	Antarctica	FL	27.664827	-81.515754	Florida	
12	AR	-38.416097	-63.616672	Argentina	GA	32.157435	-82.907123	Georgia	

Excel map



Analysis tools

活頁簿 2

常用 插入 繪圖 頁面配置 公式 資料 校閱 檢視

從 HTML 從 文字檔 新增 資料庫查詢 全部 重新整理 連線 內容 清除 重新套用 編輯連結

A1 A B C D E I J K

Rating Reviews

	Rating	Reviews
1	4.1	159
2	3.9	967
3	4.7	87510
4	4.5	215644
5	4.3	967
6	4.4	167
7	3.8	178
8	4.1	36815
9	4.4	13791
10	4.7	121
11	4.4	13880
12	4.4	8788
13	4.2	44829

增益集

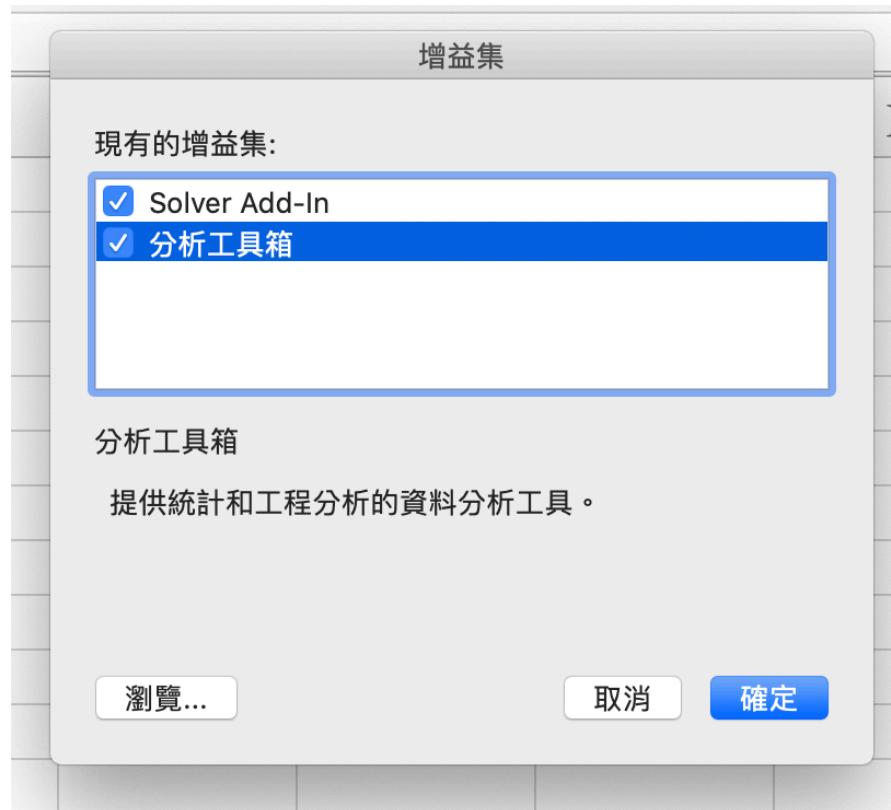
現有的增益集:

Solver Add-In
 分析工具箱

Solver Add-In

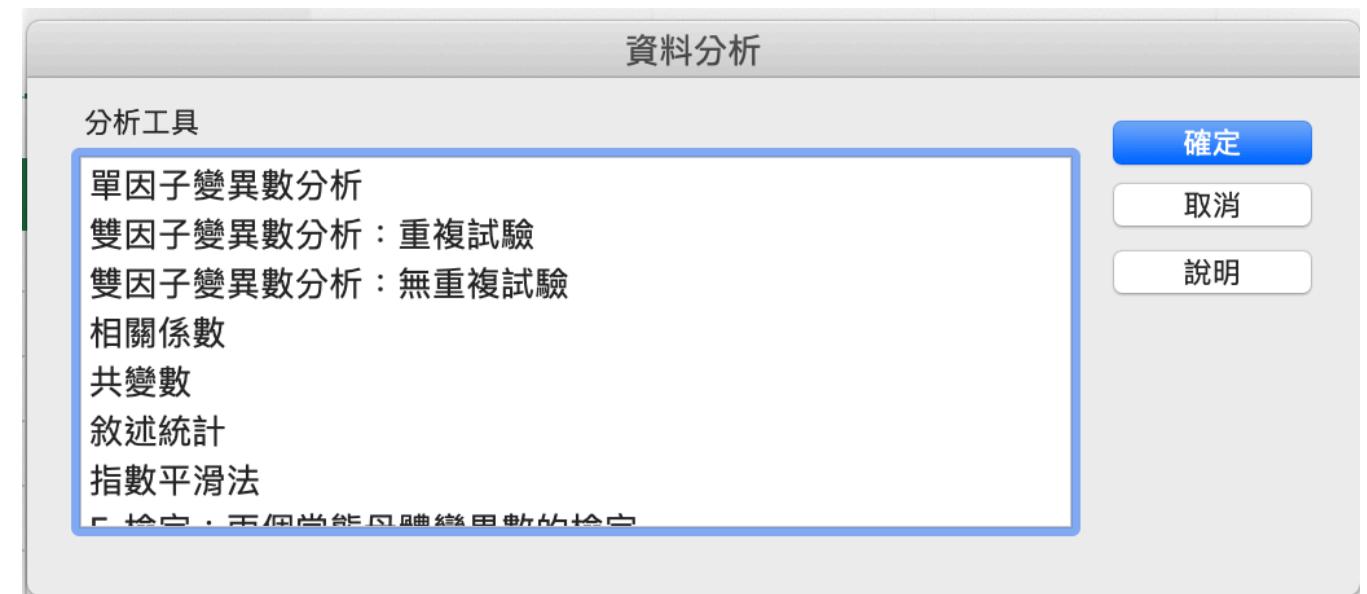
瀏覽... 取消 確定

Linear regression



Linear regression

5



HW

Select any dataset and make a dashboard.
Use at least 5 functions that we've taught.
Upload the share link of your google sheet to moodle.
(Any one with the link and coment)

Ex :

- 109462007 莊景雲
https://docs.google.com/spreadsheets/d/1mGJw2WNU_z6jw06oJFiq-ULFaEFWr04Tc5RSj6UGeRY/edit?usp=sharing

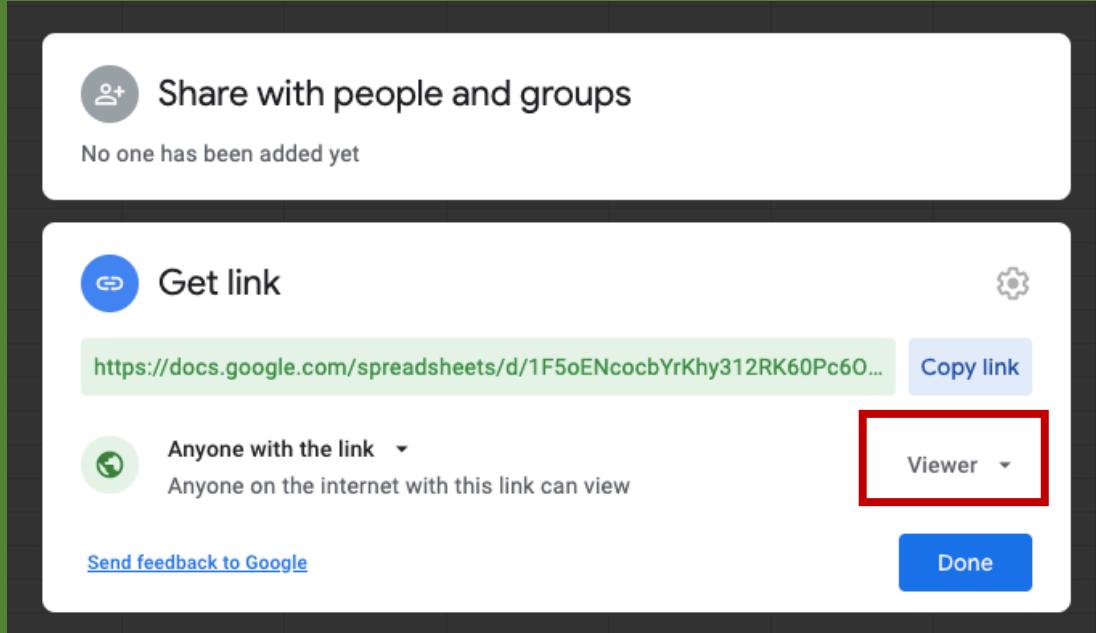
STEP1

A screenshot of a Google Sheets document titled "google sheet example". The top navigation bar includes File, Edit, View, Insert, Format, Data, Tools, Add-ons, Help, and a status message "Last edit was seconds ago". The toolbar below has various icons for file operations like Print, Save, and Undo/Redo, followed by zoom settings (100%, NT\$, %), currency (NT\$), number (0.00), date (123), font style (Default (Ari...)), font size (10), bold (B), italic (I), underline (U), strikethrough (S), font color (A), alignment (Text direction, Horizontal, Vertical, Center, Justify), orientation (Orientation), borders (Border style, Border width, Border color), and other sheet-related functions. A red box highlights the green "Share" button in the top right corner. The spreadsheet grid shows columns A through M and rows 1 through 3.

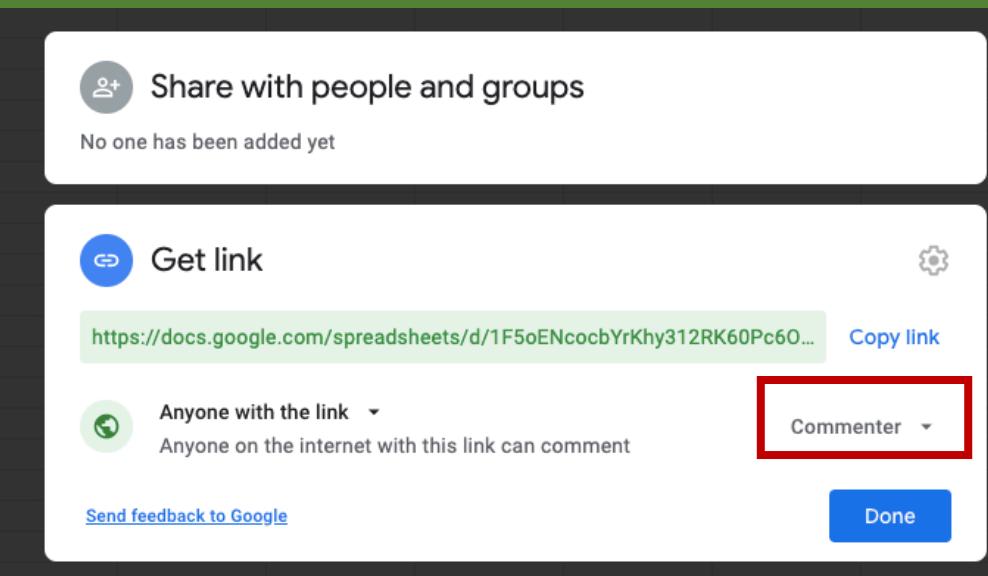
STEP2

The image shows two overlapping dialog boxes. The top dialog is titled "Share with people and groups" and lists "Ching-Yun Chuang (you)" as the owner, with the email address ccyun1127@gmail.com. It includes a "Done" button. The bottom dialog is titled "Get link" and contains the text "Restricted Only people added can open with this link" and a "Change to anyone with the link" button. A red box highlights the "Change to anyone with the link" button. Both dialogs are set against a dark background.

STEP1



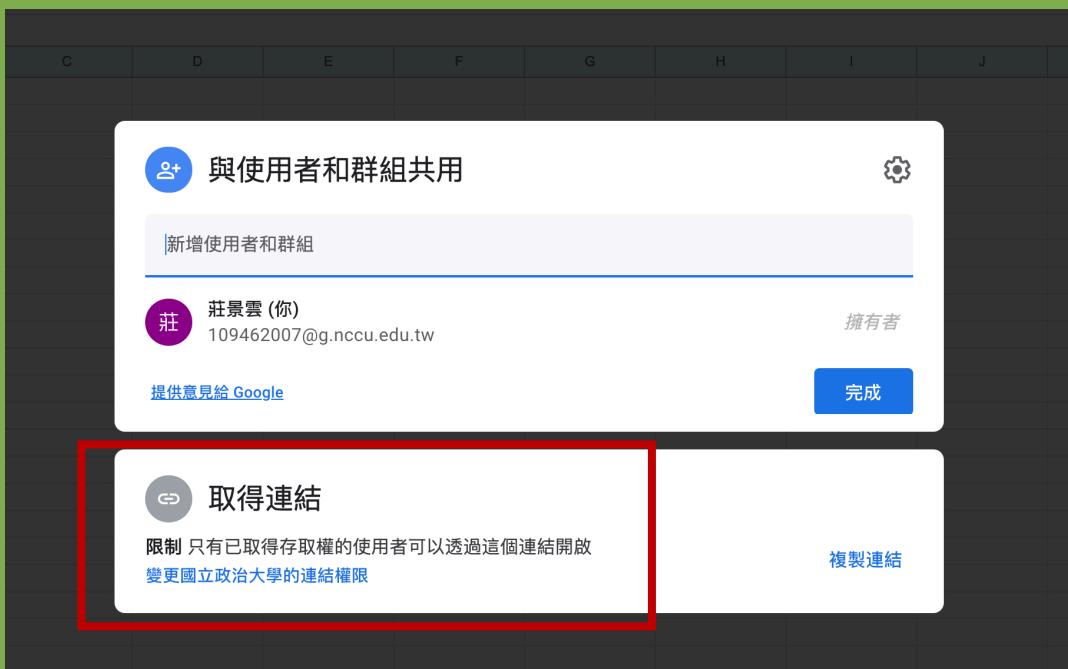
STEP2



STEP1

A screenshot of a Google Sheets document titled "google sheet hw example". The top navigation bar includes "檔案", "編輯", "查看", "插入", "格式", "資料", "工具", "外掛程式", and "說明". A message at the top right says "上次編輯是在 3 分鐘前". The toolbar below has various icons for file operations like saving, printing, and zooming (100%, NT\$, %), and for text and table styling (font, size, bold, italic, underline, alignment). The main area shows a blank sheet with columns A through L and rows 1 and 2. The "Sharing" button in the top right corner is highlighted with a red box.

STEP2



STEP3



STEP4



STEP5

