PET MEDICAL SERVICE IN TAIWAN?

...

Presentation: Jul 18th, 2021
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MOTIVATION

Why do I Focus on the Scope of "**PETS**"?

3 REASONS AROUSE MY CURIOSITY FOR THIS POTENTIAL ISSUE.

1. I 'm a pet lover. I have raised 3 cats, but 2 of them passed away due to illness.
2. I work at pet technology company around 2 years.
3. One news I read a few years ago mentioned that Taiwan will become the next Japan, they predicts that the number of pets will exceed the number of people under 15 in 2021.
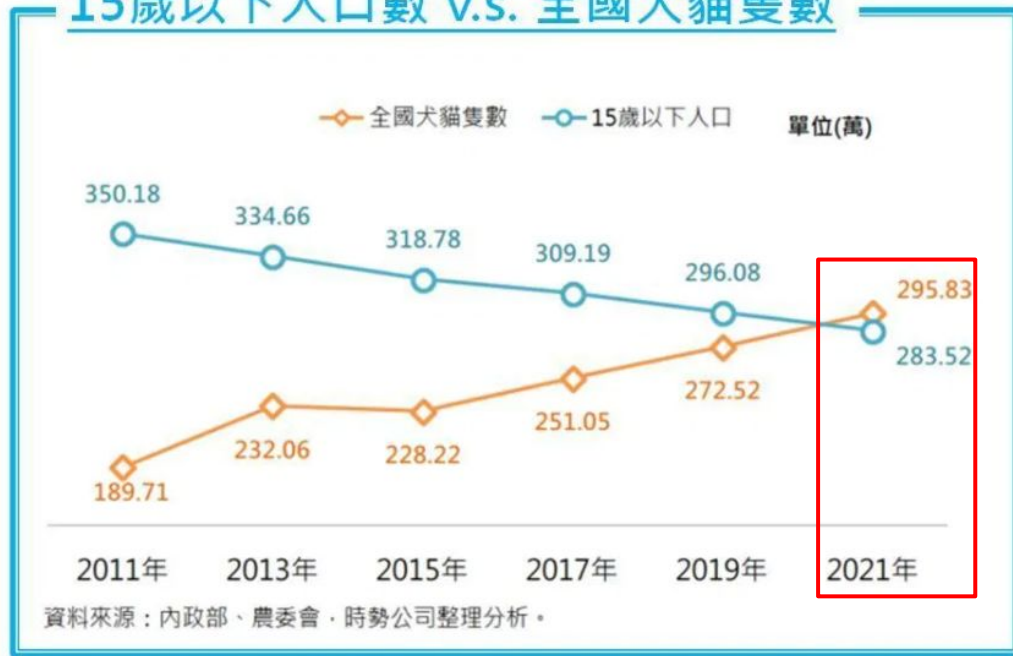
   ->(refer to attached image on the right hand)

日本早在2003年犬貓數就超過15歲以下的孩童人口，時勢研究追蹤推測，台灣將步日本後塵，預估於2020下半年出現黃金交叉，全台犬貓隻數將首度超過15歲以下孩童數，寵物經濟時勢所趨。

依2011至2017年的犬貓數及孩童人口平均年增減率進行推估，時勢研究預測2020年下半年全台犬貓數將首度超過15歲以下孩童數，於2021年達295萬隻，首次超過283萬名孩童。

根據內政部所公布的人口資料，國內15歲以下的孩童數在少子化浪潮下，每年以4%的急速下降；反之，農委會報告的全國犬貓隻數，卻逐年上升至2017年的251萬隻，比起兩年前成長10%。反映21世紀社會經濟發展的過程中，人口結構性變化與經濟壓力兩大因素推波助瀾。

15歲以下人口數 v.s. 全國犬貓隻數

全國犬貓隻數　15歲以下人口　單位(萬)

350.18　334.66　318.78　309.19　296.08　295.83　283.52

189.71　232.06　228.22　251.05　272.52

2011年　2013年　2015年　2017年　2019年　2021年

資料來源：內政部、農委會，時勢公司整理分析。

Assuming the previous prediction is **true**, then the **upcoming problems** may be…

Problem 1

In Taiwan, do we have enough Veterinary Medical Institutions?
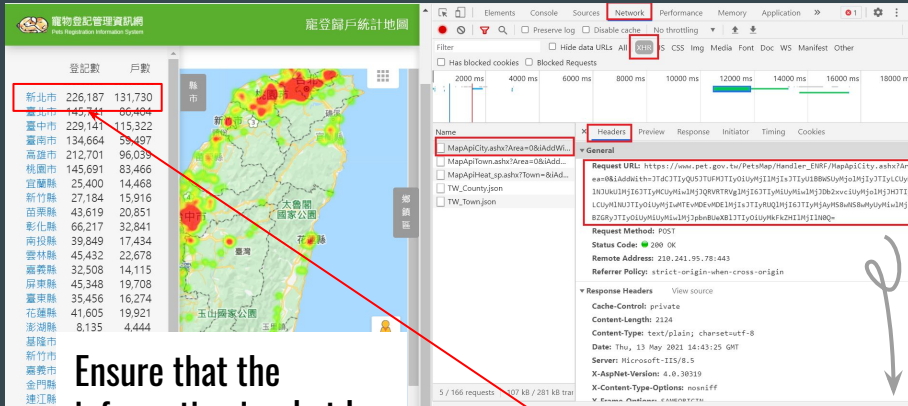
Problem 2

In Taiwan, is there a big gap between the service quality and professionalism of each Veterinary Medical Institution by different counties and cities?

Problem 3

Does every breeder have the concept of animal sterilization?

DATA COLLECTION and CLEANING

Raw data for "寵物登記數量"

- Data period: 2011/1/1-2021/5/3
- Format: Json / Array
- Size : 22

Find a way to get raw data with json file.

Ensure that the information is what I need.

[{"CountyOrder":0,"CountyID":"A","CountyName":"新北市","HouseCnt":131730,"cnt":226187,"cnt1":0},{"CountyOrder":1,"CountyID":"V","CountyName":"臺北市","HouseCnt":86404,"cnt":145741,"cnt1":0},{"CountyOrder":2,"CountyID":"S","CountyName":"臺中市","HouseCnt":115322,"cnt":229141,"cnt1":0},{"CountyOrder":3,"CountyID":"U","CountyName":"臺南市","HouseCnt":59497,"cnt":134664,"cnt1":0},{"CountyOrder":4,"CountyID":"W","CountyName":"高雄市","HouseCnt":96039,"cnt":212701,"cnt1":0},{"CountyOrder":5,"CountyID":"C","CountyName":"桃園市","HouseCnt":83466,"cnt":145691,"cnt1":0},{"CountyOrder":6,"CountyID":"B","CountyName":"宜蘭縣","HouseCnt":14468,"cnt":25400,"cnt1":0},{"CountyOrder":7,"CountyID":"D","CountyName":"新竹縣","HouseCnt":15916,"cnt":27184,"cnt1":0},{"CountyOrder":8,"CountyID":"E","CountyName":"苗栗縣","HouseCnt":20851,"cnt":43619,"cnt1":0},{"CountyOrder":9,"CountyID":"G","CountyName":"彰化縣","HouseCnt":32841,"cnt":66217,"cnt1":0},{"CountyOrder":10,"CountyID":"H","CountyName":"南投縣","HouseCnt":17434,"cnt":39849,"cnt1":0},{"CountyOrder":11,"CountyID":"I","CountyName":"雲林縣","HouseCnt":22678,"cnt":45432,"cnt1":0},{"CountyOrder":12,"CountyID":"J","CountyName":"嘉義縣","HouseCnt":14115,"cnt":32508,"cnt1":0},{"CountyOrder":13,"CountyID":"M","CountyName":"屏東縣","HouseCnt":19708,"cnt":45348,"cnt1":0},{"CountyOrder":14,"CountyID":"N","CountyName":"臺東縣","HouseCnt":16274,"cnt":35456,"cnt1":0},{"CountyOrder":15,"CountyID":"O","CountyName":"花蓮縣","HouseCnt":19921,"cnt":41605,"cnt1":0},{"CountyOrder":16,"CountyID":"P","CountyName":"澎湖縣","HouseCnt":4444,"cnt":8135,"cnt1":0},{"CountyOrder":17,"CountyID":"Q","CountyName":"基隆市","HouseCnt":11356,"cnt":21908,"cnt1":0},{"CountyOrder":18,"CountyID":"R","CountyName":"新竹市","HouseCnt":11896,"cnt":20141,"cnt1":0},{"CountyOrder":19,"CountyID":"T","CountyName":"嘉義市","HouseCnt":7169,"cnt":13697,"cnt1":0},{"CountyOrder":20,"CountyID":"Y","CountyName":"金門縣","HouseCnt":5081,"cnt":9612,"cnt1":0},{"CountyOrder":21,"CountyID":"X","CountyName":"連江縣","HouseCnt":475,"cnt":845,"cnt1":0}]

Raw data for "獸醫師(佐)開業執照"

- Latest updated: Feb. 2021
- Format: Json / Array
- Size : 1923

Name	Type	Size	Value
jsonraw	list	1923	[{'縣市':'新北市', '字號':'新北獸醫業字第409號', '執照類別':'獸醫師', '狀態':'開業', '機構名稱':'愛竹動 ...

- The key & value we need:
1. "縣市"
2. "狀態" is "開業"
3. "機構名稱"
4. "發照日期"
5. "機構地址"

[
    {
        "縣市": "新北市",
        "字號": "新北獸醫業字第409號",
        "執照類別": "獸醫師",
        "狀態": "開業",
        "機構名稱": "愛竹動物醫院",
        "負責獸醫": "陳欣妍",
        "機構電話": "(02)29880822",
        "發照日期": "20210209",
        "機構地址": "新北市五股區四維路102號"
    },
    {
        "縣市": "臺中市",
        "字號": "中市獸醫開字第110003號",
        "執照類別": "獸醫師",
        "狀態": "開業",
        "機構名稱": "毛博事保健動物醫院",
        "負責獸醫": "周哲緯",
        "機構電話": "(04)23138329",
        "發照日期": "20210208",
        "機構地址": "臺中市西屯區文心路三段138之10號"
    },
    {
        "縣市": "新北市",
        "字號": "新北獸醫業字第408號",
        "執照類別": "獸醫師",
        "狀態": "開業",
        "機構名稱": "貝果動物醫院",
        "負責獸醫": "吳佳倩",
        "機構電話": "(02)31511107",
        "發照日期": "20210202",
        "機構地址": "新北市中和區安樂路75號"

Raw data for the Google Review Score of each Veterinary Medical Institution

Tag name & Class name we need to get the review score of this Veterinary Medical Institution

```
        <span class="OmTIzf"></span>
        <span class="OmTIzf"></span>
        <span class="OmTIzf"></span>
中信動物醫院    <span><h3 class="zBAuLc"><div class="BNeawe deIvCb AP7Wnd">中信動物醫院</div></h3></span>
 4.6   (398)
位於新北市的動物醫院        <span><div class="BNeawe tAd8D AP7Wnd"><span class="r0bn4c rQMQod tP9Zud">
<span aria-hidden="true" class="Eq0J8 oqSTJd">4.6</span> <div aria-label="評等為 4.6，最高 5"
class="Hk2yDb KsR1A" role="img"><span style="width:63px"></span></div> <span class="Eq0J8">(398)</span>
</span>
位於新北市的動物醫院</div></span>
 4.6   (398)        <span class="r0bn4c rQMQod tP9Zud"> <span aria-hidden="true" class="Eq0J8 oqSTJd">4.6</
span> <div aria-label="評等為 4.6，最高 5"
span></div> <span class="Eq0J8">(398)</sp
4.6       <span aria-hidden="true" class="E
        <span style="width:63px"></span>
(398)    <span class="Eq0J8">(398)</span>
地址      <span><span class="BNeawe s3v9r
地址      <span class="BNeawe s3v9rd AP7W
220新北市板橋區信義路188號        <span><sp
span></span>
220新北市板橋區信義路188號        <span cla
```

Google Review Score

```python
def rqResponse(url,linktype='wb'):
    ResponObj=rq.get(url)
    ResponObj.encoding =ResponObj.apparent_encoding
    if (ResponObj.status_code == 200) &(linktype=='wb'):
        return ResponObj.text
    elif (ResponObj.status_code == 200) &(linktype=='json'):
        return ResponObj.json()
    else:
        return "error"+str(ResponObj.status_code)

def GoogleReviewScore(search_key,tagname,classname):
    url='https://www.google.com/search?q='+search_key+'&authuser=1&sxsrf=ALeKk03cgwLYEBNl8oVOkOP7VGVt
    rs= rqResponse(url,linktype='wb')
    bsObj= BeautifulSoup(rs,'lxml')
    listbsObj=bsObj.find_all(tagname,{"class":classname})
    if len(listbsObj) >=1:
        return listbsObj[0].text
    else:
        return "No Result"
```

Web Crawler- Raw data for the amount of animal sterilization

- Data period: 2011/1/1-2021/6/30
- Tag Name: Table

DATA ANALYSIS and VISUALIZATION

Major Packages

Requests

Selenium

Pandas

Folium

Matplotlib.pyplot

- 全台目前已登記的犬貓數量 <mark>超過157萬</mark>
- 每個家庭 平均 飼養 <mark>超過1隻</mark>
- 登記 最多 數量縣市為台中市
- 登記總數 超過平均的 縣市集中在 <mark>六都</mark>
  - 六都內北部縣市每戶平均登記數 **低於** 平均
  - 六都內中南部縣市每戶平均登記數 **高於** 平均

基於上述,可得出以下推論
I. 登記總數和人口分布(或經濟條件)有一定程度關係
II. 每戶平均登記飼養數與居住環境型態有一定程度關係

台灣寵物飼養登記概況

全台已登記寵物數量
1570970

平均各縣市登記隻數
71407.7 隻

全台總登記戶數
807010

平均各縣市登記戶數
36682.3 戶

每戶平均登記隻數
1.9 隻

縣市分布概況

各縣市 登記總數 v.s 每戶平均登記數

Avg.
(71407.73,1.95)

臺南市

高雄市

臺中市

桃園市

臺北市

新北市
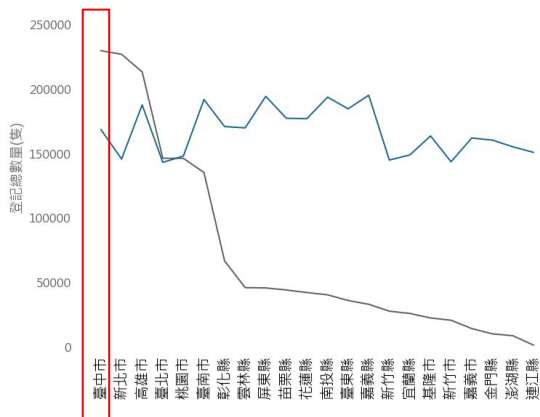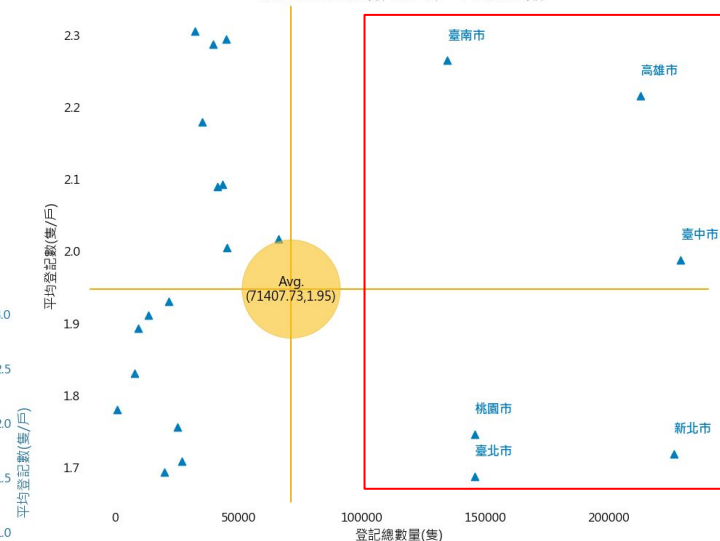
全台合法登記獸醫院所共 **1910**間

平均各縣市有 **91** 間獸醫院所

最多 合法獸醫院所數量的為 **台中市**

平均每間獸醫院所需要負載的犬貓數量為 822.5 隻

→ 延伸問題: 一間獸醫診所實際能負載數量是多少呢?

基於上述, 將台灣獸醫醫療資源依縣市做以下分級

I.   嚴重不足:(紅)
連江縣
金門縣
澎湖縣
台東縣

II.   部分不足: (橘)

III.   待觀察: (黃)
桃園市
高雄市
新北市
台中市

台灣獸醫院所資源概況說明

合法獸醫醫療診所總數

1910

平均各縣市獸醫院所數量

91.0 間

獸醫院所平均負載量

822.5 隻

縣市分布概況

平均各縣市獸醫院所數量: 91.0

各縣市獸醫院所數量與負載量關係

金門縣
臺東縣
澎湖縣

桃園市

高雄市
新北市
臺中市

Average:
(91.0,822.5)

連江縣

平均負載量(隻/間)

獸醫診所數量
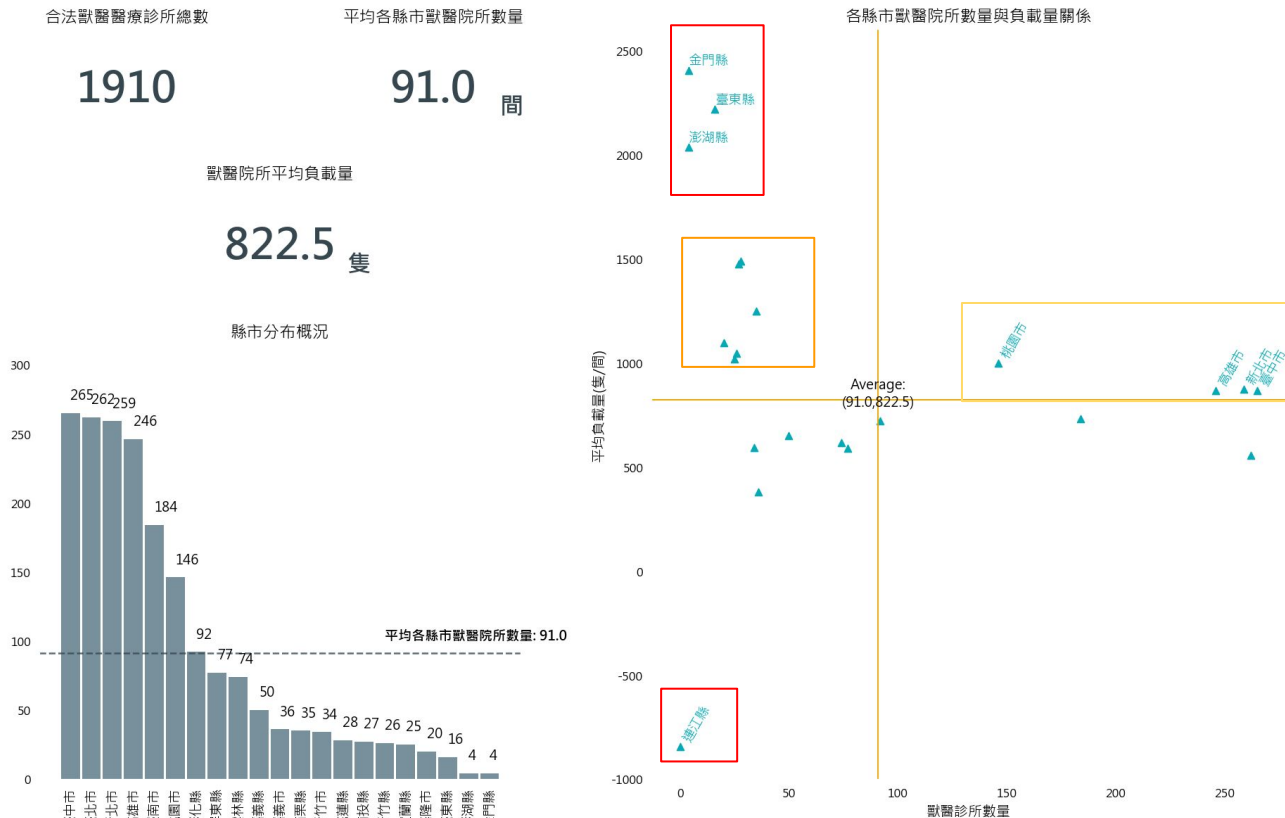
In Taiwan, do we have enough Veterinary Medical Institutions?

Unsure, Need more data to validate.

- 被評價獸醫院所 **共1381間**
- 評價分數 **平均4.29分**

→ 延伸問題: 並非每間獸醫院所都有獲得評價,且每間獸醫獸醫院所獲得評價個數不一,會導至分析結果與實際有一定誤差存在

基於上述,就目前結果將台灣獸醫院所服務評價做以下分級

I.　需有立即檢視與改善 :(紅)
　　　　新北市
　　　　桃園市
　　　　高雄市
　　　　台東縣
　　　　苗栗縣

II.　需進一步調查: (黃)
　　　　宜蘭縣
　　　　屏東縣
　　　　彰化縣
　　　　南投縣
　　　　雲林縣
　　　　嘉義縣

III.　繼續保持: (綠)

台灣獸醫院所評分一覽

Google評論分數平均

4.29

被評價獸醫院所數量

1381 間

各縣市 Google評分概況
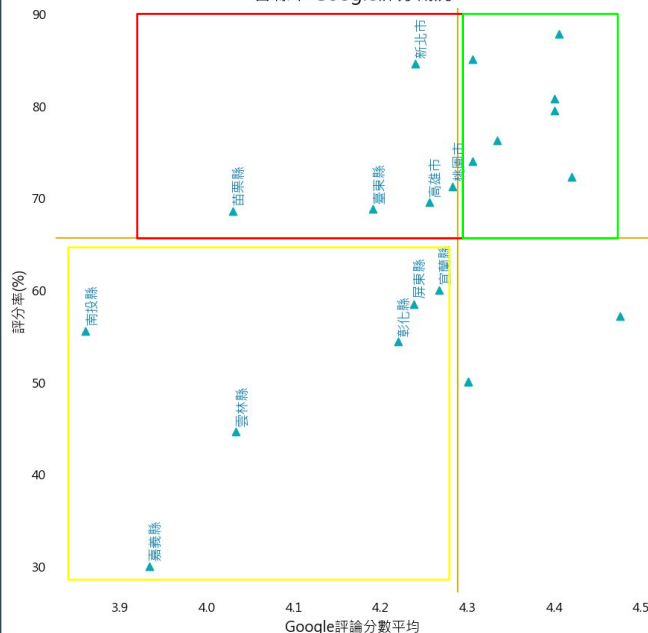
各縣市評價分布區間

機構縣市	1-3	3-4	4-5	Null
臺北市	1	34	195	32
臺中市	5	21	176	63
新北市	9	35	175	40
高雄市	9	28	134	75
臺南市	6	19	111	48
桃園市	3	19	82	42
彰化縣	1	12	37	42
屏東縣	0	9	36	32
新竹市	0	2	25	7
嘉義市	0	2	24	10
雲林縣	2	10	21	41
新竹縣	0	2	19	5
花蓮縣	0	1	15	12
基隆市	1	3	13	3
宜蘭縣	1	2	12	10
苗栗縣	1	11	12	11
嘉義縣	1	3	11	35
臺東縣	0	4	7	5
南投縣	1	7	7	12
金門縣	0	0	2	2
澎湖縣	0	1	1	2

評論分數區間

In Taiwan, is there a big gap between the service quality and professionalism of each Veterinary Medical Institution by different counties and cities?

Unsure, Need more data to validate.

- 全台平均絕育率68.02%
- 飼主願意讓貓貓絕育的意願高於狗狗
- 絕育觀念最好縣市為台中市

→ 延伸問題: 絕育率達到幾%才算合格? 此外,貓狗各別的絕育率可以明顯看出飼主對於狗狗可能存有一種期待心理

基於上述,就目前結果將台灣獸醫院所服務評價做以下分級

I. 立即改善,提升絕育率:(紅)
　　　　　　新北市,高雄市
　　　　　　新竹市,苗栗縣
　　　　　　基隆市,澎湖縣
　　　　　　金門縣,連江縣

II. 貓/狗絕育觀念需再宣導: (黃)
　　　　　　宜蘭縣,花蓮縣
　　　　　　台東縣,彰化縣
　　　　　　新竹縣,台南市
　　　　　　嘉義市,桃園市

III. 絕育觀念優於其他縣市:(綠)

寵物絕育概況 (2011-迄今)

全台寵物平均絕育率

68.02%

平均絕育率(狗狗)　　　平均絕育率(貓貓)

53.74%　　82.30%

各縣市絕育率概況

絕育率(%)

縣市

貓狗絕育率分布概況

絕育率(%)_貓貓

絕育率(%)_狗狗

霧峰縣
花蓮縣
彰化縣
宜蘭縣
連江市
高雄市
台南市
台中市
新竹市
苗栗縣
金門縣
新北市
嘉義市
澎湖縣
桃園市
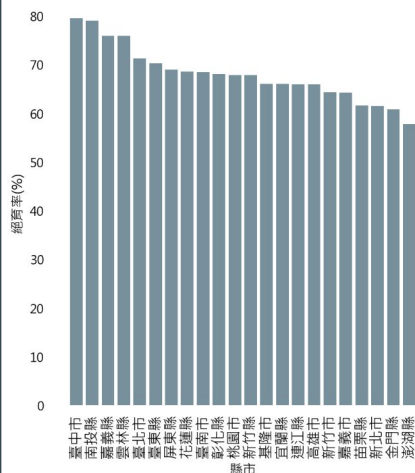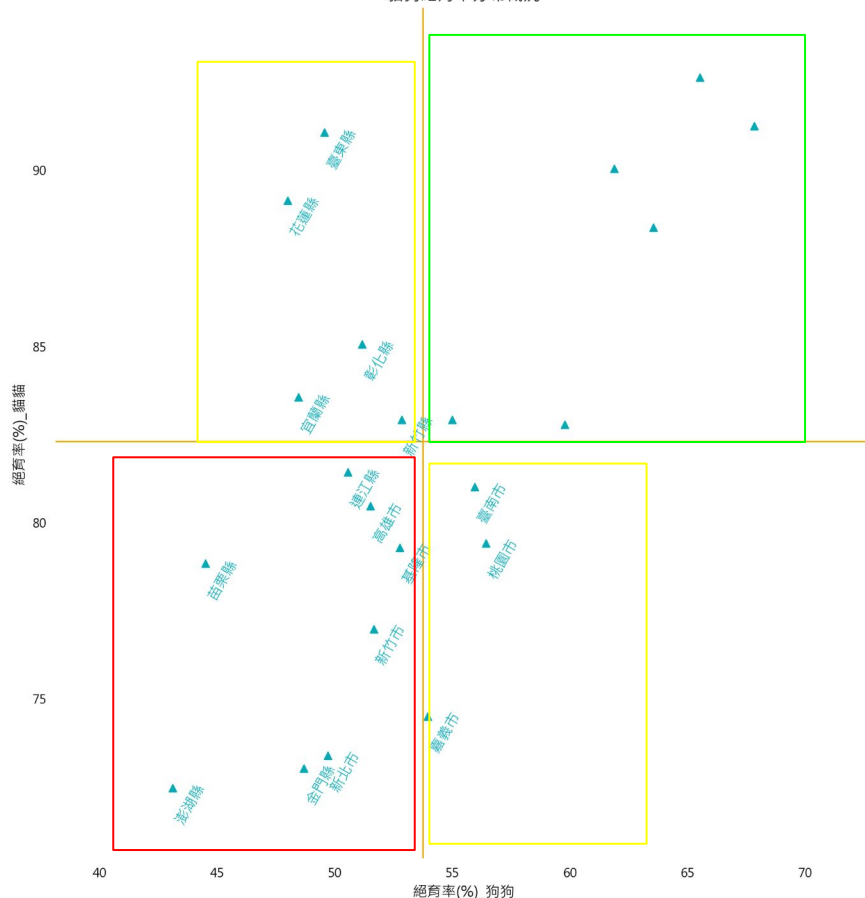
Does every pet parents have the concept of animal sterilization?

No, Need to Strengthen this Concept.

Area Scatter Map

高雄市

合法獸醫院所: 246間
評論分數平均: 4.3分
評分率:69.5%
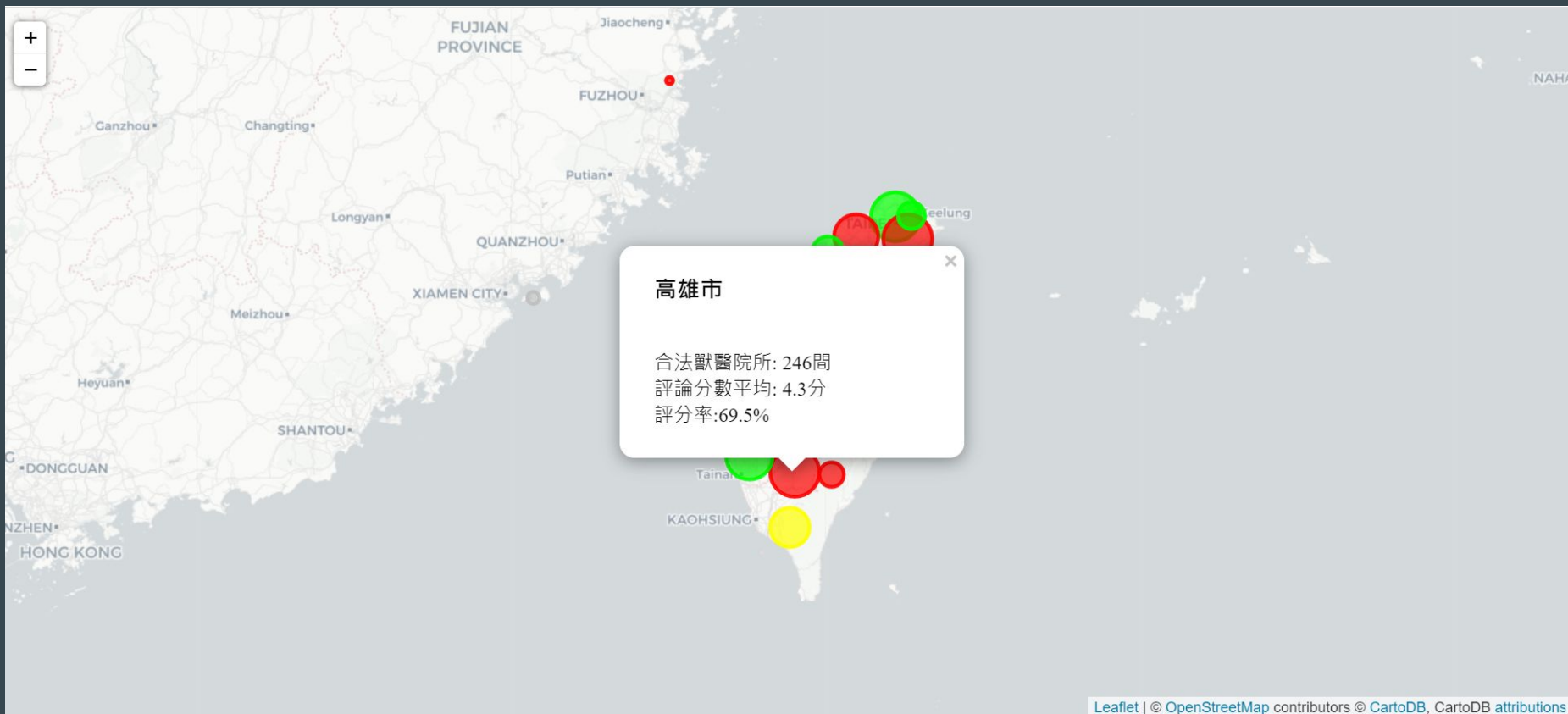
CHALLENGE
and
LEARNING

Challenge 1 Raise an http error : 429

What is the HTTP 429 Error?   error: 429

Uncertain definition of too many times

The HTTP 429 error is returned when a user has sent too many requests within a short period of time. The 429 status code is intended for use with rate-limiting schemes.

Uncertain definition of a short period

Workaround:

>> Execute the code in next day.

>> Save into csv in batches(every 200 requests) to prevent sudden http errors happening again.

```
#Goolge Review
for i in range(0,1910):
    print(pd_VMI.iloc[i,4])
    pd_VMI.iloc[i,7]=GoogleReviewScore(pd_VMI.iloc[i,4],'span','Aq14fc')
    if i%200==0:
        pd_VMI.to_csv('pd_VMI.csv',index=False)
    time.sleep(0.08)
pd_VMI.to_csv('pd_VMI.csv',index=False)
```

Learning 1 How to adjust subplots layout in one figure
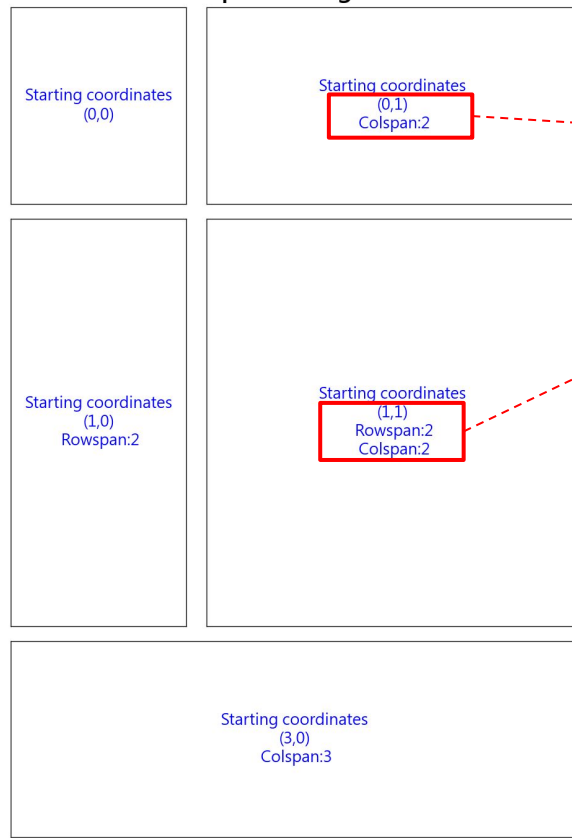

```
'''Create Figure-2 Comparison'''
fig=plt.figure(figsize=(8,12),dpi=120)
#set font
plt.rcParams['font.sans-serif'] = ['Microsoft JhengHei']
#subplot layout (row=4, col=3)
#rowspan=1 colspan=1 : default
ax0= plt.subplot2grid((4,3),(0,0))
ax0.text(0.5,0.5,'Starting coordinates\n(0,0)',
         fontsize=15,c='blue',ha='center',va='center')
ax1= plt.subplot2grid((4,3),(0,1),colspan=2)
ax1.text(0.5,0.5,'Starting coordinates\n(0,1)\n Colspan:2',
         fontsize=15,c='blue',ha='center',va='center')
ax2= plt.subplot2grid((4,3),(1,0),rowspan=2)
ax2.text(0.5,0.5,'Starting coordinates\n(1,0)\n Rowspan:2',
         fontsize=15,c='blue',ha='center',va='center')
ax3= plt.subplot2grid((4,3),(1,1),rowspan=2,colspan=2)
ax3.text(0.5,0.5,'Starting coordinates\n(1,1)\n Rowspan:2\n Colspan:2',
         fontsize=15,c='blue',ha='center',va='center')
ax4= plt.subplot2grid((4,3),(3,0),colspan=3)
ax4.text(0.5,0.5,'Starting coordinates\n(3,0)\n Colspan:3',
         fontsize=15,c='blue',ha='center',va='center')
subplot_list1=[ax0,ax1,ax2,ax3,ax4]
for sl in subplot_list1:
    sl.set_xticks([]) # 不要顯示x軸刻度
    sl.set_yticks([]) # 不要顯示y軸刻度
fig.suptitle('Comparison Figure-1',
             fontsize=24,fontweight='bold') #整張圖的title
fig.tight_layout()
plt.savefig('subplot_2.png')
plt.show()
```

Learning 2   How to plot a Map

Collect latitude and longitude data **1**   Import "Folium" to draw a interactive map. **2**   Need to save into html, and use browser to view it. **3**

```python
#畫台灣地圖前置作業
Latilongi=[]
bsObj=BeautifulSoup(rqResponse(taiwancity,linktype='wb'),'lxml')
data= bsObj.find_all('tr')
for i in range(len(data)):
    new=data[i].text.split('\n')
    Latilongi.append([new[2],new[5],new[8]])
```

Inde⇅	Type	Size	
0	list	3	['新北市', '121.6739', '24.91571']
1	list	3	['高雄市', '120.666', '23.01087']
2	list	3	['臺中市', '120.9417', '24.23321']
3	list	3	['臺北市', '121.5598', '25.09108']
4	list	3	['桃園縣', '121.2168', '24.93759']
5	list	3	['臺南市', '120.2513', '23.1417']
6	list	3	['彰化縣', '120.4818', '23.99297']
7	list	3	['屏東縣', '120.62', '22.54951']
8	list	3	['雲林縣', '120.3897', '23.75585']
9	list	3	['苗栗縣', '120.9417', '24.48927']
10	list	3	['嘉義縣', '120.574', '23.45889']
11	list	3	['新竹縣', '121.1252', '24.70328']
12	list	3	['南投縣', '120.9876', '23.83876']
13	list	3	['宜蘭縣', '121.7195', '24.69295']
14	list	3	['新竹市', '120.9647', '24.80395']
15	list	3	['基隆市', '121.7081', '25.10898']
16	list	3	['花蓮縣', '121.3542', '23.7569']
17	list	3	['嘉義市', '120.4473', '23.47545']
18	list	3	['臺東縣', '120.9876', '22.98461']

```python
# define the national map
national_map = folium.Map(location=[23.9005,120.5995],tiles='cartodbpositron',
                          zoom_start=7,width='100%',height='100%')
colors=['red','yellow','lime','silver']
for lat, lng, label, city, rc, rr in zip(pd_vetclinccity['緯度'].values,
                                         pd_vetclinccity['經度'].values, pd_vetclinccity['機構名稱'].values,
                                         pd_vetclinccity['機構縣市'].values,pd_vetclinccity['平均評分'].values,
                                         pd_vetclinccity['評分率'].values):
    html = '<h3>'+city+'</h3><br>合法獸醫院所: %.0f間<br>評論分數平均: %.1f分<br>評分率:%.1f%%'%(label,rc,rr)
    iframe = folium.IFrame(html)
    popup = folium.Popup(iframe,
                         min_width=240,max_width=240)
    if label!=0.0:
        radius=math.log(label,4)*5
        if (rc>=avggr)and(rr>=avggrrate):
            folium.CircleMarker(location=[lat, lng],radius=radius,
                               fill=True,fill_opacity=0.7,
                               color=colors[2],opacity=0.9,
                               fill_color=colors[2],
                               popup=popup,
                               #popup="%s\n合法獸醫院所: %d 間"%(city,label),
                               ).add_to(national_map)
        elif (rc>=avggr)and(rr<avggrrate):
            folium.CircleMarker(location=[lat, lng],radius=radius,
                               fill=True,fill_opacity=0.7,
                               color=colors[3],opacity=0.9,
                               fill_color=colors[3],
                               popup=popup,
                               #popup="%s\n合法獸醫院所: %d 間"%(city,label),
                               ).add_to(national_map)
        elif (rc<avggr)and(rr<avggrrate):
            folium.CircleMarker(location=[lat, lng],radius=radius,
```

```python
national_map.save('map_pet_medical_service.html')
```

Learning 3　Write data into DB during crawler

1 Create a DB

2 Create a Table and Columns

3 Write logs. Finally, open db to check again

```python
'''建立db準備'''
#連線指定資料庫
conObj = sqlite3.connect('Project2021_pet.db')
timstamp=datetime.now().strftime('%Y-%m-%d %H:%M:%S')
print('%s: [Info]Successfully connect to db'%timstamp)
#建立cursor物件
cursor = conObj.cursor()
```

```python
html= driver.page_source
bsObj= bs(html,'LxmL')
petType= bsObj.find_all(class_='form-check-input')
table= bsObj.select_one('#CountTown')#貼上 css selector路徑
df= pd.read_html(str(table)) #有可能抓到不只一個表格,會以串列方式儲存
df[0]=dataclean(df[0],delindex=[22],incol=[{'petType':[1,petType[count+1].get('id')]}])
#將columns name存成list
columns=df[0].columns.values.tolist()
#建立資料表,輸入SQL語法,此語法被視為字串在py內
sqlString = '''CREATE TABLE IF NOT EXISTS petSterilization(
"{0}" TEXT,
"{1}" TEXT,
"{2}" INTEGER,
"{3}" INTEGER,
"{4}" INTEGER,
"{5}" INTEGER,
"{6}" INTEGER,
"{7}" INTEGER,
"{8}" INTEGER,
"{9}" INTEGER,
"{10}" FLOAT,
"{11}" FLOAT
)'''
sqlString = sqlString.format(columns[0],columns[1],columns[2],columns[3],
                             columns[4],columns[5],columns[6],columns[7],
                             columns[8],columns[9],columns[10],columns[11])
#print(sqlString)
cursor.execute(sqlString)
timstamp=datetime.now().strftime('%Y-%m-%d %H:%M:%S')
print('%s: [Info]Successfully create table and columns'%timstamp)
```

```
寵物登記管理資訊網
請稍後,資料讀取中......
2021-07-11 15:10:03: [Info]Successfully connect to db
2021-07-11 15:10:08: [Info]Successfully create table and columns
2021-07-11 15:10:08: [Info]資料寫入檔案 petsterilization_Dog2021-07-11.csv成功
2021-07-11 15:10:18: [Info]Successfully create table and columns
2021-07-11 15:10:18: [Info]資料寫入檔案 petsterilization_Cat2021-07-11.csv成功
2021-07-11 15:10:24: [Info]Complete all steps, ready to close db
全部資料寫入成功
```

	縣市	petType	登記單位數(A)	登記數(A)	除戶數(B)	轉讓數(C)	變更數(D)	絕育數(E)	絕育除戶數(F)	免絕育數(G)	絕育率 (E-F)/(A-B)
1	新北市	Dog	184	160316	15716	55666	162896	79118	7218	2858	49.72
2	臺北市	Dog	82	92573	7510	32700	180795	54709	3857	1110	59.78
3	臺中市	Dog	128	145743	17496	37949	122029	97496	10513	12542	67.82
4	臺南市	Dog	107	111337	18500	24658	66059	60351	8410	5959	55.95
5	高雄市	Dog	141	159130	14708	44638	93528	79522	5126	7484	51.51
6	桃園市	Dog	117	104585	8737	34827	90607	57530	3458	2610	56.41
7	宜蘭縣	Dog	18	18092	2195	5250	19579	8430	728	1628	48.45
8	新竹縣	Dog	15	21297	2691	6585	17145	10618	788	1457	52.83
9	苗栗縣	Dog	22	35976	4909	9333	29276	15645	1824	260	44.49
10	彰化縣	Dog	55	45968	4583	14832	29237	22903	1730	1523	51.16
11	南投縣	Dog	17	28323	4209	6424	17194	17506	1707	1566	65.52
12	雲林縣	Dog	22	33455	4397	7135	18912	21282	2821	2661	63.53
13	嘉義縣	Dog	4	22985	2245	6875	10838	13663	832	750	61.87
14	屏東縣	Dog	37	33754	2764	14213	23039	17790	784	1129	54.88
15	臺東縣	Dog	3	40795	13453	3910	23284	13635	4815	1188	49.56
16	花蓮縣	Dog	20	34011	3890	5142	18298	15712	1259	962	47.98
17	澎湖縣	Dog	2	7546	1488	2200	7703	3090	479	1138	43.1
18	基隆市	Dog	6	14194	869	4805	18274	7412	381	73	52.77

REFERENCE

Source:

❖ Image:

https://reurl.cc/9ZLpMv
https://reurl.cc/pm4Znl
https://reurl.cc/o94Zdv
https://reurl.cc/a58aN7
https://reurl.cc/e97W9j

❖ News:

https://reurl.cc/9ZLpMv

❖ Open Data:

https://data.gov.tw/dataset/8705
https://www.pet.gov.tw/PetsMap/PetsMap.aspx
https://byronhu.wordpress.com/2013/09/09/%E5%8F%B0%E7%81%A3%E7%B8%A3%E5%B8%82%E7%B6%93%E7%B7%AF%E5%BA%A6/
https://www.pet.gov.tw/PetsMap/Handler_ENRF/MapApiHeat_sp.ashx?Town=&iAddWith={%22ANIMAL%22:%222%22,%22SPAY%22:%222%22,%22SIRE%22:%220%22,%22PETSEX%22:%222%22,%22Color%22:%22G%22,%22ST%22:%222011/01/01%22,%22ED%22:%222021/05/03%22,%22Addr%22:%22%22,%22inpType%22:%22Addr%22
https://www.pet.gov.tw/Web/O302.aspx

❖ Reference:

https://kinsta.com/knowledgebase/429-too-many-requests/#what-is-429

❖ Source Code:

Github: https://github.com/AmyNSL/PET-MEDICAL-SERVICE-IN-TAIWAN
https://github.com/AmyNSL/AmyNSL.github.io/blob/main/index.html

Thanks For Your Listening!