PROJECT ASSIGNMENT PRESENTATION

2024/02/21

HOW AND WHAT WE USE

- 使用 Python 撰寫 parser 來統計 title 和 keyword 數量
- 運用 set 和 dictionary(map)

ASSIGNMENT 2.1

- Code

```
# iterate through each file
for file_path in file_paths:
    with open(file_path, 'r', encoding="utf-8") as file:
        # initialize title and insideTI
        title = ""
        insideTI = False
        # iterate through each line
        for line in file:
            # starts of a title
            if line.startswith("TI "):
                insideTI = True
                title += line[3:].strip()
            # contents inside the TI tag
            elif line.startswith("   ") and insideTI:
                title += line[3:].strip()
            else:
                # print the current (title, file) and correspond (title, file) if the title has been seen before
                if title in titles:
                    print("---")
                    print(f'Title "{title}" appears in "{file_path}".')
                    print(f'Title "{title}" appears in "{title_file[title]}".')
                    print("---")
                # add title count and add it into the set and dictionary
                if title != "":
                    count += 1
                    titles.add(title)
                    title_file[title] = file_path
                # re-initialize title and insideTI
                title = ""
                insideTI = False

print(f"Number of titles: {count}")
print(f"Number of unique titles: {len(titles)}")
```

- Output

```
Number of titles: 26287
Number of unique titles: 26269
```

ASSIGNMENT 2.2

- Code

```
# iterate through each file
for file_path in file_paths:
    with open(file_path, 'r', encoding="utf-8") as file:
        # initialize keyword and insideDE
        keyword = ""
        insideDE = False
        # iterate through each line
        for line in file:
            # starts of keywords
            if line.startswith("DE "):
                insideDE = True
                keyword += line[3:].strip()
            # contents inside the DE tag
            elif line.startswith("   ") and insideDE:
                keyword += line[3:].strip()
            else:
                # add each keyword into the set and dictionary
                if keyword != "":
                    keyword = keyword.split(';')
                    for word in keyword:
                        word = word.strip() # .lower() to avoid same keywords but with different upper/lower characters
                        keywords.add(word)
                        # if word in keyword_count, increase keyword_count[word] by one
                        # else, set keyword_count[word] to one
                        if keyword_count.get(word, False):
                            keyword_count[word] += 1
                        else:
                            keyword_count[word] = 1
                # re-initialize keyword and insideDE
                keyword = ""
                insideDE = False

# sort the dictionary with it's value in descending order
sorted_keywords = sorted(keyword_count.items(), key=lambda x: x[1], reverse=True)

with open('output.txt', 'w') as file:
    for key, value in sorted_keywords:
        print(f"{key}({value})", file=file)
```

- Output

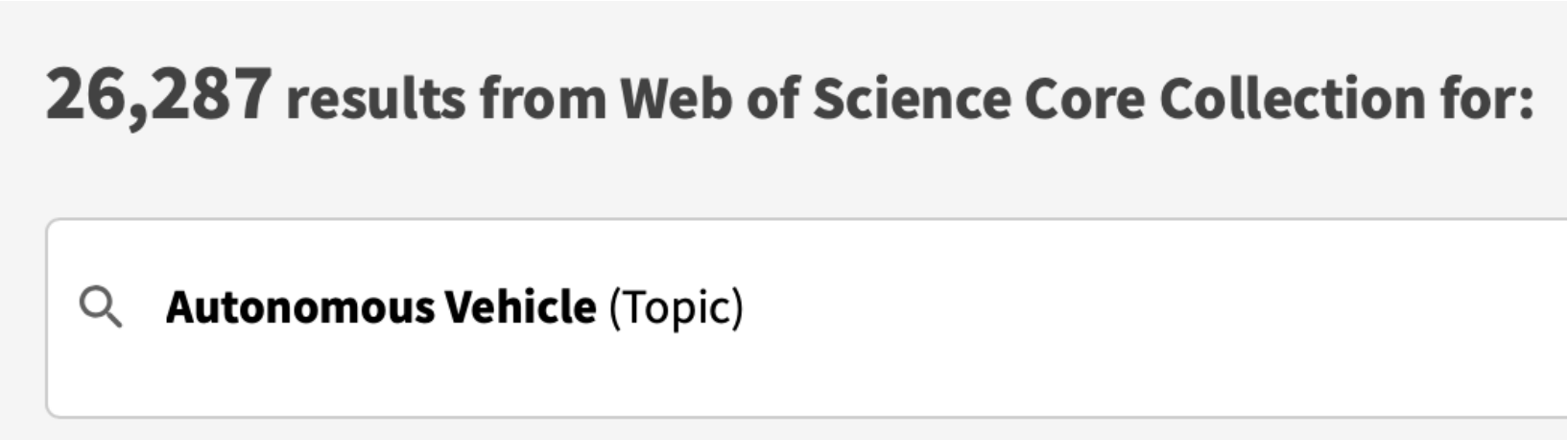
```
autonomous vehicles(2885)
autonomous vehicle(1102)
autonomous driving(982)
autonomous aerial vehicles(911)
path planning(737)
deep learning(723)
vehicle dynamics(721)
trajectory(715)
optimization(620)
task analysis(591)
safety(585)
sensors(571)
autonomous underwater vehicle(566)
navigation(529)
collision avoidance(520)
roads(498)
reinforcement learning(451)
uav(447)
object detection(435)
machine learning(415)
auv(414)
autonomous underwater vehicles(398)
feature extraction(359)
planning(356)
artificial intelligence(328)
unmanned aerial vehicles(327)
localization(322)
autonomous underwater vehicle (auv)(320)
computer vision(315)
cameras(305)
```

PROJECT ASSIGNMENT PRESENTATION

2024/03/06

SEARCH RESULTS FOR AUTONOMOUS VEHICLE

- 搜尋 Autonomous Vehicle 的資料筆數截圖（截取時間 2024/01/26）



DUPLICATE TITLES

- Code

```
        # starts of an author
        if line.startswith("AF "):
            insideAF = True
            author.append(line[3:].strip())
        # contents inside the AF tag
        elif line.startswith("   ") and insideAF:
            author.append(line[3:].strip())
        else:
            insideAF = False
        # starts of a title
        if line.startswith("TI "):
            insideTI = True
            title += line[3:].strip()
        # contents inside the TI tag
        elif line.startswith("   ") and insideTI:
            title += line[3:].strip()
        else:
            # print the current (title, file) and correspond (title, file) if the title has been seen before
            if title in titles:
                print("---")
                print(f'Title "{title}" appears in "{file_path}".')
                print(f'Title "{title}" appears in "{title_file[title]}".')
                # check if the authors are same
                print(len(author))
                for i in author:
                    print(i, end=" ")
                print()
                for i in title_author[title]:
                    print(i, end=" ")
                print()
                if len(set(author).intersection(title_author[title])) == len(author):
                    print(f'All Same!')
                else:
                    print(f'Different!')
                print("---")
            # add title count and add title, author into the set and dictionary
            if title != "" and len(author) != 0:
                count += 1
                titles.add(title)
                title_file[title] = file_path
                title_author[title] = author
                # re-initialize author and insideAF
                author = []
                insideAF = False
```

- Partial Output

```
---
Title "SoftPOSIT: Simultaneous pose and correspondence determination" appears in "autonomous_vehicle_data_records/18.txt".
Title "SoftPOSIT: Simultaneous pose and correspondence determination" appears in "autonomous_vehicle_data_records/17.txt".
4
David, P Dementhon, D Duraiswami, R Samet, H
David, P DeMenthon, D Duraiswami, R Samet, H
Different!
---
---
Title "Collaborative Motion Planning Based on the Improved Ant Colony Algorithmfor Multiple Autonomous Vehicles" appears in "autonomous_vehicle_data_records/26.txt".
Title "Collaborative Motion Planning Based on the Improved Ant Colony Algorithmfor Multiple Autonomous Vehicles" appears in "autonomous_vehicle_data_records/1.txt".
4
Alomari, Hakam W. Al-Badarneh, Amer F. Al-Alaj, Abdullah Khamaiseh, Samer Y.
Su, Shengchao Ju, Xiang Xu, Chaojie Dai, Yufeng
Different!
---
---
Title "Some statistical challenges in automated driving systems" appears in "autonomous_vehicle_data_records/21.txt".
Title "Some statistical challenges in automated driving systems" appears in "autonomous_vehicle_data_records/2.txt".
3
Caballero, William N. Insua, David Rios Naveiro, Roi
Caballero, William N. Insua, David Rios Naveiro, Roi
All Same!
---
```

DUPLICATE TITLES

- Results
  - 11 duplicate title papers have the same author, while the other 7 have different
  - 2 of the 11 papers have the author name not completely same

TRENDS

- 使用 Python 中的 Matplotlib 來呈現圖表
- 選取幾個比較有代表性的關鍵字來觀察
- 以下圖表皆以三年為一區間 (1995 ~ 2024)

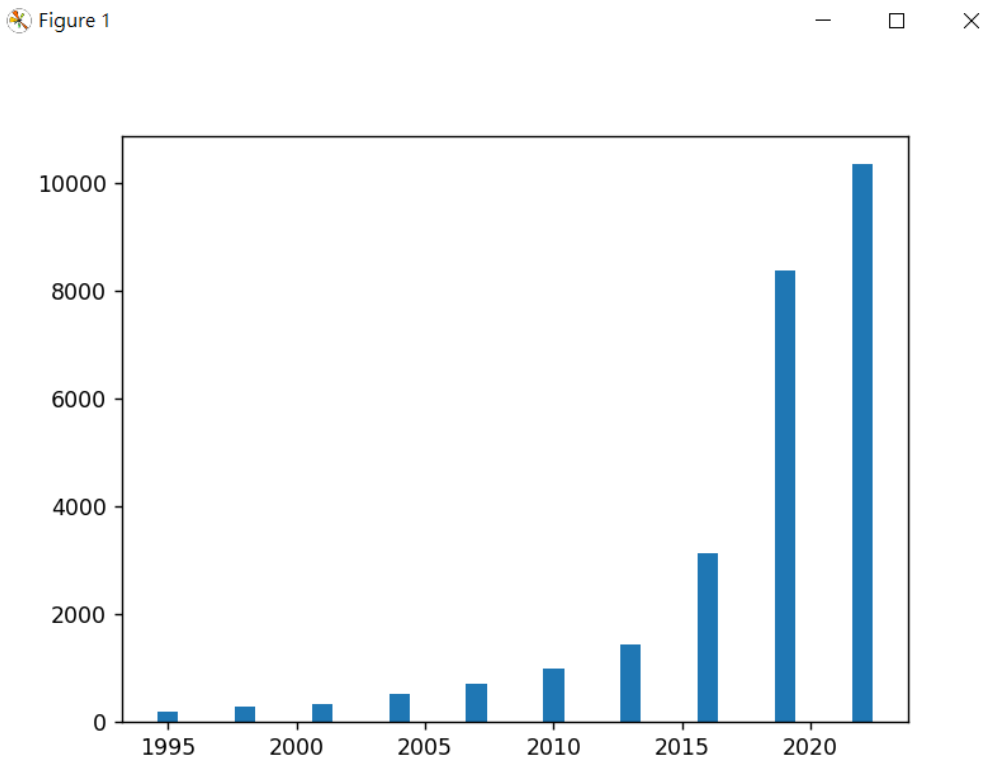
```
while x<=2024:
    x_axis.append(x)
    x+=y
y_axis=[0] * 10
for k, v in coun.items():
    y_axis[k]=v
plt.bar(x_axis, y_axis)
plt.title(s)
plt.yticks(range(0, max(y_axis)+25, 25))
plt.show()
```

TRENDS(AMOUNT OF PAPERS BY YEAR)

- Code

```
for file_path in file_paths:
    with open(file_path, 'r', encoding="utf-8") as file:
        # iterate through each line
        for line in file:
            # starts of keywords
            if line.startswith("PY "):
                z+=1
                year=line[3:].strip()
                ke = int((int(line[3:].strip()) - x) / y)
                if ke in coun:
                    coun[ke] += 1
                else:
                    coun[ke] = 1
```

- Graph

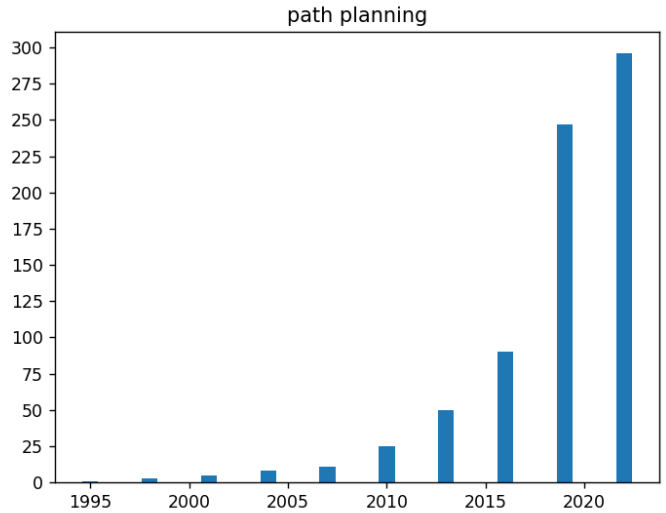


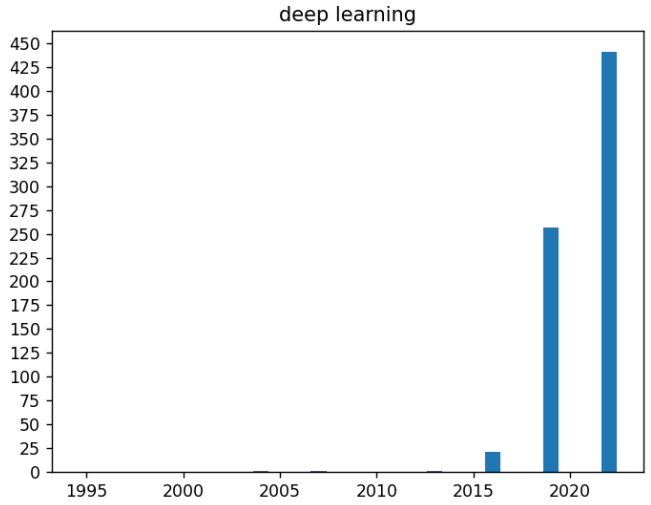
TRENDS

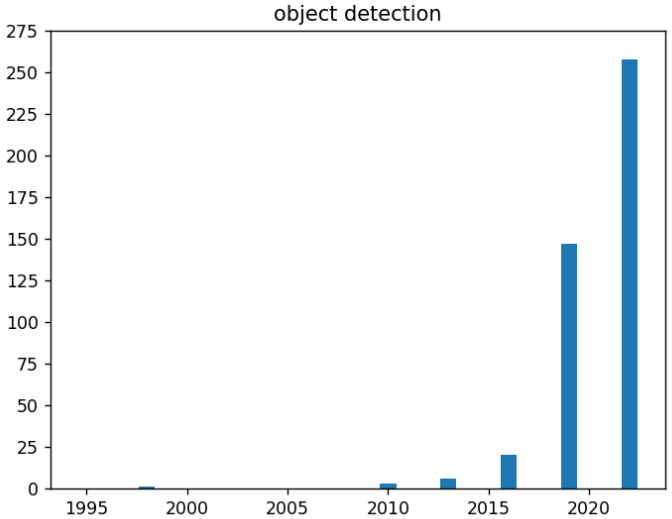
- Code

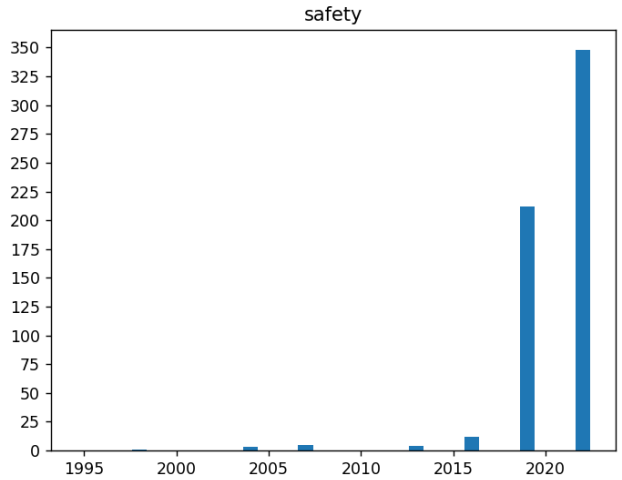
```
else:
    # add each keyword into the set and dictionary
    if keyword != "":
        keyword = keyword.split(';')
        for word in keyword:
            word = word.strip().lower() # .lower() to avoid same keywords bu
            if(word==s):
                line = file.readline()
                while line.startswith("PY ") != True:
                    line = file.readline()
                if line.startswith("PY "):
                            z+=1
                            year=line[3:].strip()
                            ke = int((int(line[3:].strip()) - x) / y)
                            if ke in coun:
                                coun[ke] += 1
                            else:
                                coun[ke] = 1
    # re-initialize keyword and insideDE
    keyword = ""
    insideDE = False
```

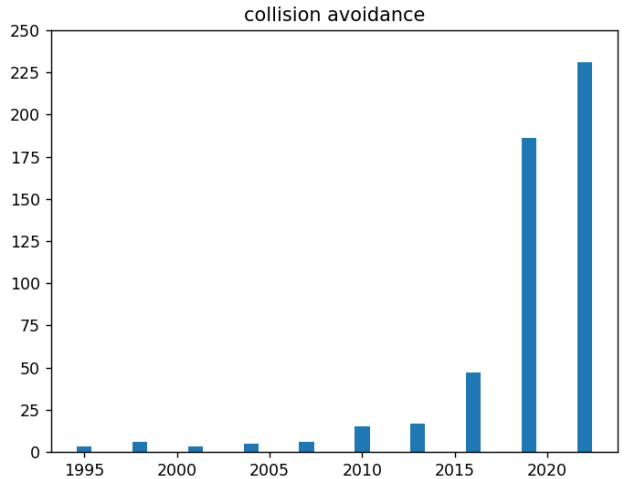
TRENDS

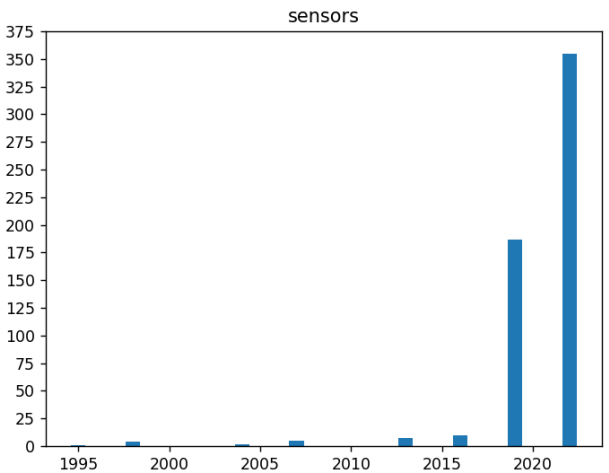

path planning
300
275
250
225
200
175
150
125
100
75
50
25
0
1995
2000
2005
2010
2015
2020


deep learning
450
425
400
375
350
325
300
275
250
225
200
175
150
125
100
75
50
25
0
1995
2000
2005
2010
2015
2020


object detection
275
250
225
200
175
150
125
100
75
50
25
0
1995
2000
2005
2010
2015
2020


safety
350
325
300
275
250
225
200
175
150
125
100
75
50
25
0
1995
2000
2005
2010
2015
2020


collision avoidance
250
225
200
175
150
125
100
75
50
25
0
1995
2000
2005
2010
2015
2020


sensors
375
350
325
300
275
250
225
200
175
150
125
100
75
50
25
0
1995
2000
2005
2010
2015
2020