Exploratory Data Analysis (EDA)

Load the data

In [1]:

```
from pickle import load, dumps
import json
import pandas as pd
from wordcloud import WordCloud, STOPWORDS
import matplotlib.pyplot as plt
import os
import seaborn as sns
```

In [2]:

```
# Load the filepaths
with open('../raw_data/corpus_dict.pkl', 'rb') as handle:
    corpus_dict = load(handle)

json.loads(json.dumps(corpus_dict))
```

Out[2]:


```
{'1': {'1': 'S1-E1.pkl',
  '2': 'S1-E2.pkl',
  '3': 'S1-E3.pkl',
  '4': 'S1-E4.pkl',
  '5': 'S1-E5.pkl',
  '6': 'S1-E6.pkl',
  '7': 'S1-E7.pkl',
  '8': 'S1-E8.pkl',
  '9': 'S1-E9.pkl',
  '10': 'S1-E10.pkl',
  '11': 'S1-E11.pkl',
  '12': 'S1-E12.pkl',
  '13': 'S1-E13.pkl',
  '14': 'S1-E14.pkl',
  '15': 'S1-E15.pkl',
  '16': 'S1-E16.pkl',
  '17': 'S1-E17.pkl',
  '18': 'S1-E18.pkl',
```

In [3]:

```
# Load in the dictionaries
raw_data_folder = "../raw_data/"

all_scripts_df = pd.DataFrame(columns=['character', 'text'])

for season, episodes in corpus_dict.items():
    for episode_nr, episode in episodes.items():
        with open(raw_data_folder+episode, 'rb') as handle:
            episode_script = load(handle)
            all_scripts_df = all_scripts_df.append(episode_script)

#all_scripts_df
```

. . .

In [4]:

```
all_scripts_df
```

Out[4]:

	character	text
0	AIRMAN	Oh, man, this hand's ...
1	interlude	One of the personnel deals out ...
2	AIRMAN	Seven to the deuce, n...
3	FEMALE	Aren't you guys afrai...
4	OFFICER	Trust me. Nobody ever...
...	...	...
359	YAT'YIR	you merely seek to de...
360	WOMAN	if and when all Jaffa...
361	YAT'YIR	if our brothers refus...
362	GERAK	and they will see the...
363	TO BE CONTINUED	

75210 rows × 2 columns

General Statistics

In [5]:

```
# General statistics
all_scripts_df.describe()
```

Out[5]:

	character	text
count	75210	75210
unique	1943	66827
top	interlude	
freq	13330	1308

In [6]:

```
# Total word count

#-- Add column with word count
words = all_scripts_df.text
all_scripts_df['word_count'] = words.apply(lambda x: len(x.split()))
#all_scripts_df.head()

total_word_count = all_scripts_df.word_count.sum()
print(f"The total word count is {total_word_count}")

# Total dialouge word count

dialouge_word_count = all_scripts_df.loc[all_scripts_df.character != 'interlude'].word_
print(f"The dialouge word count is {dialouge_word_count}")

# Percentage dialouge to total words
dalouge_word_percentage = round(dialouge_word_count/total_word_count,4)*100
print(f"{dalouge_word_percentage}% of words in all scripts are dialouge")
```

```
The total word count is 884424
The dialouge word count is 704473
79.65% of words in all scripts are dialouge
```

Word Clouds

In [5]:

```
# Most frequent words word cloud
#-- Create a long string with all text
all_words = ' '.join(all_scripts_df.text)
all_words
```

...

In [10]:

```
#-- Create word cloud
#-- Source: https://www.geeksforgeeks.org/generating-word-cloud-python/ ; 17.10.2021

stopwords = STOPWORDS
stopwords.update(['know', 'look', 'see', 'well', 'S', 'one', "Teal'C", "Teal c", 'Danie
wordcloud = WordCloud(width = 800, height = 800,
                background_color ='white',
                stopwords = stopwords,
                min_font_size = 10).generate(all_words)

# plot the WordCloud image
plt.figure(figsize = (8, 8), facecolor = None)
plt.imshow(wordcloud)
plt.axis("off")
plt.tight_layout(pad = 0)

plt.show()
```

Characters

In [9]:

```
# charachters sorted by most turns speaking, not most words
character_occourences = all_scripts_df.character.value_counts()
character_occourences.head(20)
```

Out[9]:

```
interlude                                     13330
                                JACK           6188
                                DANIEL         5282
                                SAM            4613
                                CARTER         4350
                                O'NEILL        3598
                                TEAL'C         3173
                                HAMMOND        2996
                                O NEILL        1240
                                JACKSON        1217
                                DANNY          1061
                                JONAS          1010
                                TEAL C          754
                                JANET           681
                                JACOB           676
                                FRAISER         586
                                MITCHELL        580
                                VALA            485
                                MAYBOURNE       422
                                DAVIS           390
Name: character, dtype: int64
```

In [10]:

```
1 character_occourences[10:].tail(1000)
```

Out[10]:

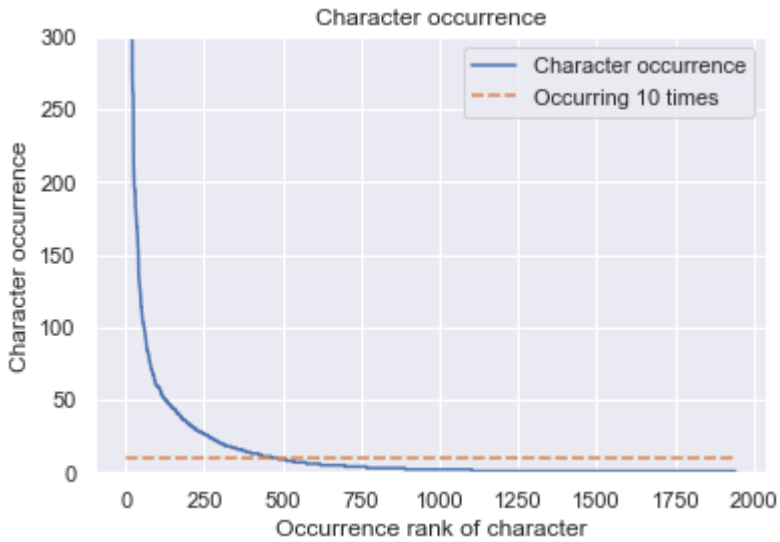
```
              OUTSIDE THE WAREHOUSE.                   2
              TO BE CONTINUED.                         2
                                   ALT-CARTER          2
                                   ELDER1              2
                                   MISSION CONTROL     2
                                                      ..
                                   CYLER               1
                                   GEEK #2             1
                                   FRANCE              1
                                   HAIMDALL            1
              INT  BRIDGE, PYRAMID SHIP                1
Name: character, Length: 1000, dtype: int64
```

In [11]:

```
# imports
# import seaborn as sns
# import numpy as np
# import pandas as pd

# inputs
cutoff = 0
character_occourence = character_occourences[cutoff:].values
character_number = list(range(cutoff,len(character_occourences),1))
occourence_cut = [10 for x in range(len(character_occourence))]

# convert to pandas dataframe
d = {'Character occurrence': character_occourence,
     'Occurring 10 times': occourence_cut}
df = pd.DataFrame(d, index = character_number)
#df.reset_index('Character number')

# plot using lineplot
sns.set(style='darkgrid')
# h = sns.lineplot(x='Character number', y='Character occourence', data=pdnumsqr)
h = sns.lineplot(data=df)
h. set(ylim=(0, 300))
h.set(xlabel='Occurrence rank of character', ylabel='Character occurrence')

h.set_title('Character occurrence')

```

Out[11]:

```
Text(0.5, 1.0, 'Character occurrence')
```



In [14]:

```
len(all_scripts_df.character.value_counts())
```

Out[14]:

```
1943
```

In [16]:

```
# characters sorted by total word count
test=all_scripts_df[['character', 'word_count']].groupby('character').sum().sort_values
test
```

Out[16]:

character	word_count
interlude	179951
DANIEL	65028
JACK	55680
CARTER	53193
SAM	52928
...	...
INSIDE SENTINEL CAVE.	0
INSIDE THE AIRPORT	0
INSIDE THE SGC.	0
INSIDE THE SHIP	0
BACK TO SGC	0

1943 rows × 1 columns

Next: Cleaning the data

woman = female

leerzeichen namen