- DC Comics, Inc. is an American comic book publisher. It is the publishing unit of DC Entertainment, a subsidiary of Warner Bros. since 1967. DC Comics is one of the largest and oldest American comic book companies, and produces material featuring numerous culturally iconic heroic characters including: Superman, Batman, Wonder Woman, The Flash, Green Lantern, Martian Manhunter, Nightwing, Green Arrow, Starfire, Aquaman, and Cyborg.

  Most of their material takes place in the fictional DC Universe, which also features teams such as the Justice League, the Justice Society of America, the Suicide Squad, and the Teen Titans, and well-known villains such as The Joker, Lex Luthor, Catwoman, Darkseid, Sinestro, Brainiac, Black Adam, Ra's al Ghul and Deathstroke. The company has also published non-DC Universe-related material, including Watchmen, V for Vendetta, and many titles under their alternative imprint Vertigo.

  The initials "DC" came from the company's popular series Detective Comics, which featured Batman's debut and subsequently became part of the company's name. Originally in Manhattan at 432 Fourth Avenue, the DC Comics offices have been located at 480 and later 575 Lexington Avenue; 909 Third Avenue; 75 Rockefeller Plaza; 666 Fifth Avenue; and 1325 Avenue of the Americas. DC had its headquarters at 1700 Broadway, Midtown Manhattan, New York City, but it was announced in October 2013 that DC Entertainment would relocate its headquarters from New York to Burbank, California in April 2015.

  Random House distributes DC Comics' books to the bookstore market,while Diamond Comic Distributors supplies the comics shop specialty market.DC Comics and its longtime major competitor Marvel Comics (acquired in 2009 by The Walt Disney Company, WarnerMedia's main competitor) together shared approximately 70% of the American comic book market in 2017.

- Marvel Comics is the brand name and primary imprint of Marvel Worldwide Inc., formerly Marvel Publishing, Inc. and Marvel Comics Group, a publisher of American comic books and related media. In 2009, The Walt Disney Company acquired Marvel Entertainment, Marvel Worldwide's parent company.

  Marvel started in 1939 as Timely Publications, and by the early 1950s, had generally become known as Atlas Comics. The Marvel branding began in 1961, the year that the company launched The Fantastic Four and other superhero titles created by Steve Ditko, Stan Lee, Jack Kirby and many others.

  Marvel counts among its characters such well-known superheroes as Spider-Man, Iron Man, Captain America, Thor, the Hulk, Captain Marvel, Black Panther, Deadpool, Silver Surfer, Doctor Strange, Wolverine, Daredevil, Ghost Rider and the Punisher, such teams as the Avengers, the X-Men, the Fantastic Four, the Inhumans and the Guardians of the Galaxy, and supervillains including Thanos, Doctor Doom, Magneto, Red Skull, Green Goblin, Ultron, Doctor Octopus, Loki, Galactus, and Venom. Most of Marvel's fictional characters operate in a single reality known as the Marvel Universe, with most locations mirroring real-life places; many major characters are based in New York City.

In [1]:
```python
import pandas as pd

marvel = pd.read_csv("marvel-wikia-data.csv")
marvel.head()
```

Out[1]:

	page_id	name	urlslug	ID	ALIGN	EYE	HAIR	SEX	GSM	ALIVE	APPEARANCES
0	1678	Spider-Man (Peter Parker)	\/Spider-Man_(Peter_Parker)	Secret Identity	Good Characters	Hazel Eyes	Brown Hair	Male Characters	NaN	Living Characters	4043.0
1	7139	Captain America (Steven Rogers)	\/Captain_America_(Steven_Rogers)	Public Identity	Good Characters	Blue Eyes	White Hair	Male Characters	NaN	Living Characters	3360.0
2	64786	Wolverine (James \"Logan\" Howlett)	\/Wolverine_(James_%22Logan%22_Howlett)	Public Identity	Neutral Characters	Blue Eyes	Black Hair	Male Characters	NaN	Living Characters	3061.0
3	1868	Iron Man (Anthony \"Tony\" Stark)	\/Iron_Man_(Anthony_%22Tony%22_Stark)	Public Identity	Good Characters	Blue Eyes	Black Hair	Male Characters	NaN	Living Characters	2961.0
4	2460	Thor (Thor Odinson)	\/Thor_(Thor_Odinson)	No Dual Identity	Good Characters	Blue Eyes	Blond Hair	Male Characters	NaN	Living Characters	2258.0

In [2]:
```python
dc = pd.read_csv("dc-wikia-data.csv")
dc.head()
```

Out[2]:

	page_id	name	urlslug	ID	ALIGN	EYE	HAIR	SEX	GSM	ALIVE	APPEARANCES	APPEA
0	1422	Batman (Bruce Wayne)	\/wiki\/Batman_(Bruce_Wayne)	Secret Identity	Good Characters	Blue Eyes	Black Hair	Male Characters	NaN	Living Characters	3093.0	19
1	23387	Superman (Clark Kent)	\/wiki\/Superman_(Clark_Kent)	Secret Identity	Good Characters	Blue Eyes	Black Hair	Male Characters	NaN	Living Characters	2496.0	1986,
2	1458	Green Lantern (Hal Jordan)	\/wiki\/Green_Lantern_(Hal_Jordan)	Secret Identity	Good Characters	Brown Eyes	Brown Hair	Male Characters	NaN	Living Characters	1565.0	1959,
3	1659	James Gordon (New Earth)	\/wiki\/James_Gordon_(New_Earth)	Public Identity	Good Characters	Brown Eyes	White Hair	Male Characters	NaN	Living Characters	1316.0	1987, I
4	1576	Richard Grayson (New Earth)	\/wiki\/Richard_Grayson_(New_Earth)	Secret Identity	Good Characters	Blue Eyes	Black Hair	Male Characters	NaN	Living Characters	1237.0	19

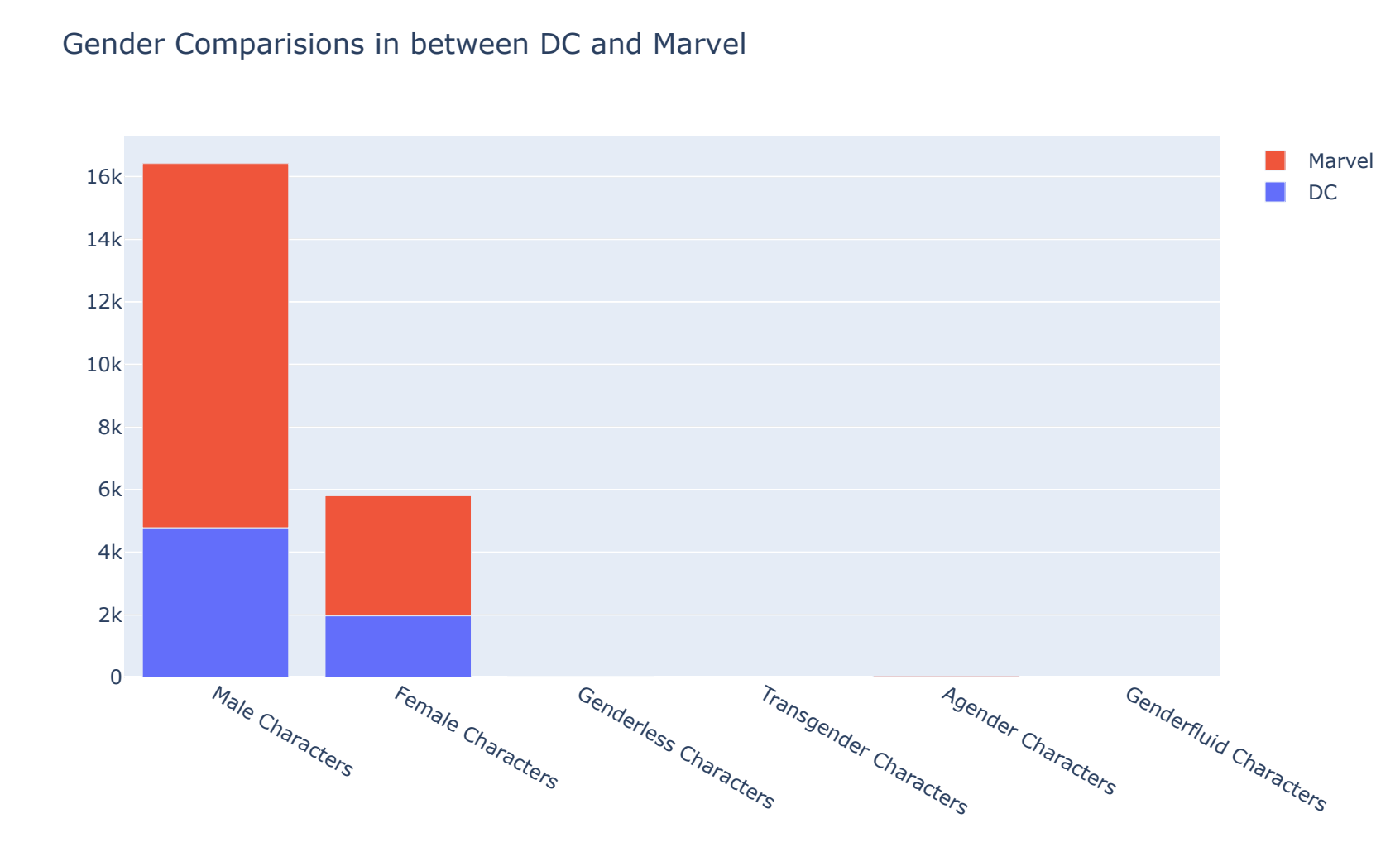
Description for various variables are as follows :

- page_id - The unique identifier for that characters page within the wikia
- name - The name of the character
- urlslug - The unique url within the wikia that takes you to the character
- ID - The identity status of the character (Secret Identity, Public identity, [on marvel only: No Dual Identity])
- ALIGN - If the character is Good, Bad or Neutral
- EYE - Eye color of the character
- HAIR - Hair color of the character
- SEX - Sex of the character (e.g. Male, Female, etc.)
- GSM - If the character is a gender or sexual minority (e.g. Homosexual characters, bisexual characters)
- ALIVE - If the character is alive or deceased
- APPEARANCES - The number of appearances of the character in comic books
- FIRST APPEARANCE - The month and year of the character's first appearance in a comic book, if available
- YEAR - The year of the character's first appearance in a comic book, if available

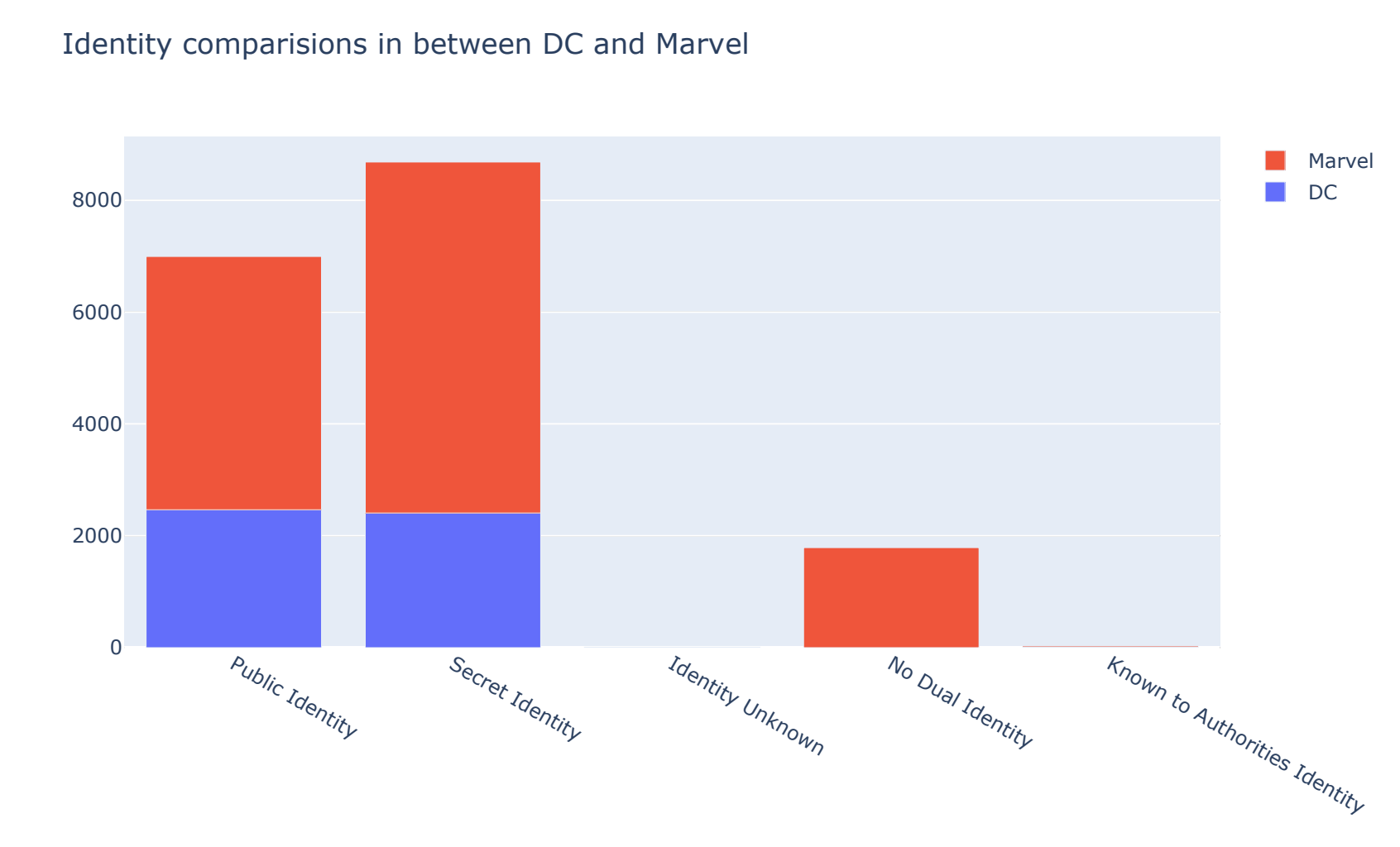
Comparisions of DC and Marvel Comics characters

In [3]:
```python
import plotly.offline as py
from plotly.offline import init_notebook_mode, iplot
import plotly.graph_objs as go
from plotly import tools
init_notebook_mode(connected=True)
import plotly.figure_factory as ff
```

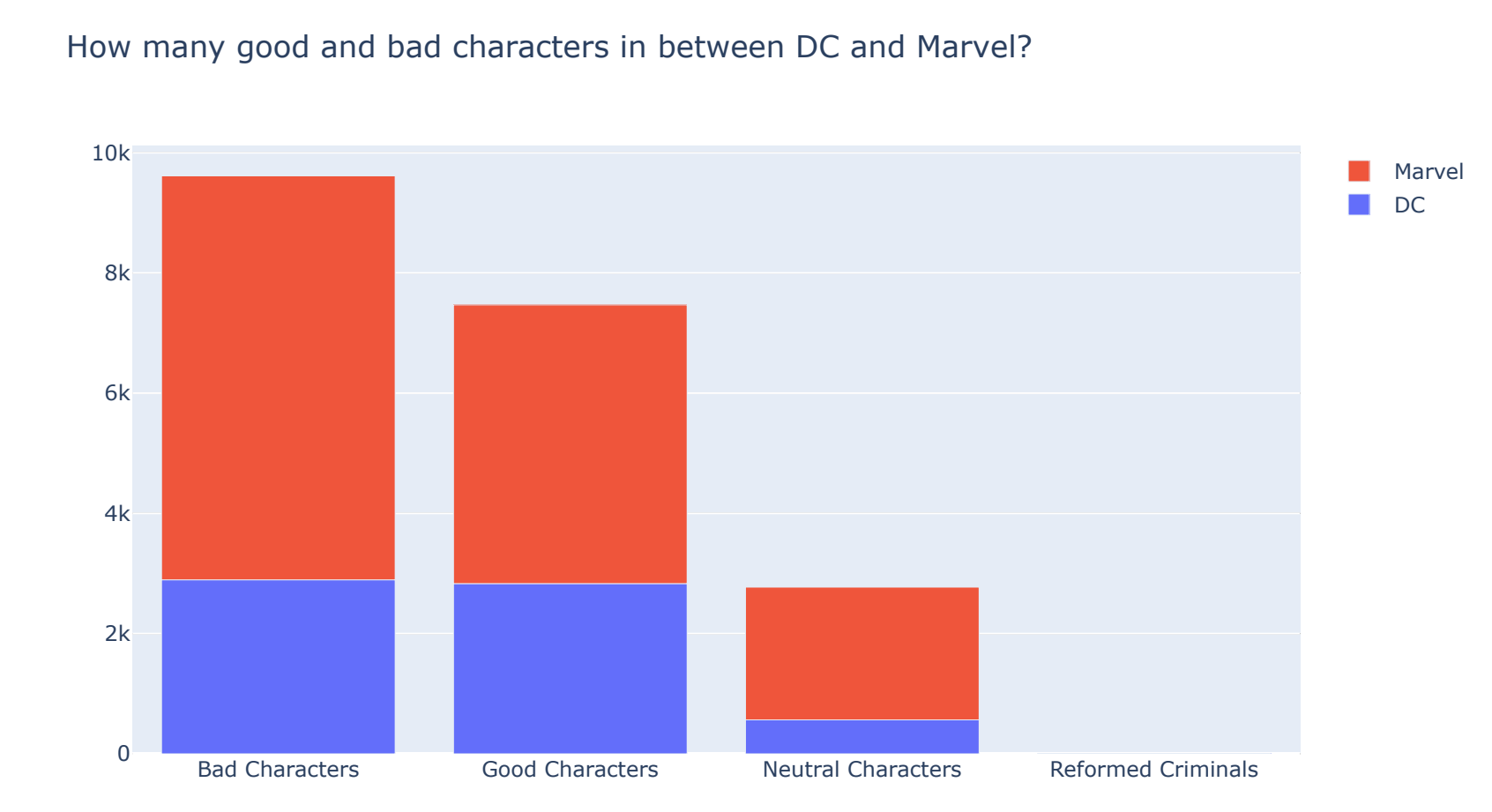
In [4]:
```python
sex_count = dc['SEX'].value_counts()
sex1_count = marvel['SEX'].value_counts()
trace1 = go.Bar(
    x=sex_count.index,
    y=sex_count.values,
    name='DC'
)
trace2 = go.Bar(
    x=sex1_count.index,
    y=sex1_count.values,
    name='Marvel'
)

data = [trace1, trace2]
layout = go.Layout(
    barmode='stack',
    title= 'Gender Comparisions in between DC and Marvel'
)

fig = go.Figure(data=data, layout=layout)
py.iplot(fig, filename='stacked-bar')
```



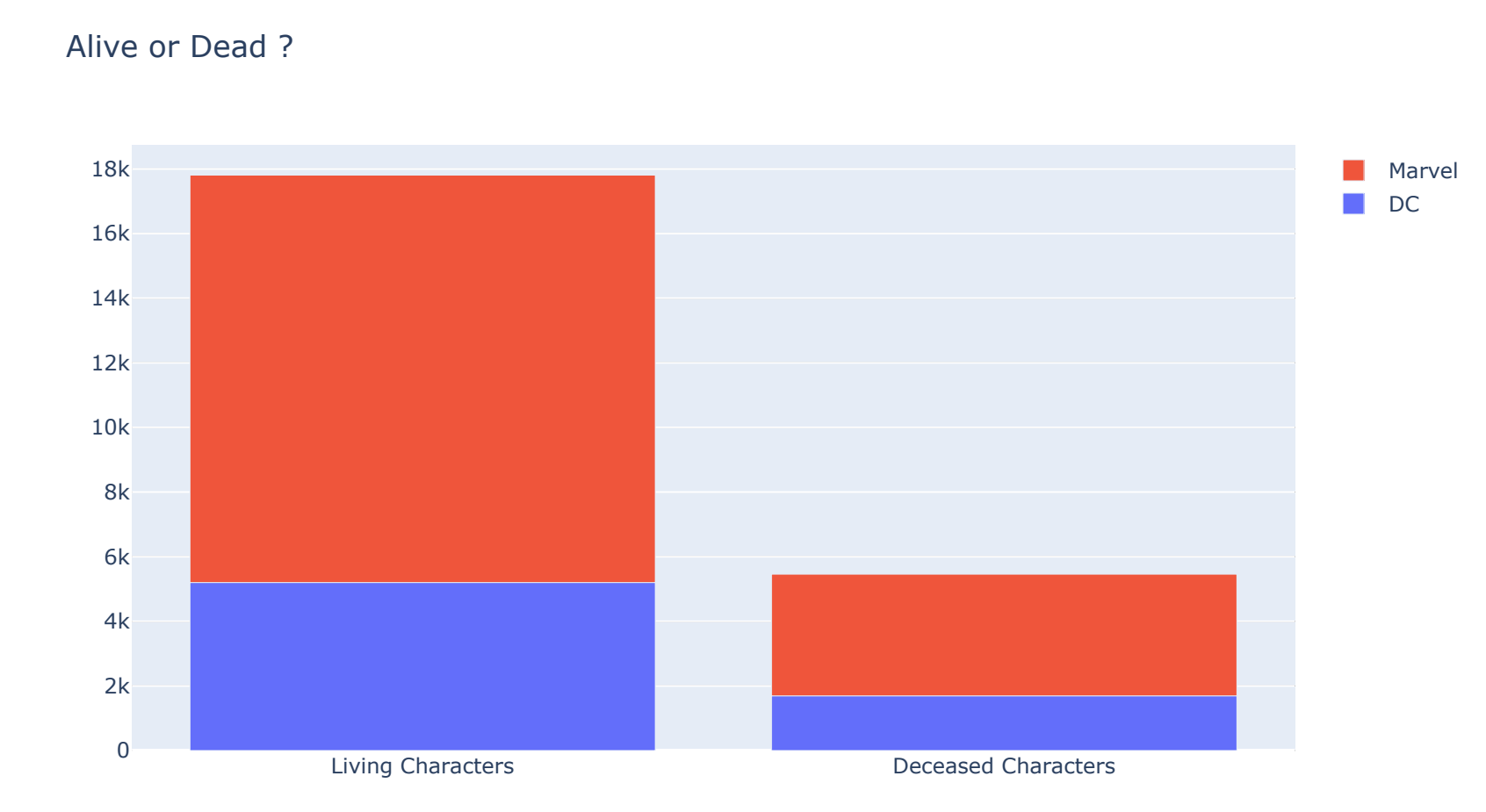
In [5]:
```python
sex_count = dc['ID'].value_counts()
sex1_count = marvel['ID'].value_counts()
trace1 = go.Bar(
    x=sex_count.index,
    y=sex_count.values,
    name='DC'
)
trace2 = go.Bar(
    x=sex1_count.index,
    y=sex1_count.values,
    name='Marvel'
)

data = [trace1, trace2]
layout = go.Layout(
    barmode='stack',
    title= 'Identity comparisions in between DC and Marvel'
)

fig = go.Figure(data=data, layout=layout)
py.iplot(fig, filename='stacked-bar')
```



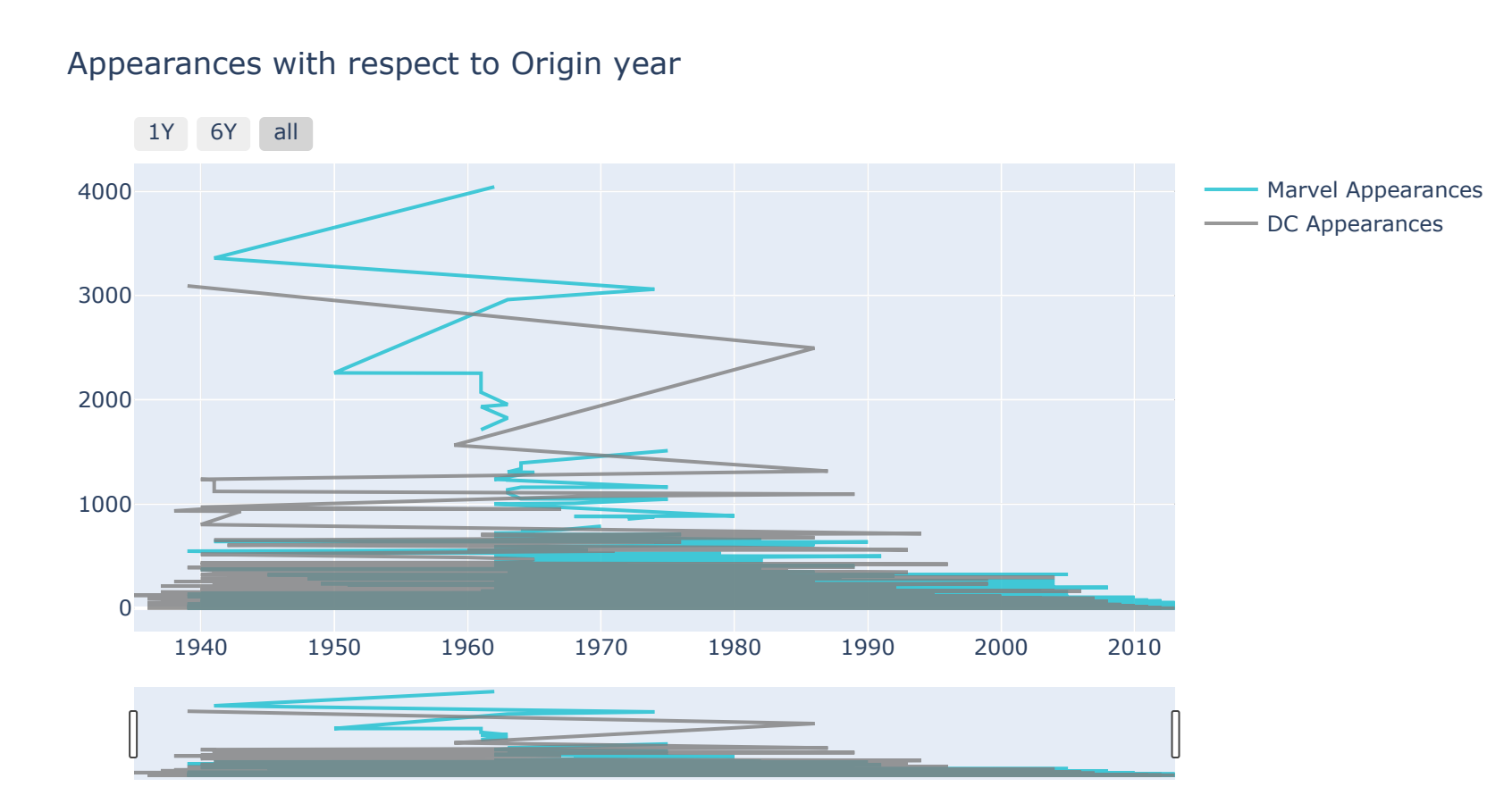
In [6]:
```python
sex_count = dc['ALIGN'].value_counts()
sex1_count = marvel['ALIGN'].value_counts()
trace1 = go.Bar(
    x=sex_count.index,
    y=sex_count.values,
    name='DC'
)
trace2 = go.Bar(
    x=sex1_count.index,
    y=sex1_count.values,
    name='Marvel'
)

data = [trace1, trace2]
layout = go.Layout(
    barmode='stack',
    title= 'How many good and bad characters in between DC and Marvel?'
)

fig = go.Figure(data=data, layout=layout)
py.iplot(fig, filename='stacked-bar')
```



In [7]:
```python
sex_count = dc['ALIVE'].value_counts()
sex1_count = marvel['ALIVE'].value_counts()
trace1 = go.Bar(
    x=sex_count.index,
    y=sex_count.values,
    name='DC'
)
trace2 = go.Bar(
    x=sex1_count.index,
    y=sex1_count.values,
    name='Marvel'
)

data = [trace1, trace2]
layout = go.Layout(
    barmode='stack',
    title= 'Alive or Dead ?'
)

fig = go.Figure(data=data, layout=layout)
py.iplot(fig, filename='stacked-bar')
```



In [8]:
```python
trace_high = go.Scatter(
                x=marvel.Year,
                y=marvel.APPEARANCES,
                name = "Marvel Appearances",
                line = dict(color = '#17BECF'),
                opacity = 0.8)

trace_low = go.Scatter(
                x=dc.YEAR,
                y=dc.APPEARANCES,
                name = "DC Appearances",
                line = dict(color = '#7F7F7F'),
                opacity = 0.8)

data = [trace_high,trace_low]

layout = dict(
    title='Appearances with respect to Origin year',
    xaxis=dict(
        rangeselector=dict(
            buttons=list([
                dict(count=1,
                     label='1Y',
                     step='year',
                     stepmode='backward'),
                dict(count=6,
                     label='6Y',
                     step='year',
                     stepmode='backward'),
                dict(step='all')
            ])
        ),
        rangeslider=dict(
            visible = True
        ),
        type='date'
    )
)

fig = dict(data=data, layout=layout)
py.iplot(fig, filename = "Time Series with Rangeslider")
```



In [9]:
```python
dc_top = dc.iloc[dc.groupby(dc['ALIGN'])['APPEARANCES'].idxmax()][['name', 'ALIGN']]
```

Top appearances in alignment of the characters in DC

In [10]:
```python
dc_top
```

Out[10]:

	name	ALIGN
19	Alexander Luthor (New Earth)	Bad Characters
0	Batman (Bruce Wayne)	Good Characters
20	Roy Harper (New Earth)	Neutral Characters
387	Owen Mercer (New Earth)	Reformed Criminals

In [11]:
```python
dc_alive = dc.iloc[dc.groupby(dc['ALIVE'])['APPEARANCES'].idxmax()][['name', 'ALIVE']]
```

Top appearances depending on whether they continue to exist in DC

In [12]:
```python
dc_alive
```

Out[12]:

	name	ALIVE
11	Alan Scott (New Earth)	Deceased Characters
0	Batman (Bruce Wayne)	Living Characters

In [13]:
```python
marvel_top = marvel.iloc[marvel.groupby(marvel['ALIGN'])['APPEARANCES'].idxmax()][['name', 'ALIGN']]
```

Top appearances in alignment of the characters in Marvel

In [14]:
```python
marvel_top
```

Out[14]:

	name	ALIGN
43	Victor von Doom (Earth-616)	Bad Characters
0	Spider-Man (Peter Parker)	Good Characters
2	Wolverine (James \"Logan\" Howlett)	Neutral Characters

In [15]:
```python
marvel_alive = marvel.iloc[marvel.groupby(marvel['ALIVE'])['APPEARANCES'].idxmax()][['name', 'ALIVE']]
```

Top appearances depending on whether they continue to exist in Marvel

In [16]:
```python
marvel_alive
```

Out[16]:

	name	ALIVE
21	Charles Xavier (Earth-616)	Deceased Characters
0	Spider-Man (Peter Parker)	Living Characters

Visualisation

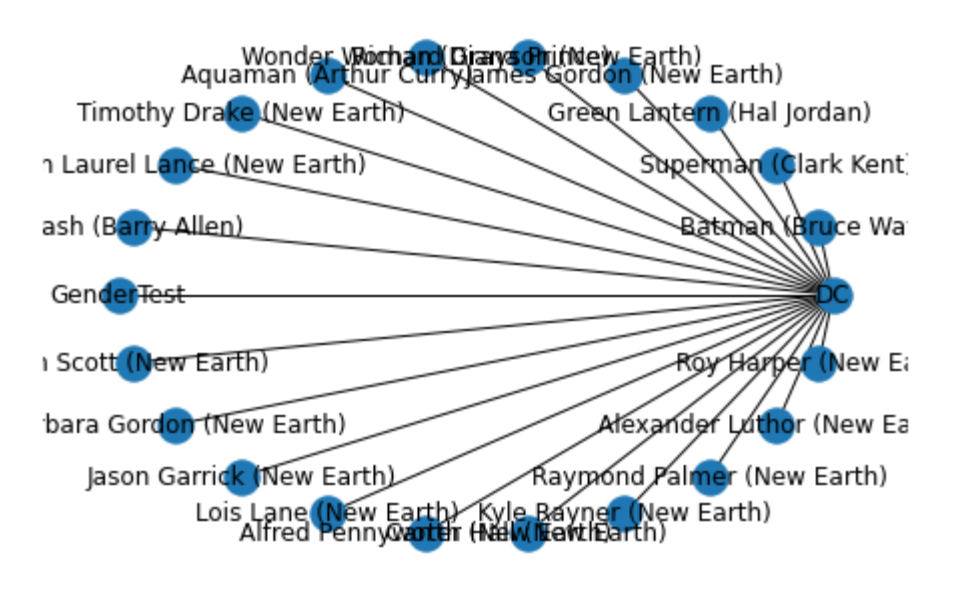
Top 20 characters of DC

In [17]:
```python
dc['comics']= 'DC'
```

In [18]:
```python
dc= dc.truncate(before=-1, after=20)
```

In [19]:
```python
import networkx as nx
FG = nx.from_pandas_edgelist(dc, source='comics', target='name', edge_attr=True)
```

In [20]:
```python
nx.draw_circular(FG, with_labels=True)
```



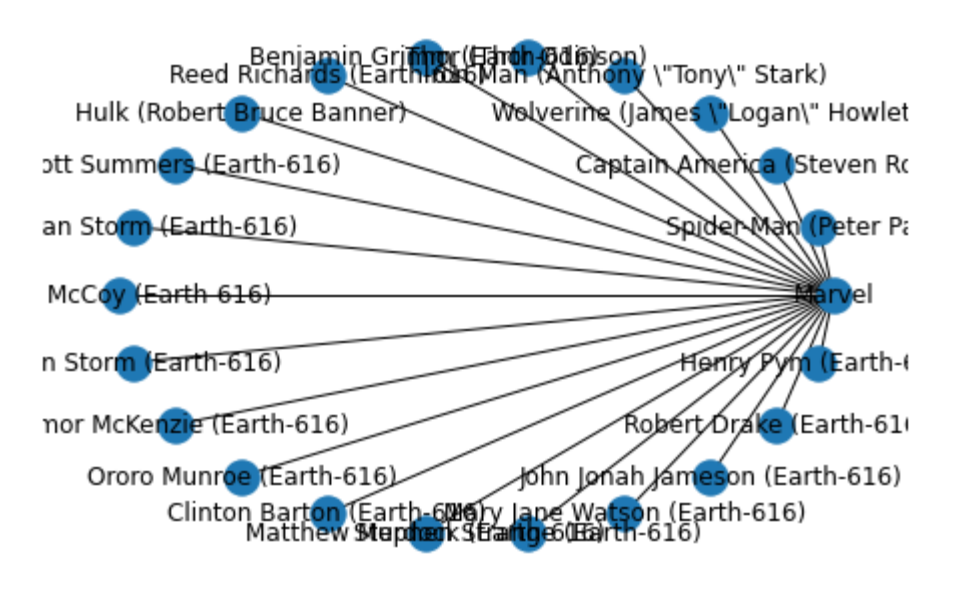
Top 20 characters of Marvel

In [21]:
```python
marvel['comics'] = 'Marvel'
```

In [22]:
```python
marvel = marvel.truncate(before=-1, after=20)
```

In [23]:
```python
import networkx as nx
FG1 = nx.from_pandas_edgelist(marvel, source='comics', target='name', edge_attr=True,)
```

In [24]:
```python
nx.draw_circular(FG1, with_labels=True)
```



In [ ]: