In [60]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [61]:
```
years = [2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020]
durations = [103, 101, 99, 100, 100, 95, 95, 96, 93, 90]
```

In [62]:
```
movie_dict={"years":years, "durations":durations}
```

In [63]:
```
movie_dict
```

Out[63]:
```
{'years': [2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020],
 'durations': [103, 101, 99, 100, 100, 95, 95, 96, 93, 90]}
```

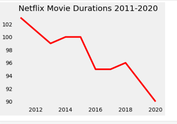
In [64]:
```
durations_df=pd.DataFrame(movie_dict)
```

In [65]:
```
durations_df
```

Out[65]:

	years	durations
0	2011	103
1	2012	101
2	2013	99
3	2014	100
4	2015	100
5	2016	95
6	2017	95
7	2018	96
8	2019	93
9	2020	90

In [66]:
```
fig = plt.figure()
plt.plot(years,durations,c="red")
plt.title("Netflix Movie Durations 2011-2020")
plt.grid()
plt.show()
```



In [67]:
```
netflix_df = pd.read_csv("C:/Users/kaan/Desktop/kaggle/netflix.csv")
```

In [68]:
```
netflix_df.head()
```

Out[68]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train I...

In [69]:
```
netflix_df_movies_only=netflix_df[netflix_df["type"]=="Movie"]
```

In [70]:
```
netflix_movies_col_subset = netflix_df_movies_only[['title', 'country', 'listed_in', 'release_year', 'duration']]
```

In [71]:
```
netflix_movies_col_subset
```

Out[71]:

	title	country	listed_in	release_year	duration
0	Dick Johnson Is Dead	United States	Documentaries	2020	90 min
6	My Little Pony: A New Generation	NaN	Children & Family Movies	2021	91 min
7	Sankofa	United States, Ghana, Burkina Faso, United Kin...	Dramas, Independent Movies, International Movies	1993	125 min
9	The Starling	United States	Comedies, Dramas	2021	104 min
12	Je Suis Karl	Germany, Czech Republic	Dramas, International Movies	2021	127 min
...	...	...	...	...	...
8801	Zinzana	United Arab Emirates, Jordan	Dramas, International Movies, Thrillers	2015	96 min
8802	Zodiac	United States	Cult Movies, Dramas, Thrillers	2007	158 min
8804	Zombieland	United States	Comedies, Horror Movies	2009	88 min
8805	Zoom	United States	Children & Family Movies, Comedies	2006	88 min
8806	Zubaan	India	Dramas, International Movies, Music & Musicals	2015	111 min

6131 rows × 5 columns

In [72]:
```
netflix_movies_col_subset["duration"]
```

Out[72]:
```
0       90 min
6       91 min
7      125 min
9      104 min
12     127 min
        ...
8801    96 min
8802   158 min
8804    88 min
8805    88 min
8806   111 min
Name: duration, Length: 6131, dtype: object
```

In [73]:
```
yeni=netflix_movies_col_subset["duration"].str.replace("[\w]+$","").fillna(0).astype(int)
```

```
C:\Users\kaan\AppData\Local\Temp/ipykernel_10364/2805420490.py:1: FutureWarning: The default value of regex will change from True to False in a future versio
  yeni=netflix_movies_col_subset["duration"].str.replace("[\w]+$","").fillna(0).astype(int)
```

In [74]:
```
yeni
```

Out[74]:
```
0       90
6       91
7      125
9      104
12     127
      ...
8801    96
8802   158
8804    88
8805    88
8806   111
Name: duration, Length: 6131, dtype: int32
```

In [75]:
```
netflix_movies_col_subset["duration"]=yeni
```

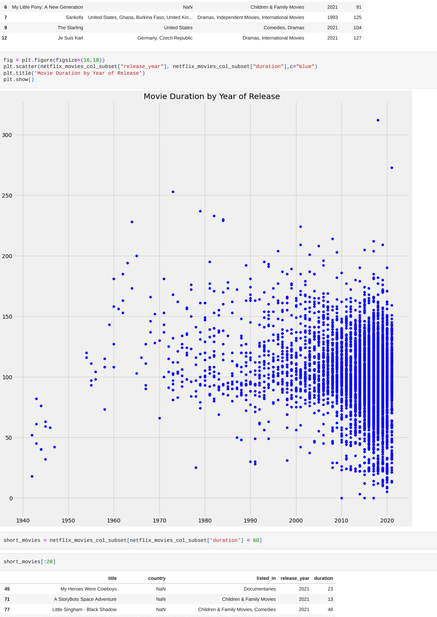
```
C:\Users\kaan\AppData\Local\Temp/ipykernel_10364/2909910037.py:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  netflix_movies_col_subset["duration"]=yeni
```

In [76]:
```
netflix_movies_col_subset.head()
```

Out[76]:

	title	country	listed_in	release_year	duration
0	Dick Johnson Is Dead	United States	Documentaries	2020	90
6	My Little Pony: A New Generation	NaN	Children & Family Movies	2021	91
7	Sankofa	United States, Ghana, Burkina Faso, United Kin...	Dramas, Independent Movies, International Movies	1993	125
9	The Starling	United States	Comedies, Dramas	2021	104
12	Je Suis Karl	Germany, Czech Republic	Dramas, International Movies	2021	127

In [77]:
```
fig = plt.figure(figsize=(16,18))
plt.scatter(netflix_movies_col_subset["release_year"], netflix_movies_col_subset["duration"],c="blue")
plt.title('Movie Duration by Year of Release')
plt.show()
```



In [78]:
```
short_movies = netflix_movies_col_subset[netflix_movies_col_subset['duration'] < 60]
```

In [79]:
```
short_movies[:20]
```

Out[79]:

	title	country	listed_in	release_year	duration
45	My Heroes Were Cowboys	NaN	Documentaries	2021	23
71	A Storybots Space Adventure	NaN	Children & Family Movies	2021	13
77	Little Singham - Black Shadow	NaN	Children & Family Movies, Comedies	2021	48
279	Monster Hunter: Legends of the Guild	United States, Japan	Action & Adventure, Anime Features, Children &...	2021	59
470	Bridgerton - The Afterparty	NaN	Movies	2021	39
484	Lee Su-geun: The Sense Coach	NaN	Stand-Up Comedy	2021	46
495	Awon Boyz	NaN	Documentaries, International Movies	2019	38
560	Audible	NaN	Documentaries, Sports Movies	2021	39
594	Azizа	Lebanon, Syria	Comedies, Dramas, Independent Movies	2019	13
695	Besieged Bread	NaN	Dramas, International Movies	2015	12
729	Bling Empire - The Afterparty	NaN	Movies	2021	36
730	Cobra Kai - The Afterparty	NaN	Movies	2021	34
732	To All the Boys: Always and Forever - The Afte...	NaN	Movies	2021	36
738	Trese After Dark	NaN	Anime Features, Documentaries	2021	36
766	Alan Saldaña: Locked Up	Mexico	Stand-Up Comedy	2021	49
769	From Stress to Happiness	Argentina	Documentaries, International Movies	2020	58
811	Super Monsters: Once Upon a Rhyme	NaN	Children & Family Movies	2021	25
854	Creating an Army of the Dead	NaN	Documentaries	2021	29
861	Little Singham Future mein Satakli	NaN	Children & Family Movies, Comedies	2021	47
888	The Upshaws - The Afterparty	NaN	Comedies	2021	32

In [84]:
```
colors = []
```

In [85]:
```
for lab, row in netflix_movies_col_subset.iterrows():
    if row['listed_in'] == "Comedies":
        colors.append("red")
    elif row['listed_in'] == "Documentaries":
        colors.append("blue")
    elif row['listed_in'] == "Stand-Up Comedy":
        colors.append("green")
    else:
        colors.append("black")
```

In [86]:
```
colors[:10]
```

Out[86]:
```
['blue',
 'black',
 'black',
 'black',
 'black',
 'black',
 'black',
 'black',
 'black',
 'black']
```

In [87]:
```
plt.style.use('fivethirtyeight')
fig = plt.figure(figsize=(12,6))
plt.scatter(netflix_movies_col_subset["release_year"], netflix_movies_col_subset["duration"], c=colors)
plt.title("Movie duration by year of release")
plt.xlabel("Release year")
plt.ylabel("Duration (min)")
plt.show()
```