Lliurament tasca 6A - Exercici 3

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\begin{align*}Business\hspace{2mm}Intelligence\hspace{2mm}and\hspace{2mm}Data\hspa

$%$ \begin{align*}Date : Febrer\hspace{2mm}2021\end{align*}

In [1]:
```
import os
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

In [2]:
```
mcabecera = ['movie_id', 'titulo', 'genero']
mcabecera
```

Out[2]:
```
['movie_id', 'titulo', 'genero']
```

In [3]:
```
movies = pd.read_table('movies.dat', sep = '::', names = mcabecera, header
movies.head()
```

Out[3]:

	movie_id	titulo	genero
0	1	Toy Story (1995)	Animation|Children's|Comedy
1	2	Jumanji (1995)	Adventure|Children's|Fantasy
2	3	Grumpier Old Men (1995)	Comedy|Romance
3	4	Waiting to Exhale (1995)	Comedy|Drama
4	5	Father of the Bride Part II (1995)	Comedy

In [4]:
```
movies.shape
```

Out[4]:
```
(3883, 3)
```

In [5]:
```
movies.describe()
```

Out[5]:

	movie_id
count	3883.000000
mean	1986.049446
std	1146.778349
min	1.000000
25%	982.500000
50%	2010.000000
75%	2980.500000
max	3952.000000

Dummy Variables

In [6]:
```
# Cleanning the '|' of the genero

cleaned = movies.set_index(['movie_id','titulo']).genero.str.split('|', exp
cleaned.head(10)
```

Out[6]:
```
movie_id  titulo
1         Toy Story (1995)           0     Animation
                                     1    Children's
                                     2        Comedy
2         Jumanji (1995)             0     Adventure
                                     1    Children's
                                     2       Fantasy
3         Grumpier Old Men (1995)    0        Comedy
                                     1       Romance
4         Waiting to Exhale (1995)   0        Comedy
                                     1         Drama
dtype: object
```

In [7]:
```
dummies = pd.get_dummies(cleaned).groupby(['movie_id','titulo']).sum()

movies_dummies = pd.get_dummies(cleaned,prefix='Genero').groupby(['movie_id
movies_dummies.head()
```

Out[7]:

	movie_id	titulo	Genero_Action	Genero_Adventure	Genero_Animation	Genero_Childı
0	1	Toy Story (1995)	0	0	1	
1	2	Jumanji (1995)	0	1	0	
2	3	Grumpier Old Men (1995)	0	0	0	
3	4	Waiting to Exhale (1995)	0	0	0	
4	5	Father of the Bride Part II (1995)	0	0	0	

In [ ]:

```
```

In [8]:

```
movies_dummies['year'] = movies_dummies.titulo.str.extract('\((\d{4})\)', e
movies_dummies
```

Out[8]:

	movie_id	titulo	Genero_Action	Genero_Adventure	Genero_Animation	Genero_
0	1	Toy Story (1995)	0	0	1	
1	2	Jumanji (1995)	0	1	0	
2	3	Grumpier Old Men (1995)	0	0	0	
3	4	Waiting to Exhale (1995)	0	0	0	
4	5	Father of the Bride Part II (1995)	0	0	0	
...	...	...	...	...	...	
3878	3948	Meet the Parents (2000)	0	0	0	
3879	3949	Requiem for a Dream (2000)	0	0	0	
3880	3950	Tigerland (2000)	0	0	0	
3881	3951	Two Family House (2000)	0	0	0	
3882	3952	Contender, The (2000)	0	0	0	

3883 rows × 21 columns

In [9]:
```
movies_dummies['year'].unique()
```

Out[9]:
```
array(['1995', '1994', '1996', '1976', '1993', '1992', '1988', '1967',
       '1964', '1977', '1965', '1982', '1962', '1990', '1991', '1989',
       '1937', '1940', '1969', '1981', '1973', '1970', '1960', '1955',
       '1956', '1959', '1968', '1980', '1975', '1986', '1948', '1943',
       '1963', '1950', '1946', '1987', '1997', '1974', '1958', '1949',
       '1972', '1998', '1933', '1952', '1951', '1957', '1961', '1954',
       '1934', '1944', '1942', '1941', '1953', '1939', '1947', '1945',
       '1938', '1935', '1936', '1926', '1932', '1930', '1971', '1979',
       '1966', '1978', '1985', '1983', '1984', '1931', '1922', '1927',
       '1929', '1928', '1925', '1923', '1999', '1919', '2000', '1920',
       '1921'], dtype=object)
```

In [10]:
```
movies_dummies['year'].nunique()
```

Out[10]:
```
81
```

In [ ]:

In [11]:
```
movies_dummies.columns
```

Out[11]:
```
Index(['movie_id', 'titulo', 'Genero_Action', 'Genero_Adventure',
       'Genero_Animation', 'Genero_Children's', 'Genero_Comedy',
       'Genero_Crime', 'Genero_Documentary', 'Genero_Drama', 'Genero_Fantas
y',
       'Genero_Film-Noir', 'Genero_Horror', 'Genero_Musical', 'Genero_Myste
ry',
       'Genero_Romance', 'Genero_Sci-Fi', 'Genero_Thriller', 'Genero_War',
       'Genero_Western', 'year'],
      dtype='object')
```

In [ ]:

In [ ]:

In [12]:
```
gen_year = movies_dummies.drop(['movie_id', 'titulo'], axis=1)

gen_year
```

Out[12]:

	Genero_Action	Genero_Adventure	Genero_Animation	Genero_Children's	Genero_Co
0	0	0	1	1	
1	0	1	0	1	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
...	...	...	...	...	
3878	0	0	0	0	
3879	0	0	0	0	
3880	0	0	0	0	
3881	0	0	0	0	
3882	0	0	0	0	

3883 rows × 19 columns

In [13]:
```
gen_year = gen_year.groupby(by=["year"]).sum()
gen_year
```

Out[13]:

year	Genero_Action	Genero_Adventure	Genero_Animation	Genero_Children's	Genero_Co
1919	1	1	0	0	
1920	0	0	0	0	
1921	1	0	0	0	
1922	0	0	0	0	
1923	0	0	0	0	
...	...	...	...	...	
1996	37	22	7	20	
1997	43	22	6	22	
1998	44	16	8	18	
1999	27	7	7	11	
2000	19	6	8	9	

81 rows × 18 columns

In [ ]:

Films Genres Quantity

In [14]:
```
gen_quant =pd.DataFrame((movies_dummies.iloc[:,2:20]).sum().sort_values())
gen_quant
```

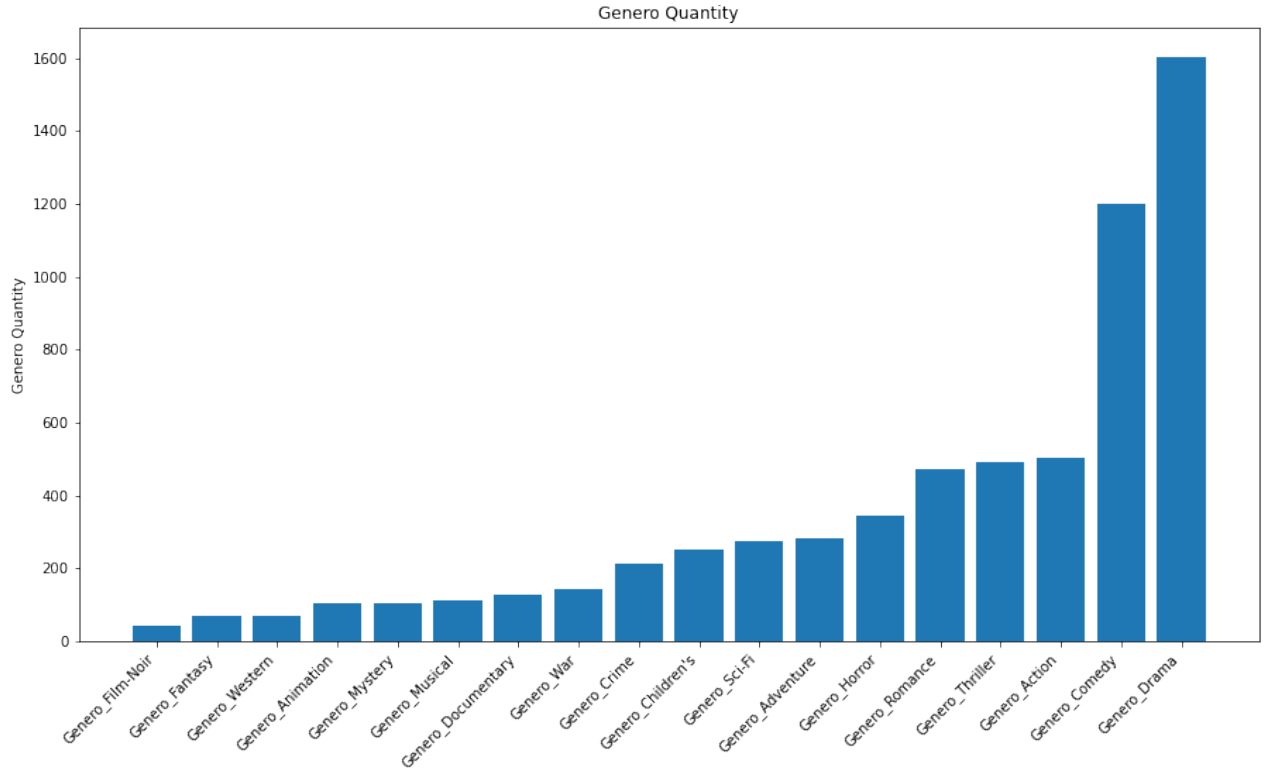
Out[14]:

	0
Genero_Film-Noir	44
Genero_Fantasy	68
Genero_Western	68
Genero_Animation	105
Genero_Mystery	106
Genero_Musical	114
Genero_Documentary	127
Genero_War	143
Genero_Crime	211
Genero_Children's	251
Genero_Sci-Fi	276
Genero_Adventure	283
Genero_Horror	343
Genero_Romance	471
Genero_Thriller	492
Genero_Action	503
Genero_Comedy	1200
Genero_Drama	1603

In [15]:
```
gen_quant.columns = ['sum']

names = gen_quant.index
values = list(gen_quant['sum'])
```

In [27]:
```
plt.figure(figsize=(15,8))
xticklabels = list(gen_quant.index)
plt.bar(names, values)
plt.title('Genero Quantity')
plt.ylabel('Genero Quantity')
plt.xticks(xticklabels, rotation = 45, ha="right");
```



In [ ]:

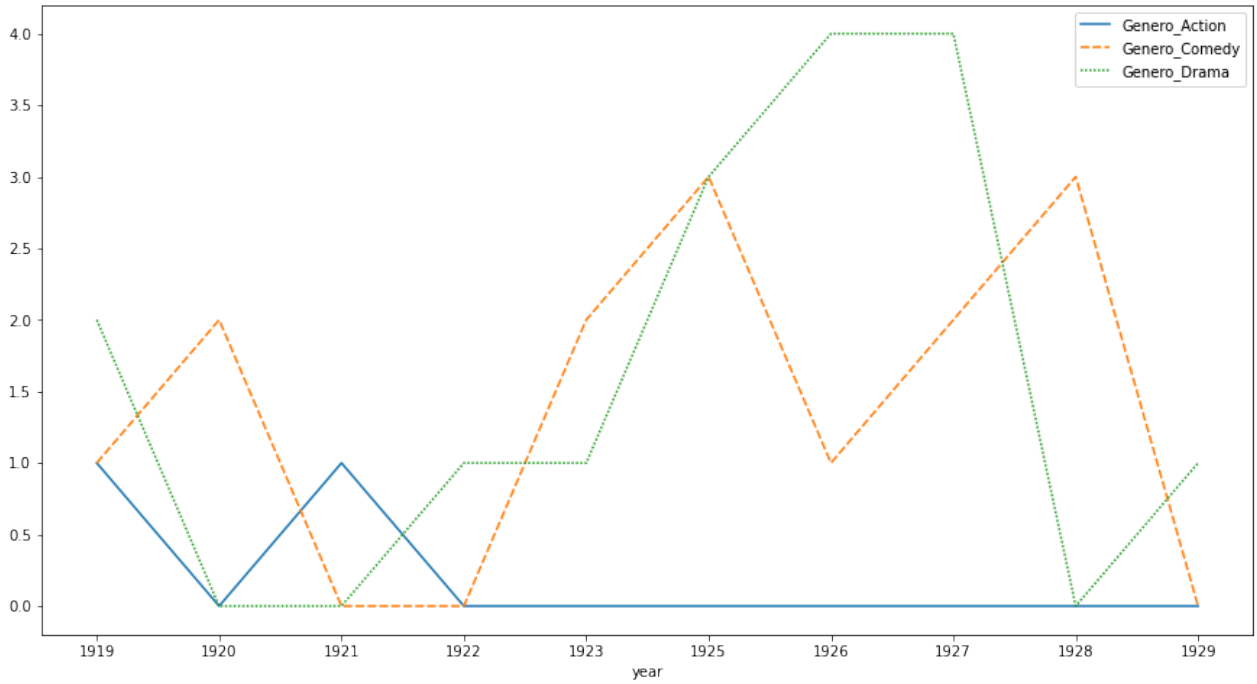
Number of Genres of Films Over the Decades

I was chosen the top 3 of genres: Action,Comedy and Drama. Here we can follow how their frequancy change over the years.

20's

In [17]:
```
plt.figure(figsize=(15,8))
sns.lineplot(data=gen_year.iloc[0:10,[0, 4, 7]])
```

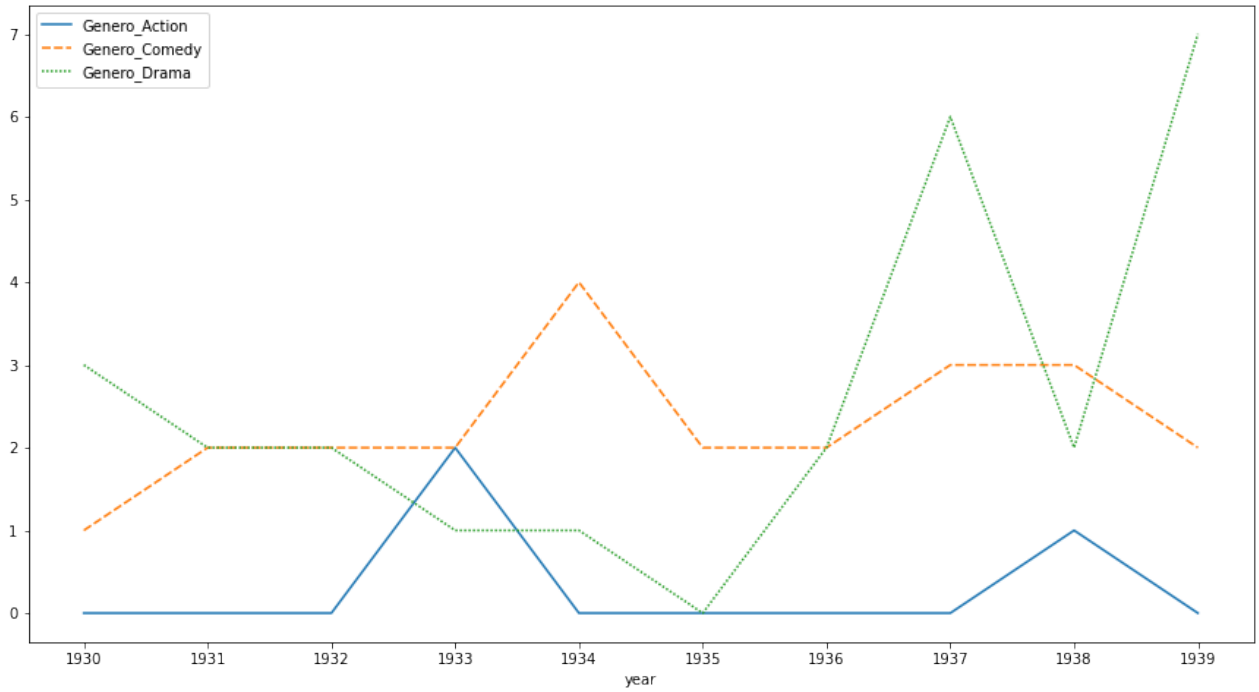
Out[17]: <AxesSubplot:xlabel='year'>



30's

In [18]:
```
plt.figure(figsize=(15,8))
sns.lineplot(data=gen_year.iloc[10:20,[0, 4, 7]])
```

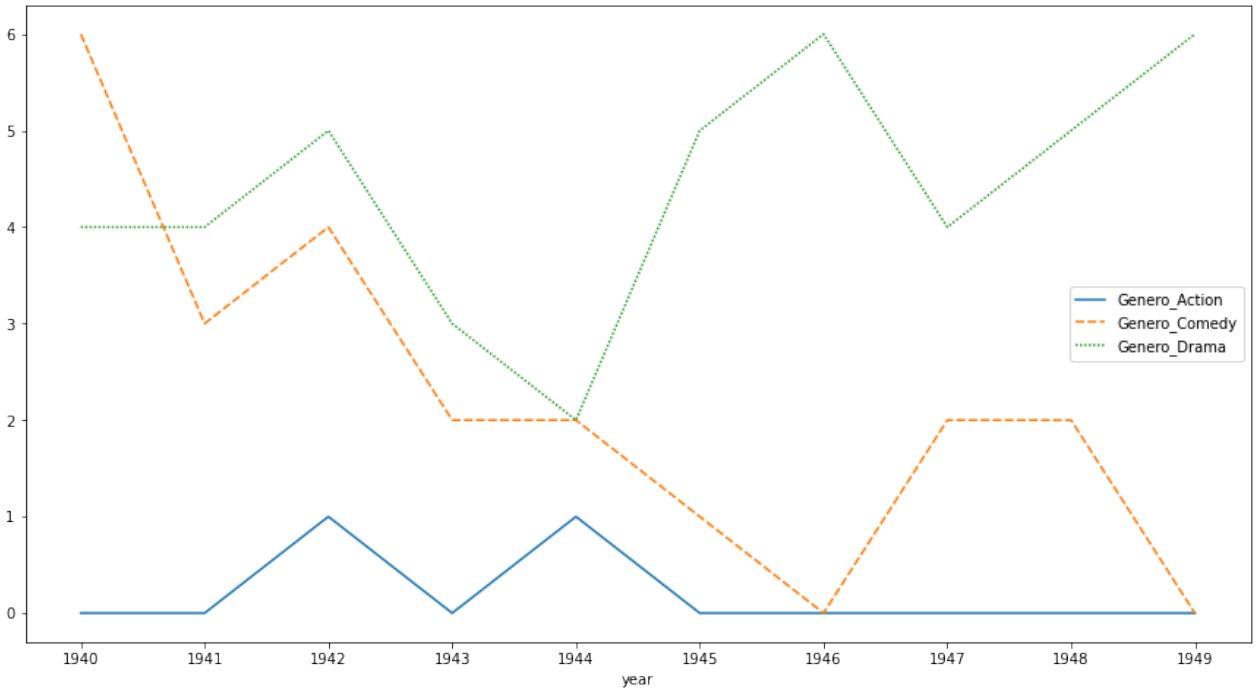
Out[18]: <AxesSubplot:xlabel='year'>



40's

In [19]:
```
plt.figure(figsize=(15,8))
sns.lineplot(data=gen_year.iloc[20:30,[0, 4, 7]])
```

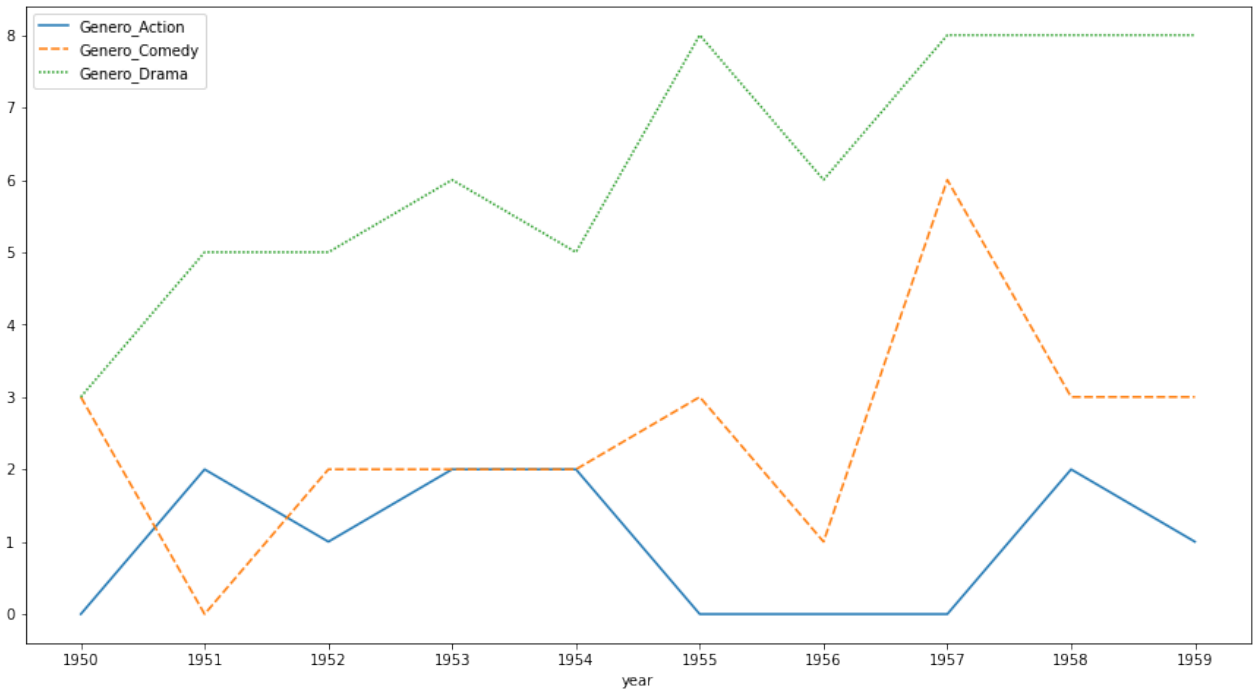
Out[19]: <AxesSubplot:xlabel='year'>



50's

In [20]:
```
plt.figure(figsize=(15,8))
sns.lineplot(data=gen_year.iloc[30:40,[0, 4, 7]])
```

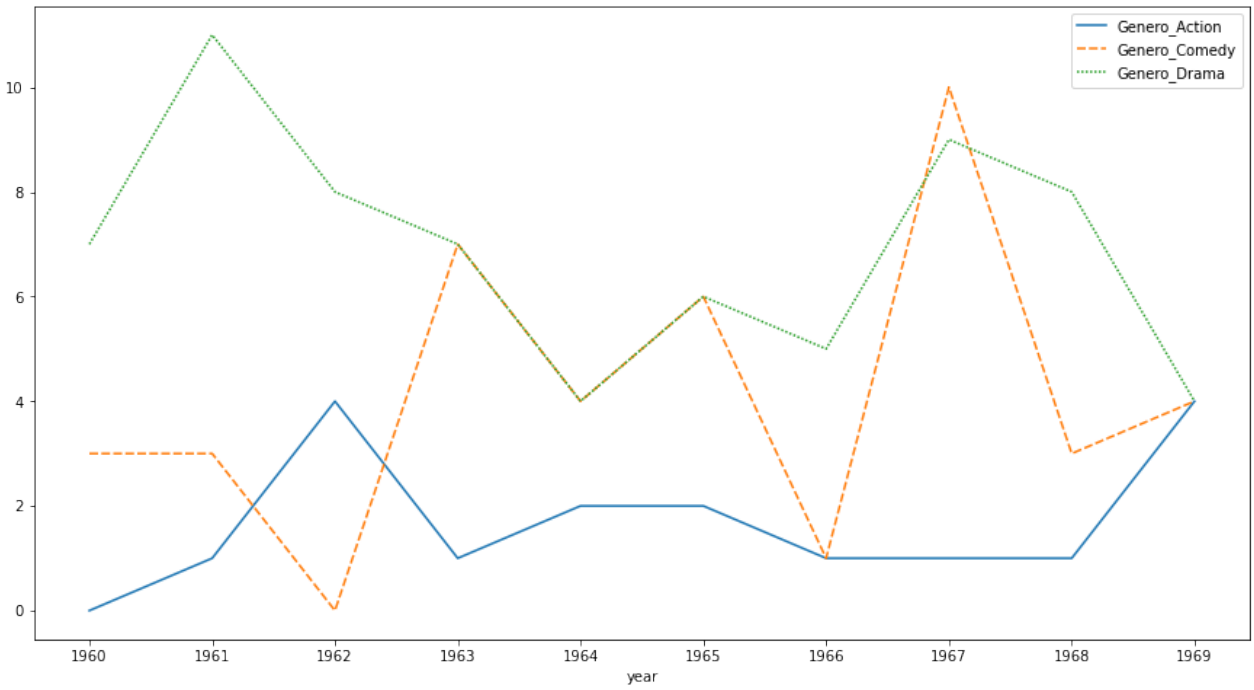
Out[20]: <AxesSubplot:xlabel='year'>



60's

In [21]:
```
plt.figure(figsize=(15,8))
sns.lineplot(data=gen_year.iloc[40:50,[0, 4, 7]])
```

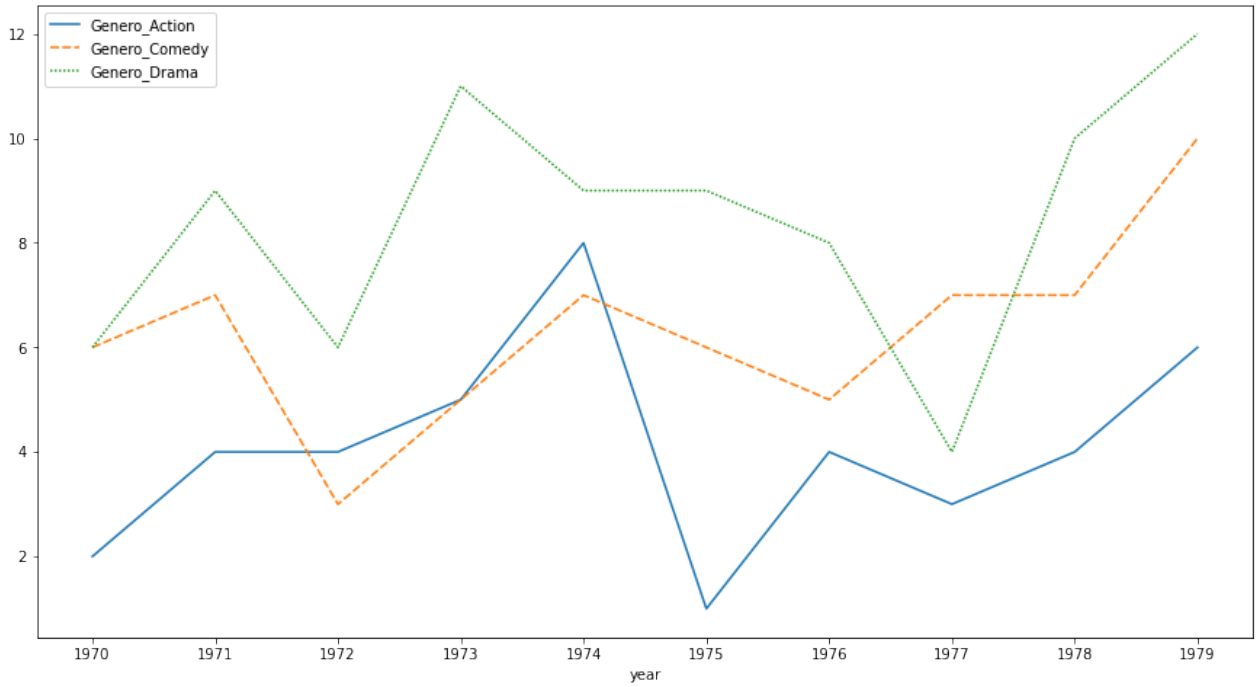
Out[21]: <AxesSubplot:xlabel='year'>



70's

In [22]:
```
plt.figure(figsize=(15,8))
sns.lineplot(data=gen_year.iloc[50:60,[0, 4, 7]])
```

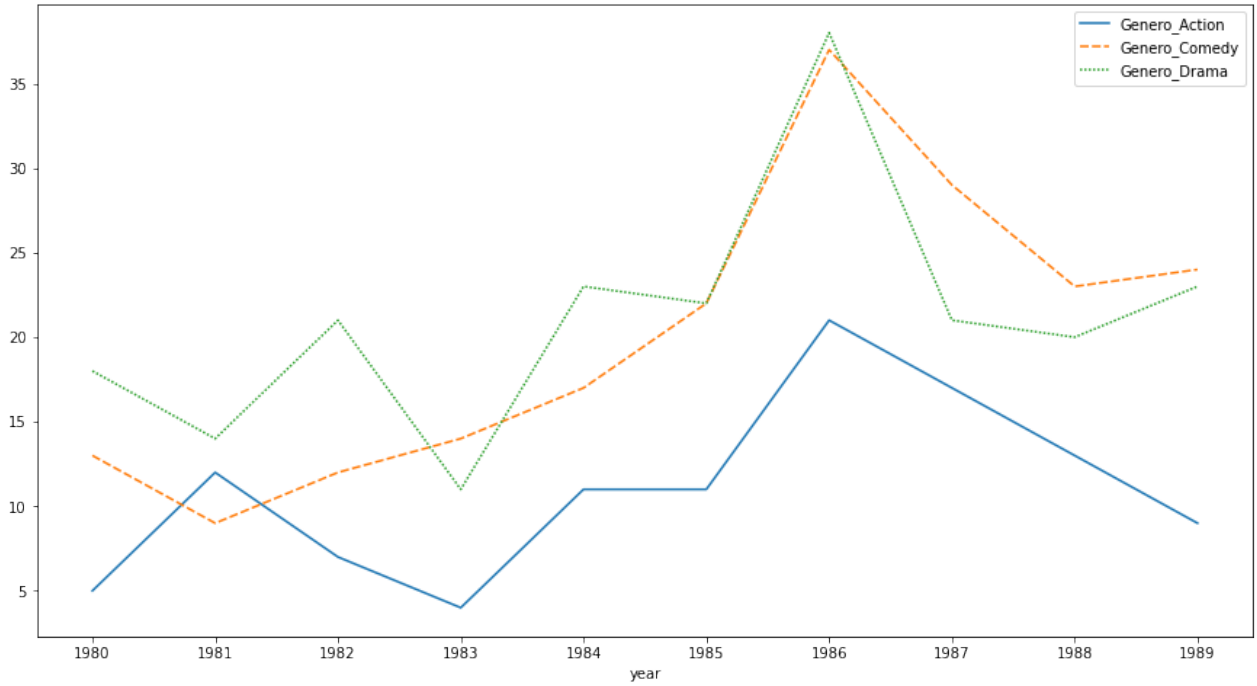
Out[22]: <AxesSubplot:xlabel='year'>



80's

In [23]:
```
plt.figure(figsize=(15,8))
sns.lineplot(data=gen_year.iloc[60:70,[0, 4, 7]])
```

Out[23]: <AxesSubplot:xlabel='year'>



90's

In [24]:
```
plt.figure(figsize=(15,8))
sns.lineplot(data=gen_year.iloc[70:,[0, 4, 7]])
```

Out[24]: <AxesSubplot:xlabel='year'>

In [ ]:

In [ ]: