

```
In [1]: # Importing required package "pandas" to load data
import pandas as pd
```

```
In [2]: # importing data using pandas
movies = pd.read_csv("movie-Rating.csv")
movies
```

```
Out[2]:
```

| | Film | Genre | Rotten Tomatoes Ratings % | Audience Ratings % | Budget (million \$) | Year of release |
|-----|----------------------|-----------|---------------------------------|-----------------------|------------------------|--------------------|
| 0 | (500) Days of Summer | Comedy | 87 | 81 | 8 | 2009 |
| 1 | 10,000 B.C. | Adventure | 9 | 44 | 105 | 2008 |
| 2 | 12 Rounds | Action | 30 | 52 | 20 | 2009 |
| 3 | 127 Hours | Adventure | 93 | 84 | 18 | 2010 |
| 4 | 17 Again | Comedy | 55 | 70 | 20 | 2009 |
| ... | ... | ... | ... | ... | ... | ... |
| 554 | Your Highness | Comedy | 26 | 36 | 50 | 2011 |
| 555 | Youth in Revolt | Comedy | 68 | 52 | 18 | 2009 |
| 556 | Zodiac | Thriller | 89 | 73 | 65 | 2007 |
| 557 | Zombieland | Action | 90 | 87 | 24 | 2009 |
| 558 | Zookeeper | Comedy | 14 | 42 | 80 | 2011 |

559 rows × 6 columns

```
In [57]: movies.columns
```

```
Out[57]: Index(['Film', 'Genre', 'Rotten Tomatoes Ratings %', 'Audience Ratings %',
               'Budget (million $)', 'Year of release'],
              dtype='object')
```

```
In [58]: movies.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 559 entries, 0 to 558
Data columns (total 6 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Film                                559 non-null    object
1   Genre                              559 non-null    object
2   Rotten Tomatoes Ratings %          559 non-null    int64
3   Audience Ratings %                 559 non-null    int64
4   Budget (million $)                 559 non-null    int64
5   Year of release                    559 non-null    int64
dtypes: int64(4), object(2)
memory usage: 26.3+ KB
```

```
In [59]: type(movies)
```

Out[59]: pandas.core.frame.DataFrame

```
In [60]: len(movies)
```

Out[60]: 559

```
In [61]: movies.isnull()
```

Out[61]:

| | Film | Genre | Rotten Tomatoes Ratings % | Audience Ratings % | Budget (million \$) | Year of release |
|-----|-------|-------|------------------------------|-----------------------|------------------------|--------------------|
| 0 | False | False | False | False | False | False |
| 1 | False | False | False | False | False | False |
| 2 | False | False | False | False | False | False |
| 3 | False | False | False | False | False | False |
| 4 | False | False | False | False | False | False |
| ... | ... | ... | ... | ... | ... | ... |
| 554 | False | False | False | False | False | False |
| 555 | False | False | False | False | False | False |
| 556 | False | False | False | False | False | False |
| 557 | False | False | False | False | False | False |
| 558 | False | False | False | False | False | False |

559 rows × 6 columns

```
In [62]: movies.isnull().sum()
```

Out[62]:

| | |
|---------------------------|---|
| Film | 0 |
| Genre | 0 |
| Rotten Tomatoes Ratings % | 0 |
| Audience Ratings % | 0 |
| Budget (million \$) | 0 |
| Year of release | 0 |
| dtype: int64 | |

```
In [63]: movies.describe()
```

| Out[63]: | Rotten Tomatoes Ratings % | Audience Ratings % | Budget (million \$) | Year of release |
|--------------|------------------------------|-----------------------|------------------------|--------------------|
| count | 559.000000 | 559.000000 | 559.000000 | 559.000000 |
| mean | 47.309481 | 58.744186 | 50.236136 | 2009.152057 |
| std | 26.413091 | 16.826887 | 48.731817 | 1.362632 |
| min | 0.000000 | 0.000000 | 0.000000 | 2007.000000 |
| 25% | 25.000000 | 47.000000 | 20.000000 | 2008.000000 |
| 50% | 46.000000 | 58.000000 | 35.000000 | 2009.000000 |
| 75% | 70.000000 | 72.000000 | 65.000000 | 2010.000000 |
| max | 97.000000 | 96.000000 | 300.000000 | 2011.000000 |

In [64]: `movies.dtypes`

```
Out[64]: Film          object
Genre          object
Rotten Tomatoes Ratings %    int64
Audience Ratings %          int64
Budget (million $)          int64
Year of release              int64
dtype: object
```

In [65]: `movies['Genre'][5:10]`

```
Out[65]: 5    Action
6    Comedy
7    Horror
8    Comedy
9    Comedy
Name: Genre, dtype: object
```

In [74]: `movies.columns = ['Film', 'Genre', 'CriticsRating', 'AudienceRatings', 'Budget', 'Year']`

In [75]: `movies`

Out[75]:

| | Film | Genre | CriticsRating | AudienceRatings | Budget | Year |
|-----|----------------------|-----------|---------------|-----------------|--------|------|
| 0 | (500) Days of Summer | Comedy | 87 | 81 | 8 | 2009 |
| 1 | 10,000 B.C. | Adventure | 9 | 44 | 105 | 2008 |
| 2 | 12 Rounds | Action | 30 | 52 | 20 | 2009 |
| 3 | 127 Hours | Adventure | 93 | 84 | 18 | 2010 |
| 4 | 17 Again | Comedy | 55 | 70 | 20 | 2009 |
| ... | ... | ... | ... | ... | ... | ... |
| 554 | Your Highness | Comedy | 26 | 36 | 50 | 2011 |
| 555 | Youth in Revolt | Comedy | 68 | 52 | 18 | 2009 |
| 556 | Zodiac | Thriller | 89 | 73 | 65 | 2007 |
| 557 | Zombieland | Action | 90 | 87 | 24 | 2009 |
| 558 | Zookeeper | Comedy | 14 | 42 | 80 | 2011 |

559 rows × 6 columns

```
In [76]: movies.Genre = movies.Genre.astype('category')
movies.Film = movies.Film.astype('category')
movies.Year = movies.Year.astype('category')
movies
```

Out[76]:

| | Film | Genre | CriticsRating | AudienceRatings | Budget | Year |
|-----|----------------------|-----------|---------------|-----------------|--------|------|
| 0 | (500) Days of Summer | Comedy | 87 | 81 | 8 | 2009 |
| 1 | 10,000 B.C. | Adventure | 9 | 44 | 105 | 2008 |
| 2 | 12 Rounds | Action | 30 | 52 | 20 | 2009 |
| 3 | 127 Hours | Adventure | 93 | 84 | 18 | 2010 |
| 4 | 17 Again | Comedy | 55 | 70 | 20 | 2009 |
| ... | ... | ... | ... | ... | ... | ... |
| 554 | Your Highness | Comedy | 26 | 36 | 50 | 2011 |
| 555 | Youth in Revolt | Comedy | 68 | 52 | 18 | 2009 |
| 556 | Zodiac | Thriller | 89 | 73 | 65 | 2007 |
| 557 | Zombieland | Action | 90 | 87 | 24 | 2009 |
| 558 | Zookeeper | Comedy | 14 | 42 | 80 | 2011 |

559 rows × 6 columns

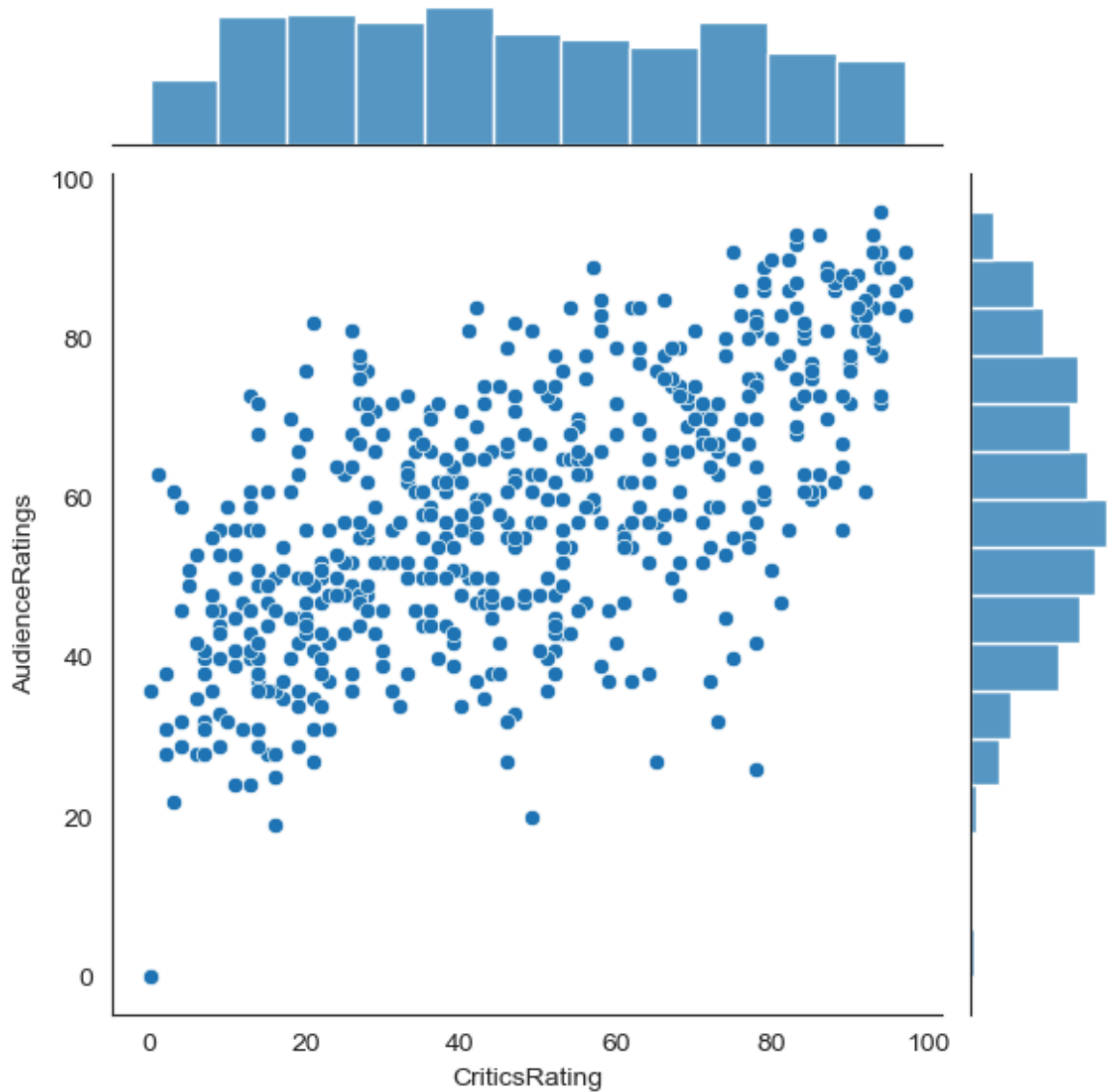
```
In [77]: movies.Genre.cat.categories
```

```
Out[77]: Index(['Action', 'Adventure', 'Comedy', 'Drama', 'Horror', 'Romance',
               'Thriller'],
              dtype='object')
```

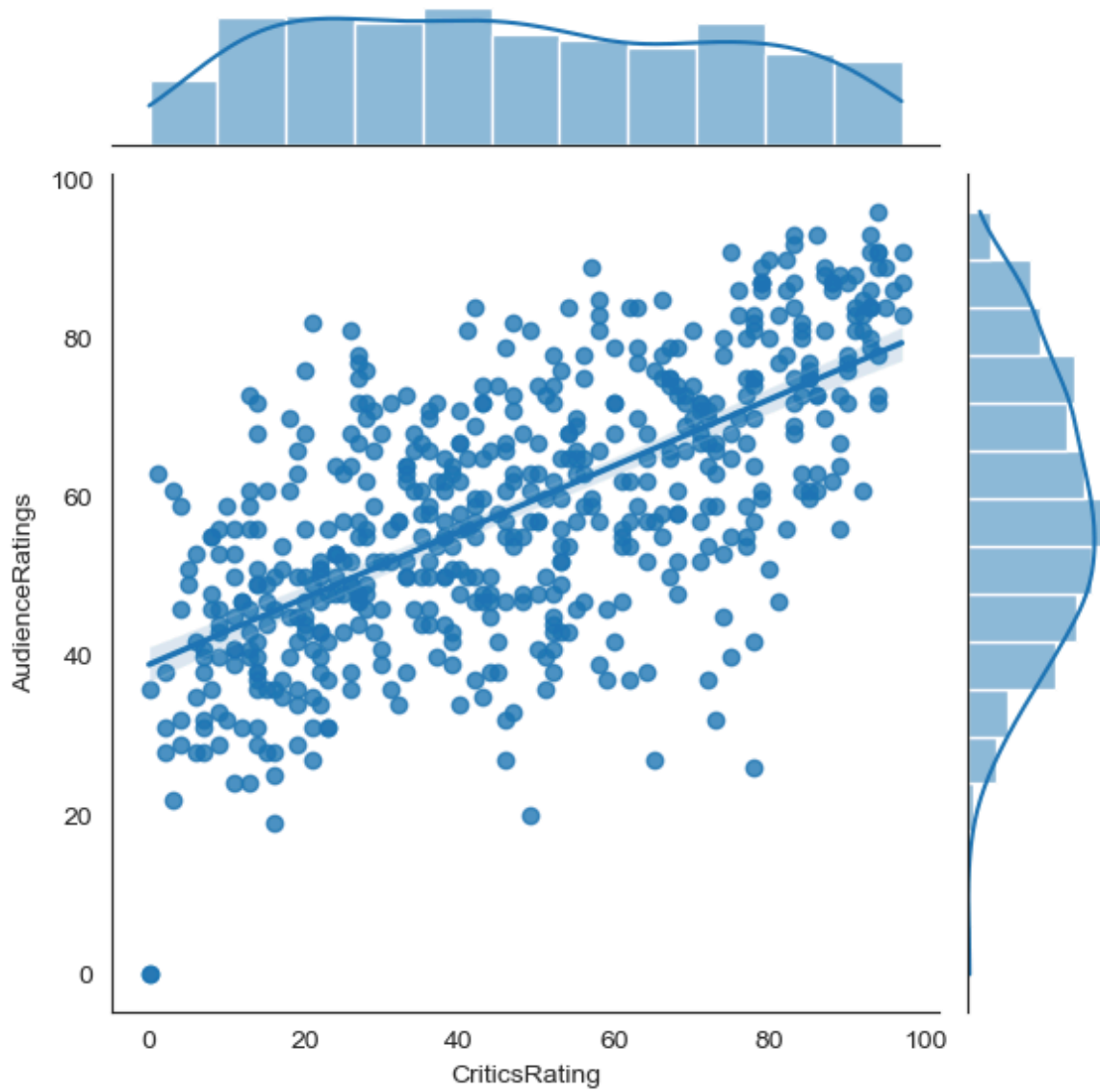
```
In [78]: import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

```
In [79]: import warnings
warnings.filterwarnings('ignore')
```

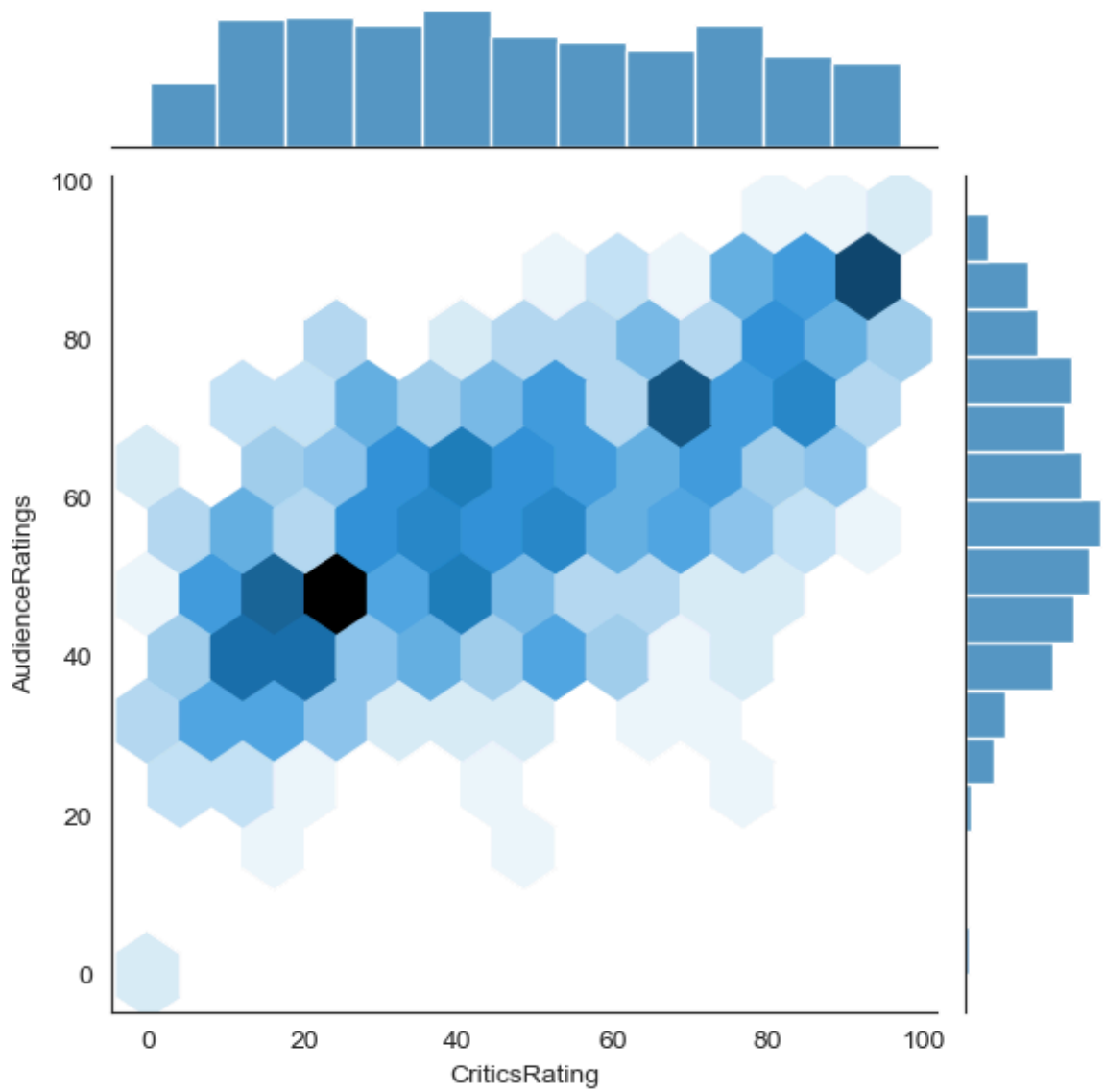
```
In [80]: j = sns.jointplot(data = movies, y='AudienceRatings', x = 'CriticsRating')
```



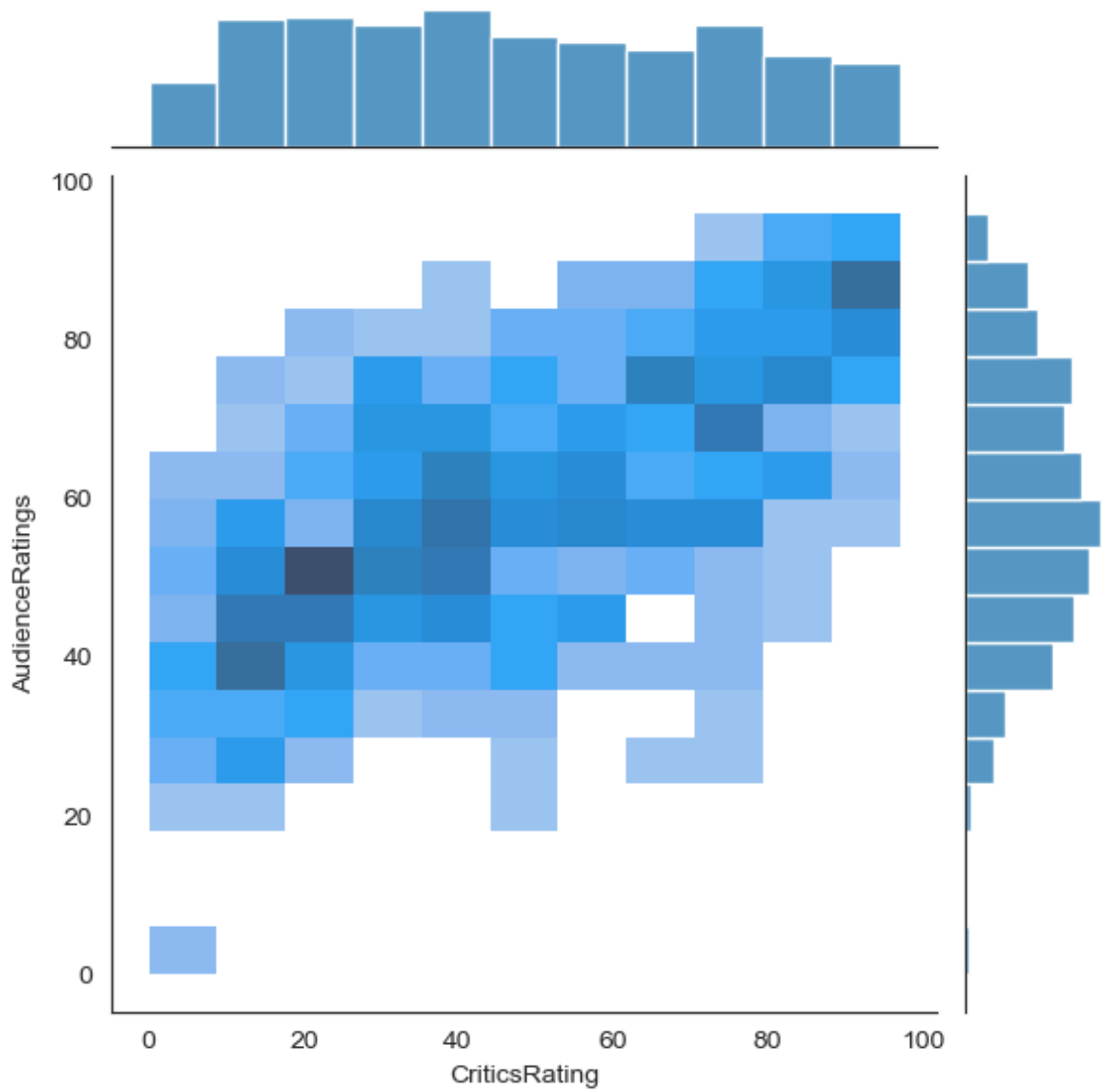
```
In [81]: j = sns.jointplot(data = movies, y='AudienceRatings', x = 'CriticsRating', kind
```



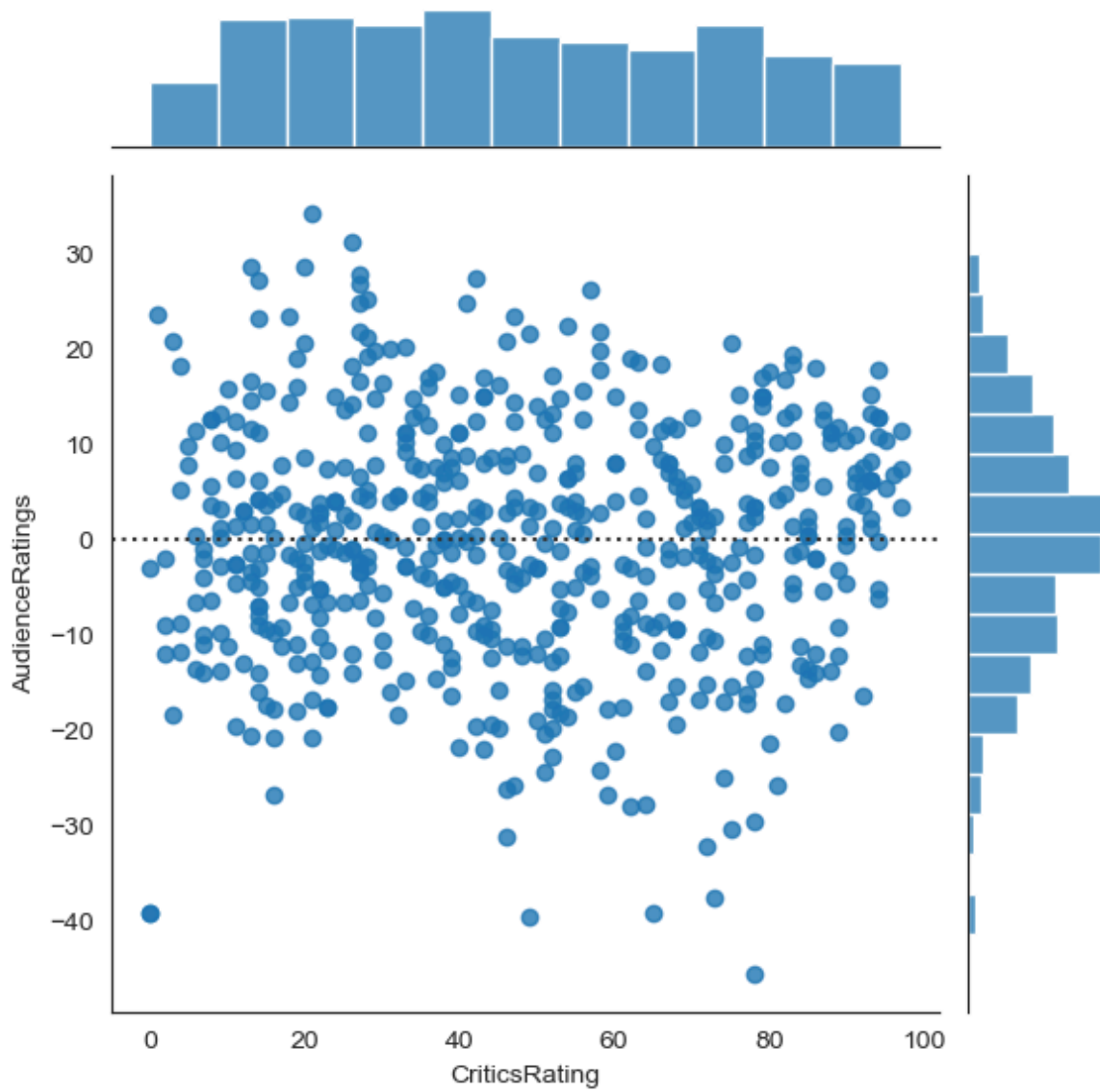
```
In [82]: j = sns.jointplot(data = movies, y='AudienceRatings', x = 'CriticsRating', kind
```



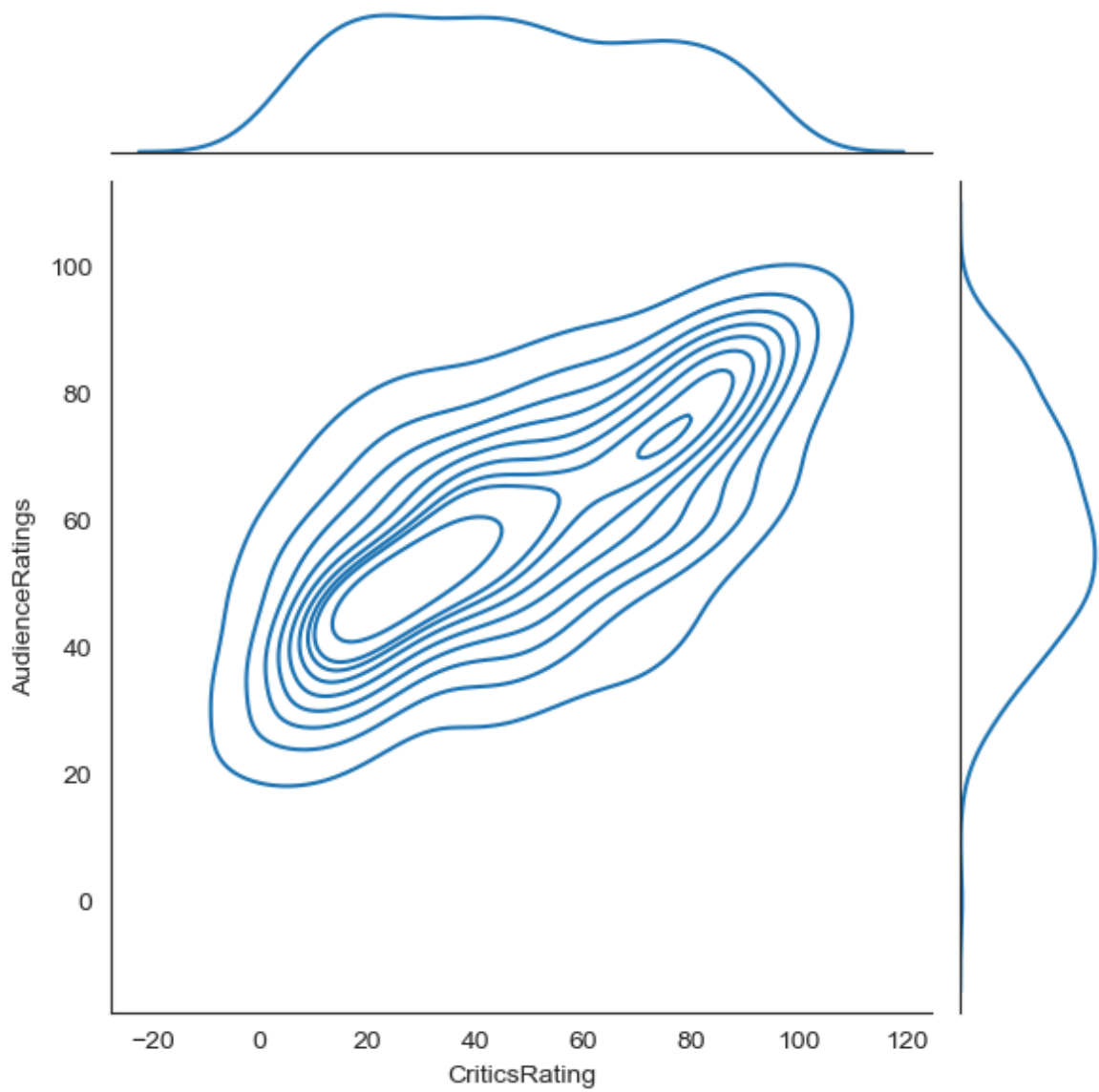
```
In [83]: j = sns.jointplot(data = movies, y='AudienceRatings', x = 'CriticsRating', kind
```



```
In [84]: j = sns.jointplot(data=movies, y='AudienceRatings', x='CriticsRating', kind='res
```

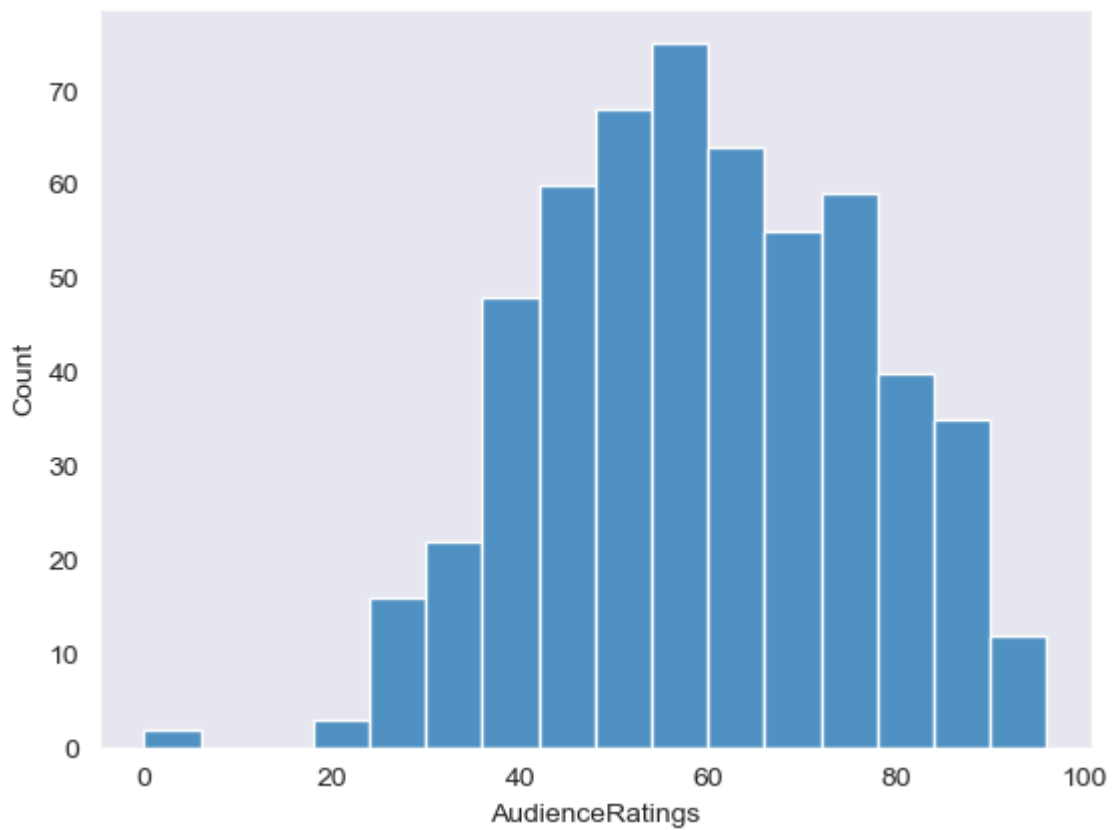
```
In [85]: j = sns.jointplot(data = movies, y='AudienceRatings', x = 'CriticsRating', kind
```



```
In [86]: sns.set_style('dark')
```

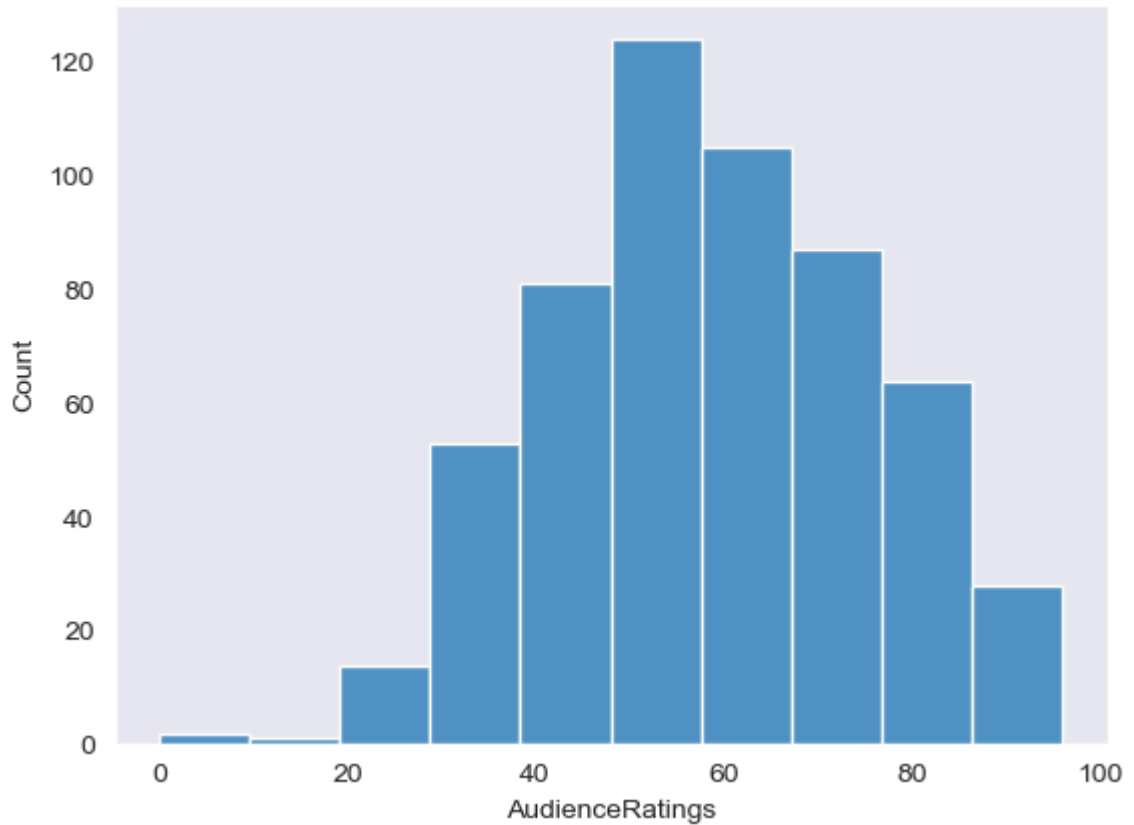
```
In [87]: sns.histplot(movies.AudienceRatings)
```

```
Out[87]: <Axes: xlabel='AudienceRatings', ylabel='Count'>
```



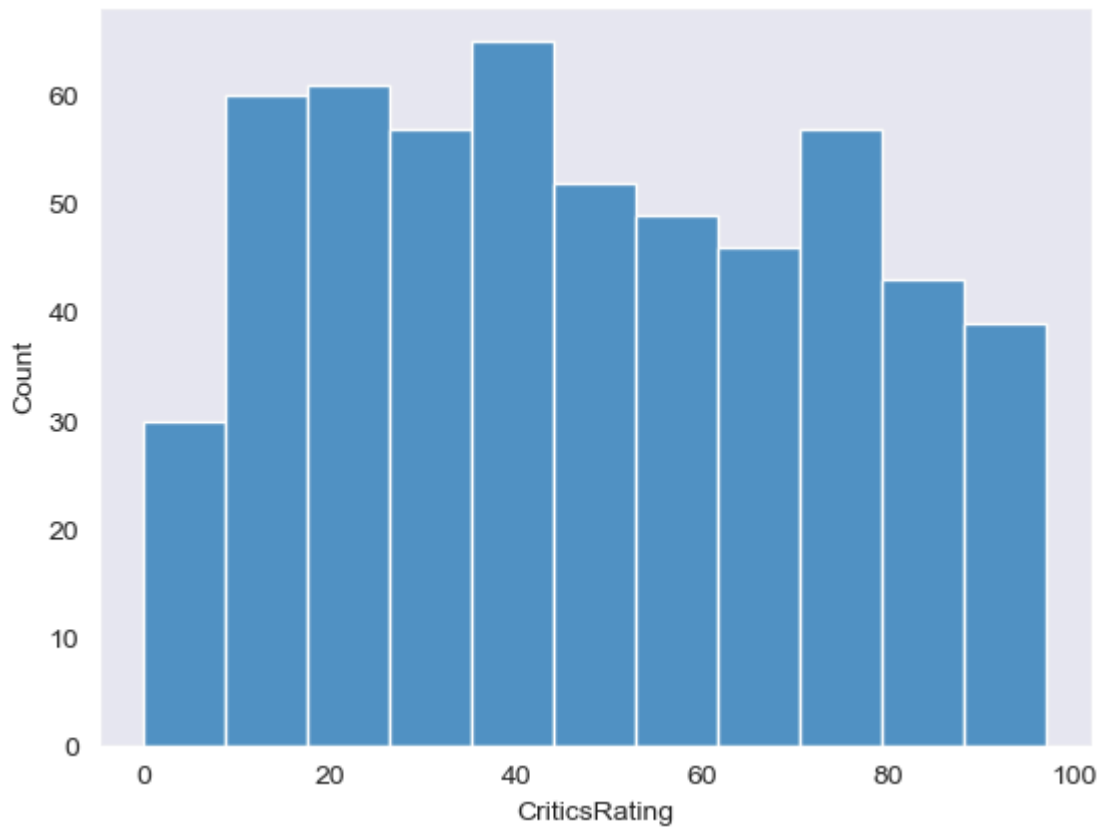
```
In [88]: sns.histplot(movies.AudienceRatings,bins = 10)
```

```
Out[88]: <Axes: xlabel='AudienceRatings', ylabel='Count'>
```



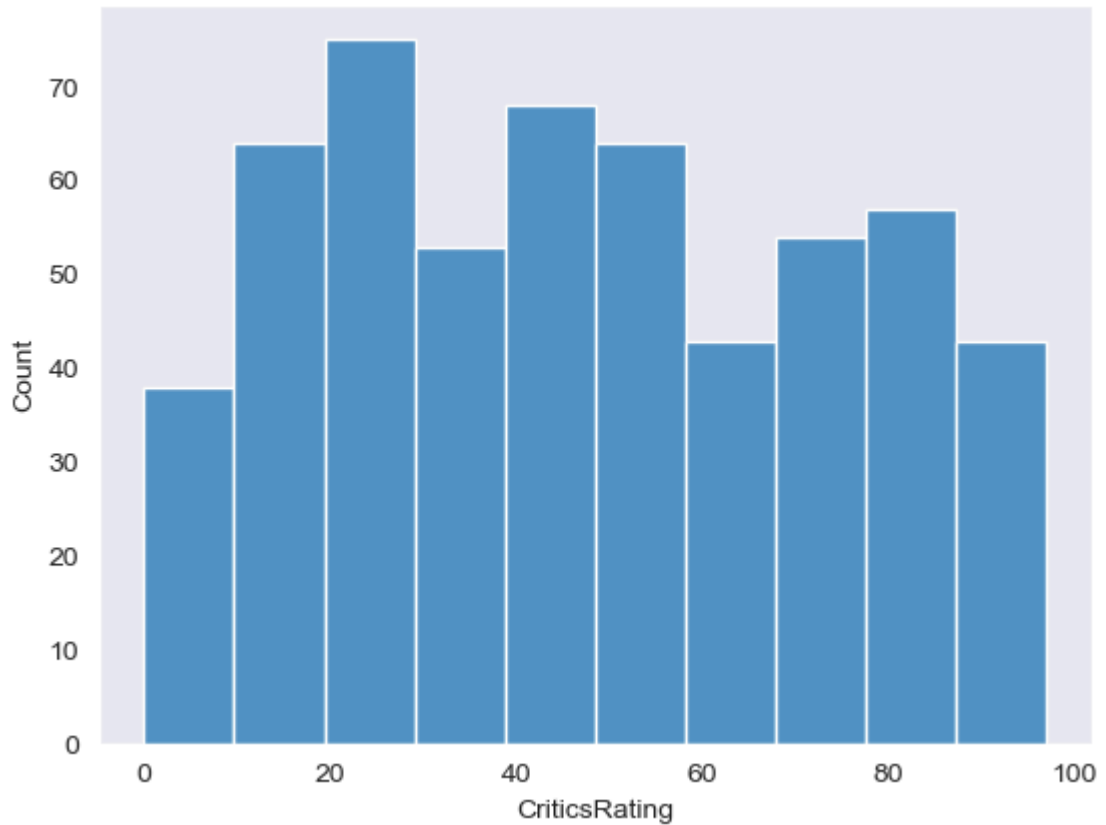
```
In [89]: sns.histplot(movies.CriticsRating)
```

```
Out[89]: <Axes: xlabel='CriticsRating', ylabel='Count'>
```

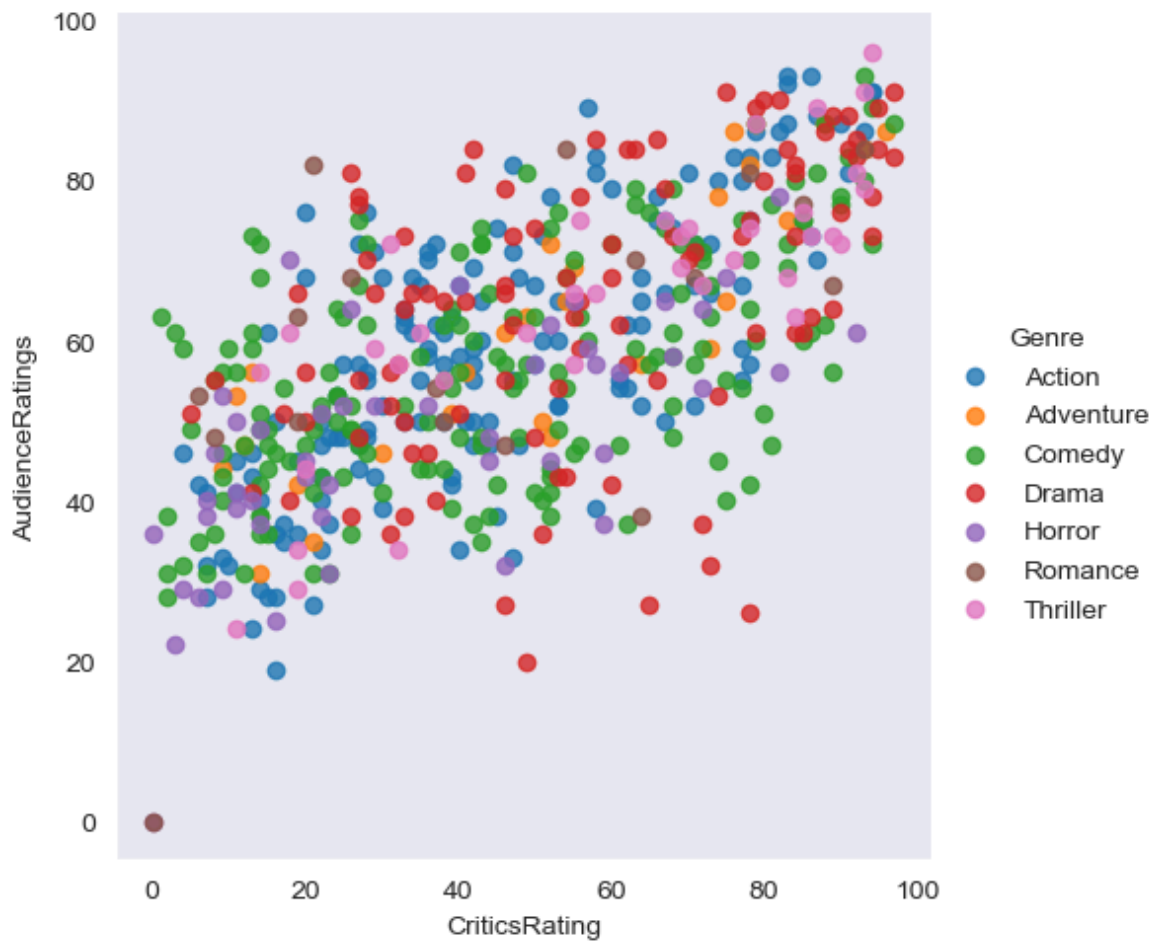


```
In [90]: sns.histplot(movies.CriticsRating,bins = 10)
```

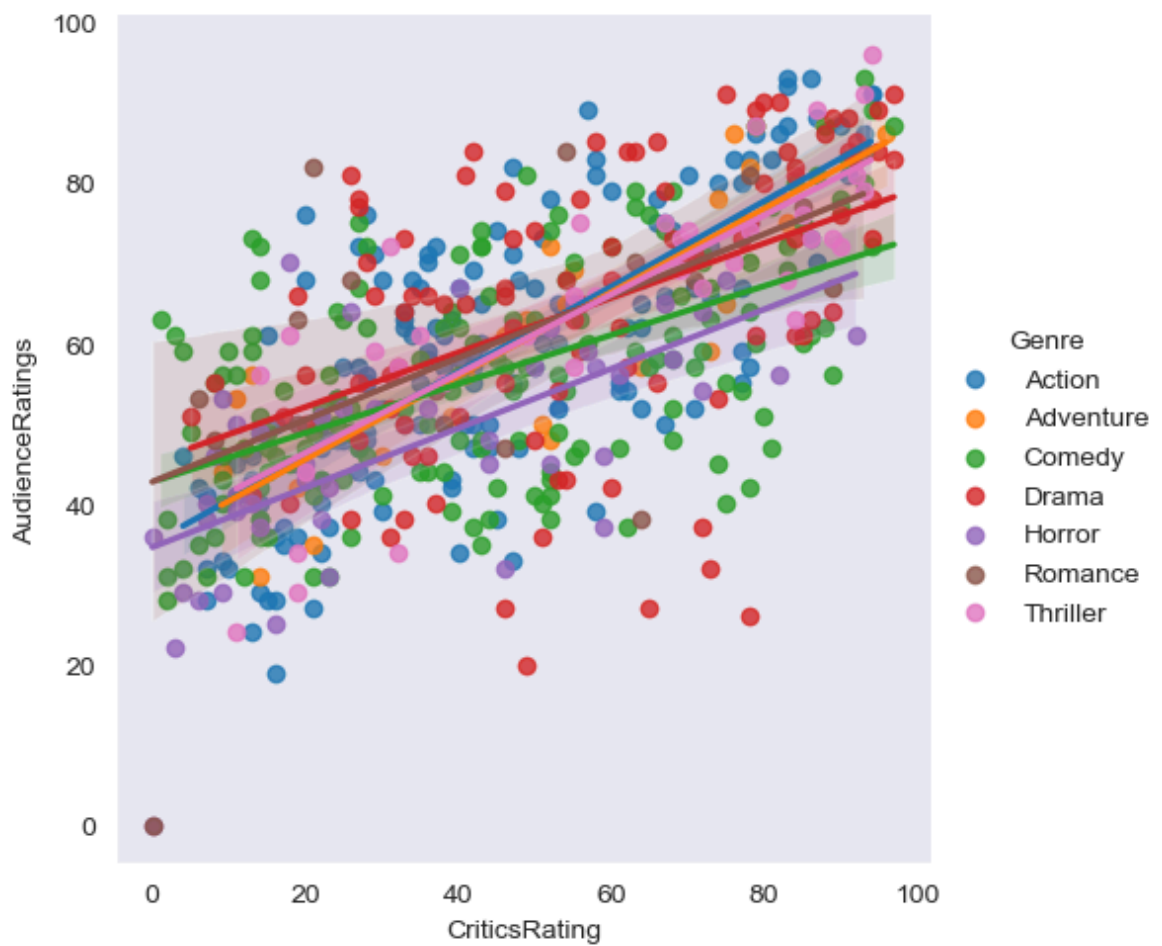
```
Out[90]: <Axes: xlabel='CriticsRating', ylabel='Count'>
```



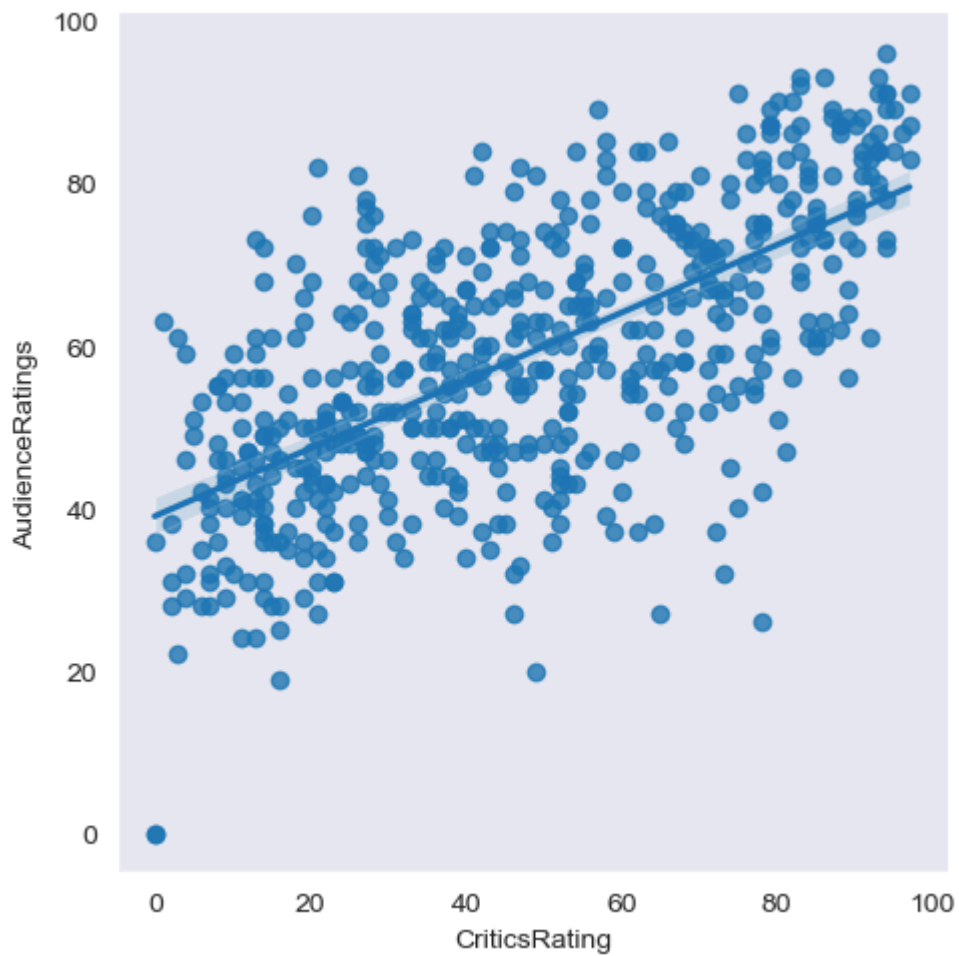
```
In [91]: vis = sns.lmplot(movies, x = 'CriticsRating', y = 'AudienceRatings',fit_reg = Fa
```



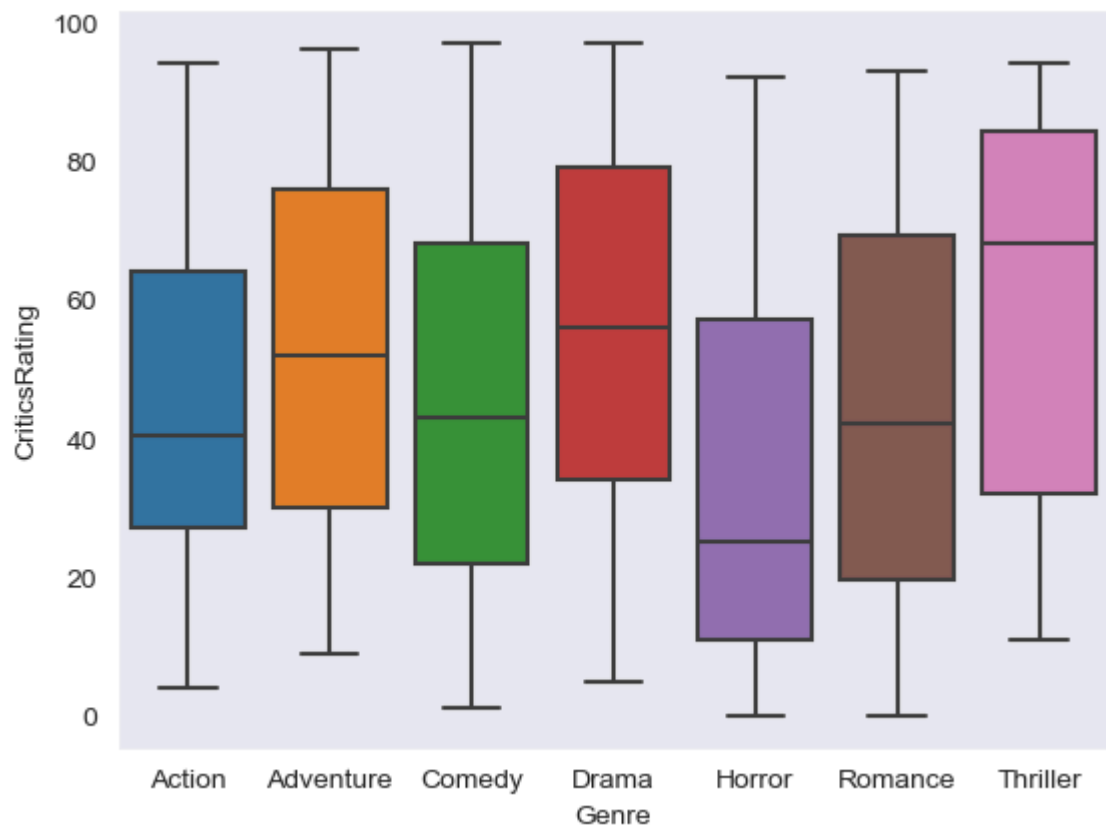
```
In [92]: vis = sns.lmplot(movies, x = 'CriticsRating', y = 'AudienceRatings', fit_reg = Tr
```



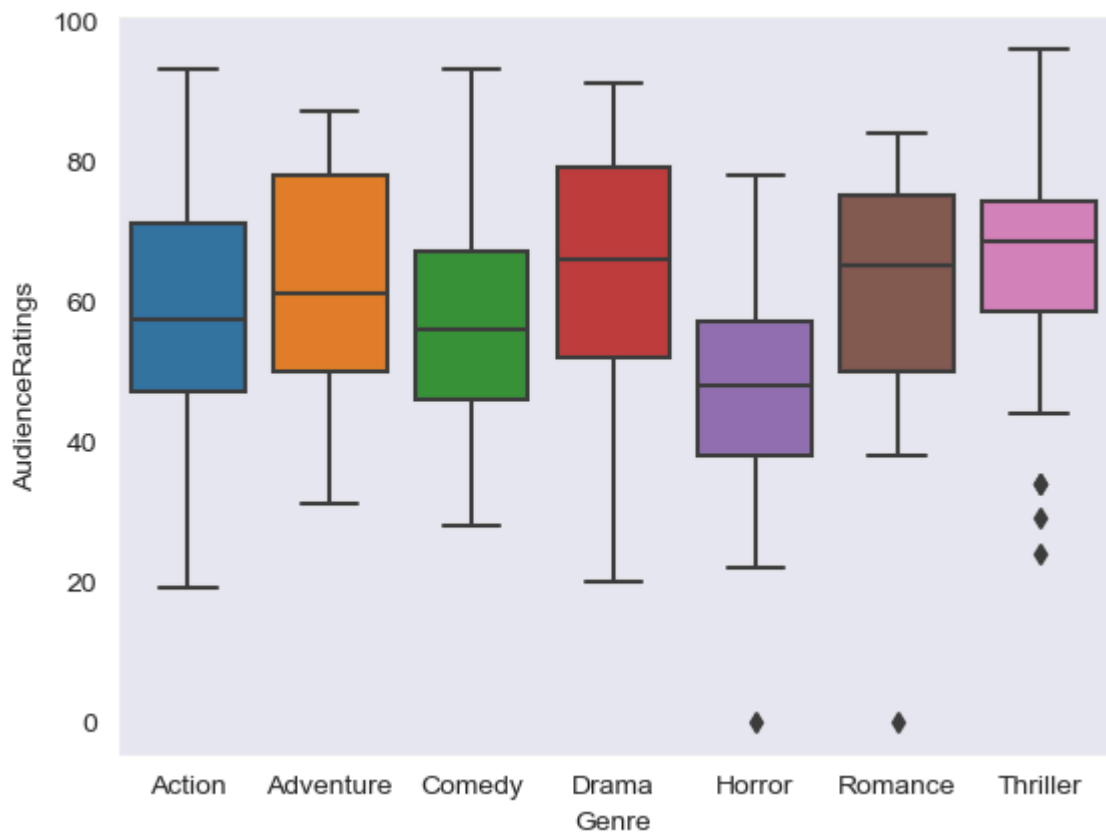
```
In [93]: vis = sns.lmplot(movies, x = 'CriticsRating', y = 'AudienceRatings', fit_reg = Tr
```



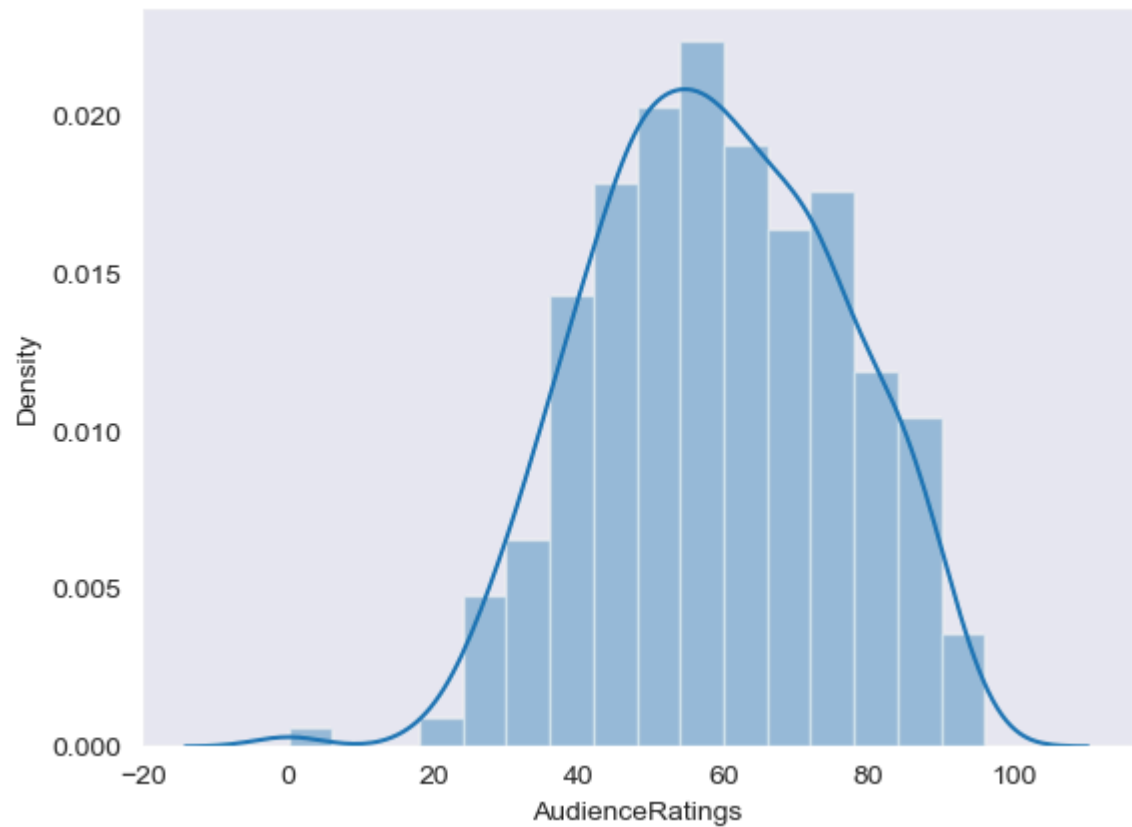
```
In [94]: ax = sns.boxplot(movies, x = 'Genre', y = 'CriticsRating')
```



```
In [95]: ax = sns.boxplot(movies, x = 'Genre', y = 'AudienceRatings')
```



```
In [96]: m1 = sns.distplot(movies.AudienceRatings)
```



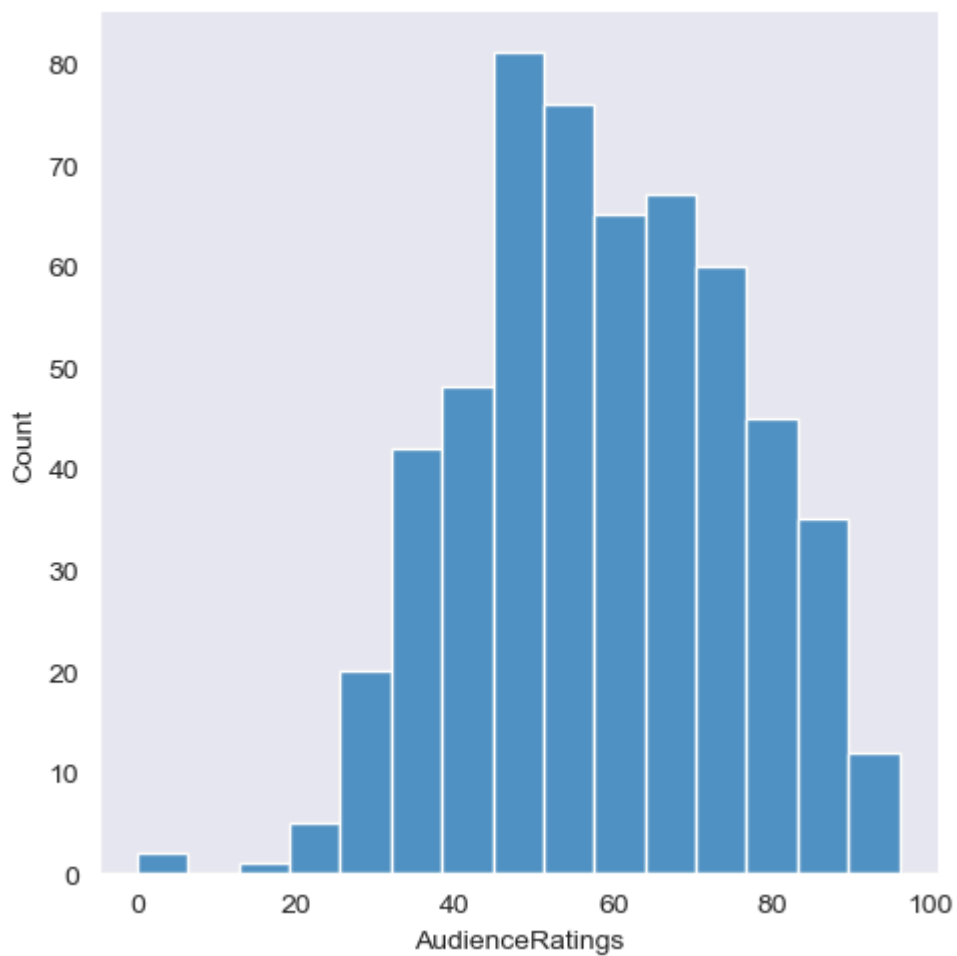
```
In [97]: movies
```

Out[97]:

| | Film | Genre | CriticsRating | AudienceRatings | Budget | Year |
|-----|----------------------|-----------|---------------|-----------------|--------|------|
| 0 | (500) Days of Summer | Comedy | 87 | 81 | 8 | 2009 |
| 1 | 10,000 B.C. | Adventure | 9 | 44 | 105 | 2008 |
| 2 | 12 Rounds | Action | 30 | 52 | 20 | 2009 |
| 3 | 127 Hours | Adventure | 93 | 84 | 18 | 2010 |
| 4 | 17 Again | Comedy | 55 | 70 | 20 | 2009 |
| ... | ... | ... | ... | ... | ... | ... |
| 554 | Your Highness | Comedy | 26 | 36 | 50 | 2011 |
| 555 | Youth in Revolt | Comedy | 68 | 52 | 18 | 2009 |
| 556 | Zodiac | Thriller | 89 | 73 | 65 | 2007 |
| 557 | Zombieland | Action | 90 | 87 | 24 | 2009 |
| 558 | Zookeeper | Comedy | 14 | 42 | 80 | 2011 |

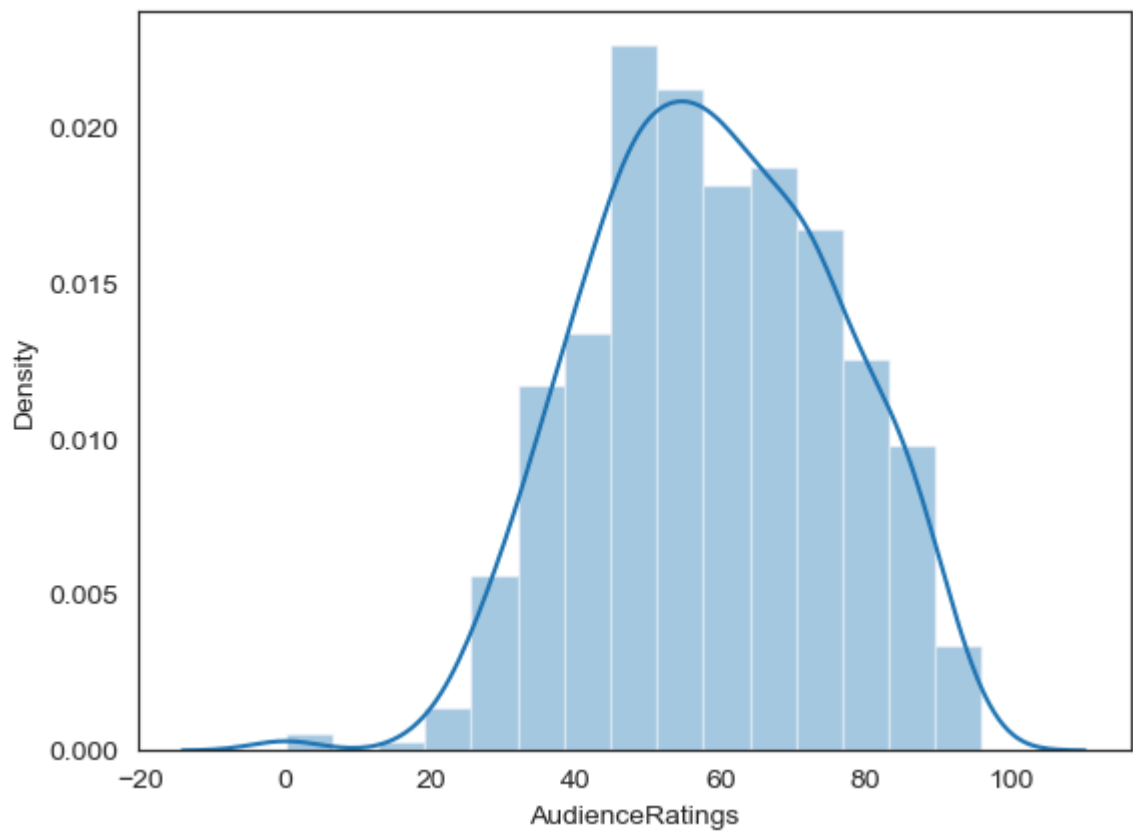
559 rows × 6 columns

```
In [98]: m2= sns.displot(movies.AudienceRatings,bins=15)
```

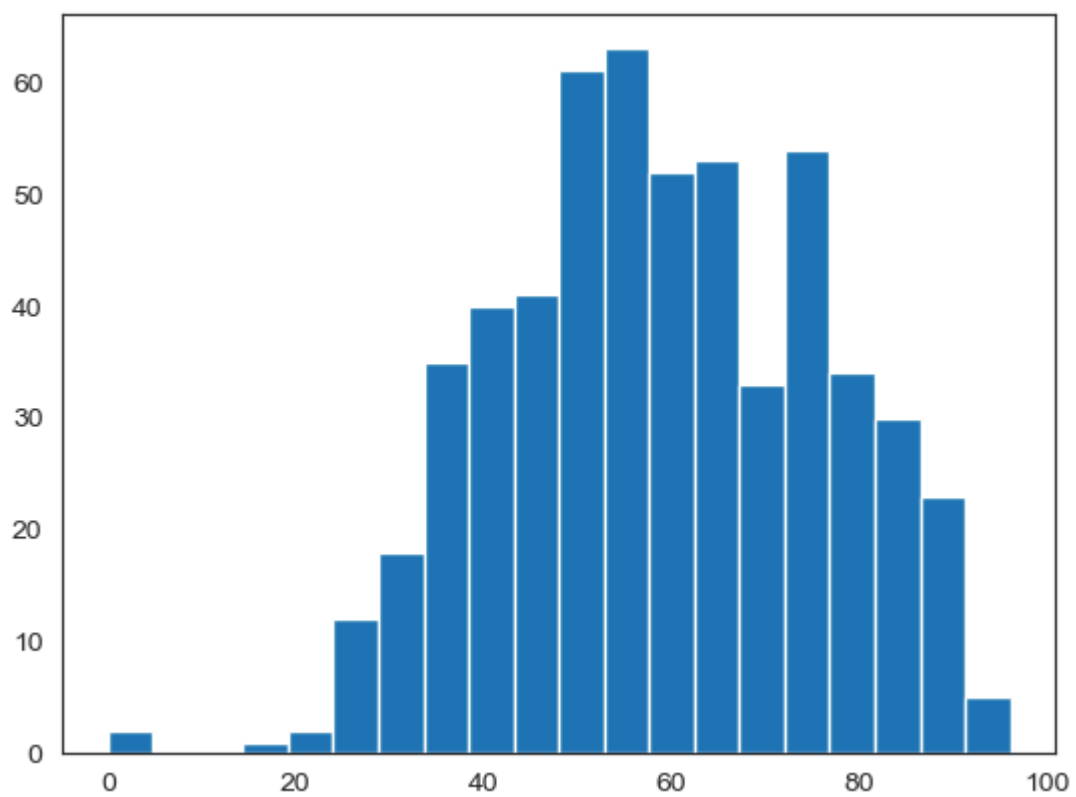


```
In [99]: sns.set_style('white')
```

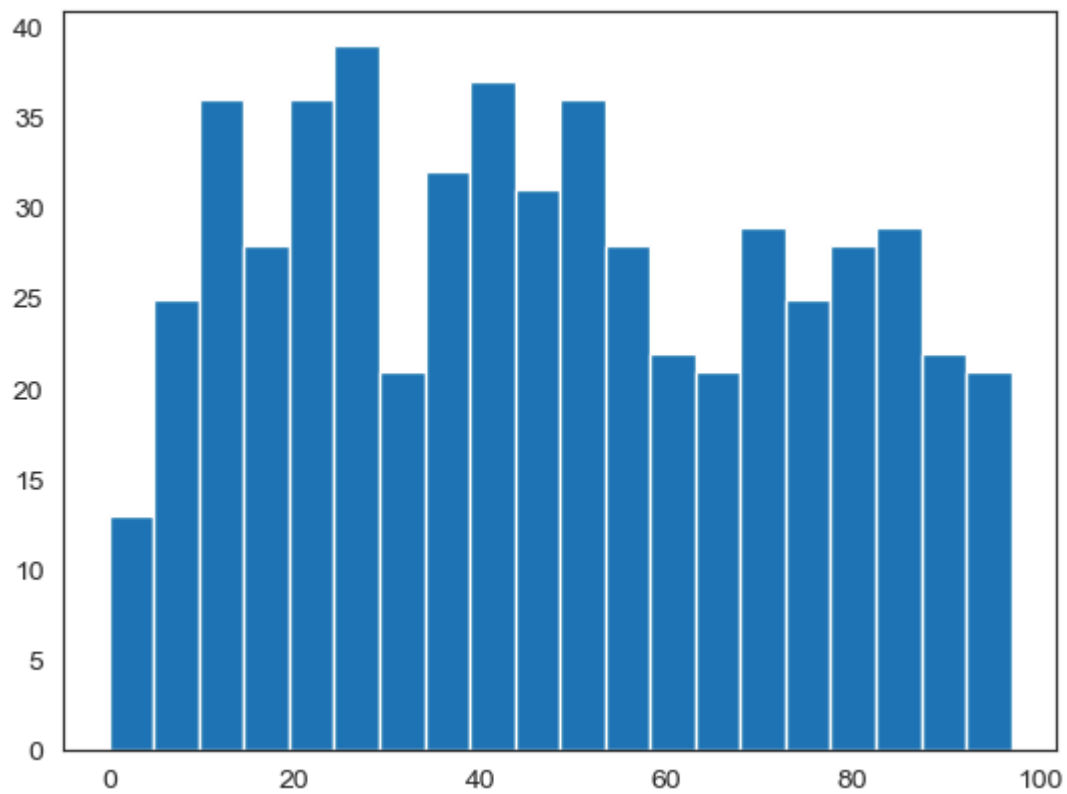
```
In [100]: m2= sns.distplot(movies.AudienceRatings,bins = 15)
```

```
In [101... sns.set_style('white')
n1=plt.hist(movies.AudienceRatings,bins=20) # normal distribution
```



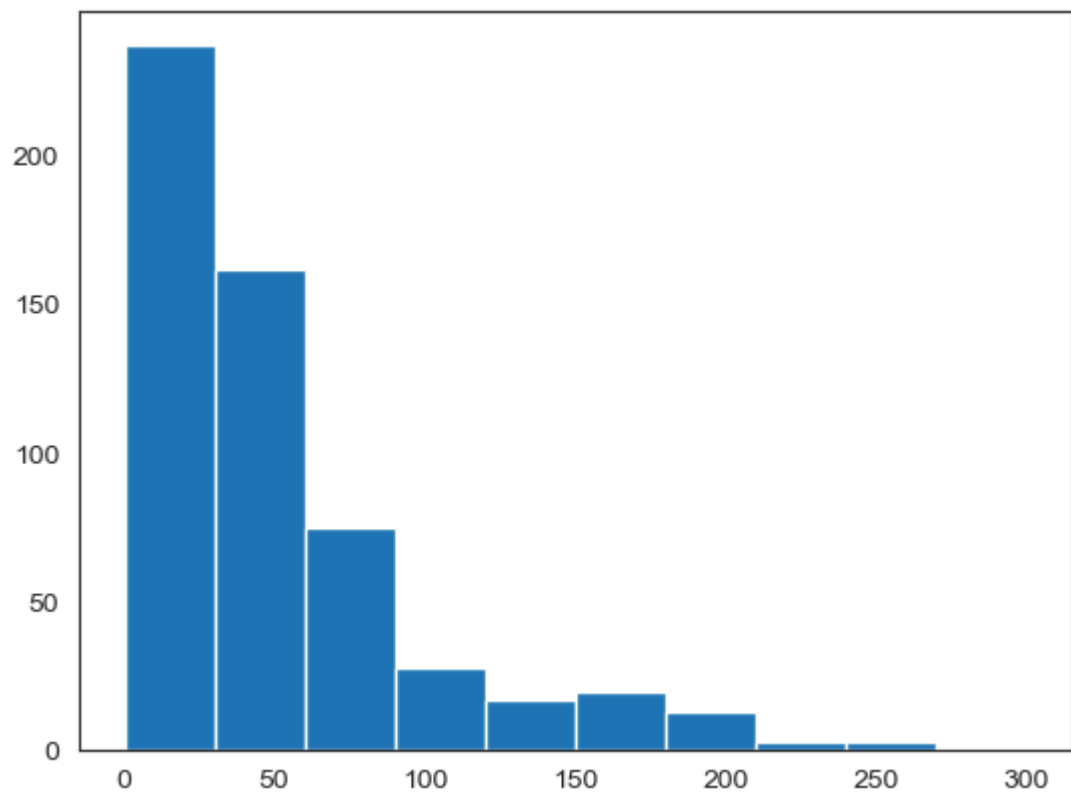
```
In [102... n1 = plt.hist(movies.CriticsRating, bins= 20) # uniform distribution
```



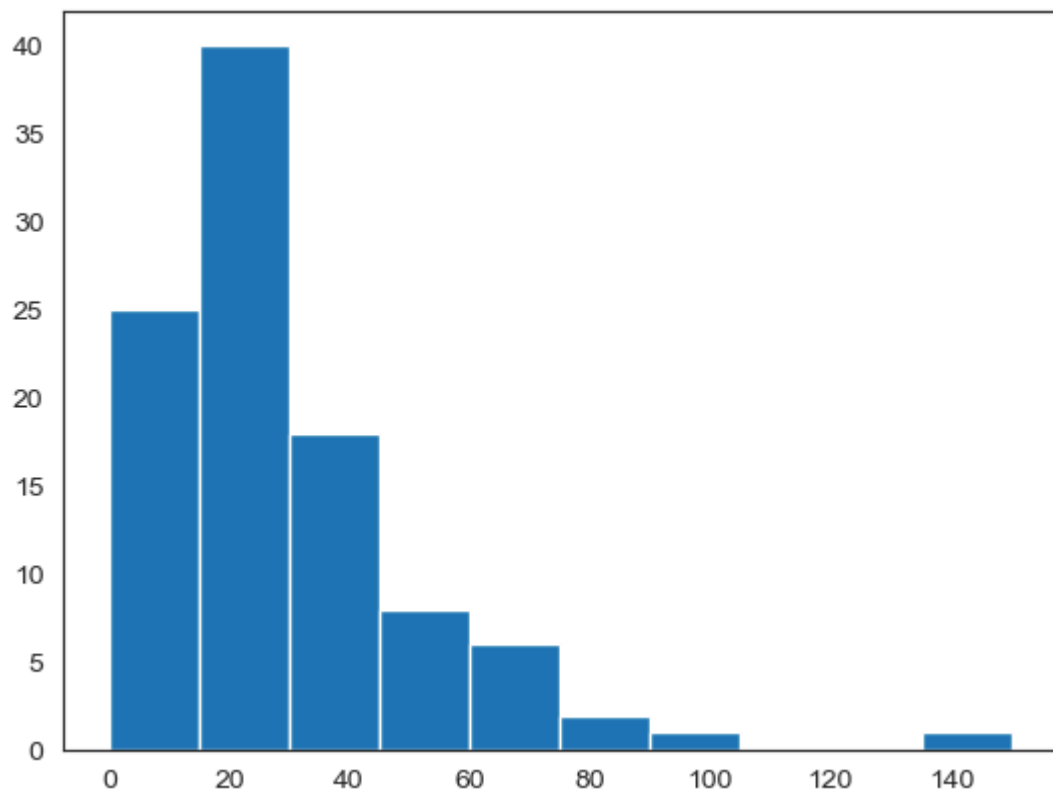
```
In [103... movies.Budget
```

```
Out[103... 0      8
1     105
2      20
3      18
4      20
...
554    50
555    18
556    65
557    24
558    80
Name: Budget, Length: 559, dtype: int64
```

```
In [104... plt.hist(movies.Budget)
plt.show()
```



```
In [105... plt.hist(movies[movies.Genre=='Drama'].Budget)
plt.show()
```



```
In [106... movies.head()
```

Out[106...

| | Film | Genre | CriticsRating | AudienceRatings | Budget | Year |
|---|----------------------|-----------|---------------|-----------------|--------|------|
| 0 | (500) Days of Summer | Comedy | 87 | 81 | 8 | 2009 |
| 1 | 10,000 B.C. | Adventure | 9 | 44 | 105 | 2008 |
| 2 | 12 Rounds | Action | 30 | 52 | 20 | 2009 |
| 3 | 127 Hours | Adventure | 93 | 84 | 18 | 2010 |
| 4 | 17 Again | Comedy | 55 | 70 | 20 | 2009 |

In [107...

```
movies.Genre.unique()
```

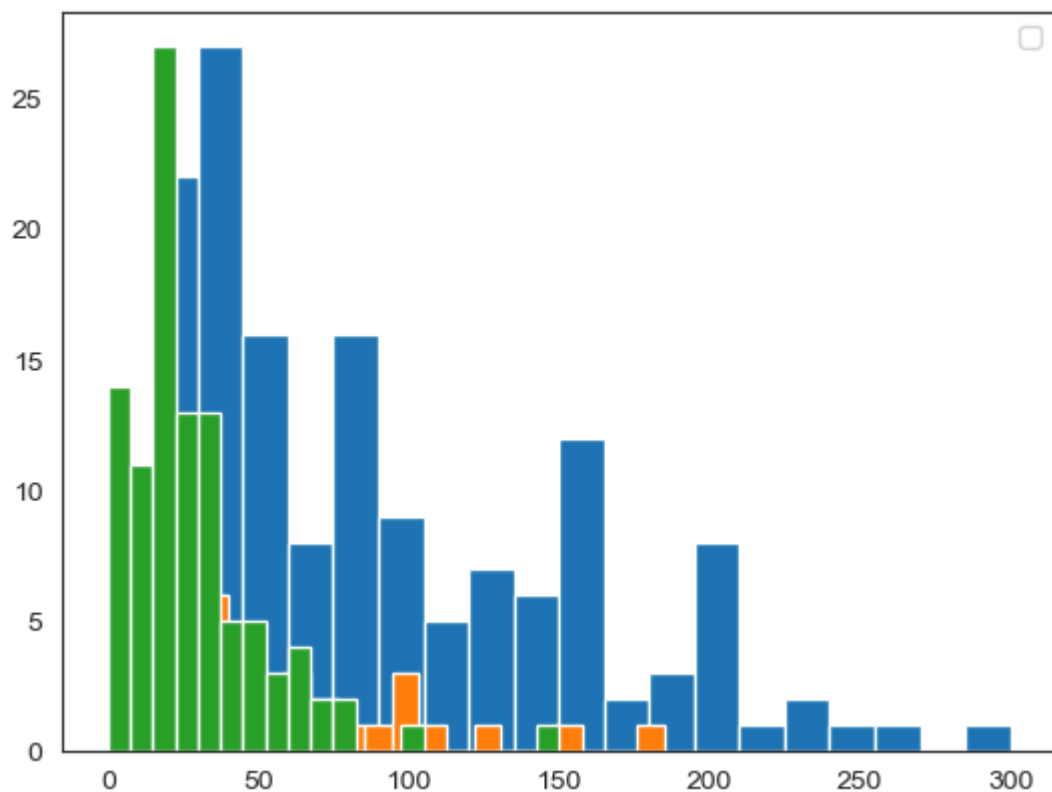
Out[107...

```
['Comedy', 'Adventure', 'Action', 'Horror', 'Drama', 'Romance', 'Thriller']
Categories (7, object): ['Action', 'Adventure', 'Comedy', 'Drama', 'Horror', 'Romance', 'Thriller']
```

In [109...

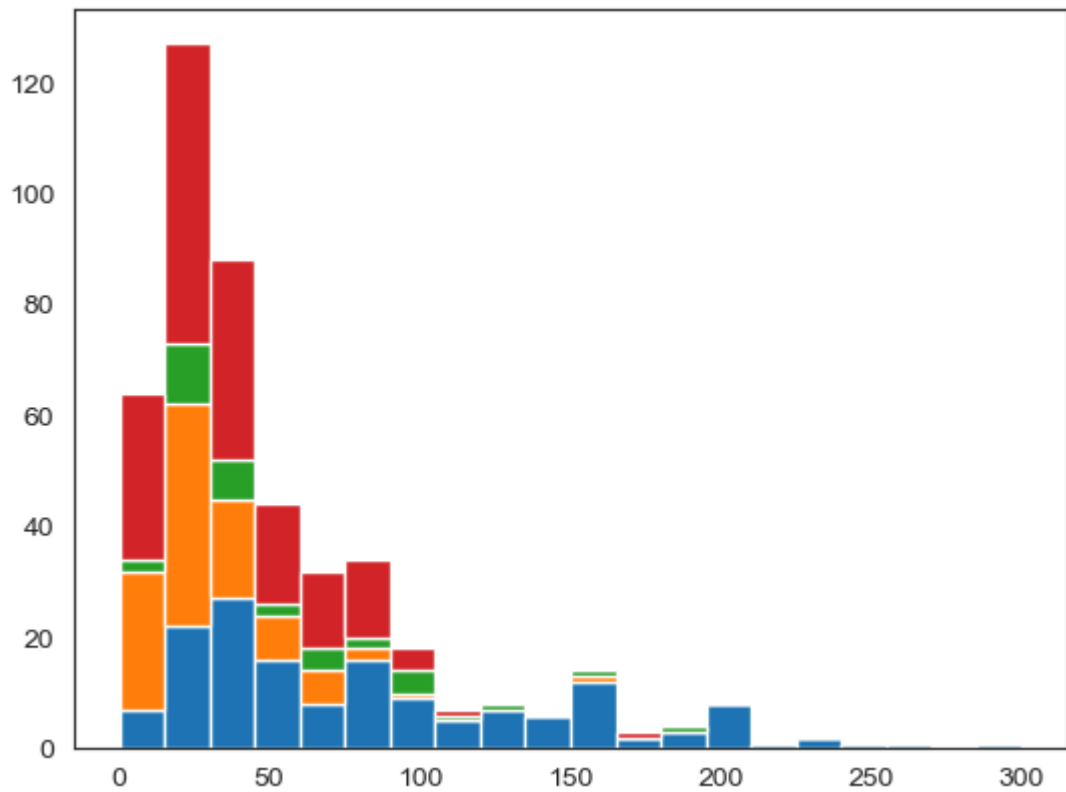
```
plt.hist(movies[movies.Genre=='Action'].Budget,bins=20)
plt.hist(movies[movies.Genre=='Thriller'].Budget , bins=20)
plt.hist(movies[movies.Genre=='Drama'].Budget, bins=20)
plt.legend()
plt.show()
```

No artists with labels found to put in legend. Note that artists whose label start with an underscore are ignored when legend() is called with no argument.



In [110...

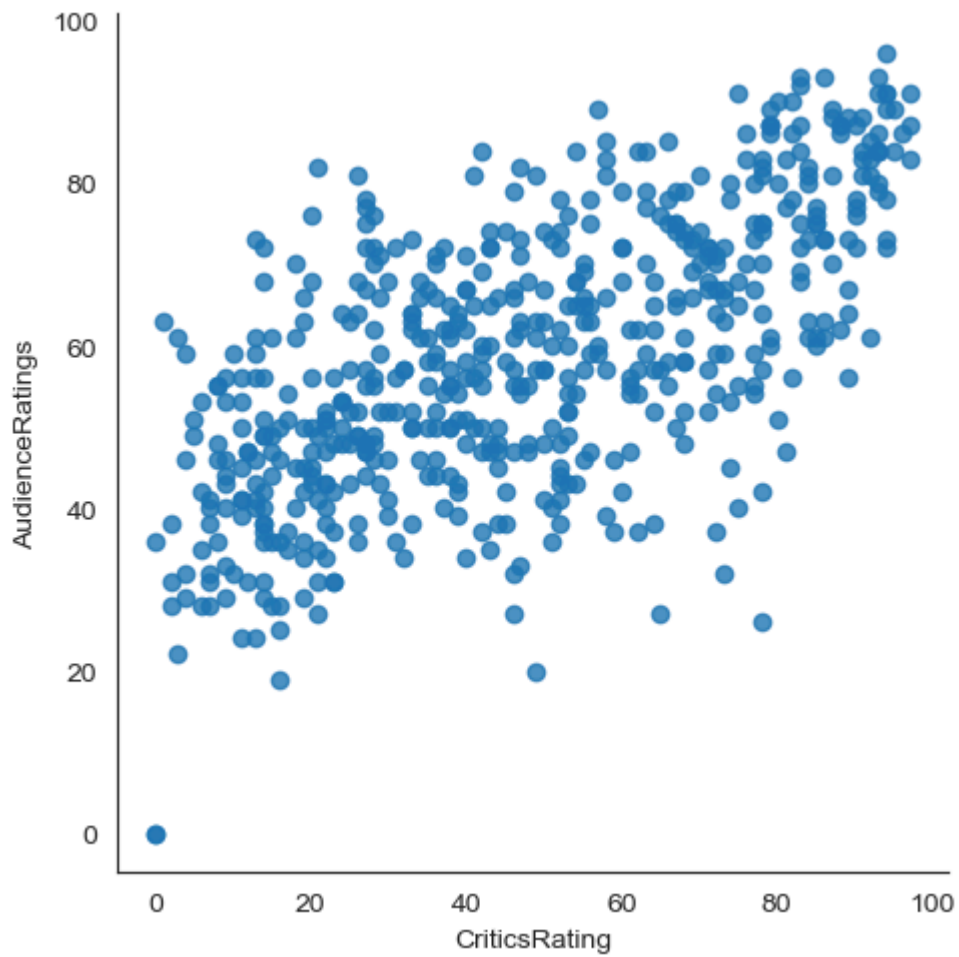
```
plt.hist([movies[movies.Genre=='Action'].Budget,\
movies[movies.Genre=='Drama'].Budget,\
movies[movies.Genre=='Thriller'].Budget,\
movies[movies.Genre=='Comedy'].Budget],bins=20, stacked=True)
plt.show()
```



```
In [111... for gen in movies.Genre.cat.categories:  
             print(gen)
```

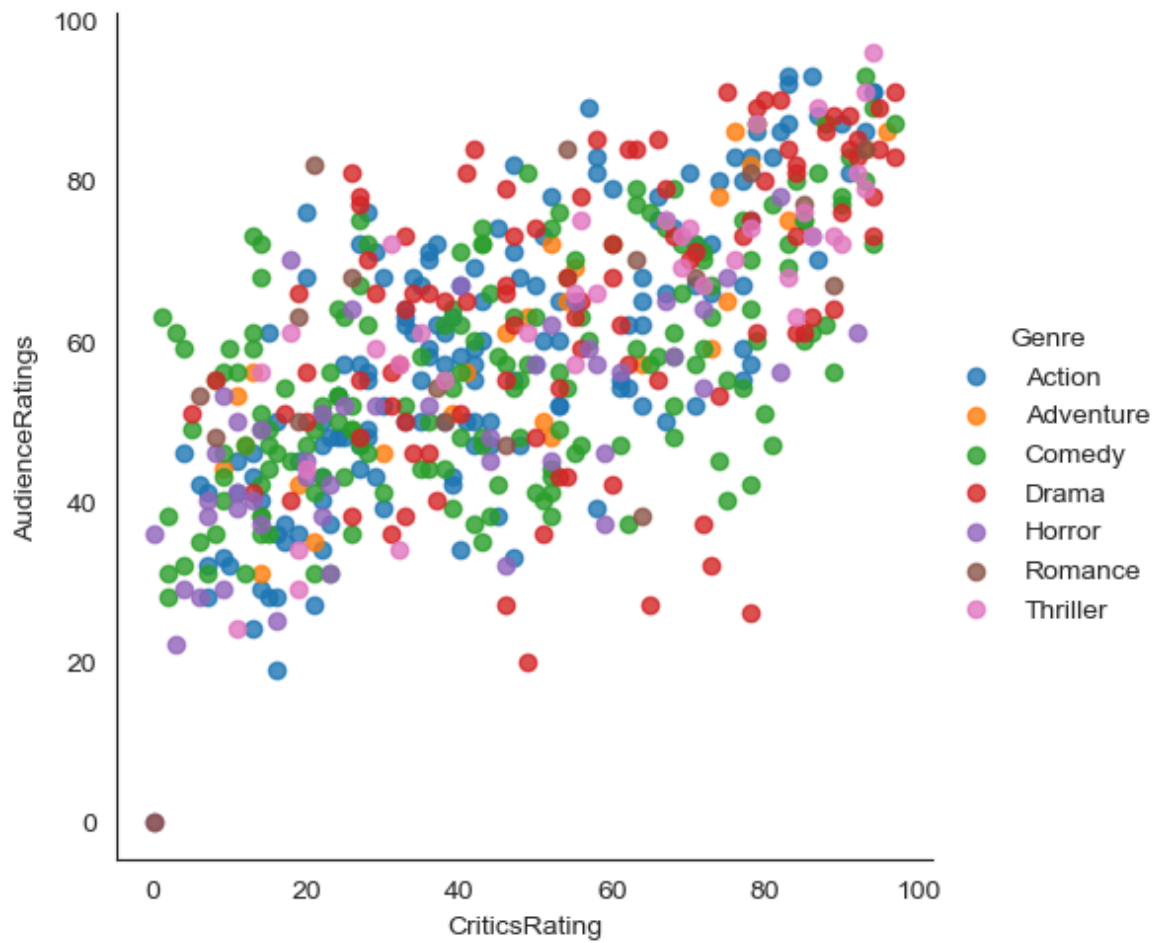
Action
Adventure
Comedy
Drama
Horror
Romance
Thriller

```
In [113... vis1 = sns.lmplot(data = movies, x = 'CriticRating' ,y = 'AudienceRatings', fit_
```

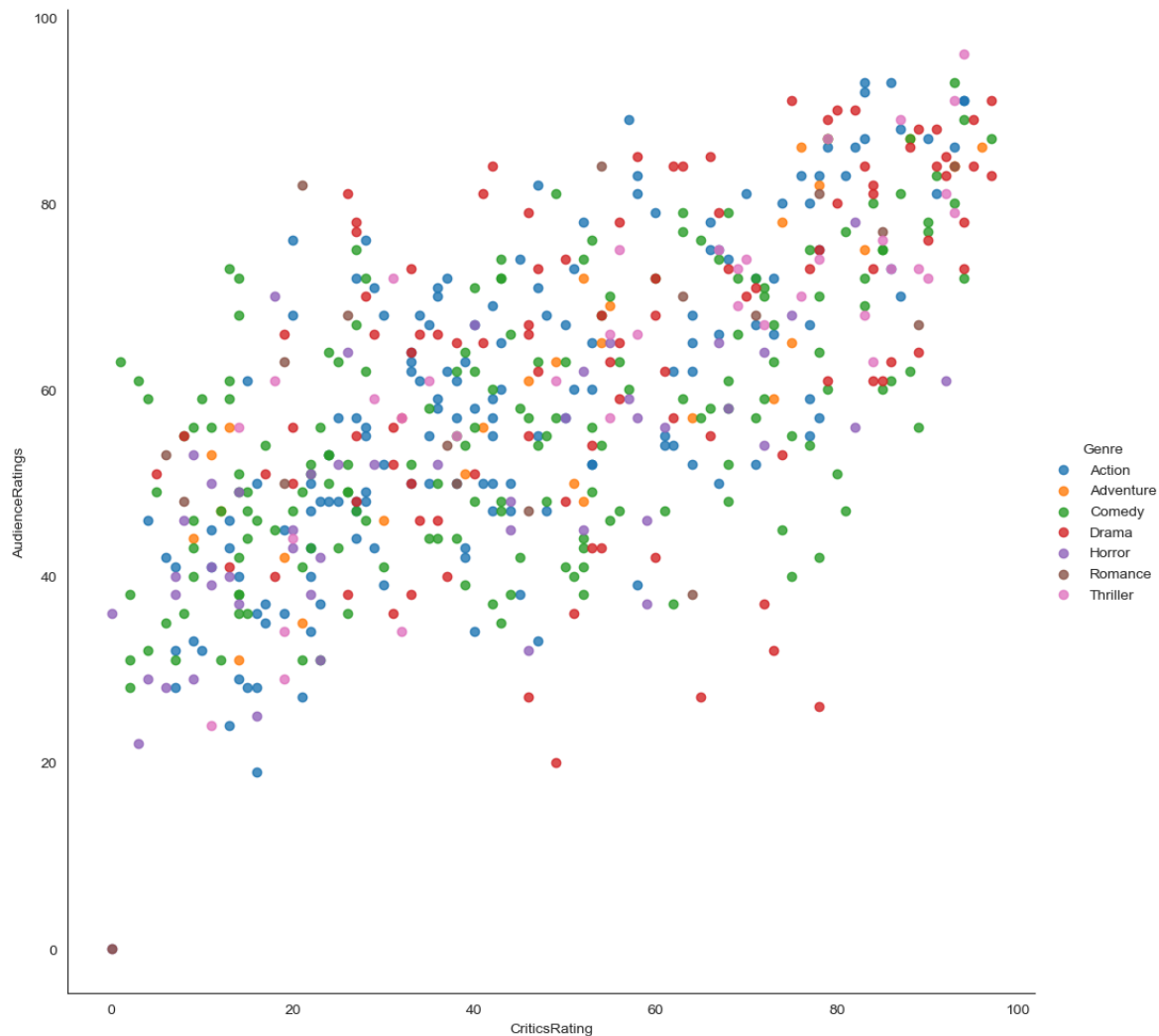


In [114...

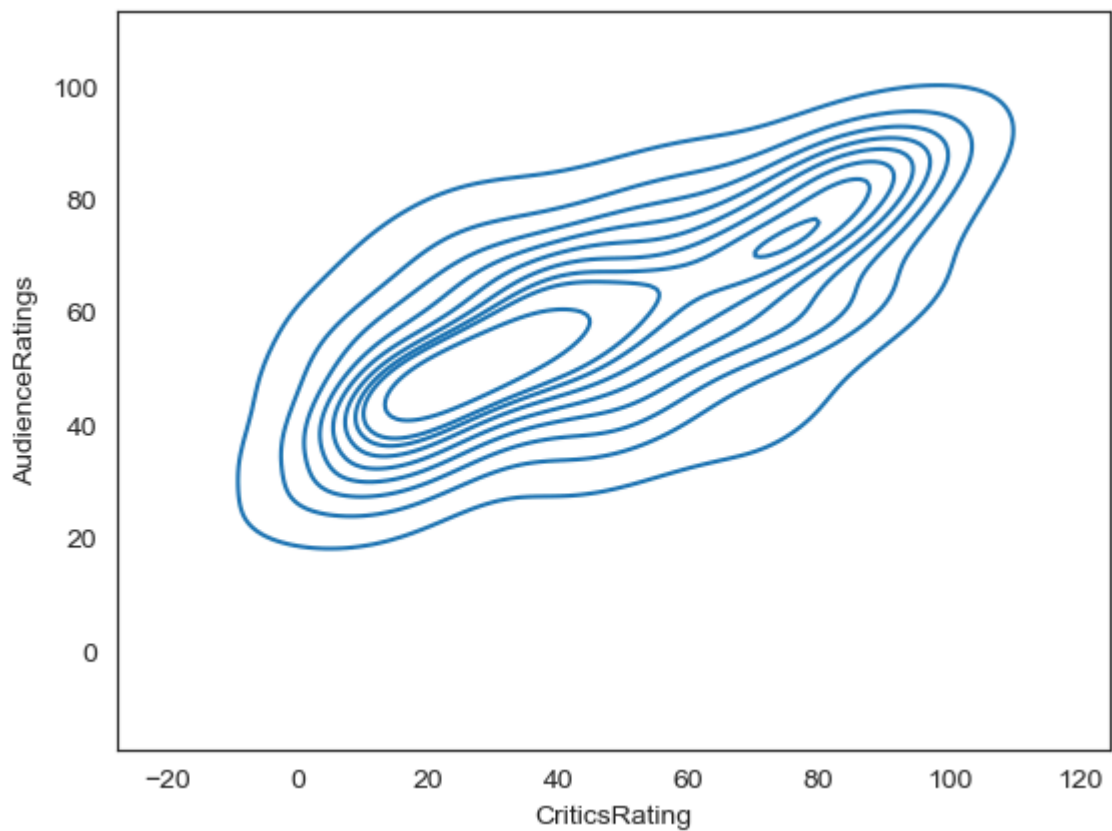
```
vis1 = sns.lmplot(data = movies, x = 'CriticsRating' ,y = 'AudienceRatings', fit_
```



In [115... `vis1 = sns.lmplot(data = movies, x = 'CriticsRating' ,y = 'AudienceRatings', fit_`



In [117... `k1 = sns.kdeplot(data = movies, x= 'CriticsRating' , y= 'AudienceRatings')`



In [118...

movies

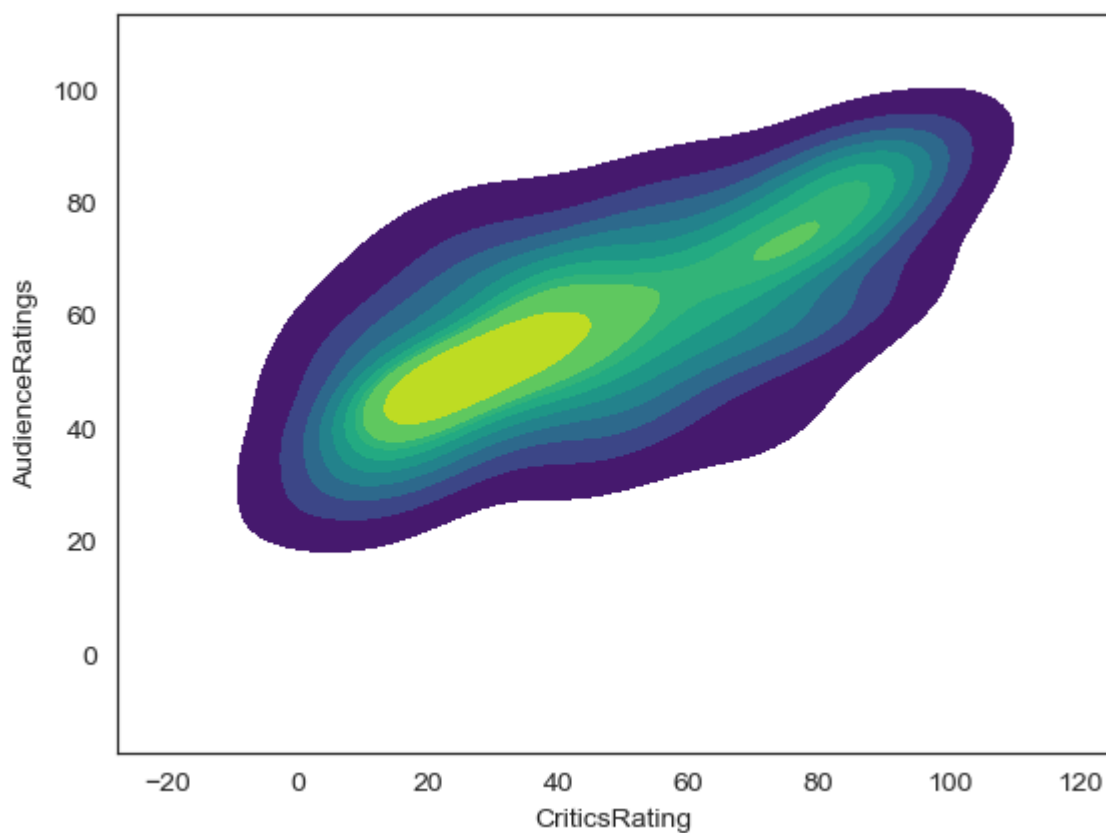
Out[118...

| | Film | Genre | CriticsRating | AudienceRatings | Budget | Year |
|-----|----------------------|-----------|---------------|-----------------|--------|------|
| 0 | (500) Days of Summer | Comedy | 87 | 81 | 8 | 2009 |
| 1 | 10,000 B.C. | Adventure | 9 | 44 | 105 | 2008 |
| 2 | 12 Rounds | Action | 30 | 52 | 20 | 2009 |
| 3 | 127 Hours | Adventure | 93 | 84 | 18 | 2010 |
| 4 | 17 Again | Comedy | 55 | 70 | 20 | 2009 |
| ... | ... | ... | ... | ... | ... | ... |
| 554 | Your Highness | Comedy | 26 | 36 | 50 | 2011 |
| 555 | Youth in Revolt | Comedy | 68 | 52 | 18 | 2009 |
| 556 | Zodiac | Thriller | 89 | 73 | 65 | 2007 |
| 557 | Zombieland | Action | 90 | 87 | 24 | 2009 |
| 558 | Zookeeper | Comedy | 14 | 42 | 80 | 2011 |

559 rows × 6 columns

In [120...

```
k1 = sns.kdeplot(data = movies, x= 'CriticsRating' , y= 'AudienceRatings',shade=
```

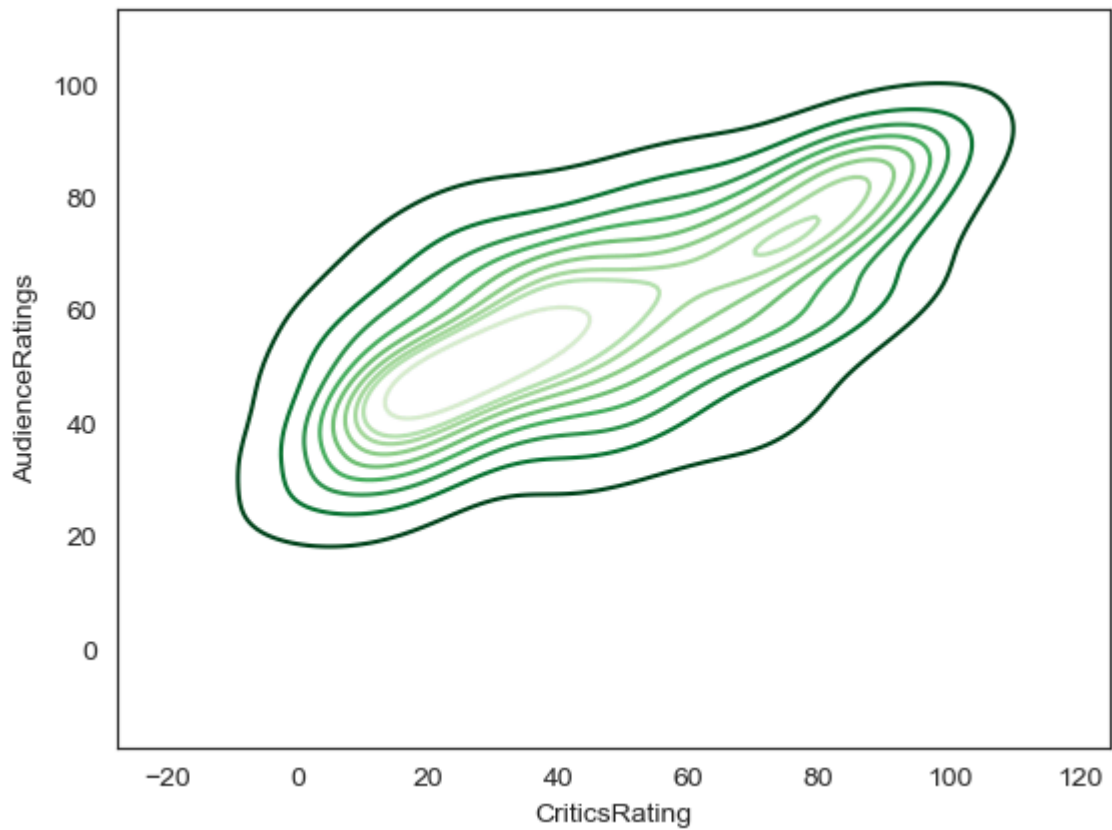


In [123...

```
sns.kdeplot(data = movies, x= 'CriticsRating' , y= 'AudienceRatings',shade_lowes
```

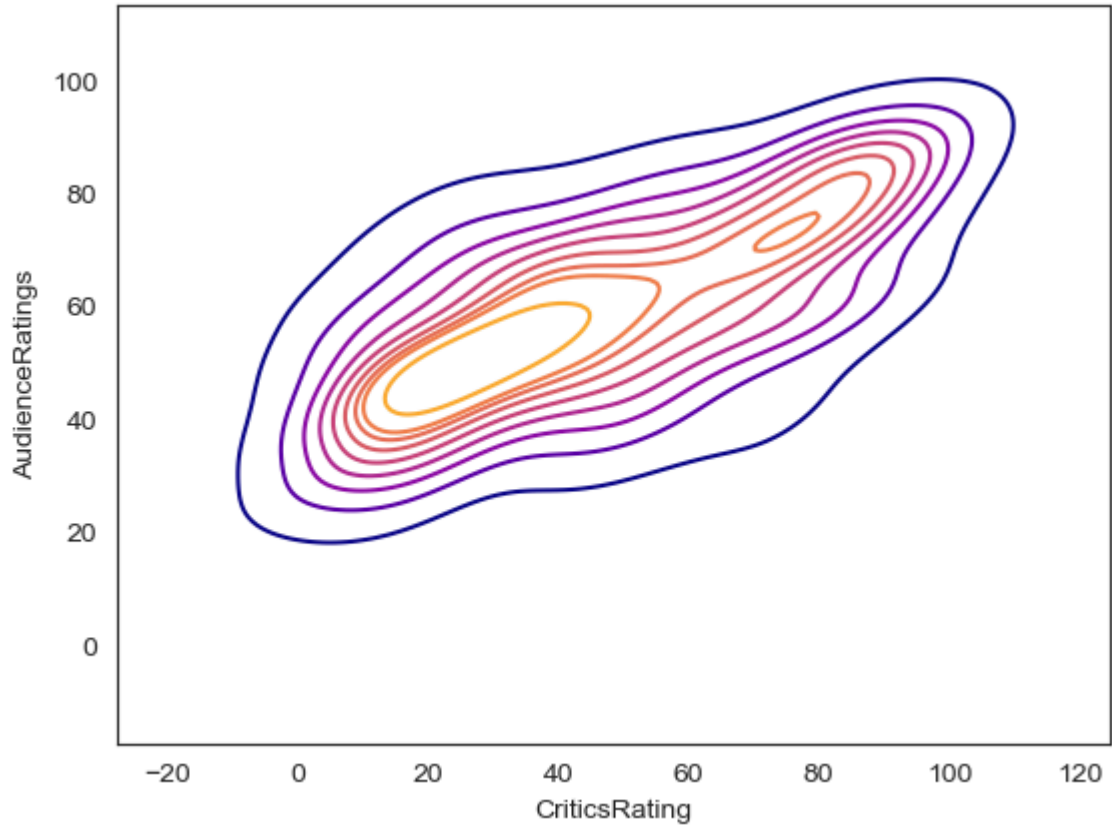
Out[123...

```
<Axes: xlabel='CriticsRating', ylabel='AudienceRatings'>
```



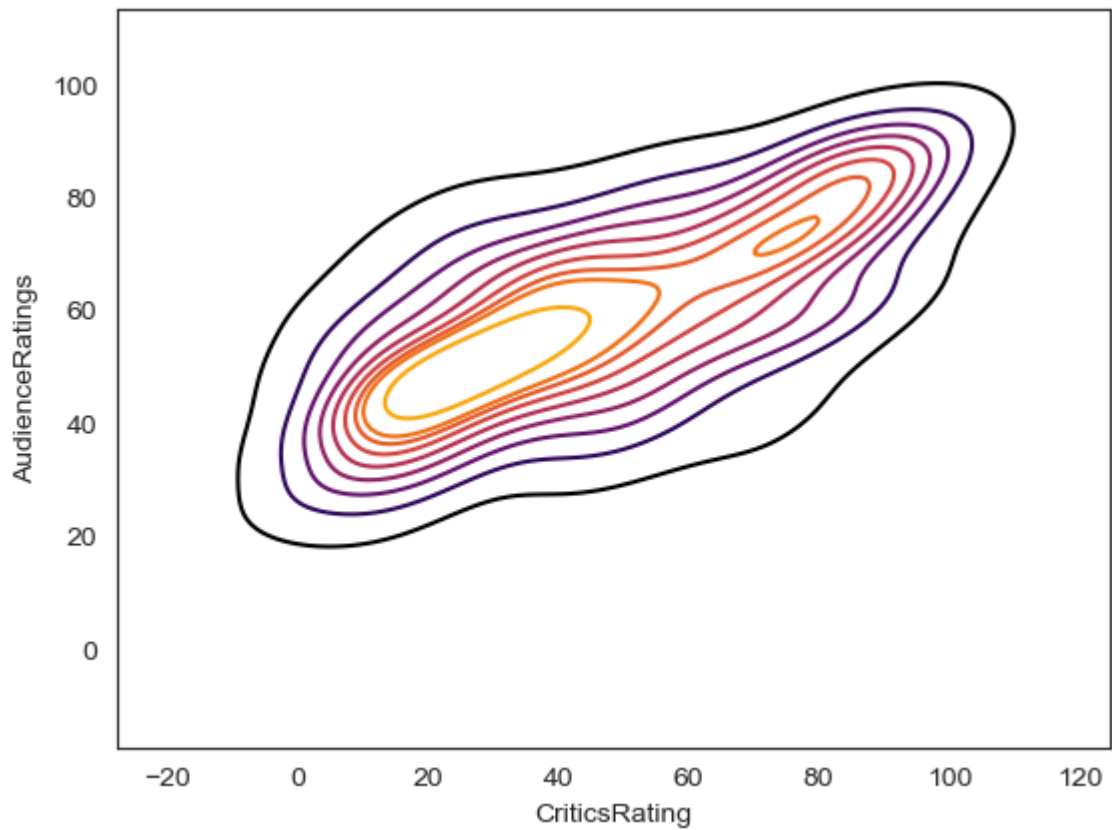
```
In [124...] sns.kdeplot(data = movies, x= 'CriticsRating' , y= 'AudienceRatings',shade_lowes
```

```
Out[124...] <Axes: xlabel='CriticsRating', ylabel='AudienceRatings'>
```



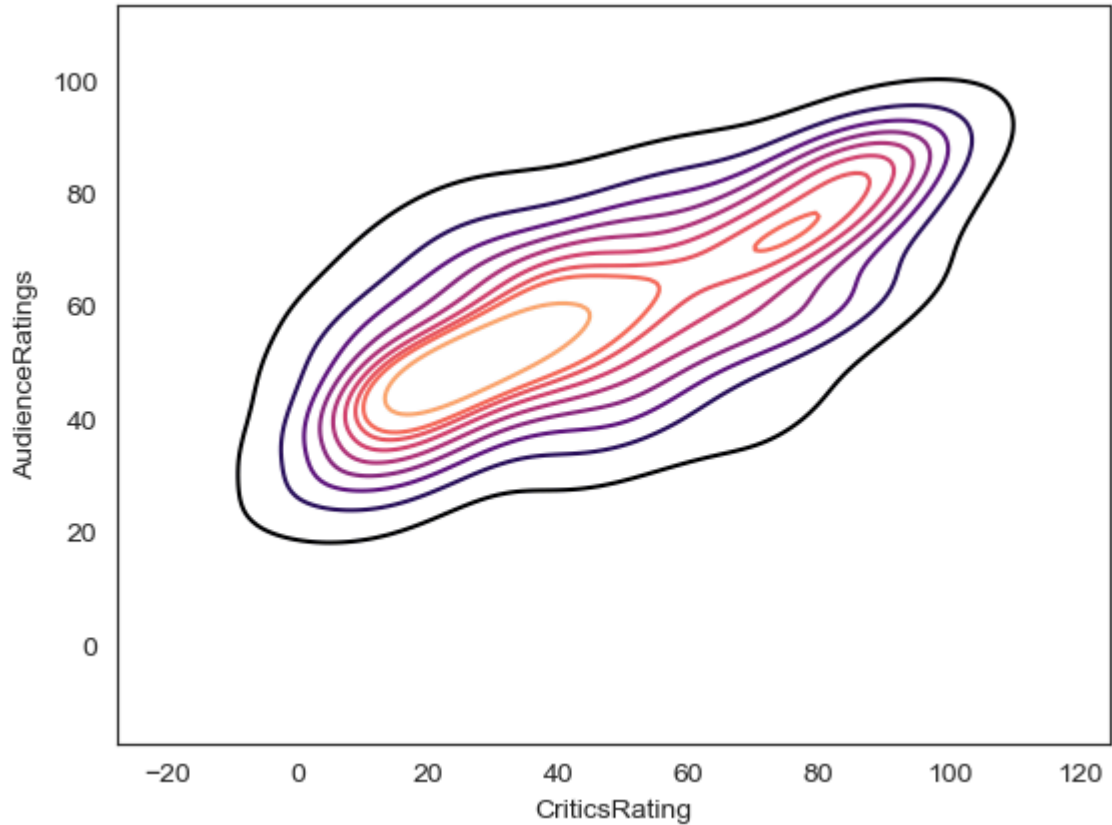
```
In [125...] sns.kdeplot(data = movies, x= 'CriticsRating' , y= 'AudienceRatings',shade_lowes
```

```
Out[125...] <Axes: xlabel='CriticsRating', ylabel='AudienceRatings'>
```



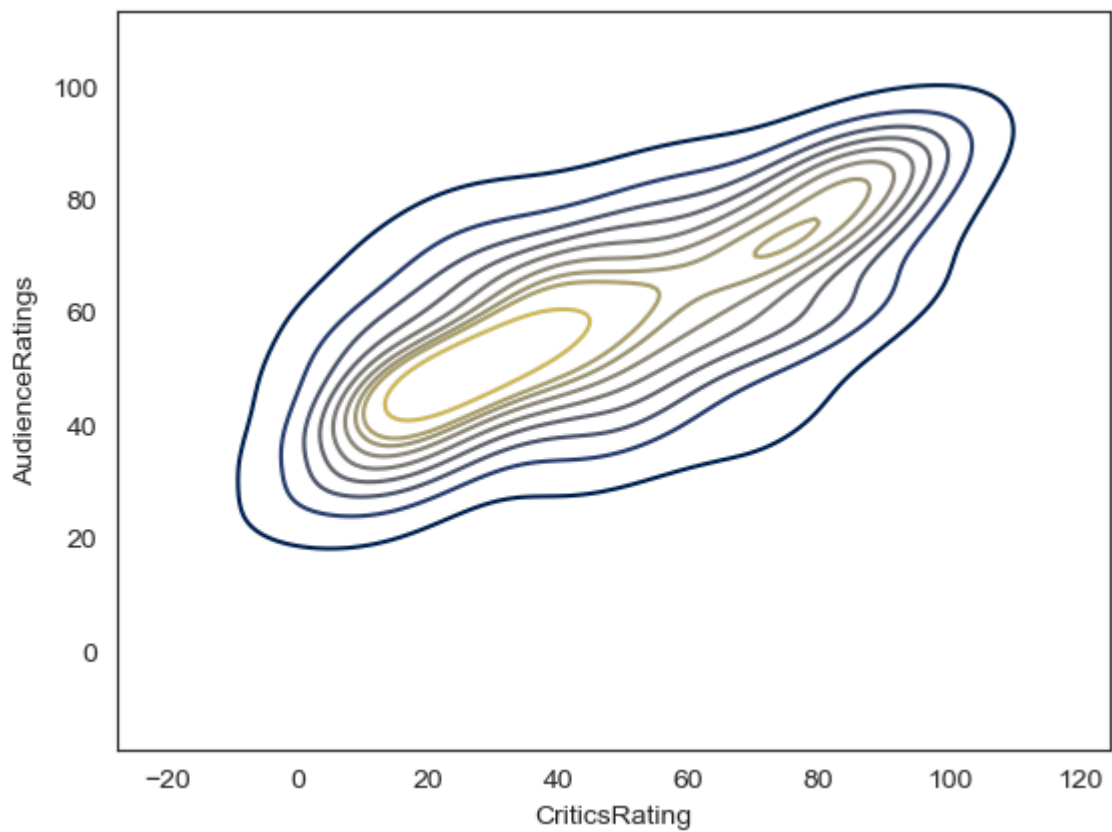
```
In [126...] sns.kdeplot(data = movies, x= 'CriticsRating' , y= 'AudienceRatings',shade_lowes
```

```
Out[126...] <Axes: xlabel='CriticsRating', ylabel='AudienceRatings'>
```



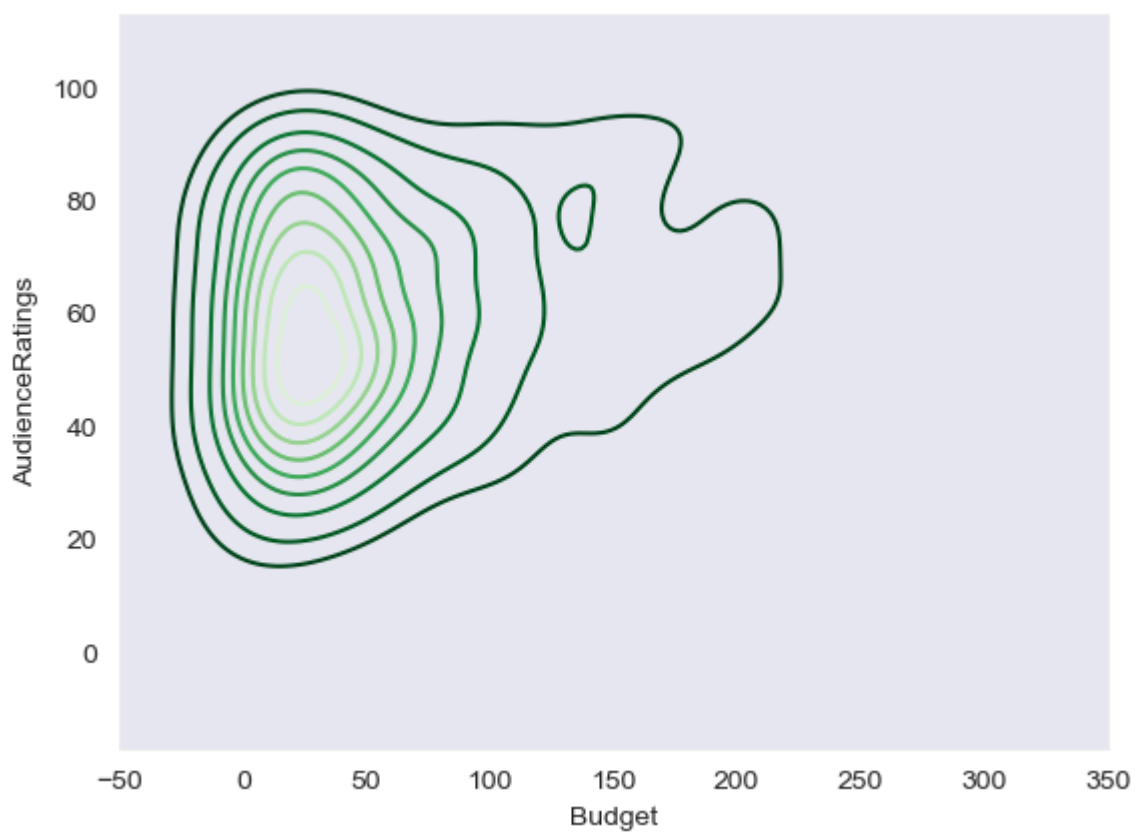
```
In [127...] sns.kdeplot(data = movies, x= 'CriticsRating' , y= 'AudienceRatings',shade_lowes
```

```
Out[127...] <Axes: xlabel='CriticsRating', ylabel='AudienceRatings'>
```



In [128...

```
sns.set_style('dark')
k1 = sns.kdeplot(data = movies, x= 'Budget' , y= 'AudienceRatings',shade_lowest=
```

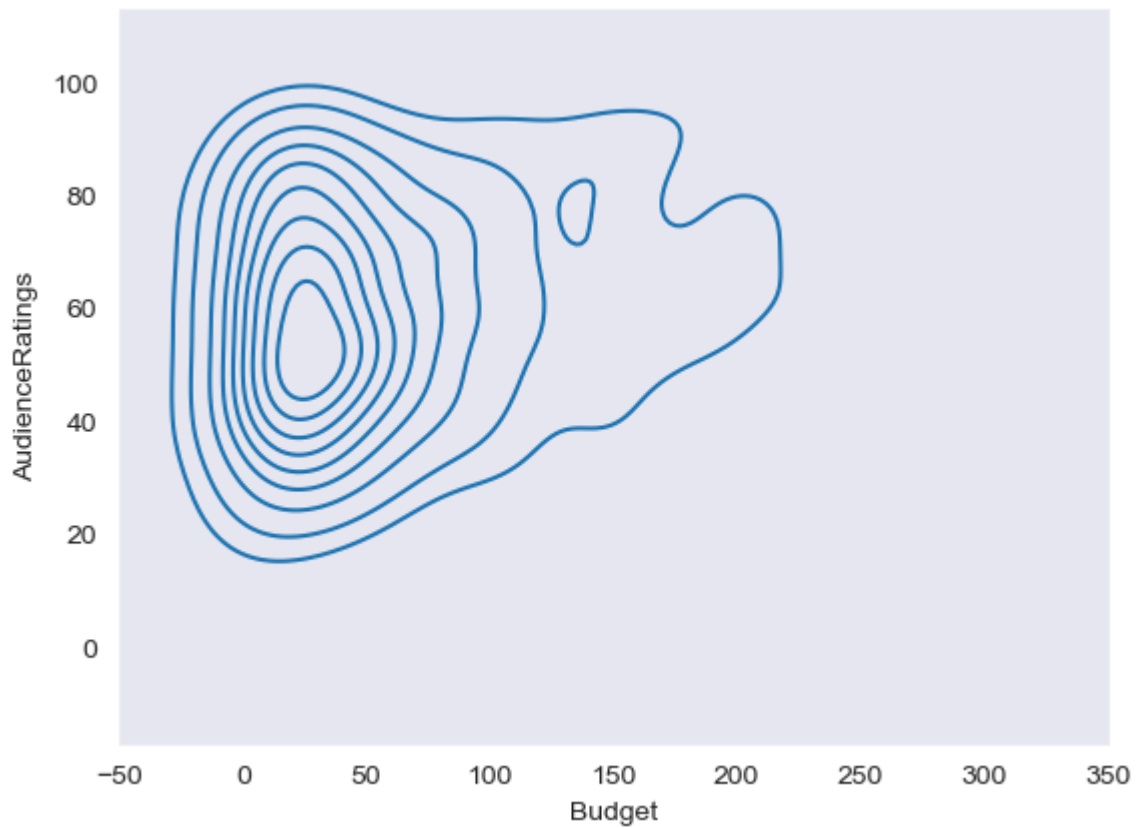


In [129...

```
sns.kdeplot(data = movies, x= 'Budget' , y= 'AudienceRatings')
```

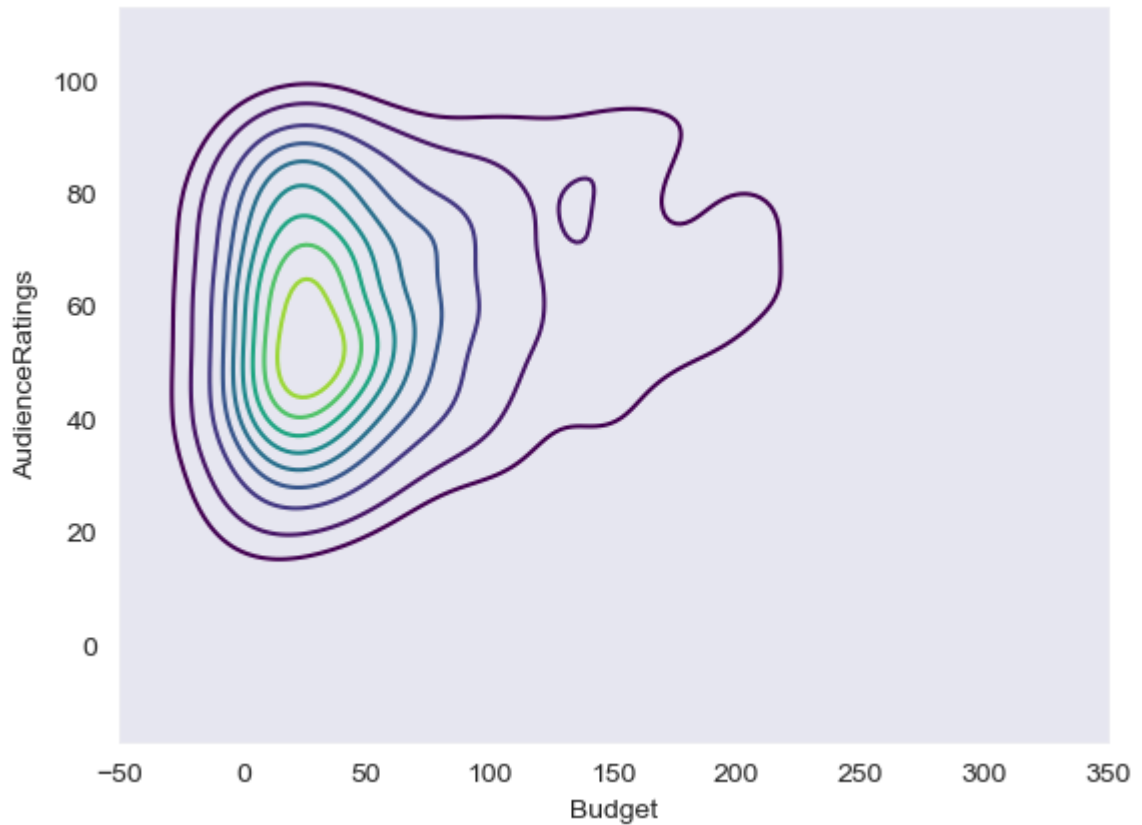
Out[129...

```
<Axes: xlabel='Budget', ylabel='AudienceRatings'>
```



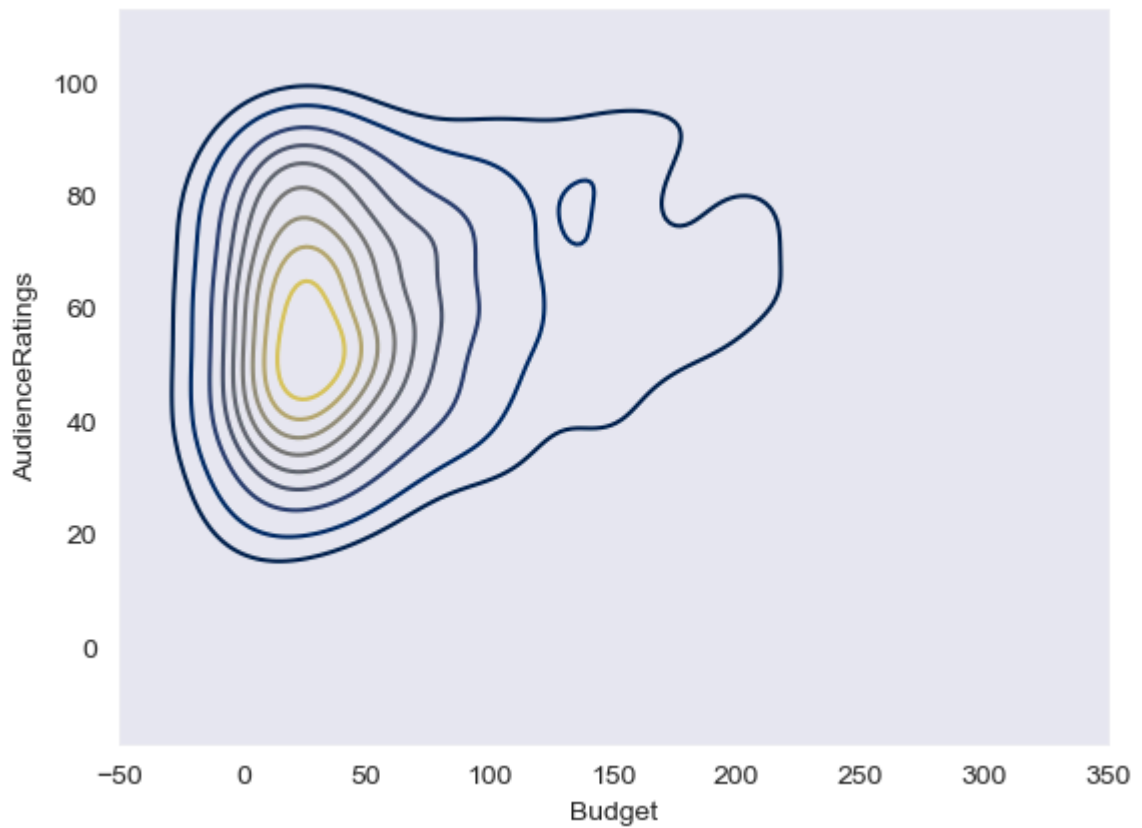
```
In [130...] sns.kdeplot(data = movies, x= 'Budget' , y= 'AudienceRatings',cmap='viridis')
```

```
Out[130...] <Axes: xlabel='Budget', ylabel='AudienceRatings'>
```



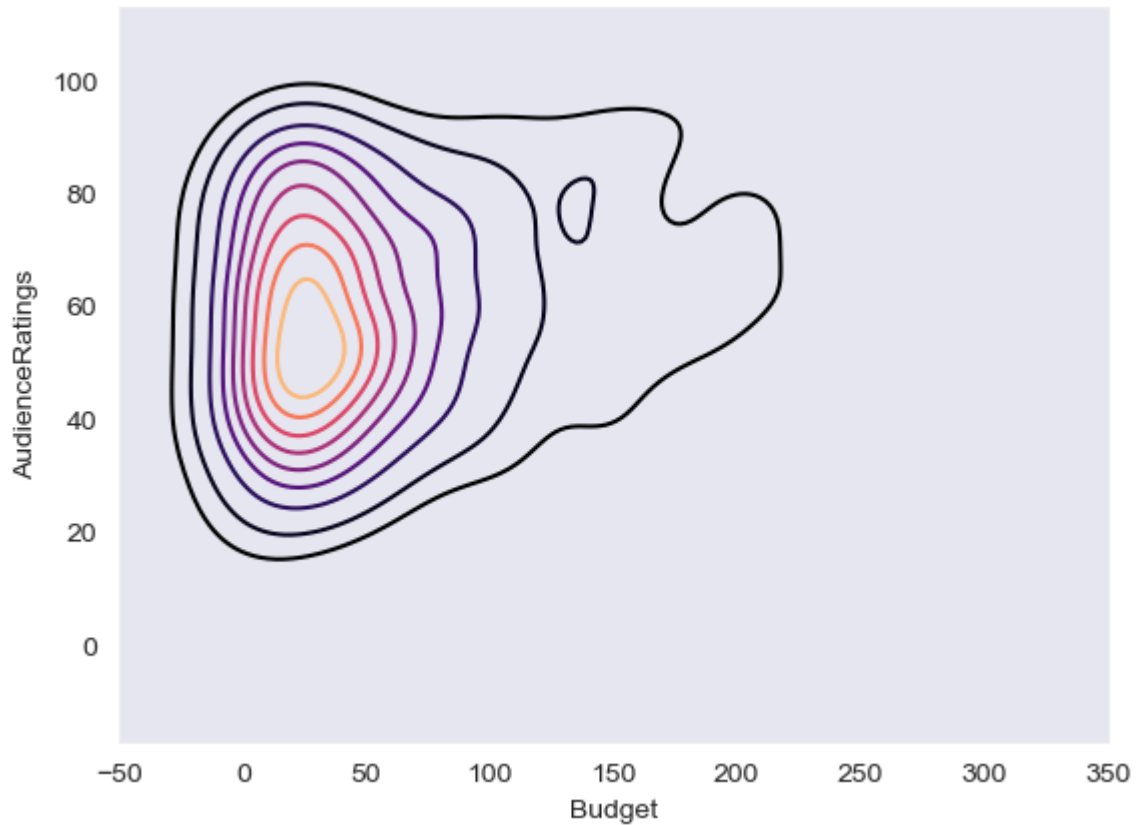
```
In [131...] sns.kdeplot(data = movies, x= 'Budget' , y= 'AudienceRatings',cmap='cividis')
```

```
Out[131...] <Axes: xlabel='Budget', ylabel='AudienceRatings'>
```



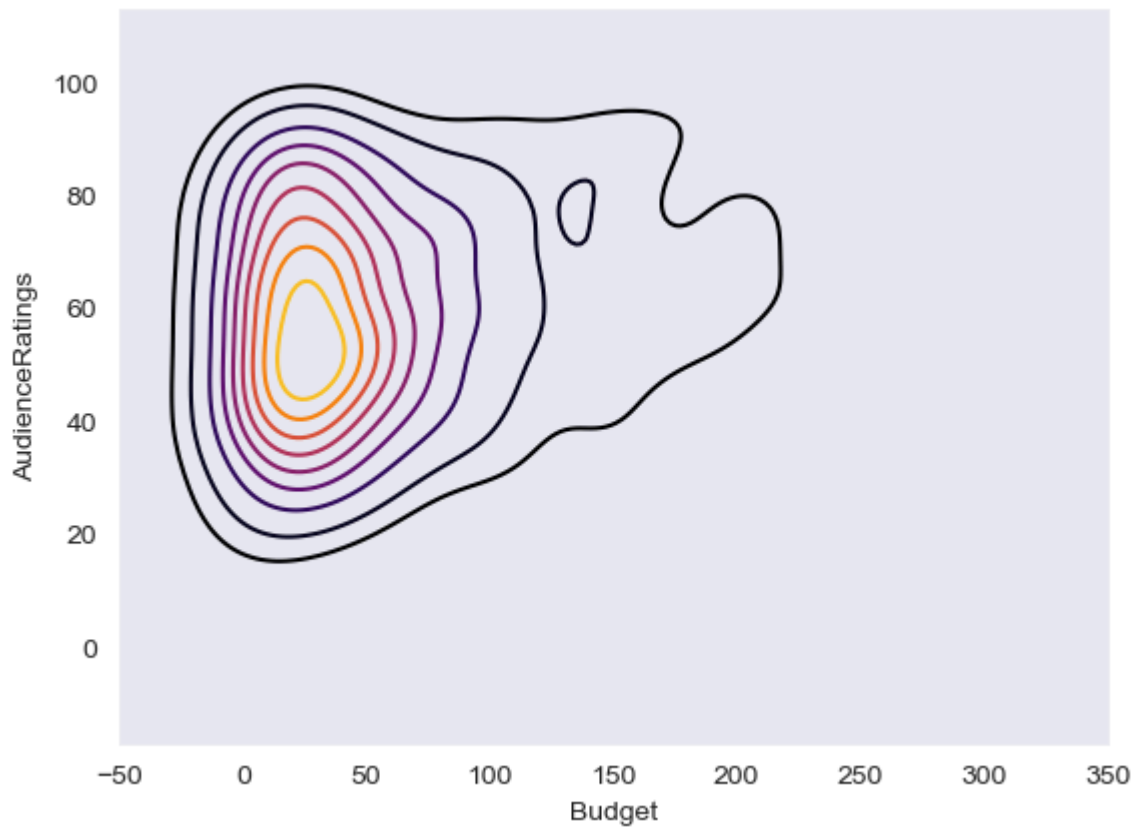
```
In [132...] sns.kdeplot(data = movies, x= 'Budget' , y= 'AudienceRatings', cmap='magma')
```

```
Out[132...] <Axes: xlabel='Budget', ylabel='AudienceRatings'>
```



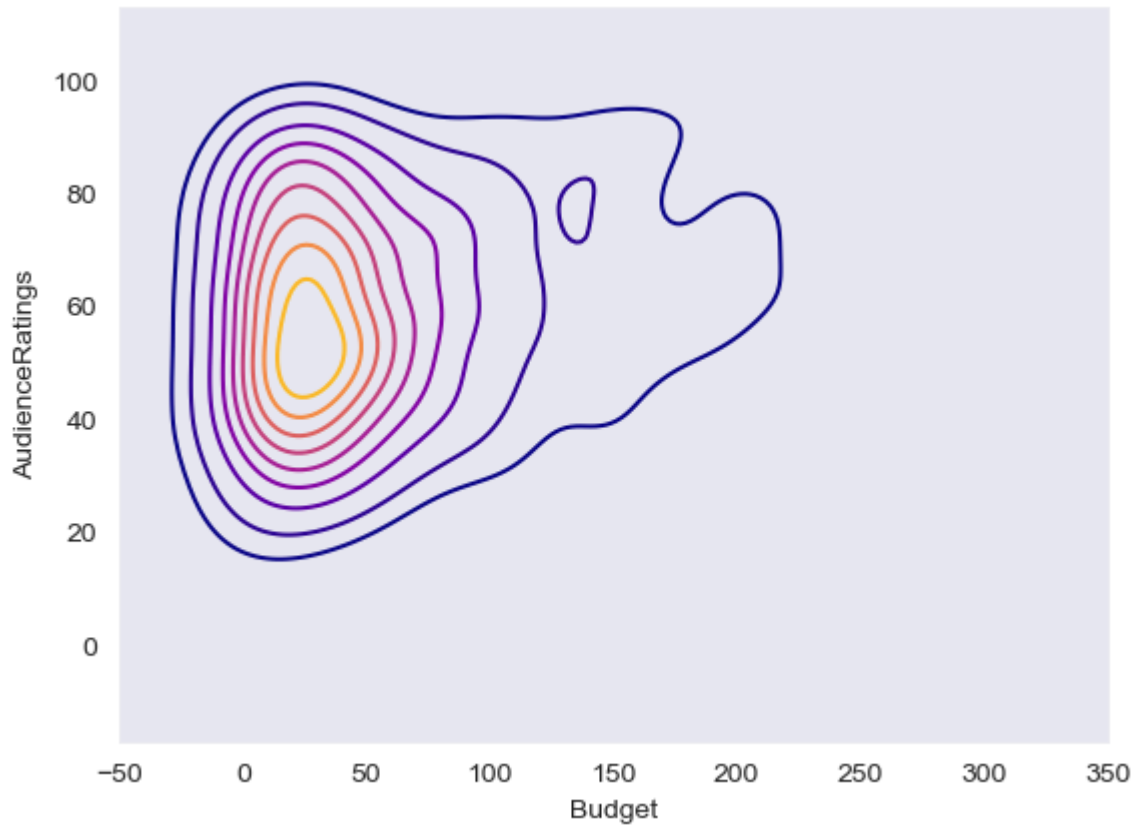
```
In [133...] sns.kdeplot(data = movies, x= 'Budget' , y= 'AudienceRatings', cmap='inferno')
```

```
Out[133...] <Axes: xlabel='Budget', ylabel='AudienceRatings'>
```



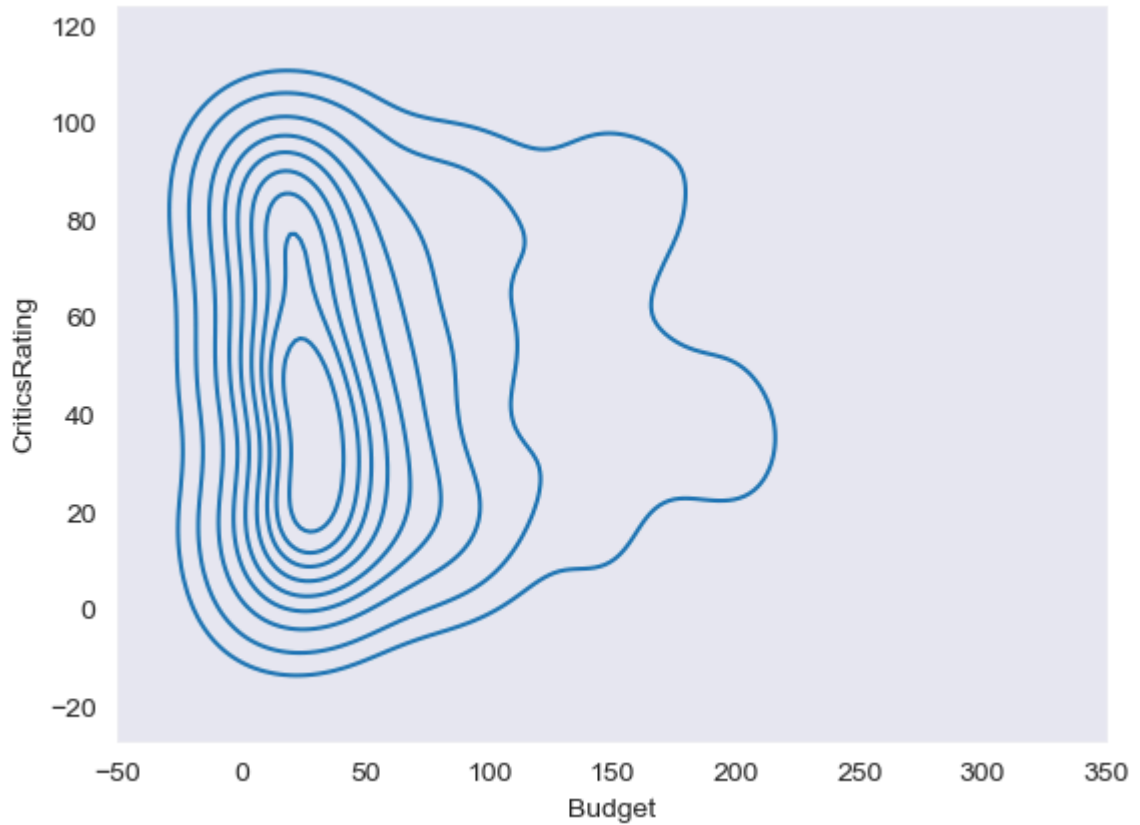
```
In [141...] sns.kdeplot(data = movies, x= 'Budget' , y= 'AudienceRatings',cmap='plasma')
```

```
Out[141...] <Axes: xlabel='Budget', ylabel='AudienceRatings'>
```



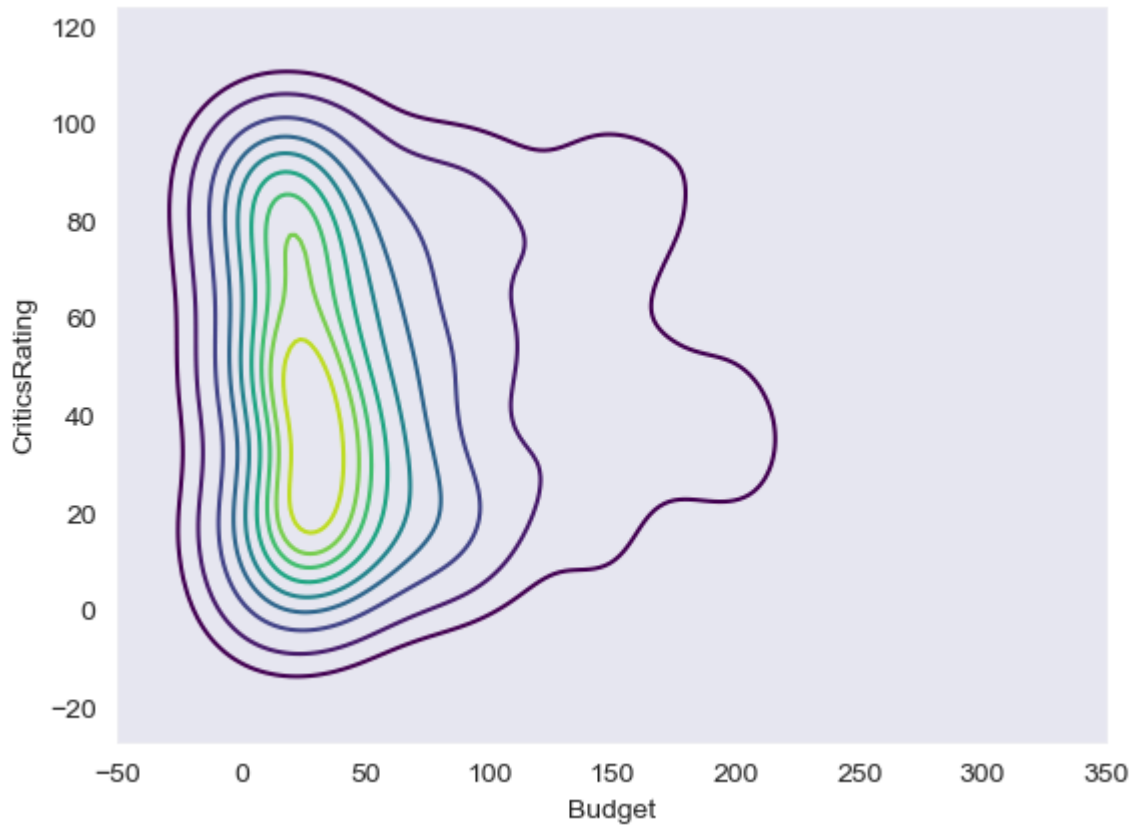
```
In [135...] sns.kdeplot(data= movies,x='Budget',y= 'CriticsRating')
```

```
Out[135...] <Axes: xlabel='Budget', ylabel='CriticsRating'>
```



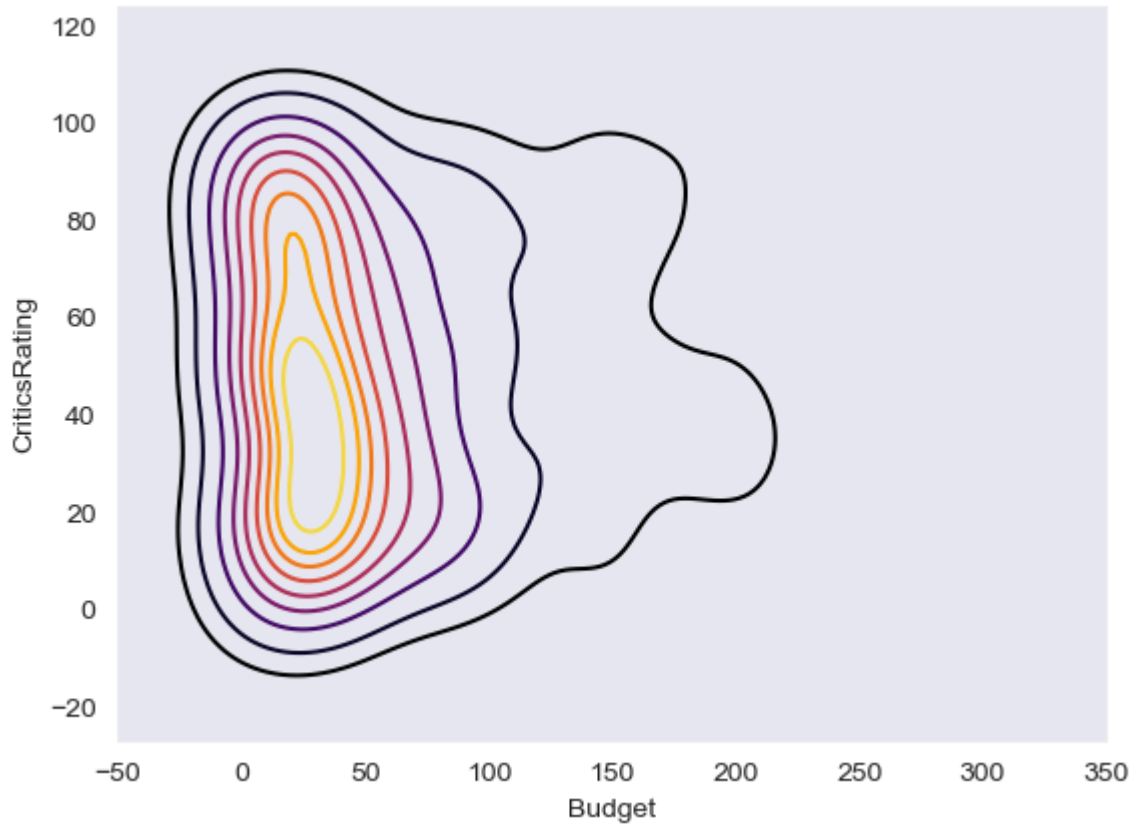
```
In [136...] sns.kdeplot(data= movies,x='Budget',y= 'CriticsRating',cmap='viridis')
```

```
Out[136...] <Axes: xlabel='Budget', ylabel='CriticsRating'>
```



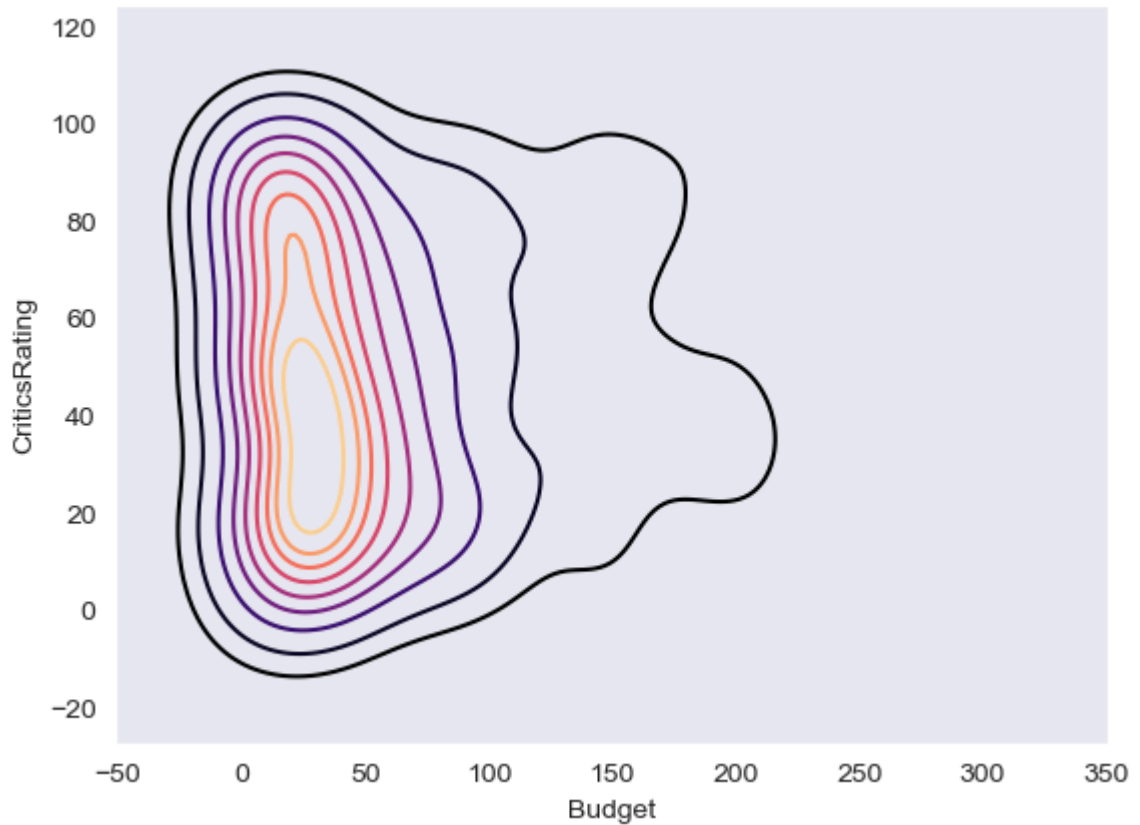
```
In [137...] sns.kdeplot(data= movies,x='Budget',y= 'CriticsRating',cmap='inferno')
```

```
Out[137...] <Axes: xlabel='Budget', ylabel='CriticsRating'>
```

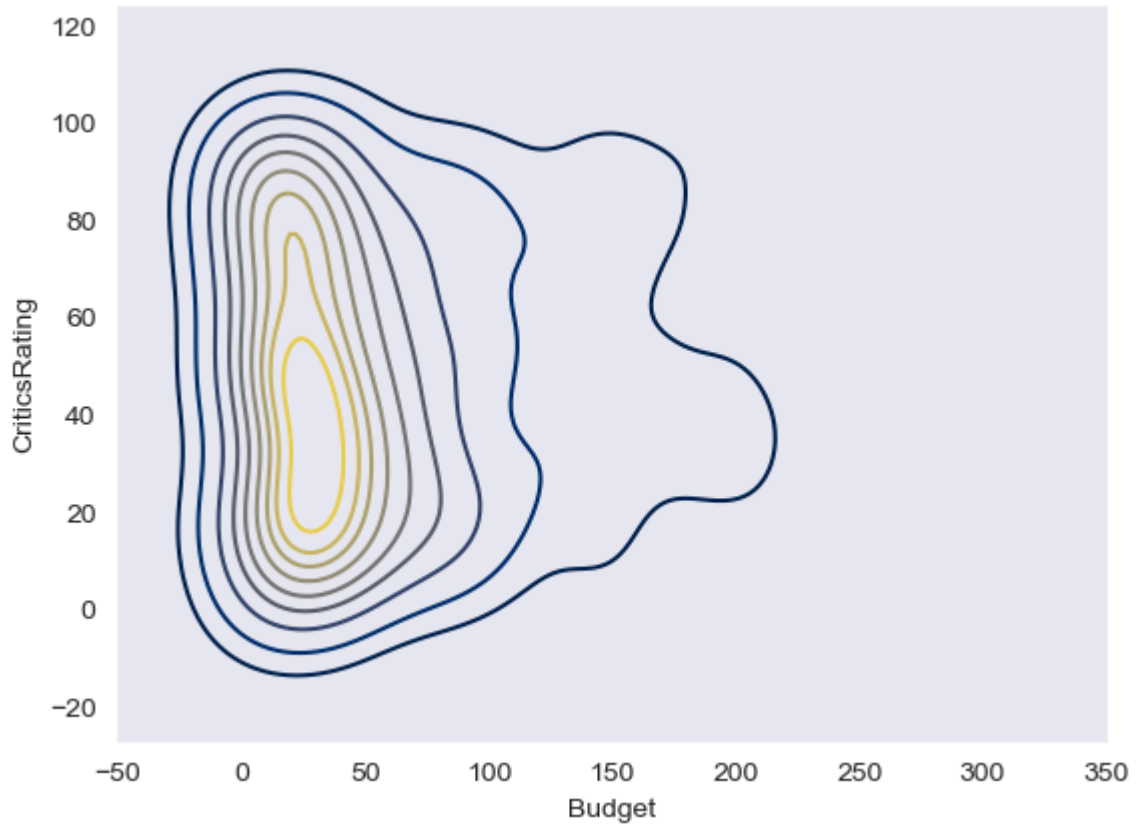
```
In [138...] sns.kdeplot(data= movies,x='Budget',y= 'CriticsRating',cmap='magma')
```

```
Out[138...] <Axes: xlabel='Budget', ylabel='CriticsRating'>
```



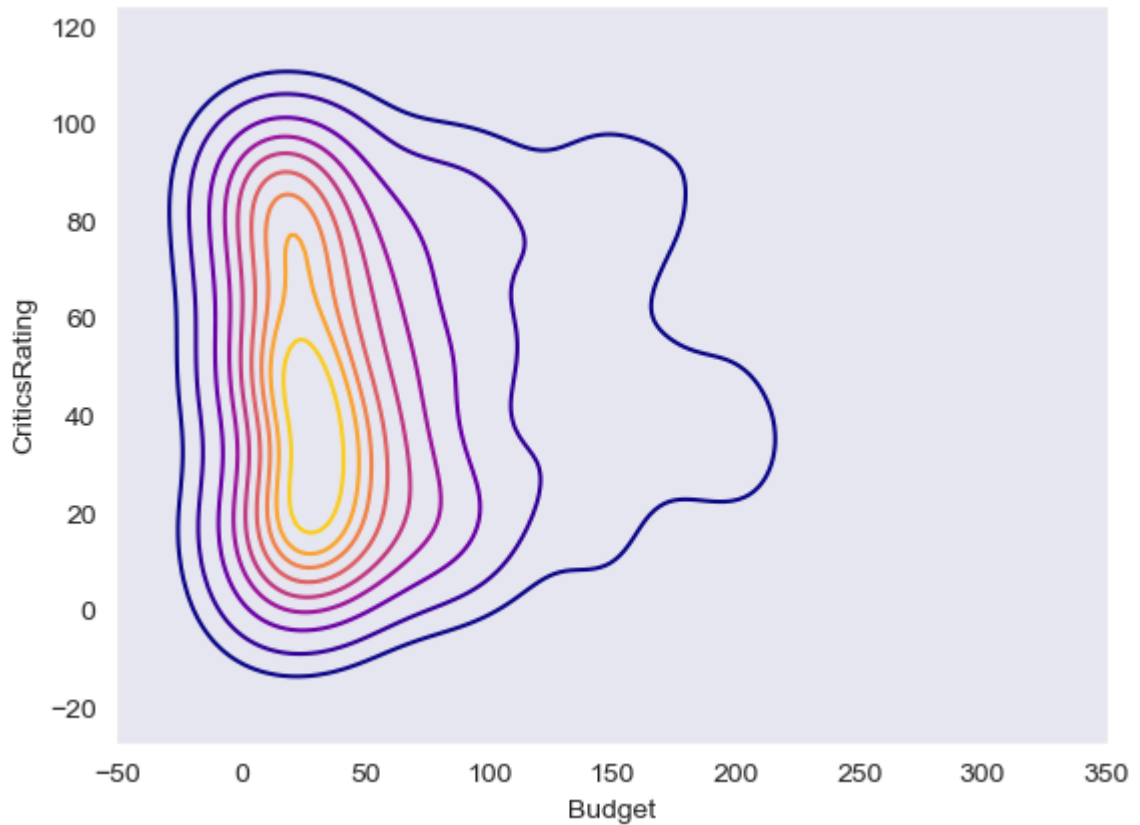
```
In [139...] sns.kdeplot(data= movies,x='Budget',y= 'CriticsRating',cmap='cividis')
```

```
Out[139...] <Axes: xlabel='Budget', ylabel='CriticsRating'>
```

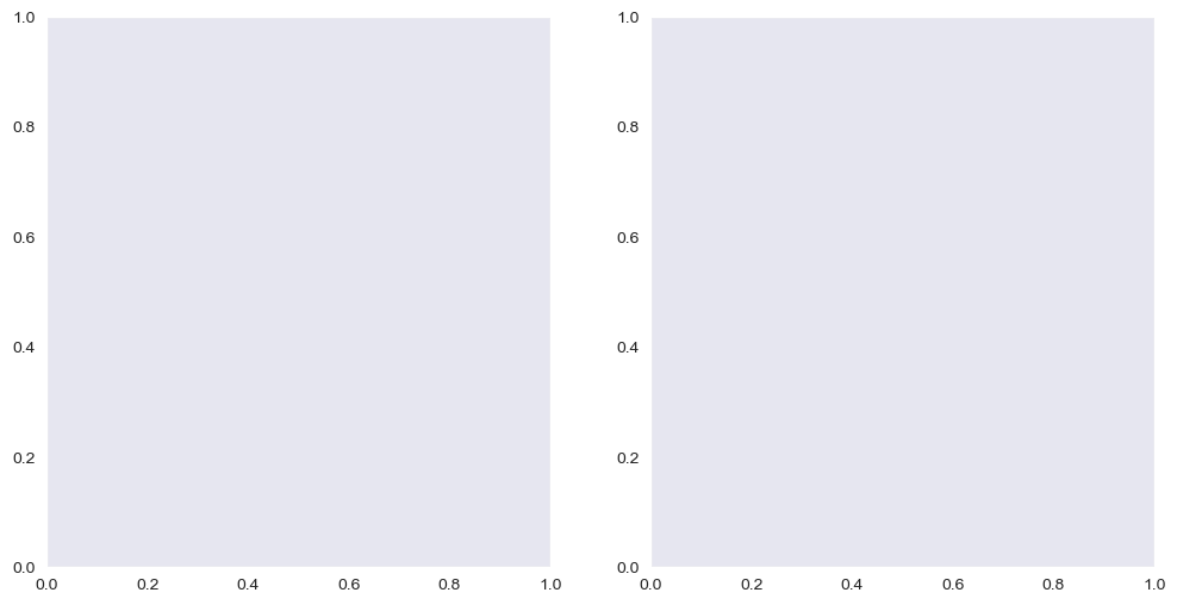


```
In [140...] sns.kdeplot(data= movies,x='Budget',y= 'CriticsRating',cmap='plasma')
```

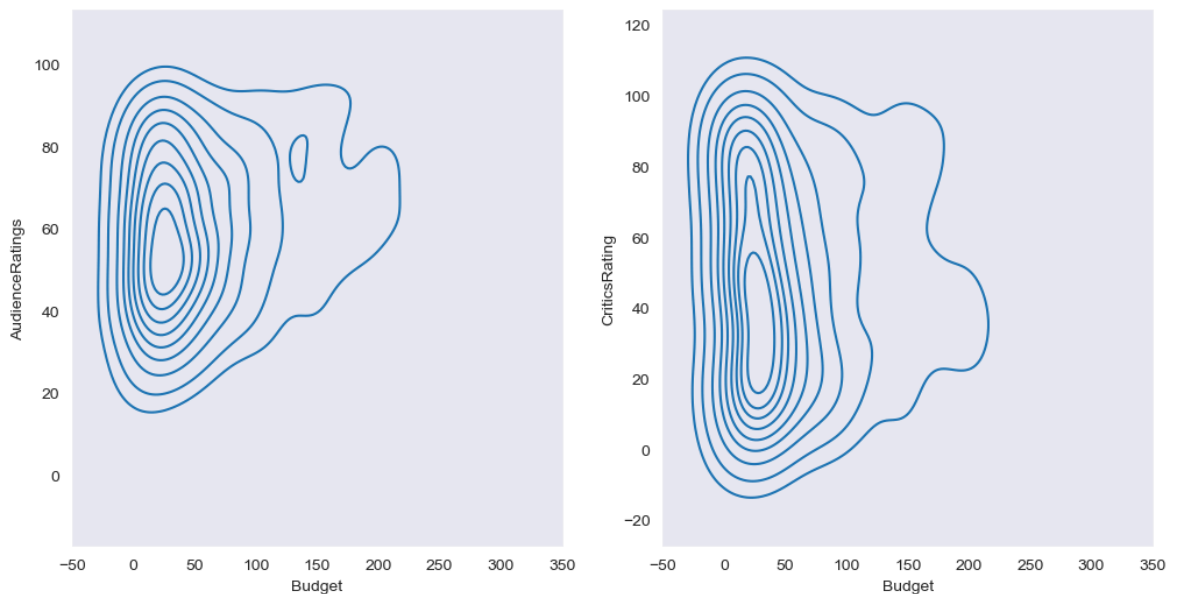
```
Out[140...] <Axes: xlabel='Budget', ylabel='CriticsRating'>
```



```
In [145...] #subplots  
f,ax= plt.subplots(1,2,figsize = (12,6))
```



```
In [146... f, axes = plt.subplots(1,2, figsize = (12,6))
k1= sns.kdeplot(data=movies, x='Budget',y='AudienceRatings',ax= axes[0])
k1= sns.kdeplot(data=movies, x='Budget',y='CriticsRating',ax= axes[1])
```

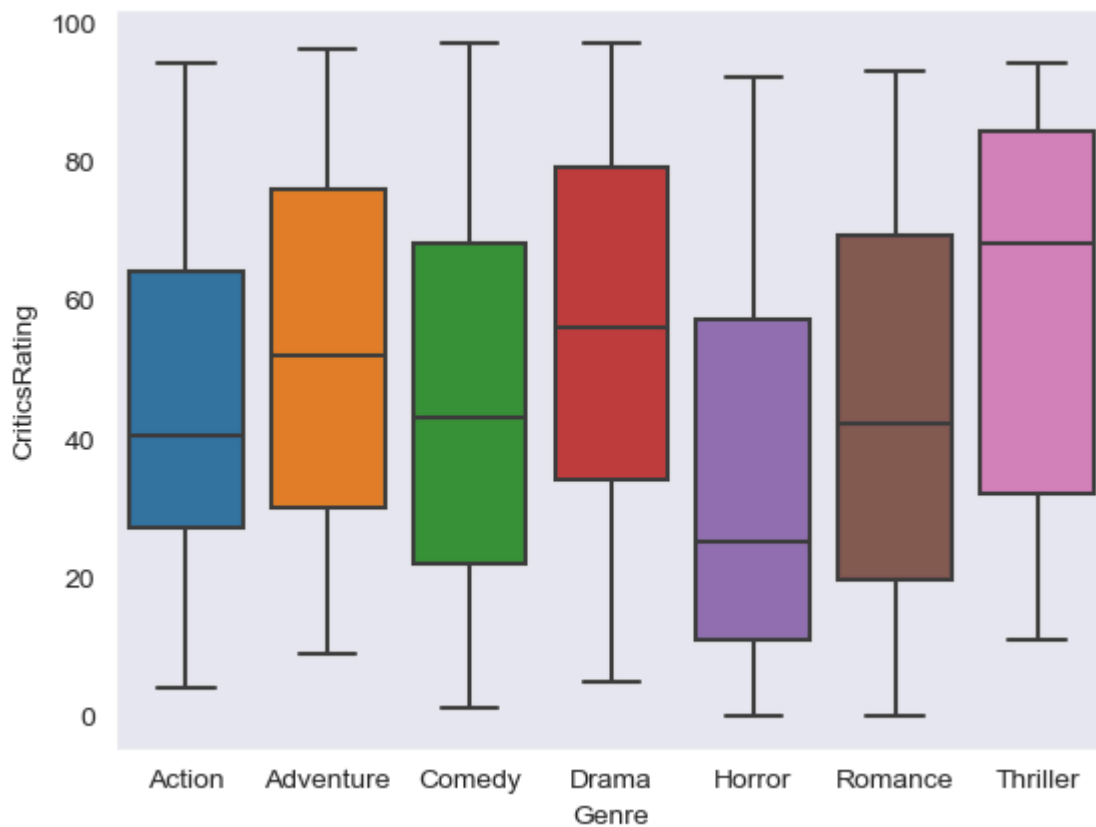


```
In [147... axes
```

```
Out[147... array([<Axes: xlabel='Budget', ylabel='AudienceRatings'>,
      <Axes: xlabel='Budget', ylabel='CriticsRating'>], dtype=object)
```

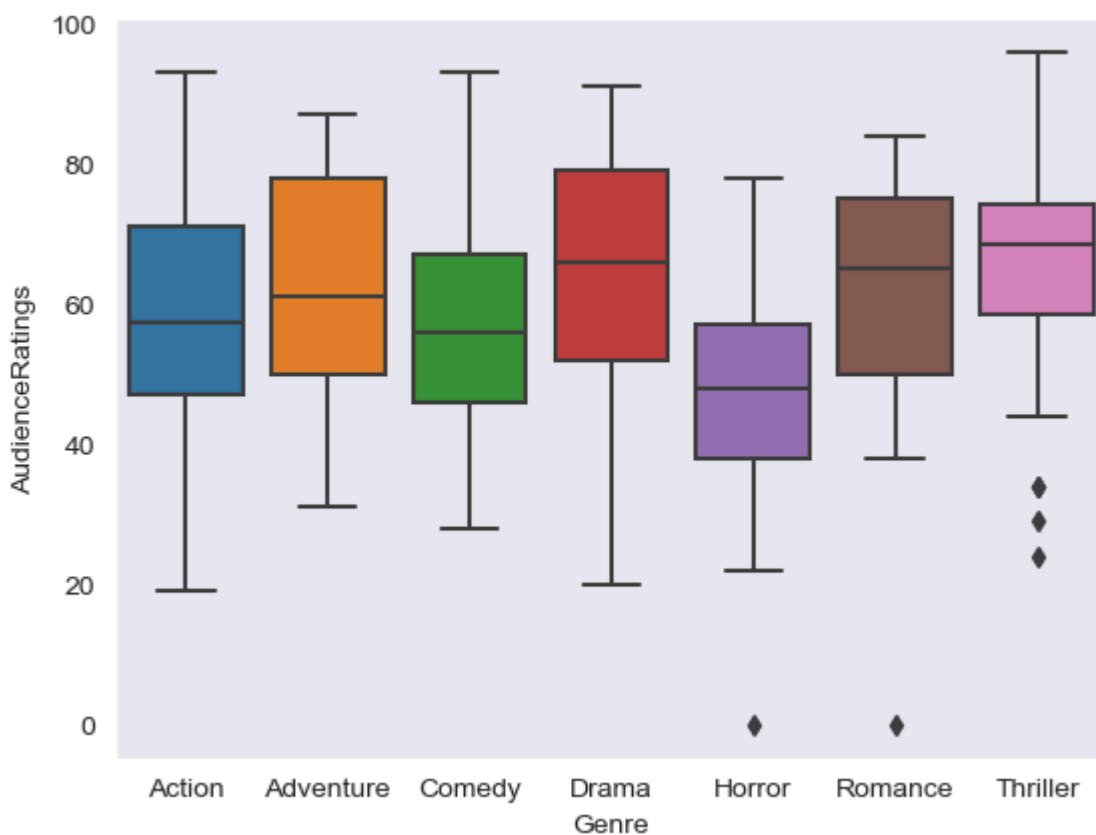
```
In [149... #Boxplot
sns.boxplot(data=movies, x='Genre',y='CriticsRating')
```

```
Out[149... <Axes: xlabel='Genre', ylabel='CriticsRating'>
```



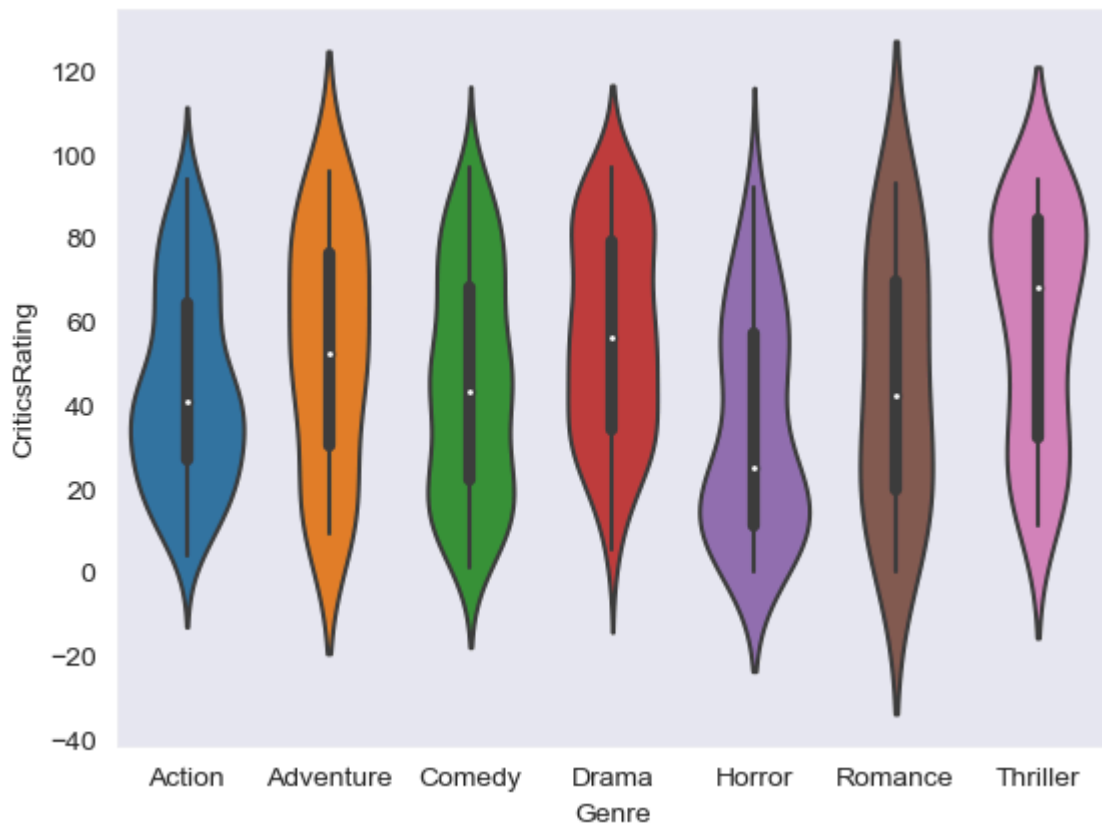
```
In [150...] sns.boxplot(movies,x ='Genre', y = 'AudienceRatings')
```

```
Out[150...] <Axes: xlabel='Genre', ylabel='AudienceRatings'>
```



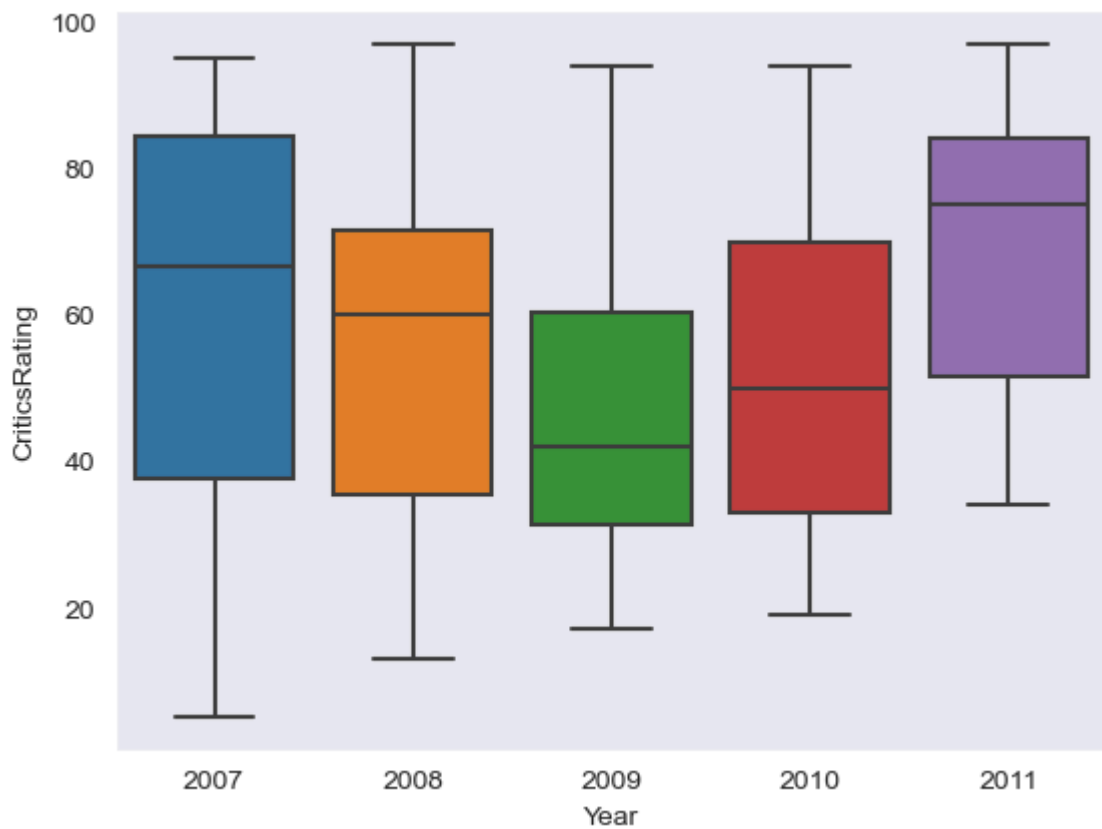
```
In [151...] #violin plot
sns.violinplot(data=movies, x='Genre', y = 'CriticsRating')
```

Out[151... <Axes: xlabel='Genre', ylabel='CriticsRating'>



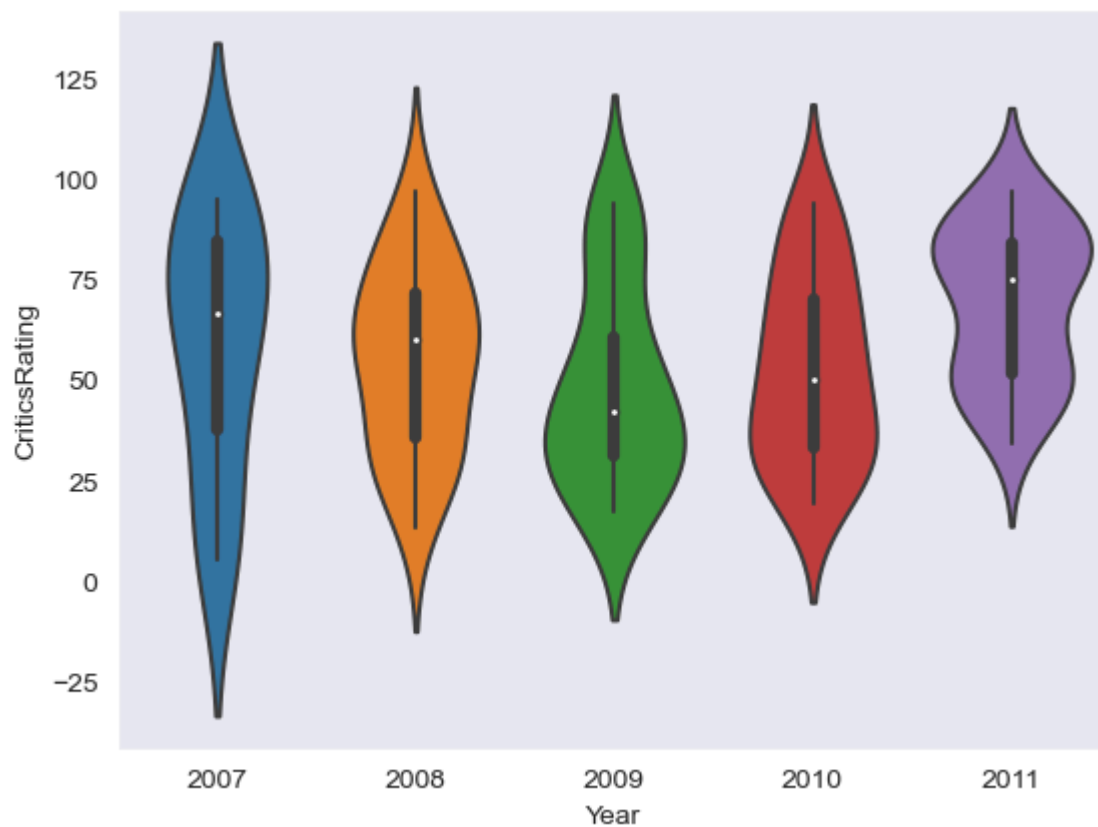
In [152... `sns.boxplot(data=movies[movies.Genre=='Drama'], x='Year', y = 'CriticsRating')`

Out[152... <Axes: xlabel='Year', ylabel='CriticsRating'>



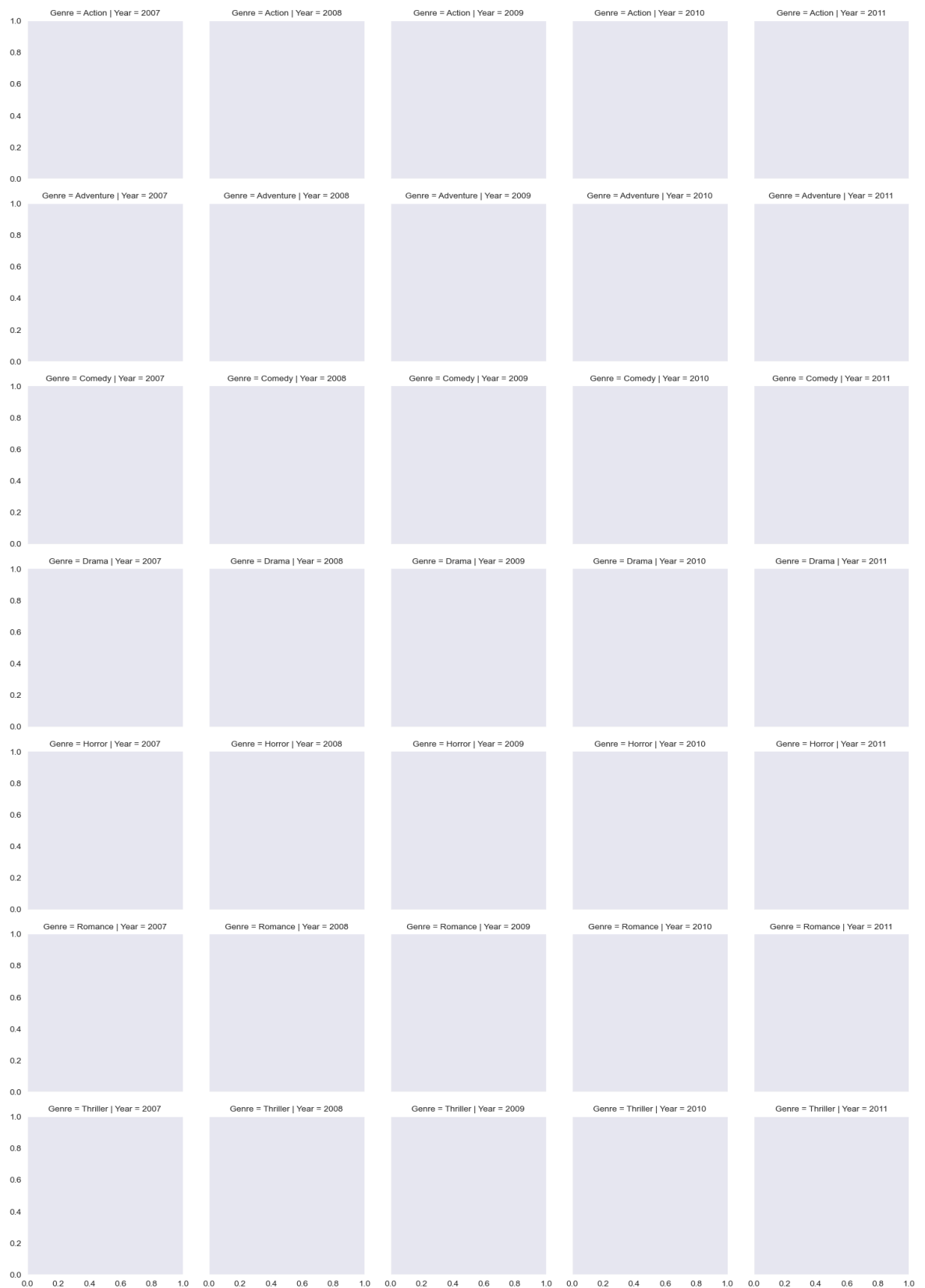
In [153... `sns.violinplot(data=movies[movies.Genre == 'Drama'], x='Year', y = 'CriticsRating')`

Out[153... <Axes: xlabel='Year', ylabel='CriticsRating'>



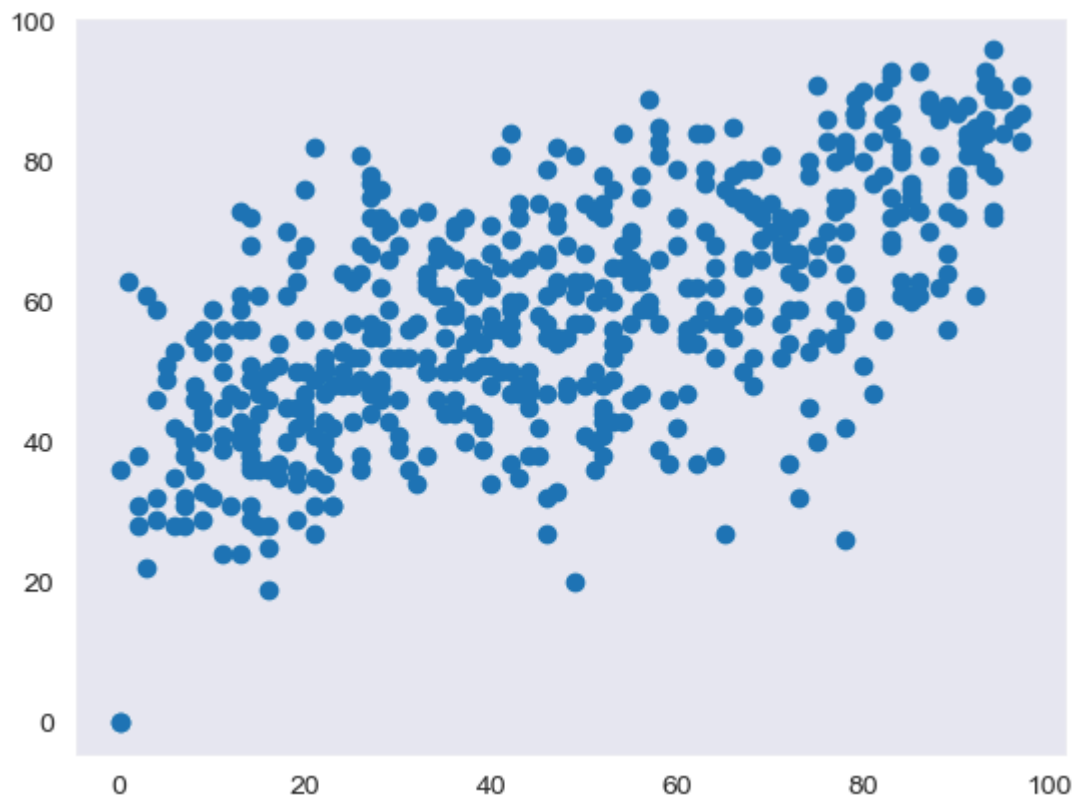
In [154... `sns.FacetGrid(movies, row='Genre', col='Year', hue='Genre')`

Out[154... <seaborn.axisgrid.FacetGrid at 0x272044e1590>



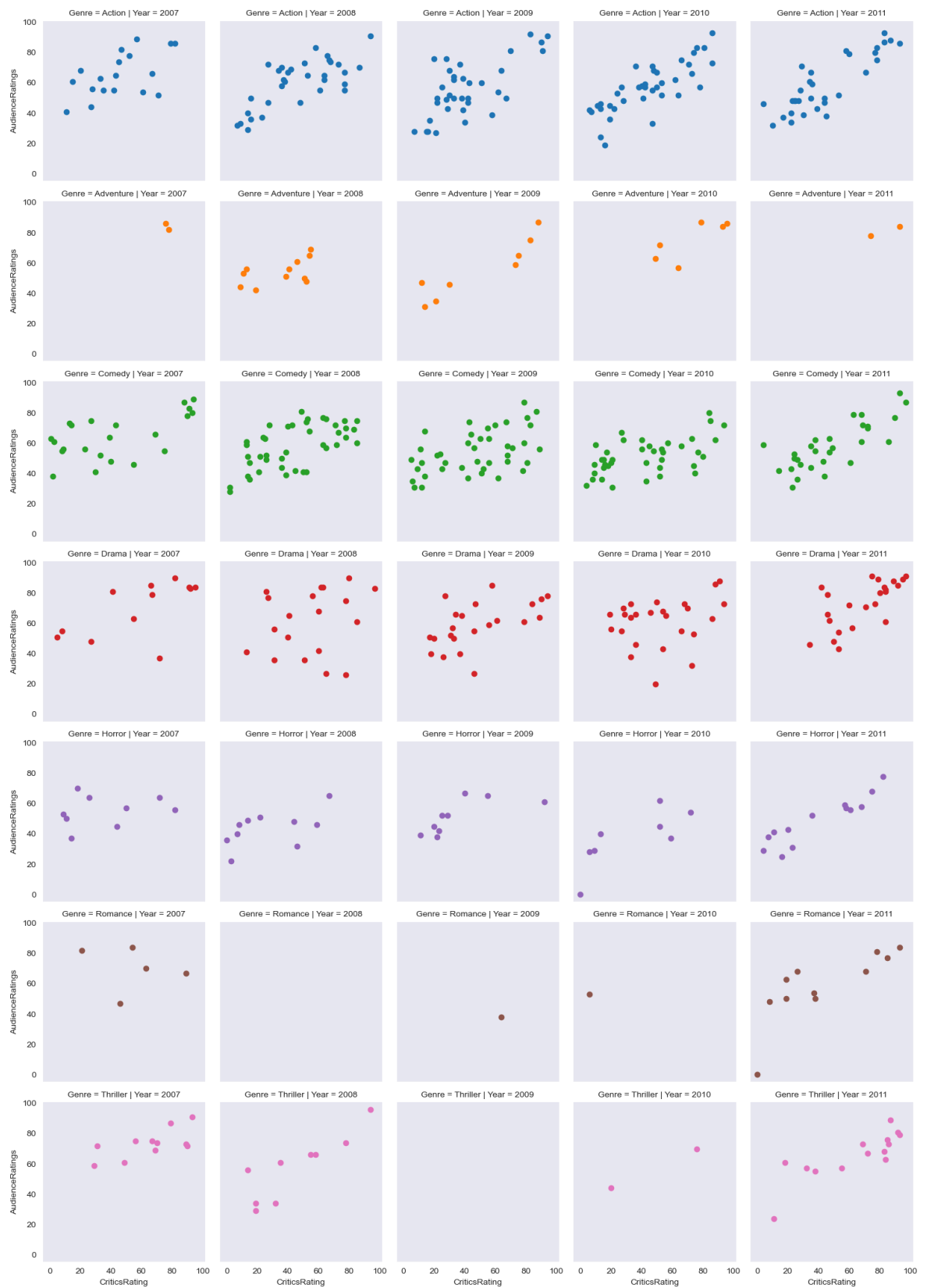
```
In [156... plt.scatter(movies.CriticsRating,movies.AudienceRatings)
```

```
Out[156... <matplotlib.collections.PathCollection at 0x27205d12890>
```



In [159...

```
g = sns.FacetGrid (movies, row = 'Genre', col = 'Year', hue = 'Genre')  
g = g.map(plt.scatter, 'CriticsRating', 'AudienceRatings' ) #scatterplots are ma
```

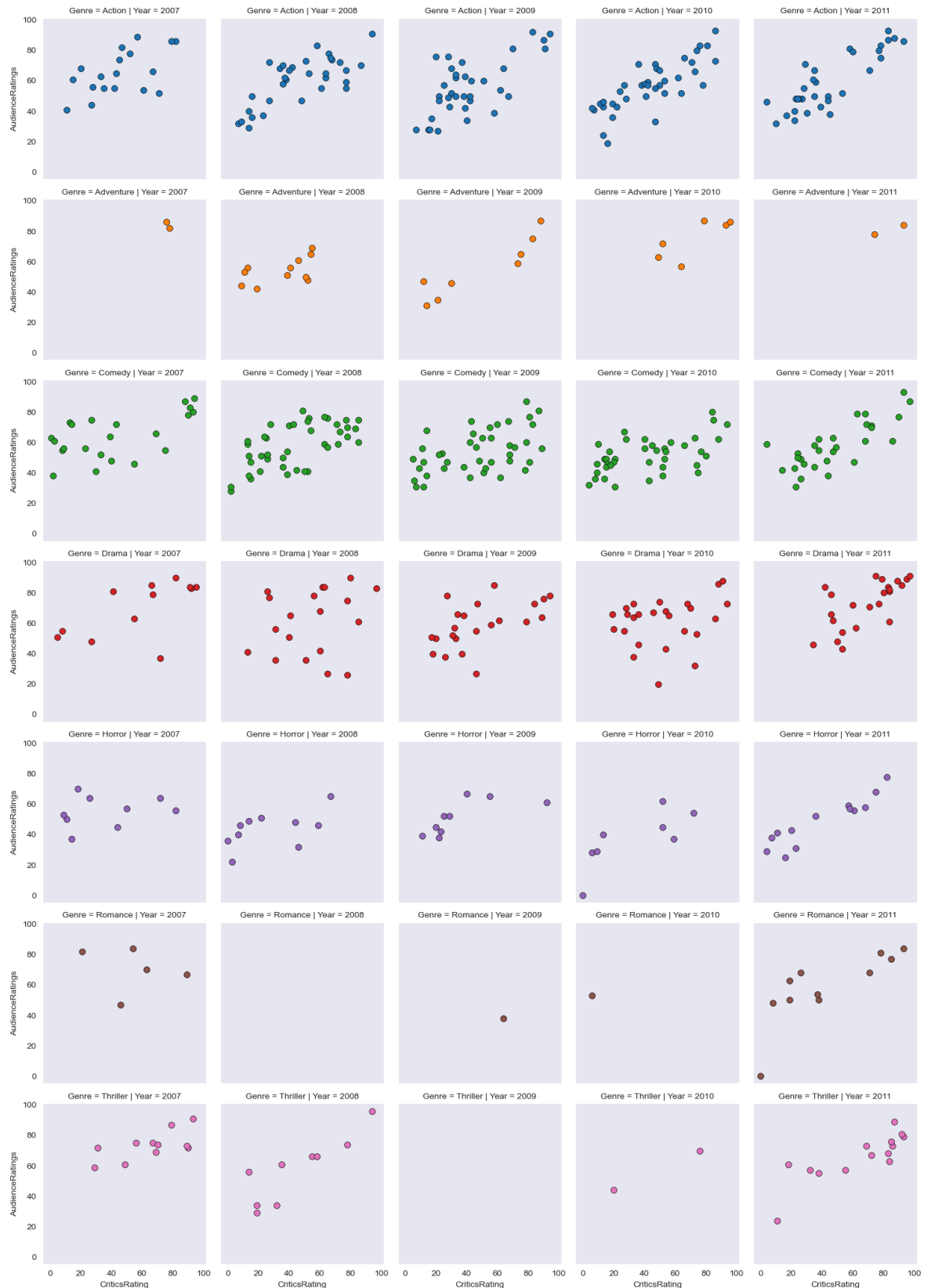
In [160...

```
g = sns.FacetGrid(movies, row='Genre', col='Year', hue='Genre')
g = g.map(plt.hist, 'Budget')
```



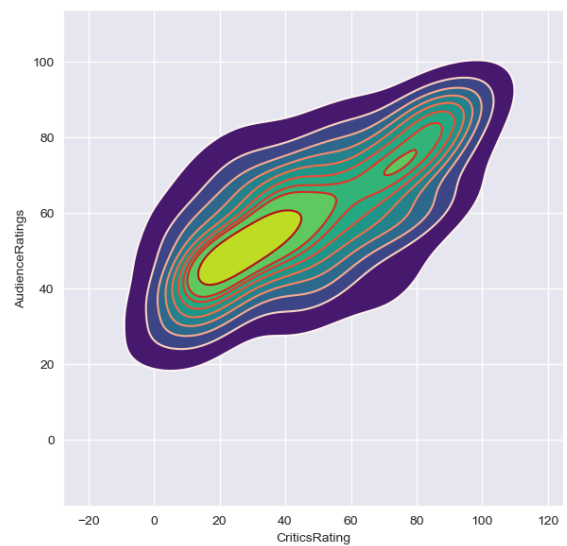
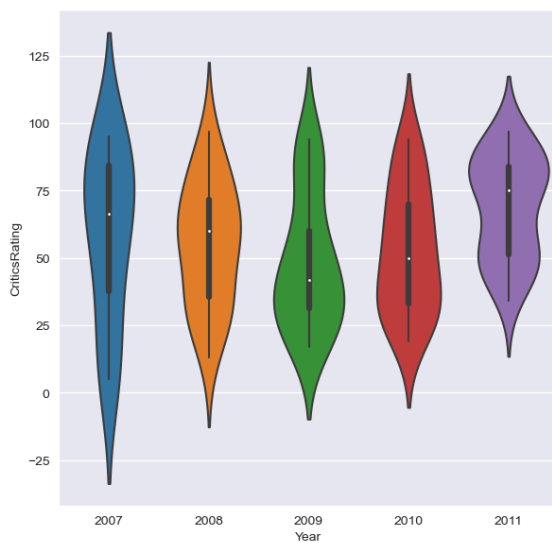
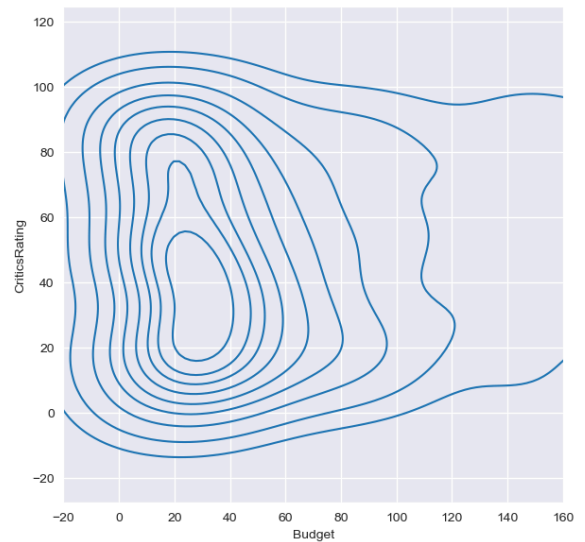
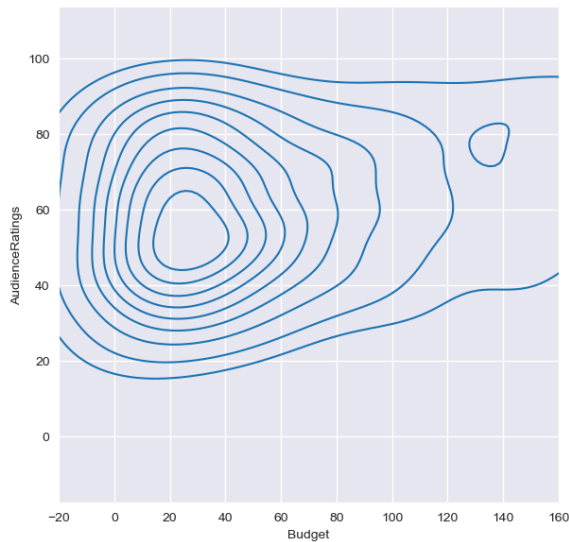
In [161...

```
g = sns.FacetGrid (movies, row = 'Genre', col = 'Year', hue = 'Genre')
kws = dict(s=50, linewidth=0.5, edgecolor='black')
g = g.map(plt.scatter, 'CriticsRating', 'AudienceRatings', **kws ) #scatterplots
```



In [164...

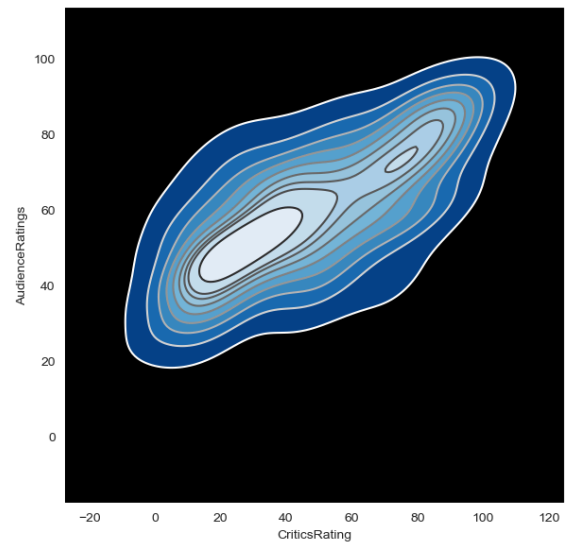
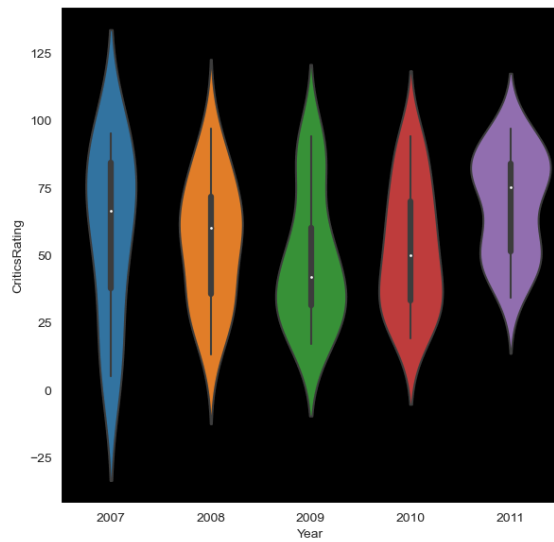
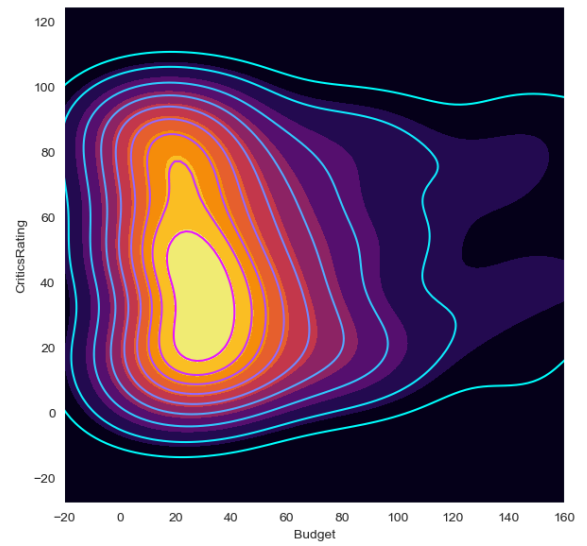
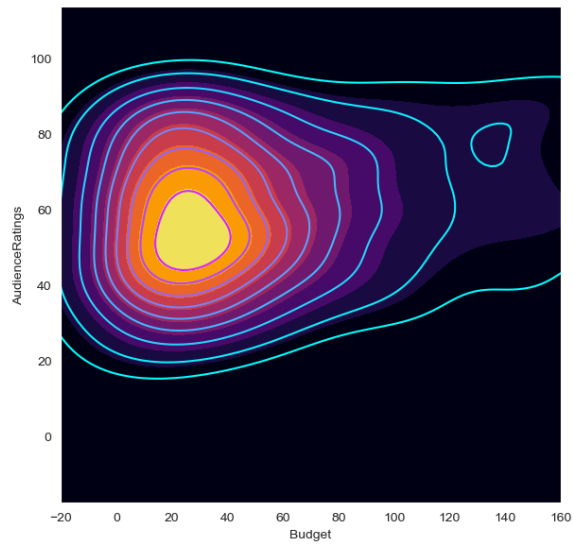
```
sns.set_style('darkgrid')
f, axes = plt.subplots(2,2, figsize = (15,15))
k1 = sns.kdeplot(data= movies,x='Budget',y='AudienceRatings',ax=axes[0,0])
k2 = sns.kdeplot(data=movies,x='Budget',y='CriticsRating',ax = axes[0,1])
k1.set(xlim=(-20,160))
k2.set(xlim=(-20,160))
z = sns.violinplot(movies[movies.Genre=='Drama'], x='Year', y = 'CriticsRating',
k4 = sns.kdeplot(data=movies,x='CriticsRating',y='AudienceRatings',shade = True,
k4b = sns.kdeplot(data=movies,x='CriticsRating',y='AudienceRatings',cmap='Reds',
plt.show()
```



In [165...

```
sns.set_style('dark',{'axes.facecolor':'black'})
f, axes = plt.subplots (2,2, figsize = (15,15))
#plot [0,0]
k1 = sns.kdeplot(data=movies,x='Budget',y='AudienceRatings', \
shade = True, shade_lowest=True,cmap = 'inferno', \
ax = axes[0,0])
k1b = sns.kdeplot(data=movies,x='Budget',y='AudienceRatings', \
cmap = 'cool',ax = axes[0,0])
#plot [0,1]
k2 = sns.kdeplot(data=movies,x='Budget',y='CriticsRating', \
shade=True, shade_lowest=True, cmap='inferno', \
ax = axes[0,1])
k2b = sns.kdeplot(data=movies,x='Budget',y='CriticsRating', \
cmap = 'cool', ax = axes[0,1])
#plot[1,0]
z = sns.violinplot(data=movies[movies.Genre=='Drama'], \
x='Year', y = 'CriticsRating', ax=axes[1,0])
#plot[1,1]
k4 = sns.kdeplot(data=movies,x='CriticsRating',y='AudienceRatings', \
shade = True,shade_lowest=False,cmap='Blues_r', \
ax=axes[1,1])
k4b = sns.kdeplot( data=movies,x='CriticsRating',y='AudienceRatings', \
cmap='gist_gray_r',ax = axes[1,1])
k1.set(xlim=(-20,160))
```

```
k2.set(xlim=(-20,160))  
plt.show()
```



In []: