EDA_MOVIE_RATINGS_ADVANCE_VISUALIZATI using seaborn, matplotlib, pandas

Final discussion what we learn so far

- 1> category datatype in python
- 2> jointplots
- 3> histogram
- 4> stacked histograms
- 5> Kde plot
- 6> subplot
- 7> violin plots
- 8> Factet grid
- 9> Building dashboards

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

In [2]:
```
os.getcwd() # if you want to change the working directory
```

Out[2]:
```
'C:\\Users\\Hp\\Desktop\\NAYAN\\DATA SCIENCE\\TASKS_PROJECTS'
```

In [3]:
```
movies = pd.read_csv(r"C:\Users\Hp\Desktop\NAYAN\DATA SCIENCE\CSV_FILES\Movie-
```

In [4]:
```
movies
```

Out[4]:

	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 [5]:
```
len(movies)
```

Out[5]:
```
559
```

In [6]:
```
movies.shape
```

Out[6]:
```
(559, 6)
```

In [7]:
```
movies.head()
```

Out[7]:

	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

In [8]:
```
movies.tail()
```

Out[8]:

	Film	Genre	Rotten Tomatoes Ratings %	Audience Ratings %	Budget (million $)	Year of release
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

In [9]:
```
movies.columns
```

Out[9]:
```
Index(['Film', 'Genre', 'Rotten Tomatoes Ratings %', 'Audience Ratings %',
       'Budget (million $)', 'Year of release'],
      dtype='object')
```

In [10]:
```
movies.columns = ['Film', 'Genre', 'CriticRating', 'AudienceRating','BudgetMil
```

In [11]:
```
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   CriticRating    559 non-null    int64 
 3   AudienceRating  559 non-null    int64 
 4   BudgetMillions  559 non-null    int64 
 5   Year            559 non-null    int64 
dtypes: int64(4), object(2)
memory usage: 26.3+ KB
```

In [12]:
```
movies.describe()
# if you look at the year the data type is int but when you look at the mean v
```

Out[12]:

	CriticRating	AudienceRating	BudgetMillions	Year
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

we have to change to category type from object datatype we will convert to category datatypes

In [13]:
```
movies['Film']
# movies['Audience Ratings %']
```

Out[13]:
```
0      (500) Days of Summer
1                10,000 B.C.
2                 12 Rounds
3                  127 Hours
4                  17 Again
              ...
554           Your Highness
555         Youth in Revolt
556                  Zodiac
557             Zombieland
558               Zookeeper
Name: Film, Length: 559, dtype: object
```

In [14]:
```
movies.Film
```

Out[14]:
```
0      (500) Days of Summer
1                10,000 B.C.
2                 12 Rounds
3                  127 Hours
4                  17 Again
              ...
554            Your Highness
555          Youth in Revolt
556                   Zodiac
557              Zombieland
558                Zookeeper
Name: Film, Length: 559, dtype: object
```

In [15]:
```
movies.Film = movies.Film.astype('category')
movies.Film
```

Out[15]:
```
0      (500) Days of Summer
1                10,000 B.C.
2                 12 Rounds
3                  127 Hours
4                  17 Again
              ...
554            Your Highness
555          Youth in Revolt
556                   Zodiac
557              Zombieland
558                Zookeeper
Name: Film, Length: 559, dtype: category
Categories (559, object): ['(500) Days of Summer ', '10,000 B.C.', '12 Round
s ', '127 Hours', ..., 'Youth in Revolt', 'Zodiac', 'Zombieland ', 'Zookeepe
r']
```

In [16]:
```
# now the same thing we will change genra to category & year to category
```

In [17]:
```
movies.Genre = movies.Genre.astype('category')
movies.Genre
```

Out[17]:
```
0         Comedy
1      Adventure
2         Action
3      Adventure
4         Comedy
           ...
554       Comedy
555       Comedy
556     Thriller
557       Action
558       Comedy
Name: Genre, Length: 559, dtype: category
Categories (7, object): ['Action', 'Adventure', 'Comedy', 'Drama', 'Horror',
'Romance', 'Thriller']
```

In [18]:
```
movies.Year = movies.Year.astype('category')
movies.Year  # is it real no. year you can take average,min,max but out come h
```

Out[18]:
```
0      2009
1      2008
2      2009
3      2010
4      2009
       ...
554    2011
555    2009
556    2007
557    2009
558    2011
Name: Year, Length: 559, dtype: category
Categories (5, int64): [2007, 2008, 2009, 2010, 2011]
```

In [19]:
```
movies.info()  # now Film, Genre, and Year has converted to category
```

```
<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    category
 1   Genre           559 non-null    category
 2   CriticRating    559 non-null    int64   
 3   AudienceRating  559 non-null    int64   
 4   BudgetMillions  559 non-null    int64   
 5   Year            559 non-null    category
dtypes: category(3), int64(3)
memory usage: 36.5 KB
```

In [20]:
```
movies.describe()
#now when you see the describt you will get only integer value mean, standard
```

Out[20]:

	CriticRating	AudienceRating	BudgetMillions
count	559.000000	559.000000	559.000000
mean	47.309481	58.744186	50.236136
std	26.413091	16.826887	48.731817
min	0.000000	0.000000	0.000000
25%	25.000000	47.000000	20.000000
50%	46.000000	58.000000	35.000000
75%	70.000000	72.000000	65.000000
max	97.000000	96.000000	300.000000

In [21]:
```
movies.Genre.cat.categories  # .cat.categories will give you the unique catego
```

Out[21]:
```
Index(['Action', 'Adventure', 'Comedy', 'Drama', 'Horror', 'Romance',
       'Thriller'],
      dtype='object')
```

In [22]:
```
# How to working with joint plots
from matplotlib import pyplot as plt
import seaborn as sns
```

In [23]:
```
%matplotlib inline
```

In [24]:
```
import warnings
warnings.filterwarnings('ignore')
```

In [25]:
```
movies
```

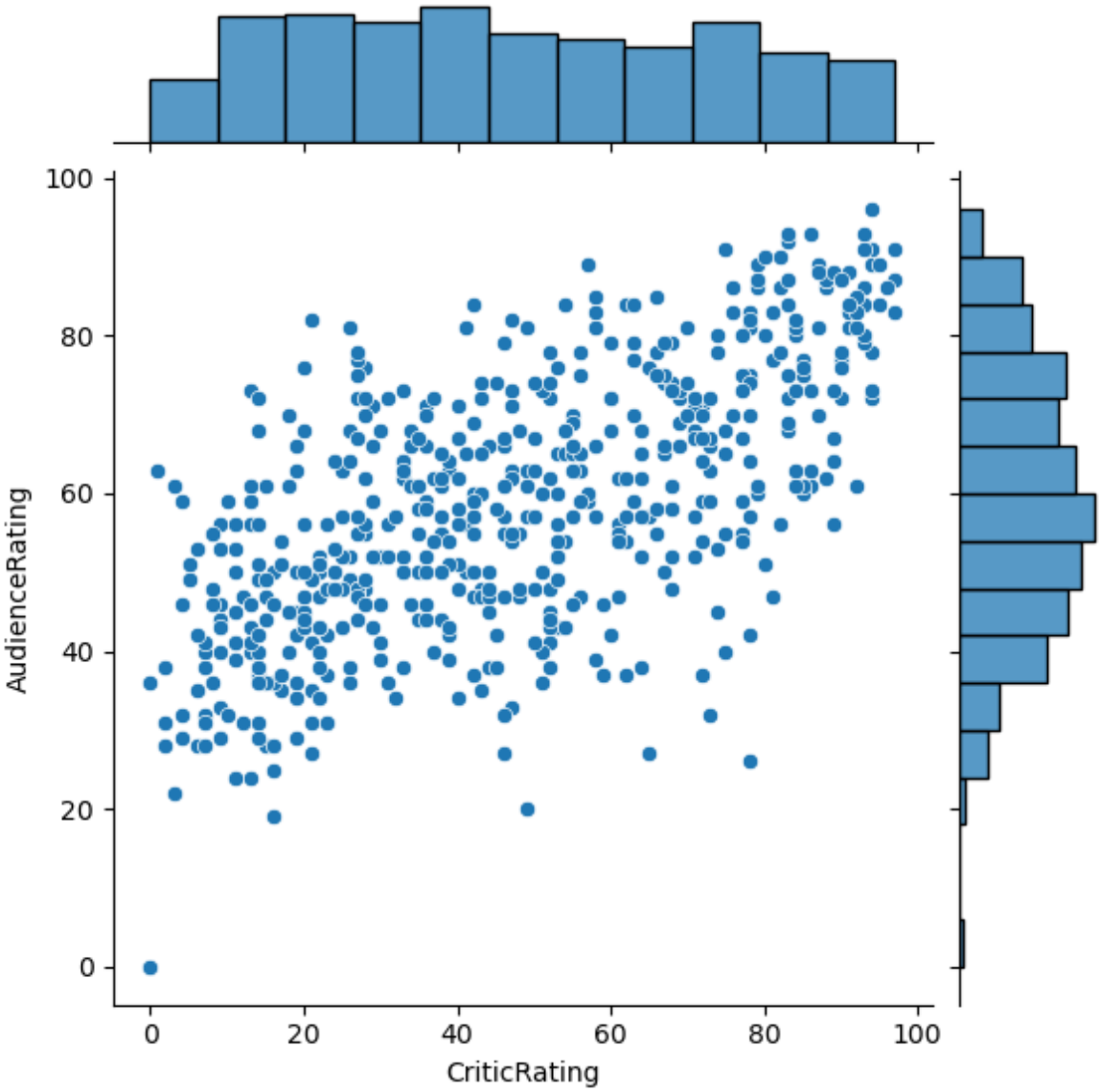
Out[25]:

	Film	Genre	CriticRating	AudienceRating	BudgetMillions	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

- basically joint plot is a scatter plot & it find the relation b/w audiene & critics
- also if you look up you can find the uniform distribution (critics)and normal distriution (audience)

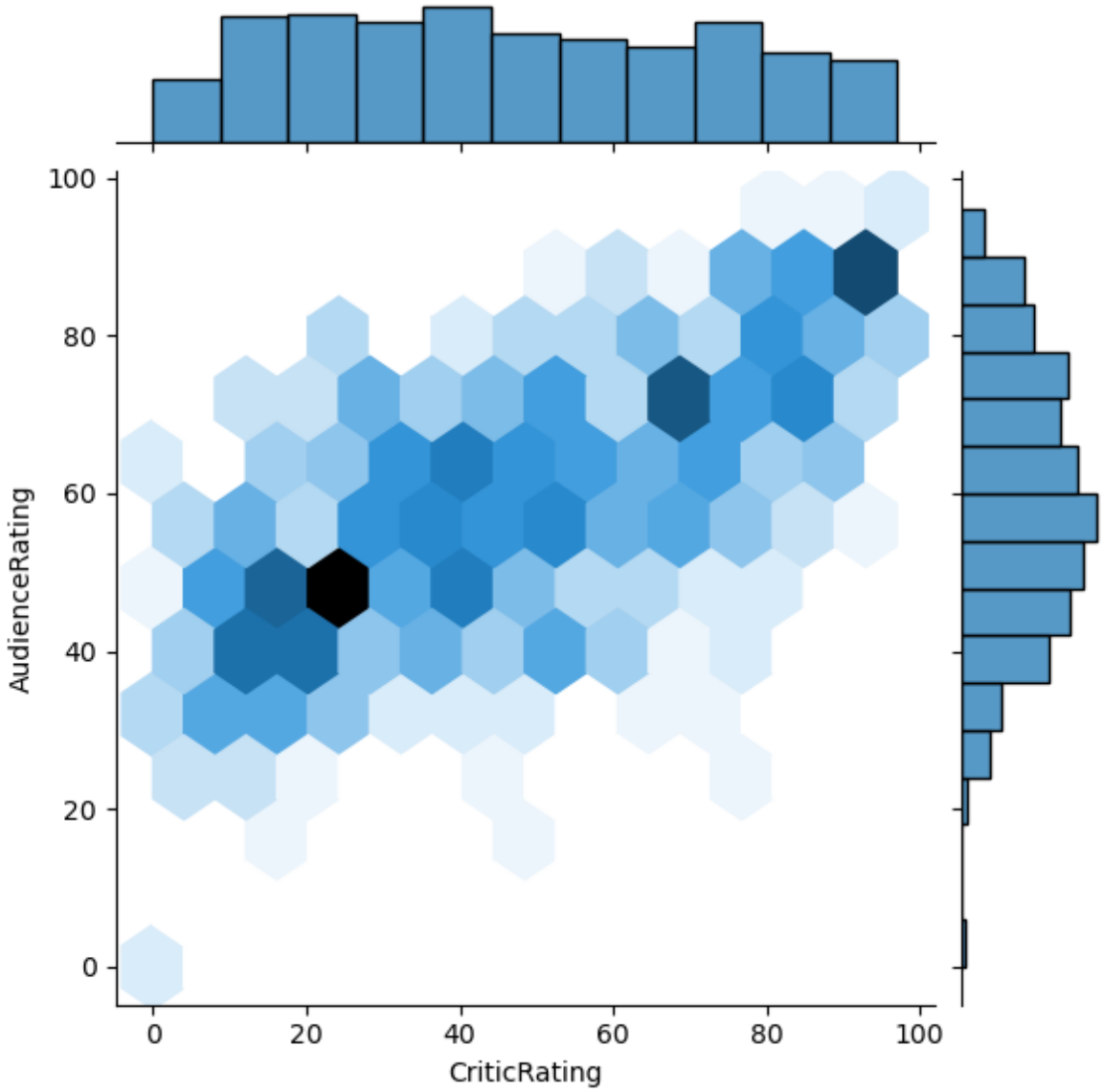
In [26]:
```
j = sns.jointplot(data = movies, x = 'CriticRating', y = 'AudienceRating')
```



Interpretation

- Moderate Positive Correlation
- Audience rating is more dominant then critics rating
- Based on this we find out as most people are most liklihood to watch audience rating & less likely to wathc critics rating
- let me explain the excel - if you filter audience rating & critic rating. critic rating has very low values compare to audience rating

In [27]:
```
j = sns.jointplot(data= movies, x = 'CriticRating', y = 'AudienceRating', kinc
```



In [28]:
```
movies
```

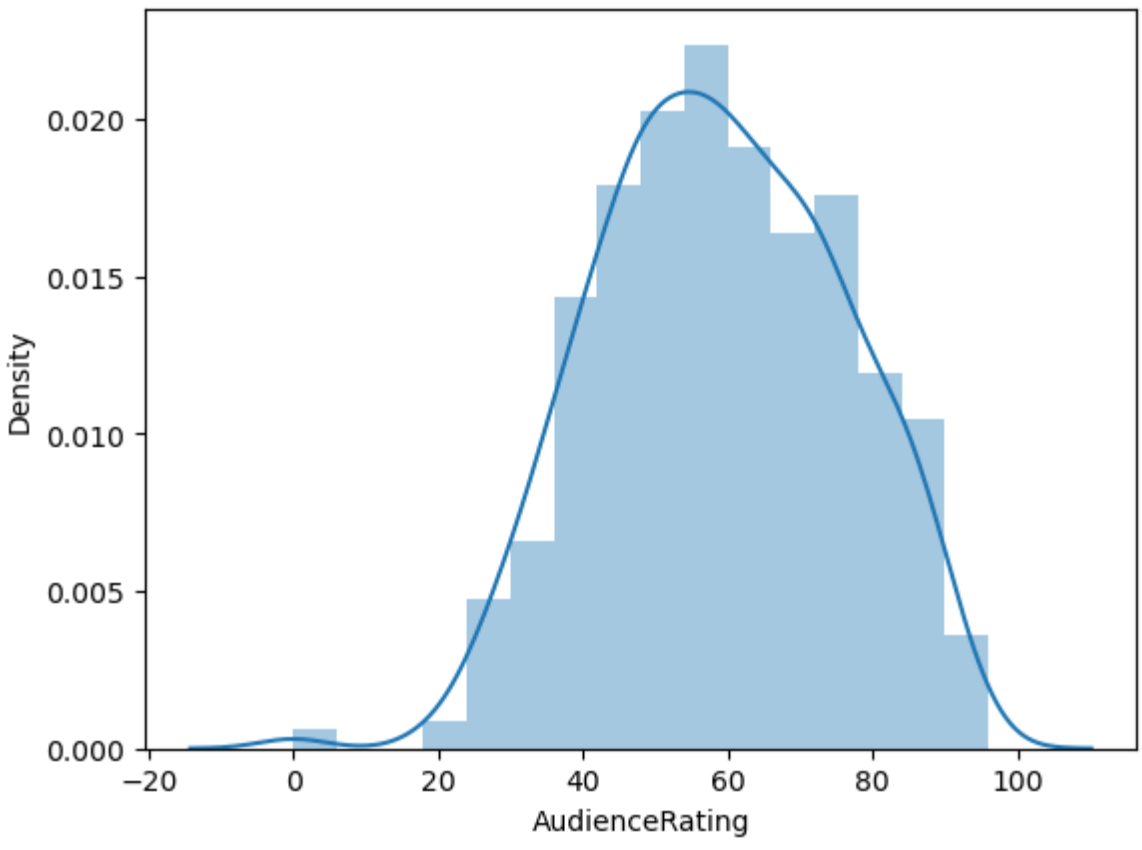
Out[28]:

	Film	Genre	CriticRating	AudienceRating	BudgetMillions	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

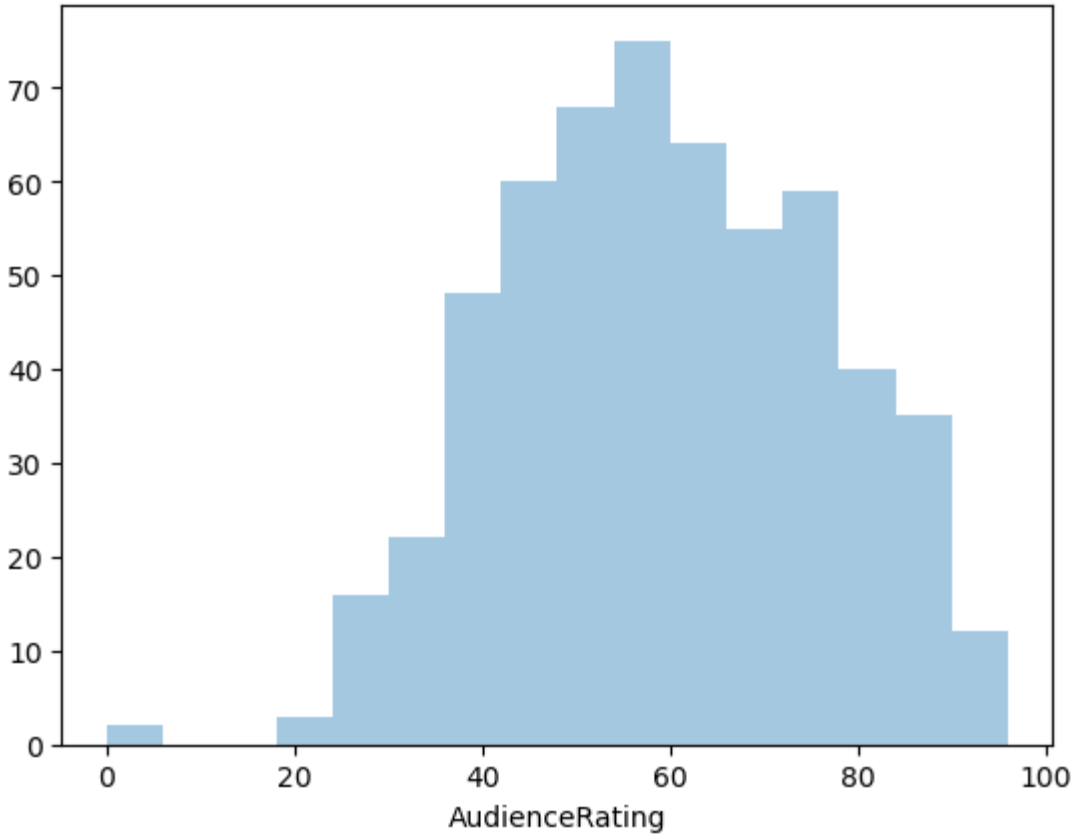
Plot distplot in Seaborn

In [29]:
```
# Histograms
m1 = sns.distplot(movies.AudienceRating)
#y - axis generated by seaborn automatically that is the powefull of seaborn g
```

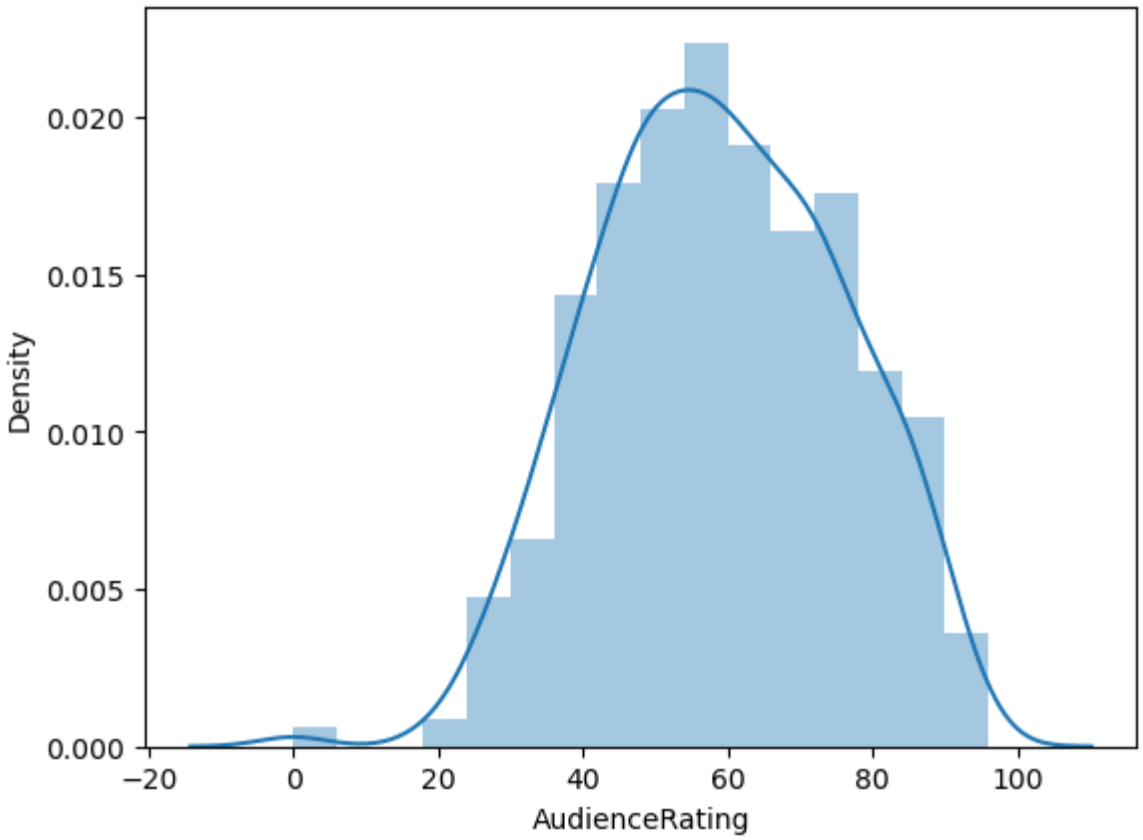


.distplot -->> When you run this code, it will produce a distribution plot showing the distribution of the data, including both the histogram and the kernel density estimate.

In [30]:
```
m1 = sns.distplot(movies.AudienceRating, kde=False)
```



In [31]:
```
m1 = sns.distplot(movies.AudienceRating, kde=True)
```



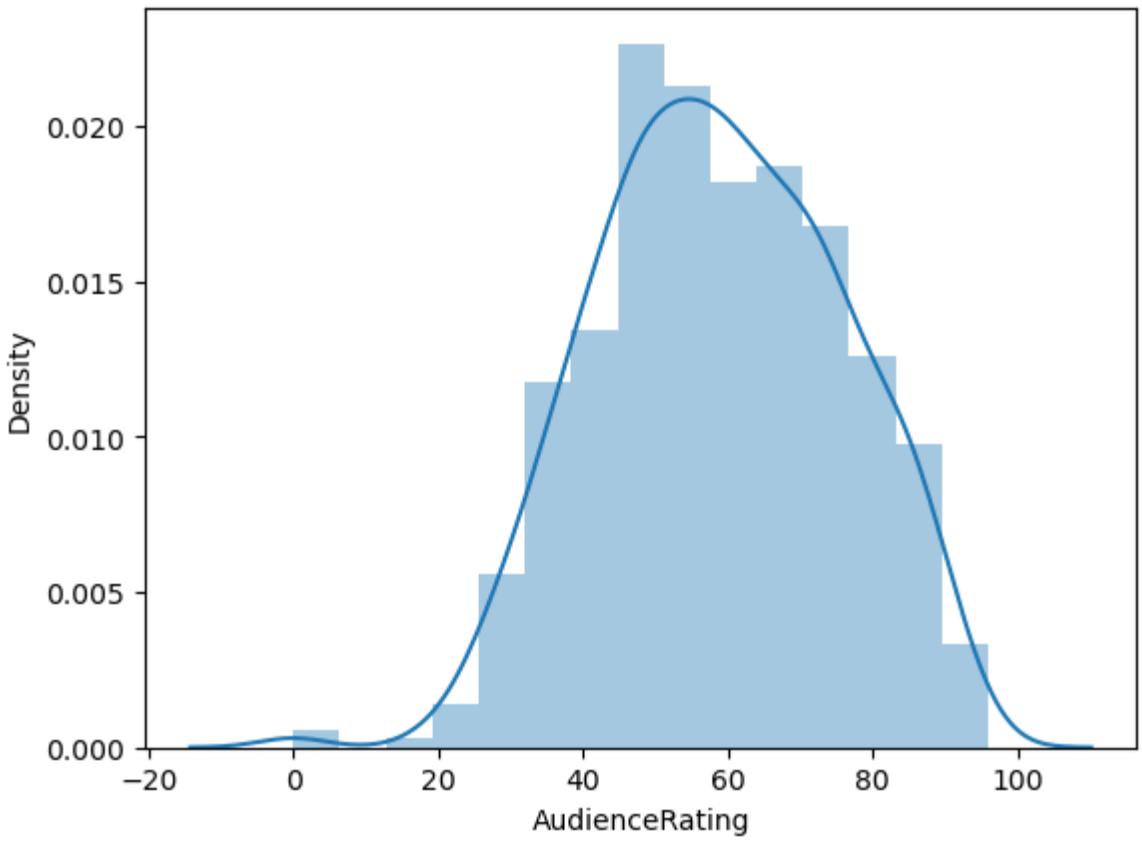
In [32]:
```
movies.AudienceRating.count
```

Out[32]:
```
<bound method Series.count of 0      81
1      44
2      52
3      84
4      70
       ..
554    36
555    52
556    73
557    87
558    42
Name: AudienceRating, Length: 559, dtype: int64>
```

In [33]:
```
movies.AudienceRating.unique()
```

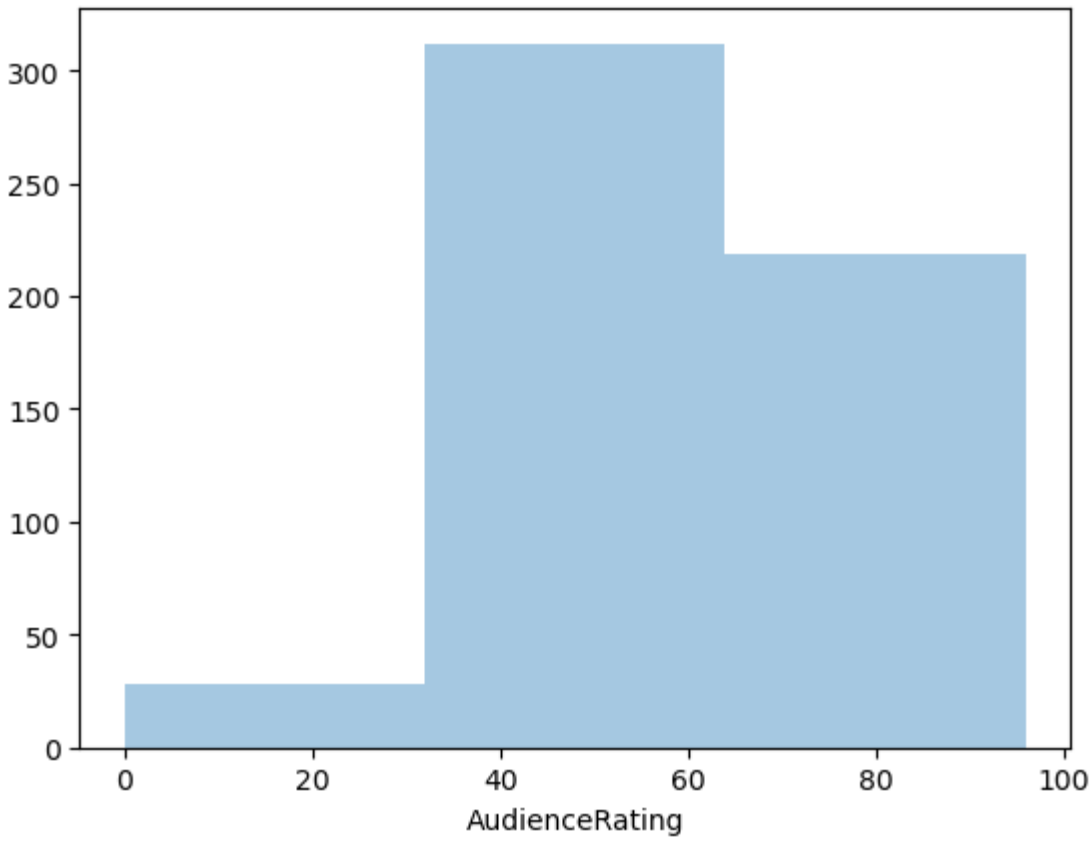
Out[33]:
```
array([81, 44, 52, 84, 70, 63, 71, 57, 48, 93, 51, 89, 40, 64, 46, 56, 43,
       72, 37, 35, 87, 78, 66, 31, 55, 34, 49, 69, 92, 74, 59, 32, 38, 60,
       33, 50, 80, 86, 65, 77, 47, 62, 75, 42, 61, 67, 53, 45, 54, 58, 28,
       79, 76, 83, 73, 68, 36, 90, 85, 82, 91, 24, 26, 41, 29, 27,  0, 39,
       25, 19, 20, 96, 88, 22], dtype=int64)
```

In [34]:
```
m1 = sns.distplot(movies.AudienceRating, kde=True, bins=15)
```

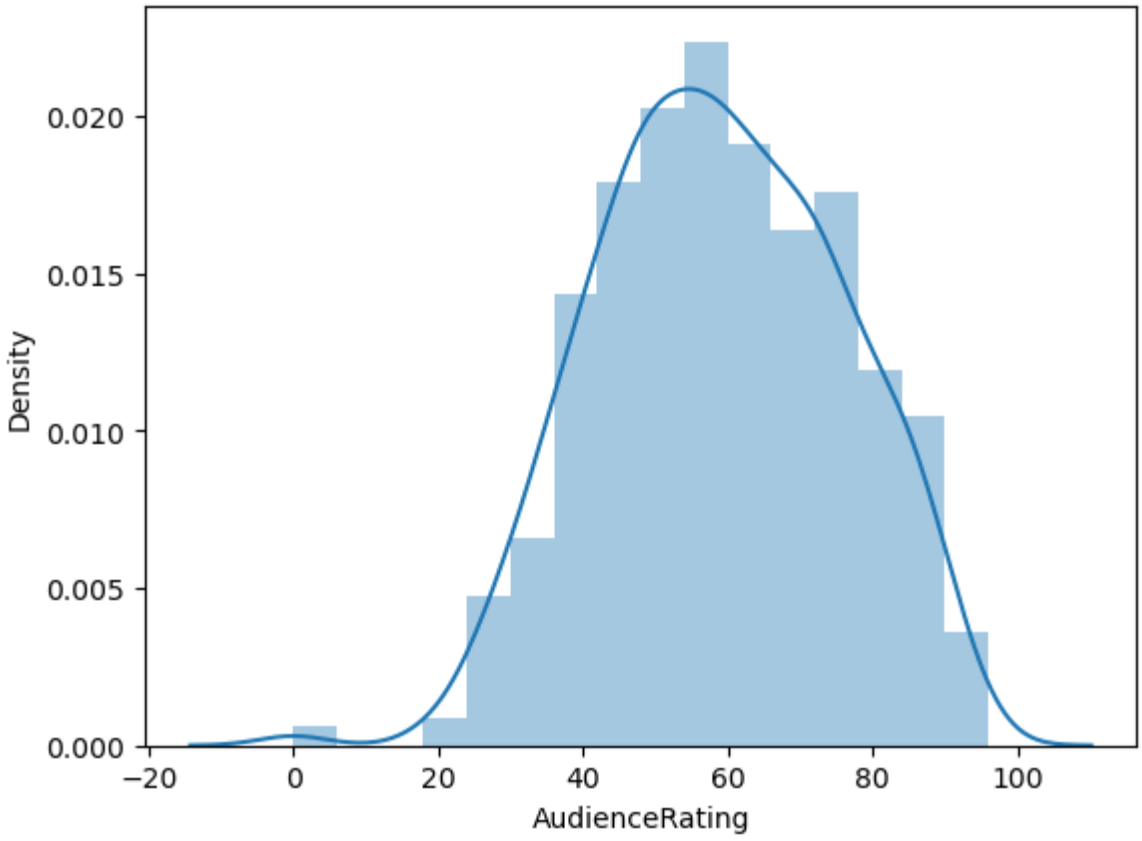


The towers or bars of a histogram are called bins. The height of each bin shows how many values from that data fall into that range. Width of each bin is = (max value of data – min value of data) / total number of bins. The default value of the number of bins to be created in a histogram is 10.

In [35]:
```
m1 = sns.distplot(movies.AudienceRating, kde=False, bins=3)
```

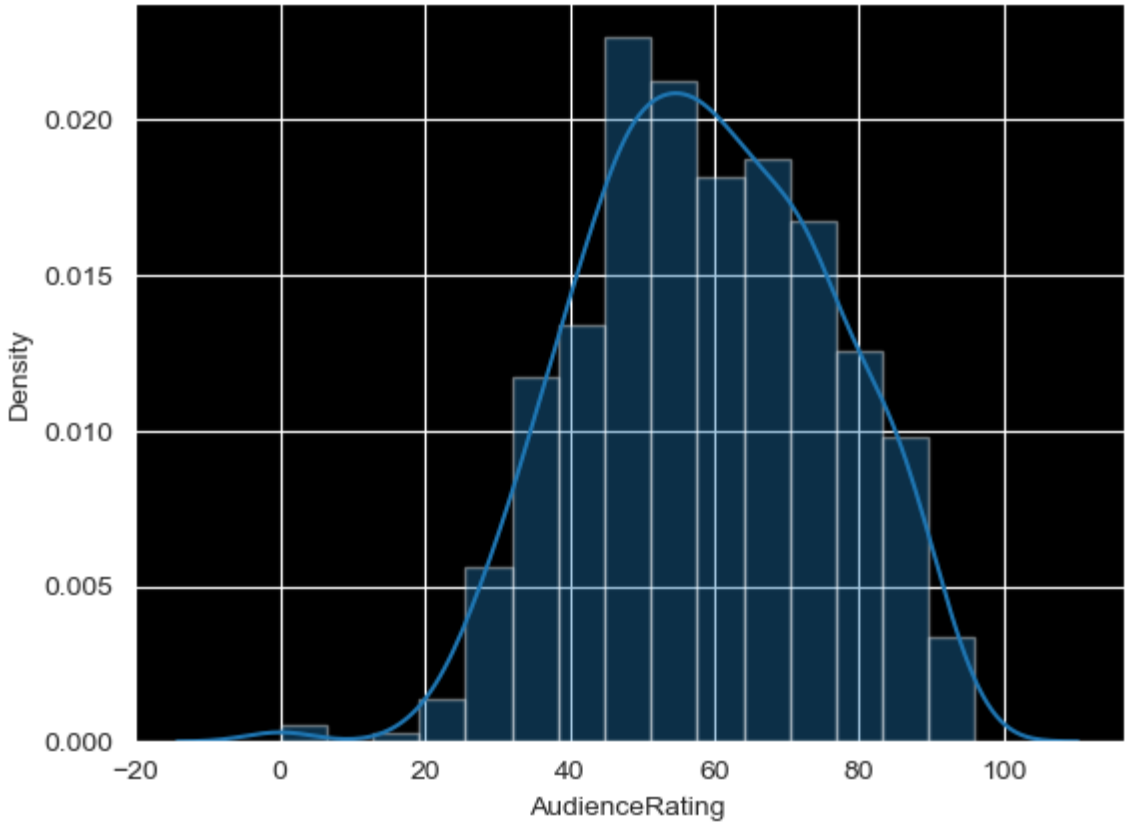


In [36]:
```
m1 = sns.distplot(movies.AudienceRating, kde=True, norm_hist=True)
```

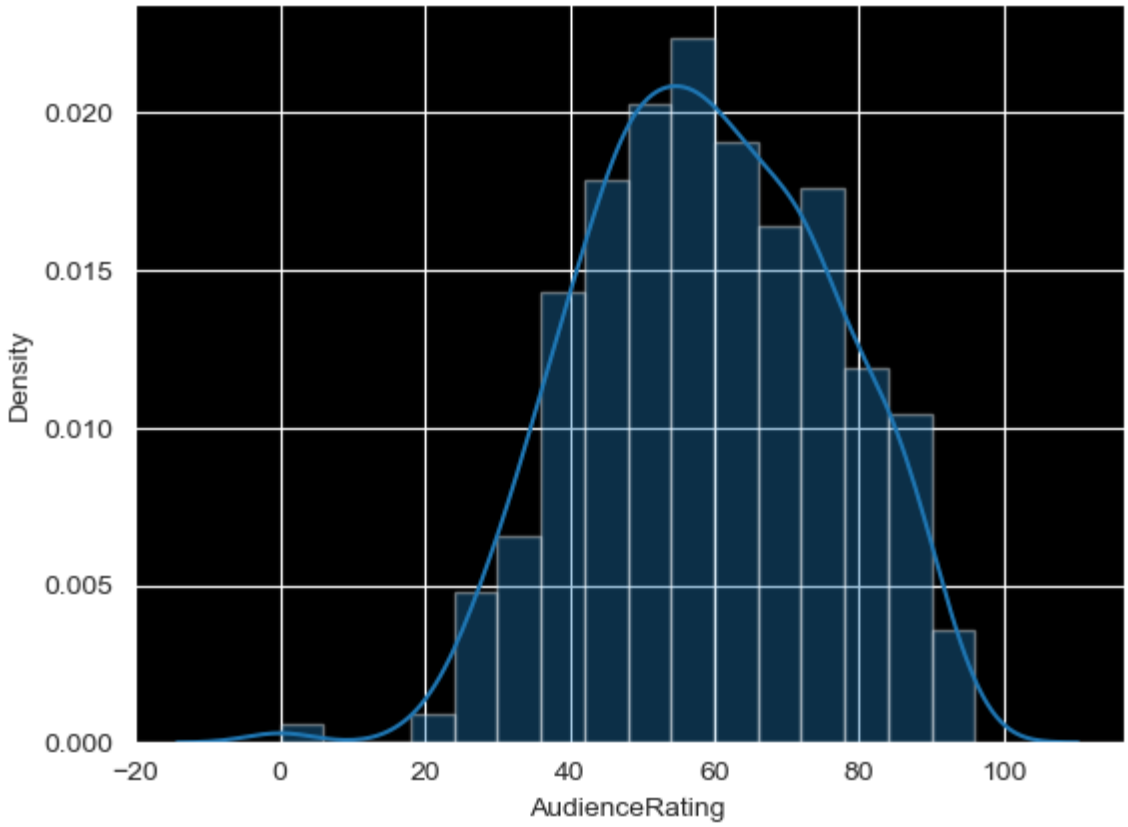


In [37]:
```
sns.set_style('darkgrid', {'axes.facecolor' : 'black'})
```

In [38]:
```
m2 = sns.distplot(movies.AudienceRating, bins=15)
```

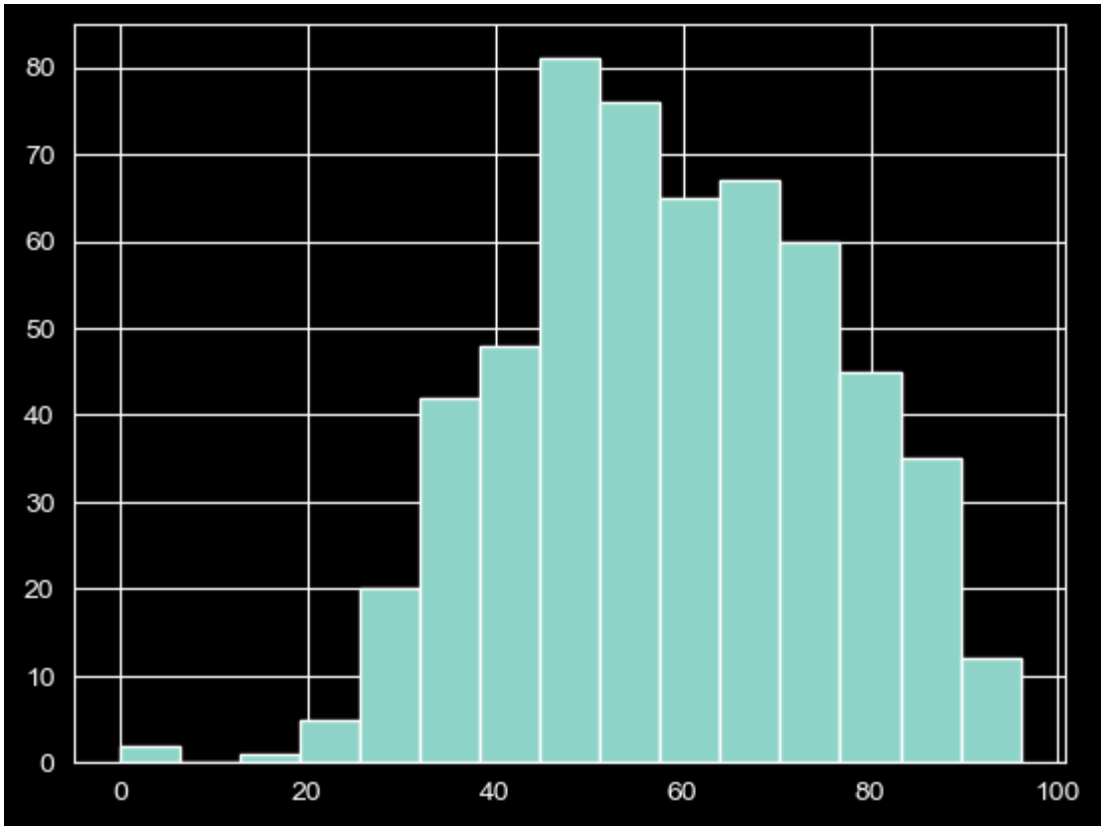


In [39]:
```
m2 = sns.distplot(movies.AudienceRating)
```

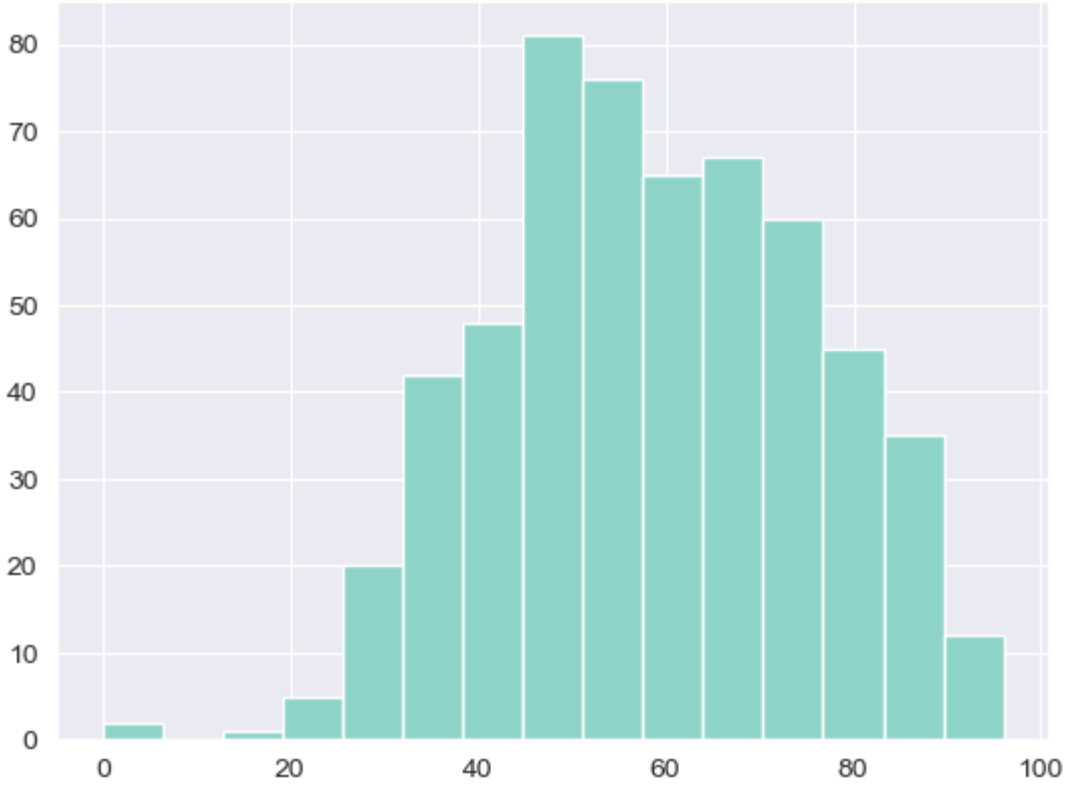


Plot histogram in Matplotlib + Seaborn

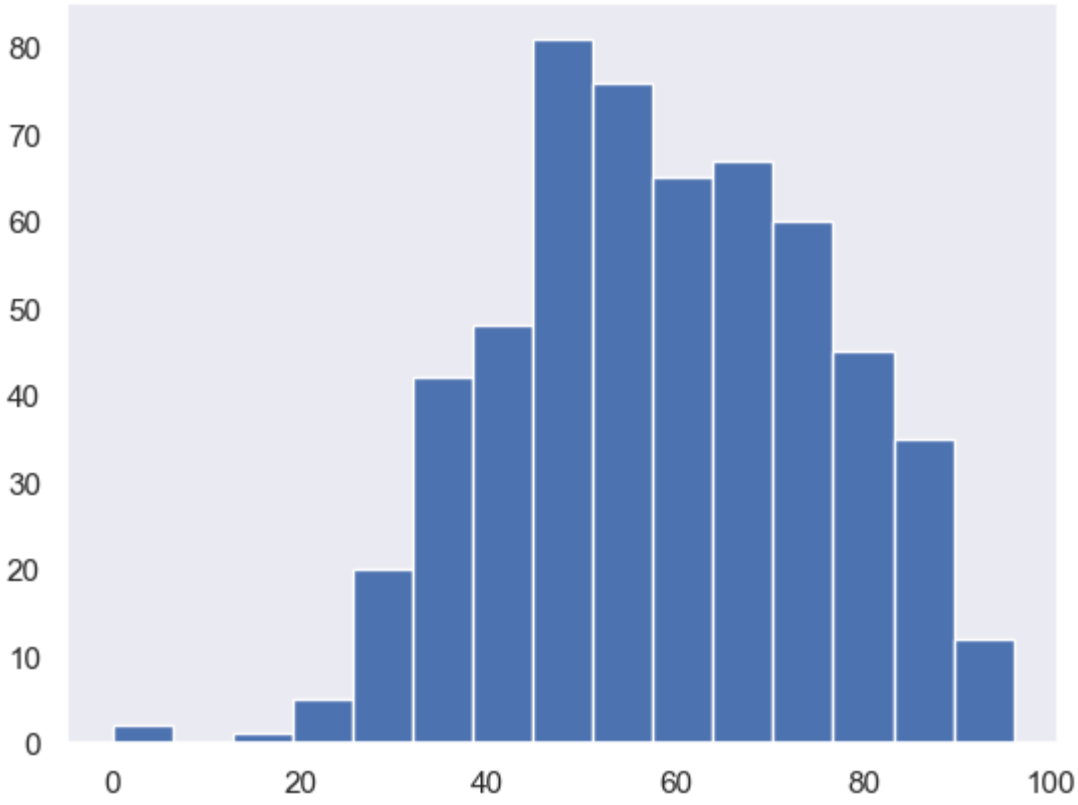
In [40]:
```
plt.style.use("dark_background")
n1 = plt.hist(movies.AudienceRating, bins=15)
```



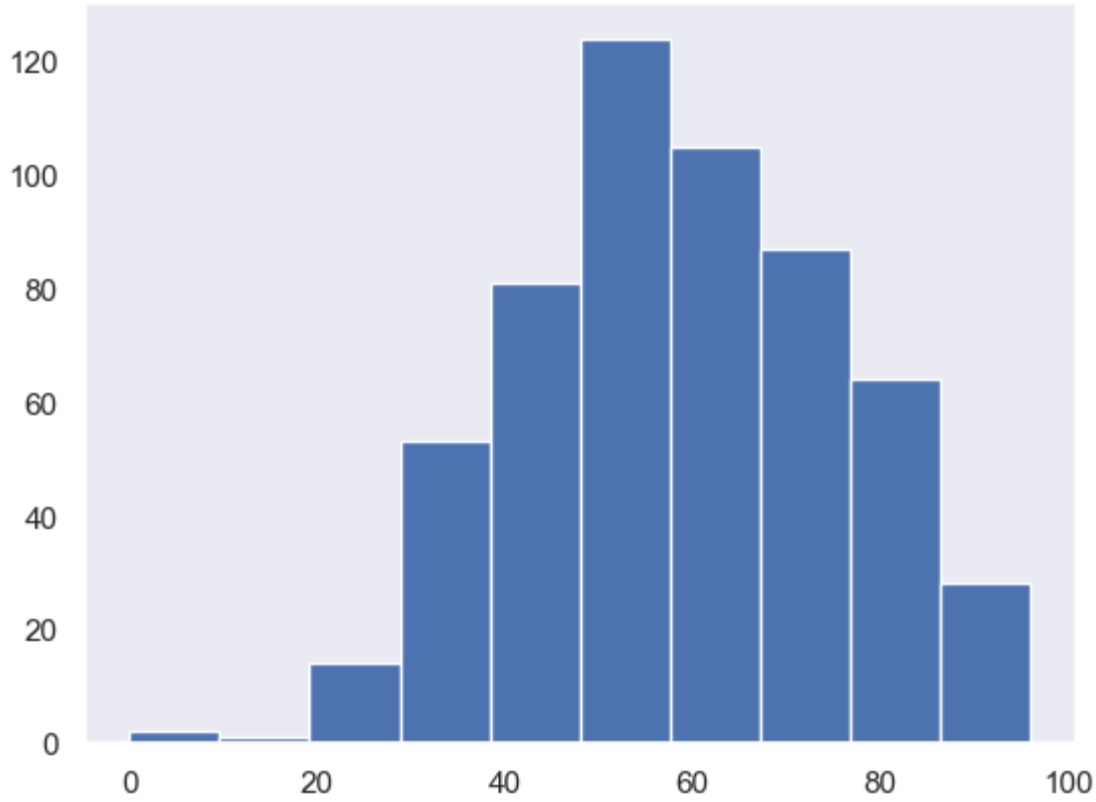
In [41]:
```
# darkgrid, whitegrid, dark, white, ticks
sns.set_style('darkgrid')
n1 = plt.hist(movies.AudienceRating, bins=15)
```



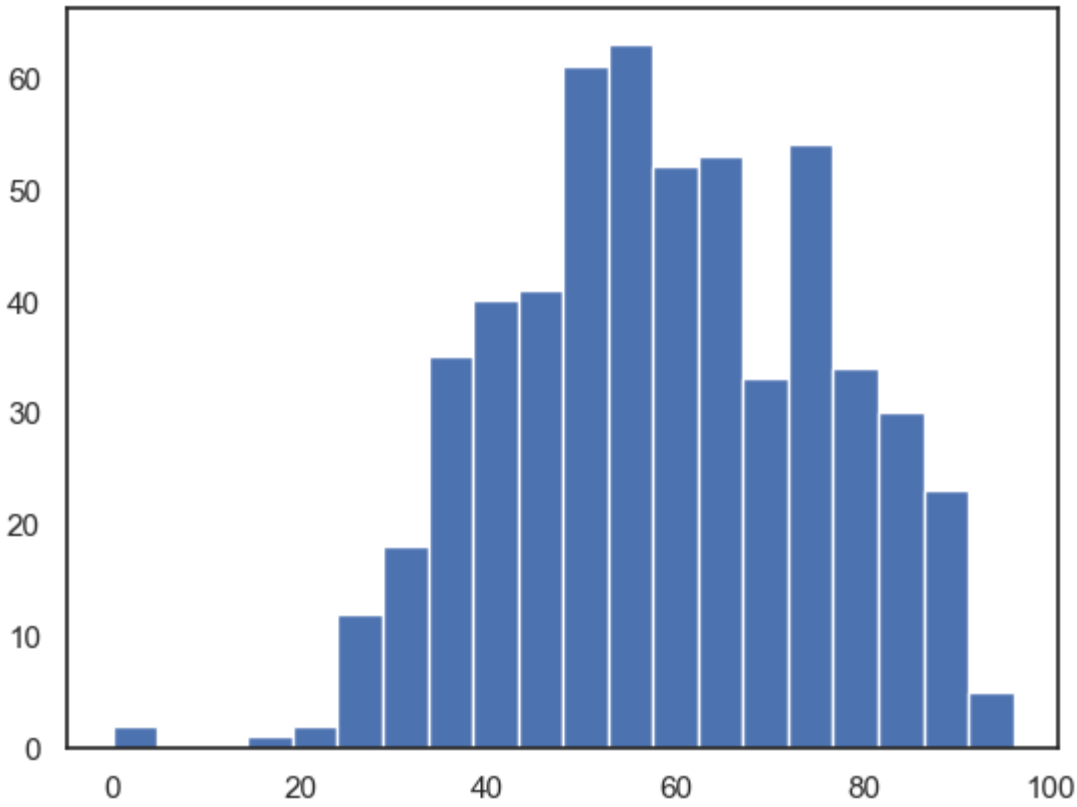
In [42]:
```
sns.set_theme('notebook', style='dark')
n1 = plt.hist(movies.AudienceRating, bins=15)
```



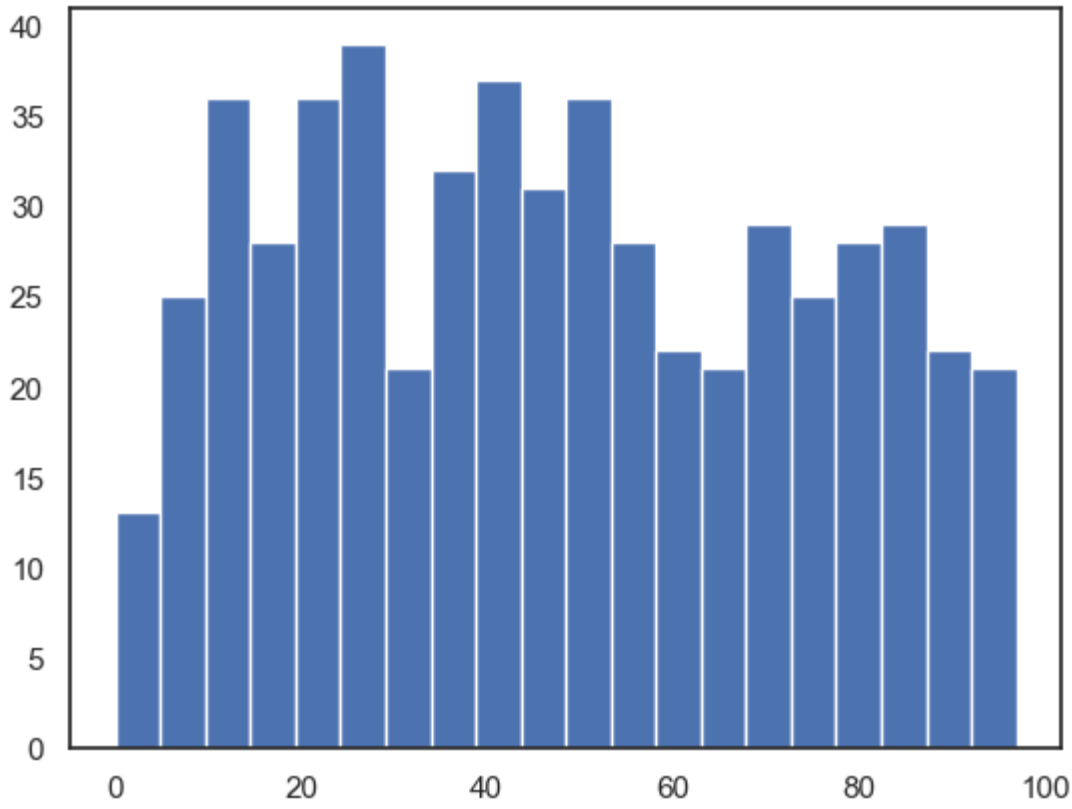
In [43]:
```
n1 = plt.hist(movies.AudienceRating)
```



In [44]:
```
sns.set_style('white')  #normal distribution & called as bell curve
n1 = plt.hist(movies.AudienceRating, bins=20)
```



In [45]:
```
n1 = plt.hist(movies.CriticRating, bins= 20)  #uniform distribution
```



In [46]:
```
# Creating stacked histograms
```

In [47]:
```
movies
```

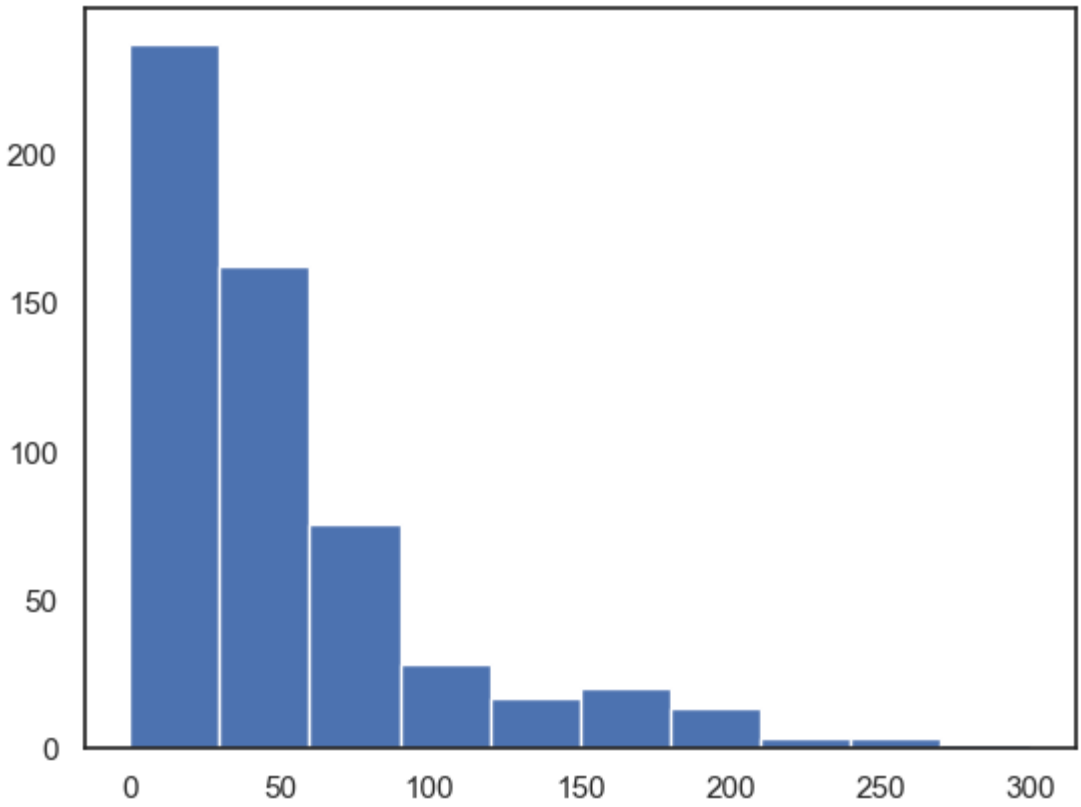
Out[47]:

	Film	Genre	CriticRating	AudienceRating	BudgetMillions	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

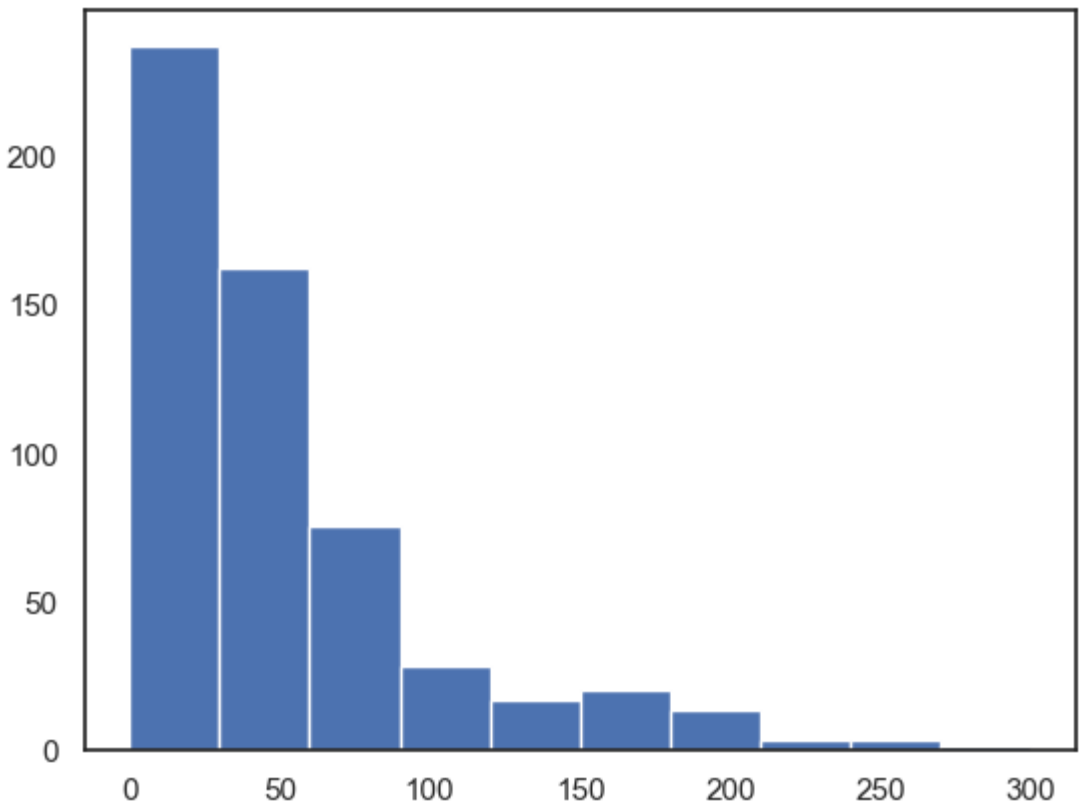
559 rows × 6 columns

In [48]:
```
plt.hist(movies.BudgetMillions)
```

Out[48]:
```
(array([237., 162.,  75.,  28.,  17.,  20.,  13.,   3.,   3.,   1.]),
 array([  0.,  30.,  60.,  90., 120., 150., 180., 210., 240., 270., 300.]),
 <BarContainer object of 10 artists>)
```



In [49]:
```
plt.hist(movies.BudgetMillions)
plt.show()
```



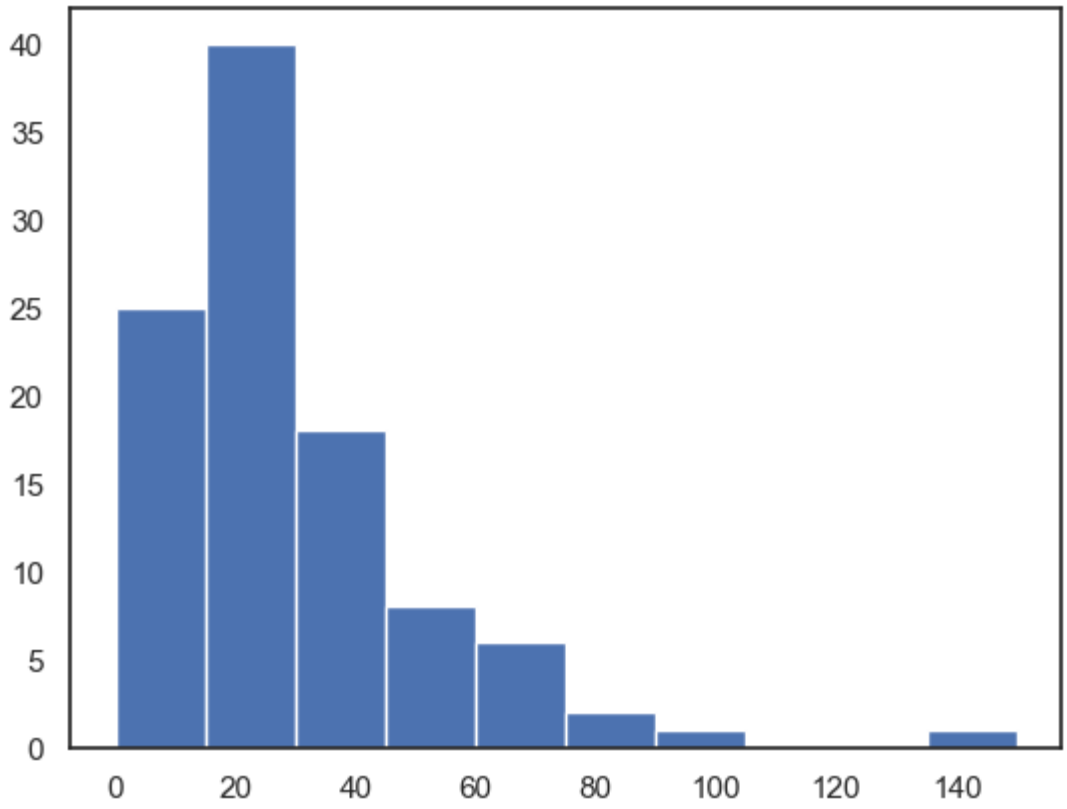
In [50]:
```
movies
```

Out[50]:

	Film	Genre	CriticRating	AudienceRating	BudgetMillions	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 [51]:
```
plt.hist(movies[movies.Genre == 'Drama'].BudgetMillions)
plt.show()
```



In [52]:
```
movies.head()
```

Out[52]:

	Film	Genre	CriticRating	AudienceRating	BudgetMillions	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

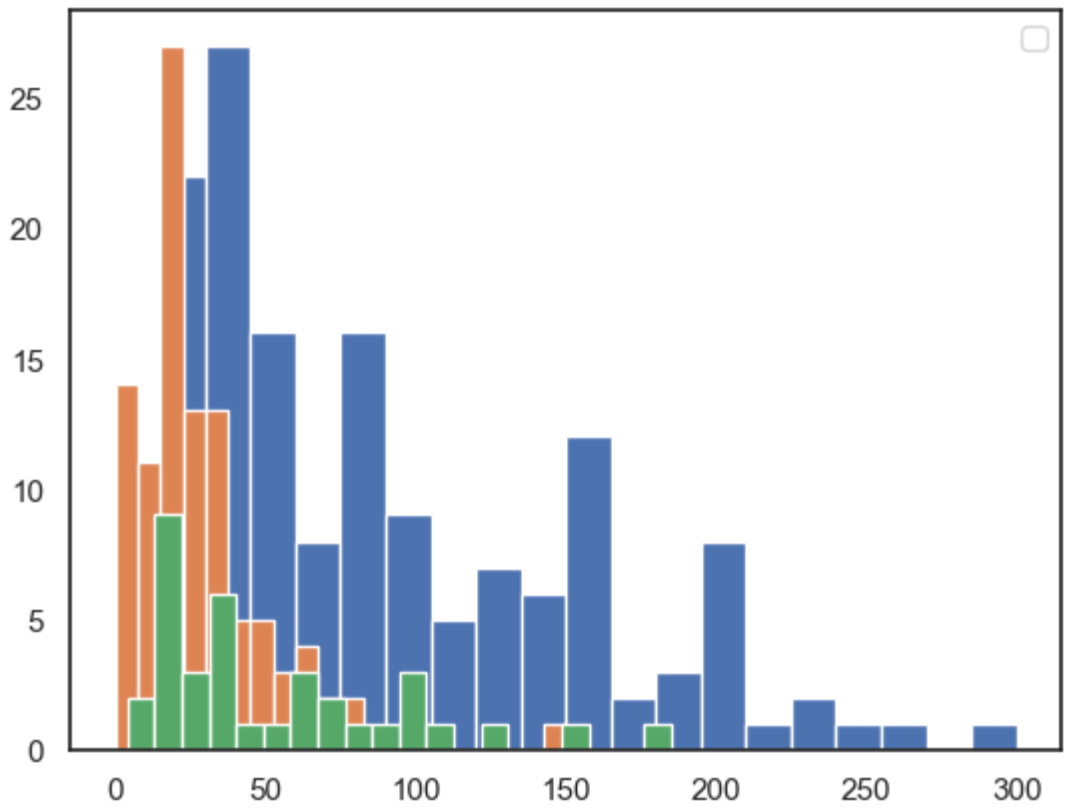
In [53]:
```
movies.Genre.unique()
```

Out[53]:
```
['Comedy', 'Adventure', 'Action', 'Horror', 'Drama', 'Romance', 'Thriller']
Categories (7, object): ['Action', 'Adventure', 'Comedy', 'Drama', 'Horror',
'Romance', 'Thriller']
```

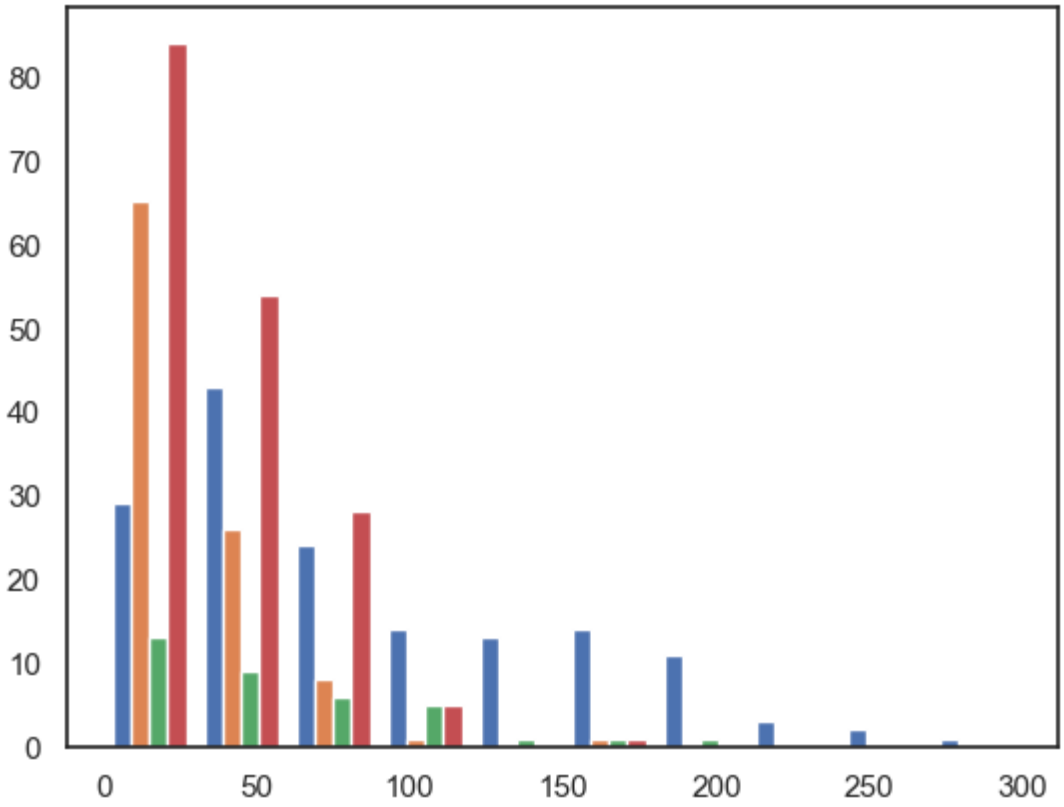
Below plots are stacked histogram becuase overlaped

In [54]:
```
plt.hist(movies[movies.Genre == 'Action'].BudgetMillions, bins = 20)
plt.hist(movies[movies.Genre == 'Drama'].BudgetMillions, bins = 20)
plt.hist(movies[movies.Genre == 'Thriller']. BudgetMillions, bins = 20)
plt.legend()
plt.show()
```

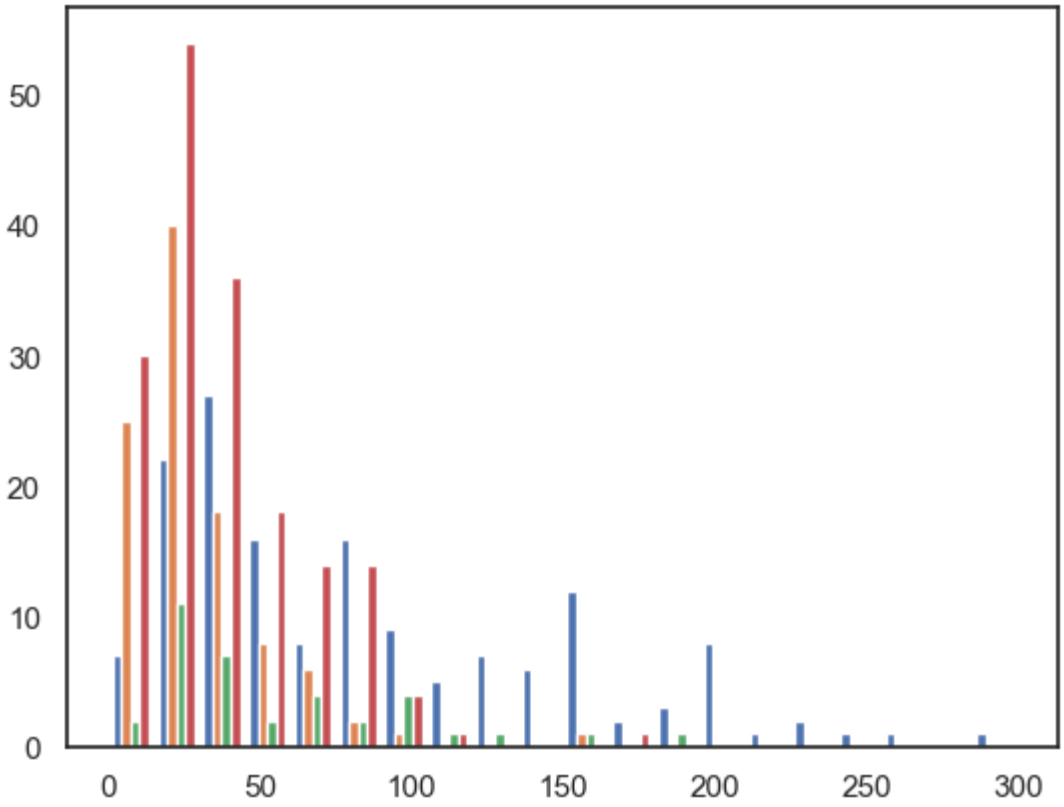
```
No artists with labels found to put in legend.  Note that artists whose labe
l start with an underscore are ignored when legend() is called with no argum
ent.
```



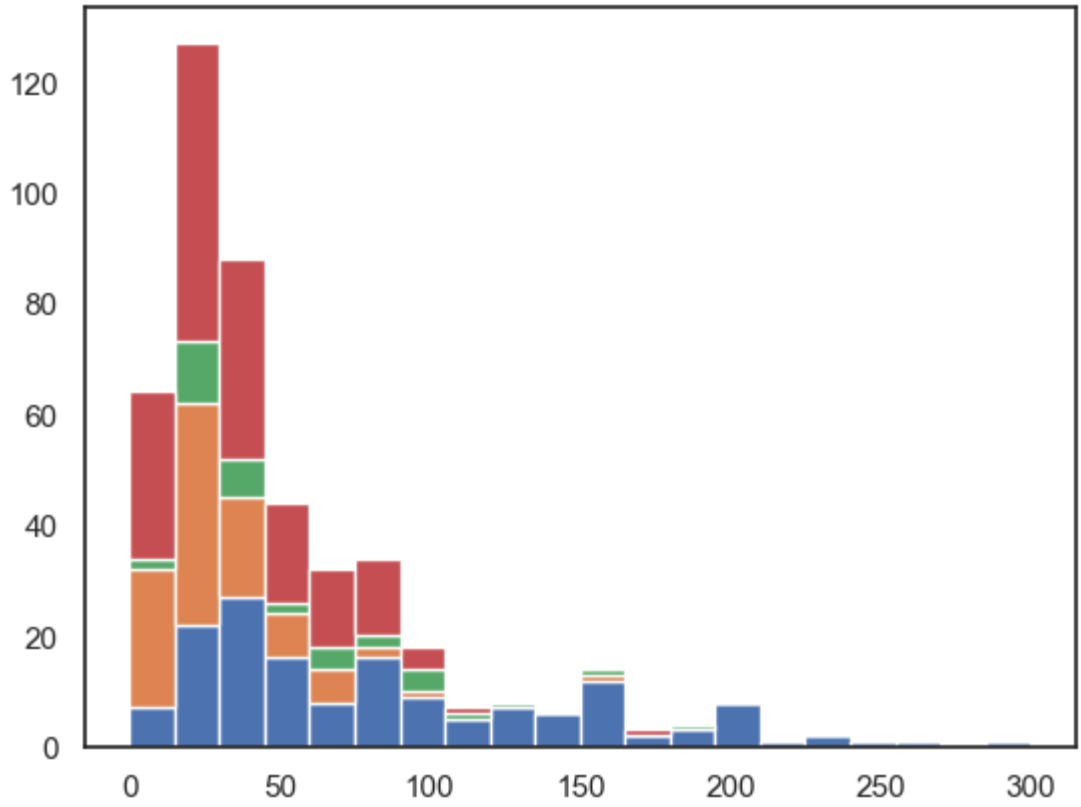
In [55]:
```
plt.hist([movies[movies.Genre == 'Action'].BudgetMillions,\
          movies[movies.Genre == 'Drama'].BudgetMillions,\
          movies[movies.Genre == 'Thriller'].BudgetMillions,\
          movies[movies.Genre == 'Comedy'].BudgetMillions])
plt.show()
```



In [56]:
```
plt.hist([movies[movies.Genre == 'Action'].BudgetMillions,\
          movies[movies.Genre == 'Drama'].BudgetMillions,\
          movies[movies.Genre == 'Thriller'].BudgetMillions,\
          movies[movies.Genre == 'Comedy'].BudgetMillions],
         bins = 20)  # stacked is False by default
plt.show()
```



In [57]:
```
plt.hist([movies[movies.Genre == 'Action'].BudgetMillions,\
          movies[movies.Genre == 'Drama'].BudgetMillions,\
          movies[movies.Genre == 'Thriller'].BudgetMillions,\
          movies[movies.Genre == 'Comedy'].BudgetMillions],
         bins = 20, stacked = True)
plt.show()
```

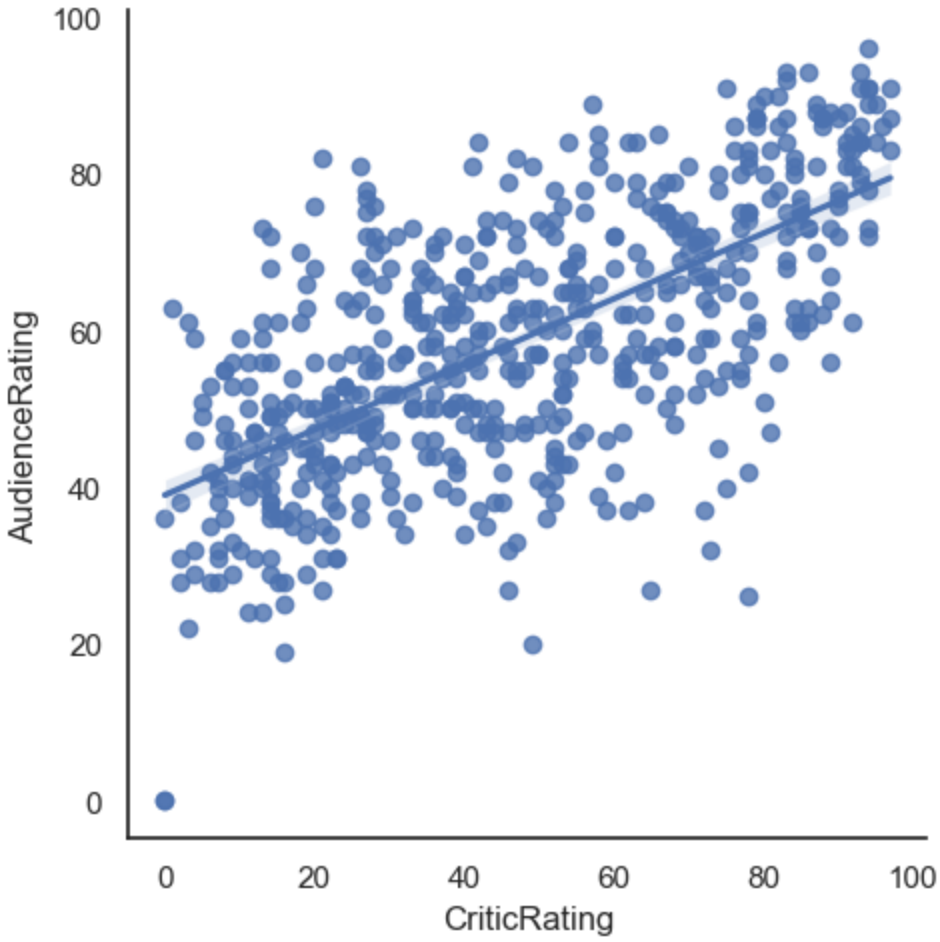


In [58]:
```
# for gen in movies.Genre:
#     print(gen)
""" if you will use this code you will get all movies name """
for gen in movies.Genre.cat.categories:
    print(gen)
```

```
Action
Adventure
Comedy
Drama
Horror
Romance
Thriller
```

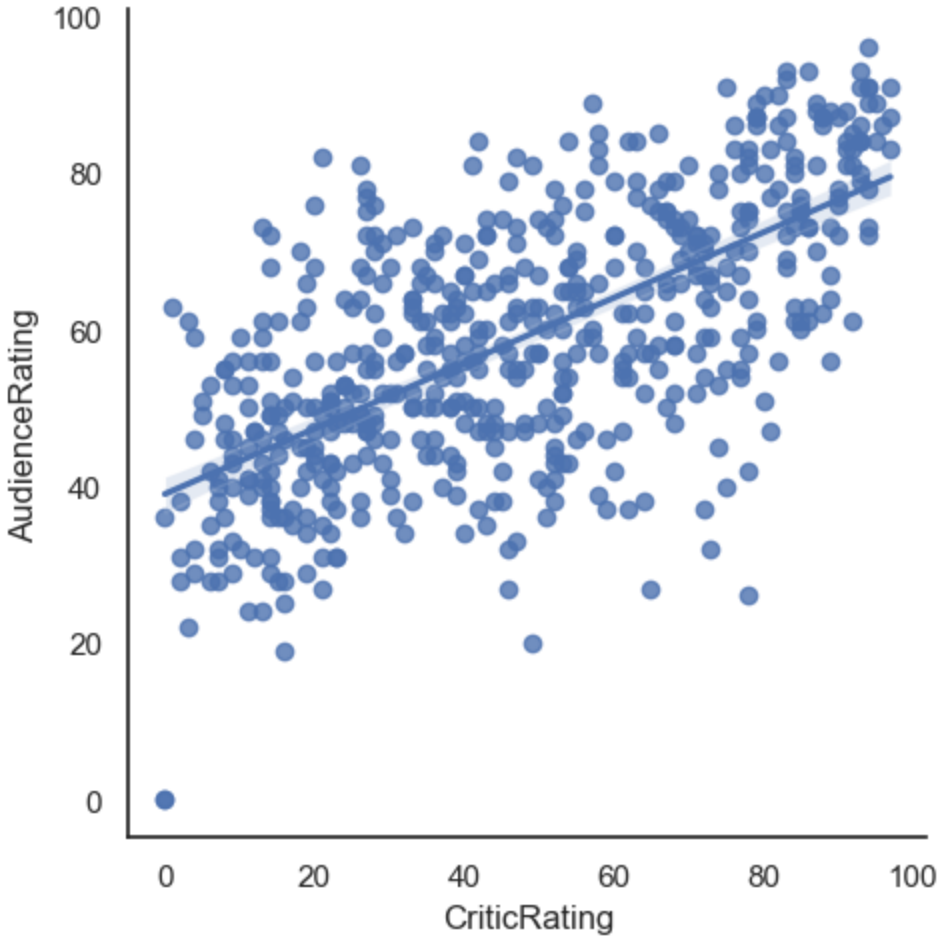
In [59]:
```
x = movies['CriticRating']
y = movies['AudienceRating']
# Create a regression plot using Seaborn
sns.lmplot(data=movies, x='CriticRating', y='AudienceRating')
```

Out[59]:
```
<seaborn.axisgrid.FacetGrid at 0x25672068310>
```

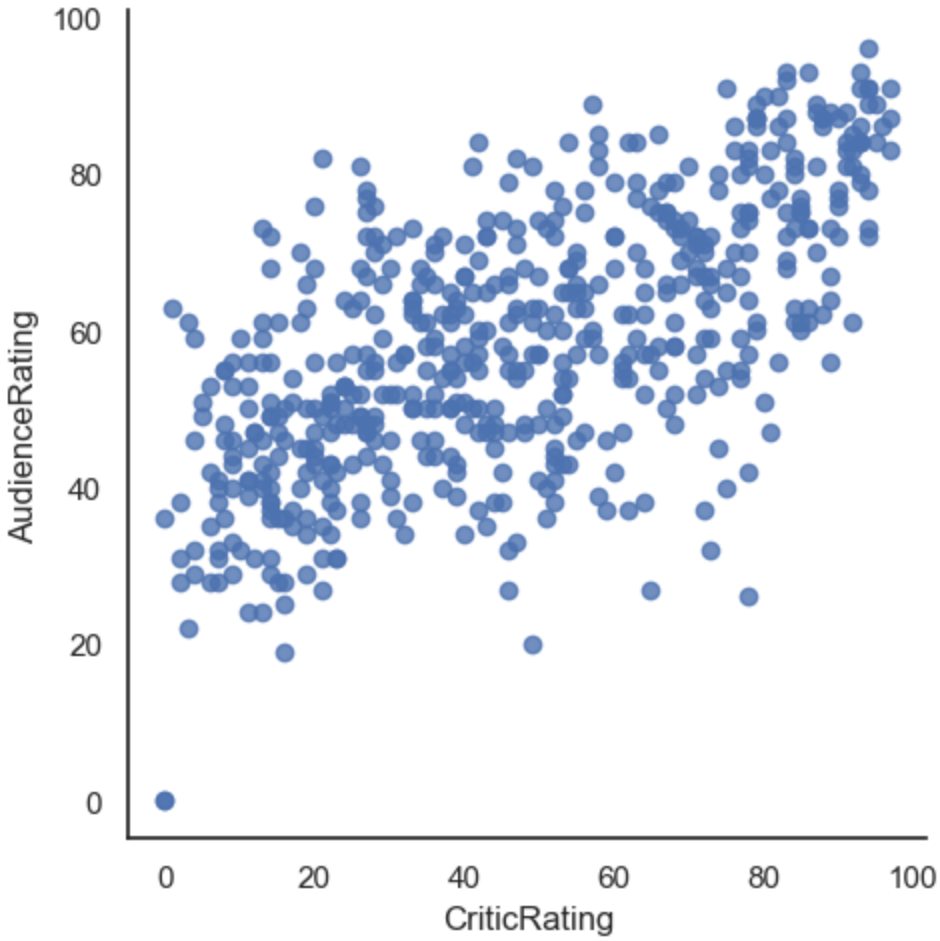


In [60]:
```
vis1 = sns.lmplot(data = movies, x = 'CriticRating', y = 'AudienceRating')  #
vis1
```

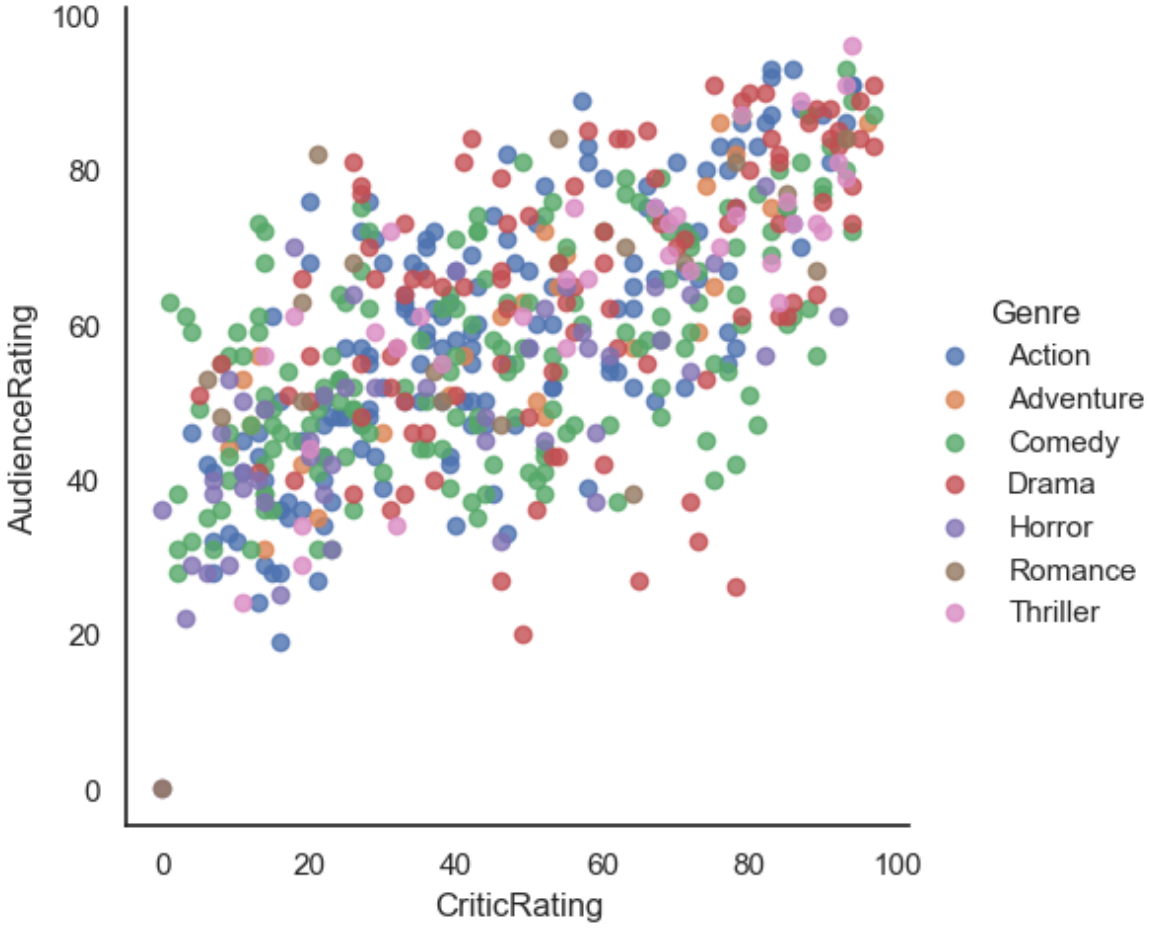
Out[60]:
```
<seaborn.axisgrid.FacetGrid at 0x25672951930>
```



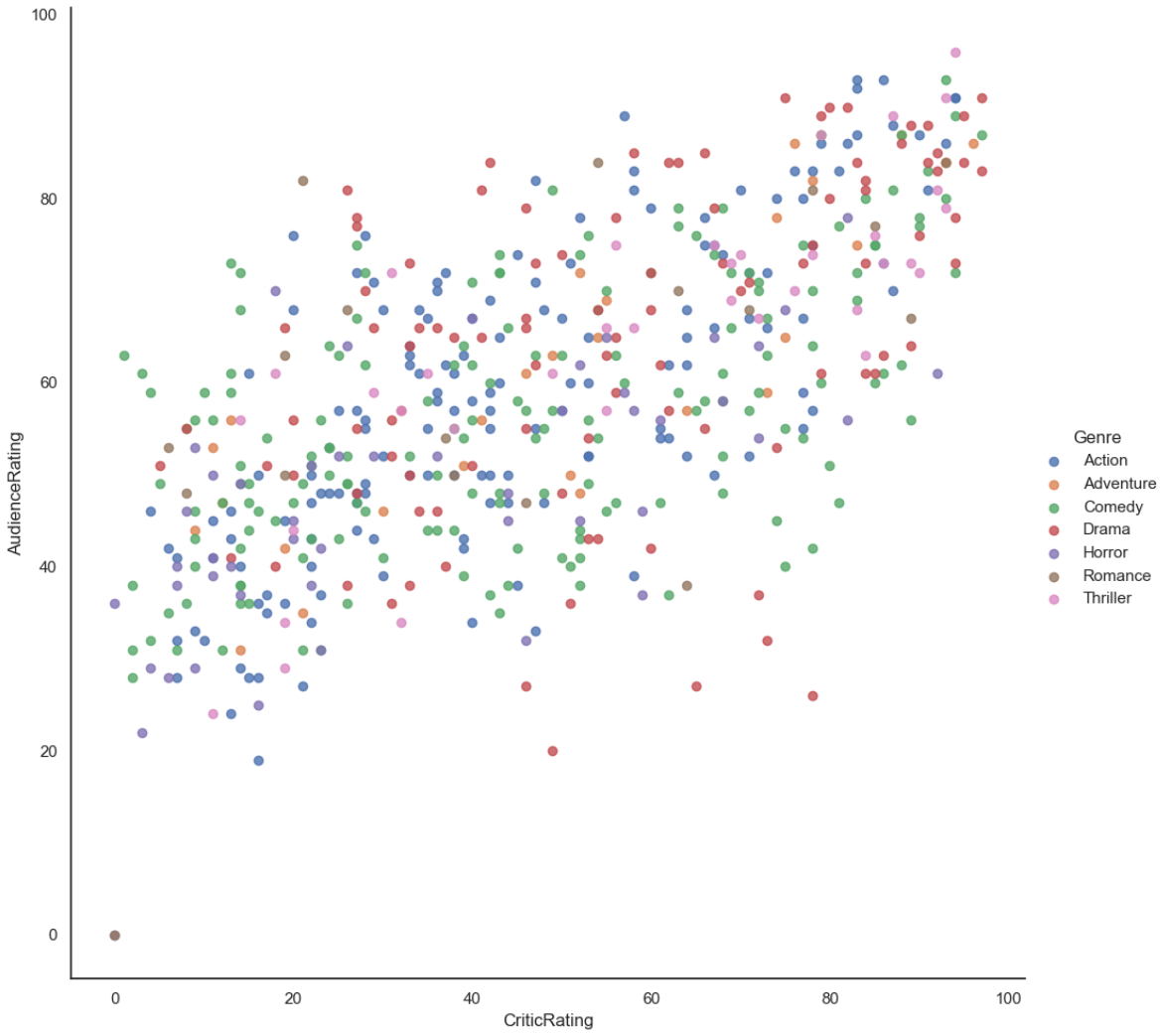
In [61]:
```
vis1 = sns.lmplot(data = movies, x = 'CriticRating', y = 'AudienceRating',\
                  fit_reg = False)
# line will get removed when we will use 'False'
```



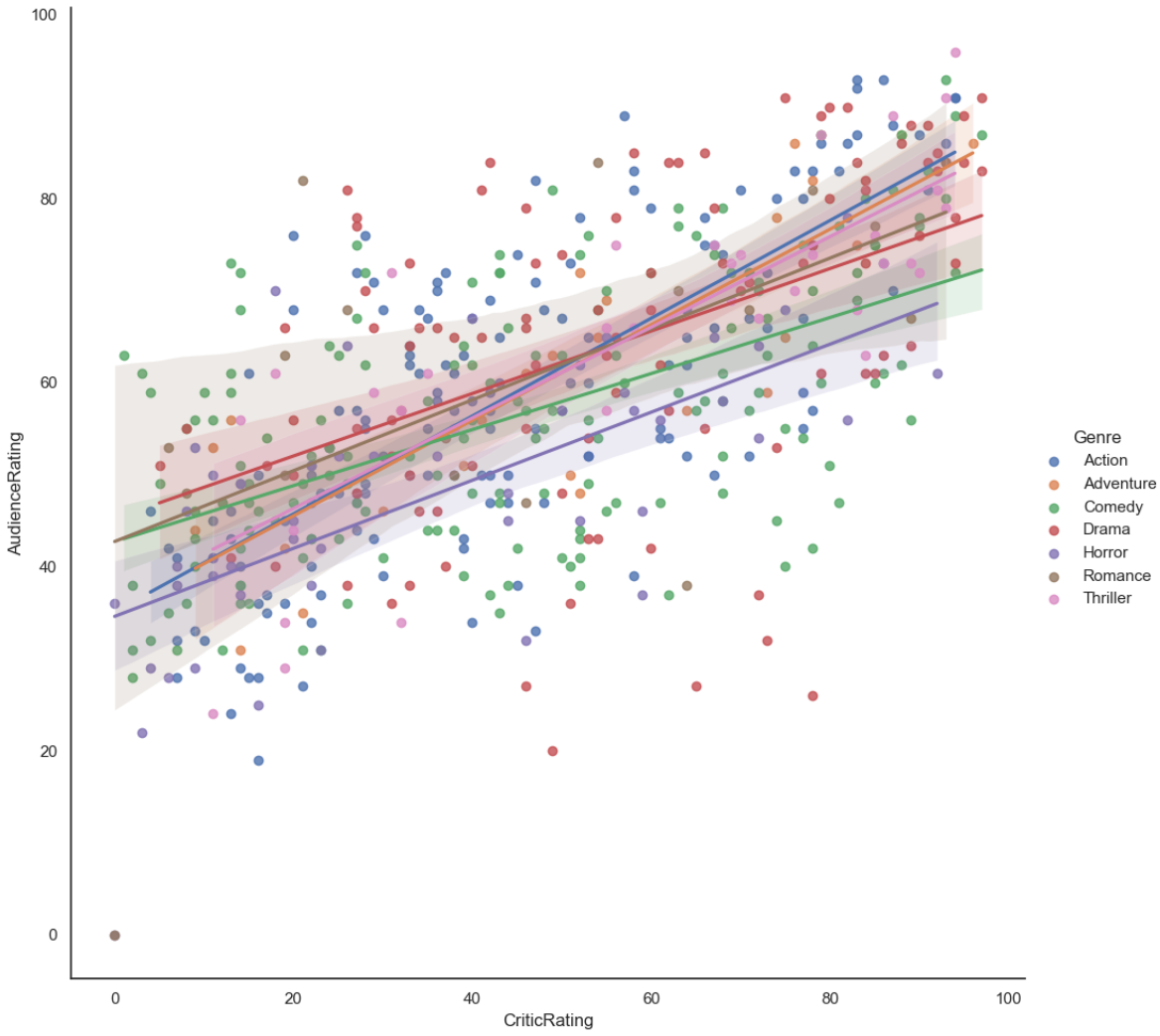
In [62]:
```
vis1 = sns.lmplot(data = movies, x = 'CriticRating', y = 'AudienceRating',\
                  fit_reg = False, hue = 'Genre')
```



In [63]:
```
vis1 = sns.lmplot(data = movies, x = 'CriticRating', y = 'AudienceRating',\
                  fit_reg = False, hue = 'Genre', height = 10, aspect = 1)
```

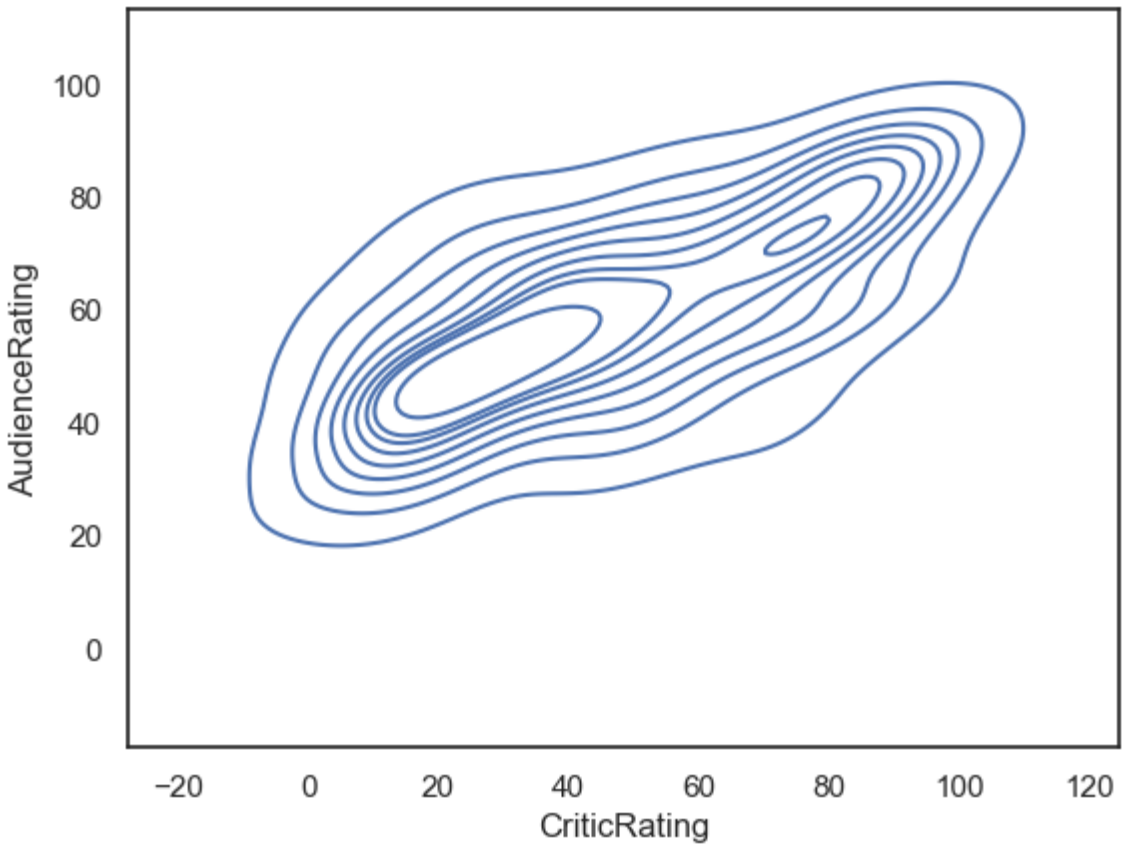


In [64]:
```
vis1 = sns.lmplot(data = movies, x = 'CriticRating', y = 'AudienceRating',\
                  fit_reg = True, hue = 'Genre', height = 10, aspect = 1)
```



In [65]:
```
# Kernal Density Estimate Plor (KDE plot)
# how can i visulize audience rating & critics rating . using scatterplot
```

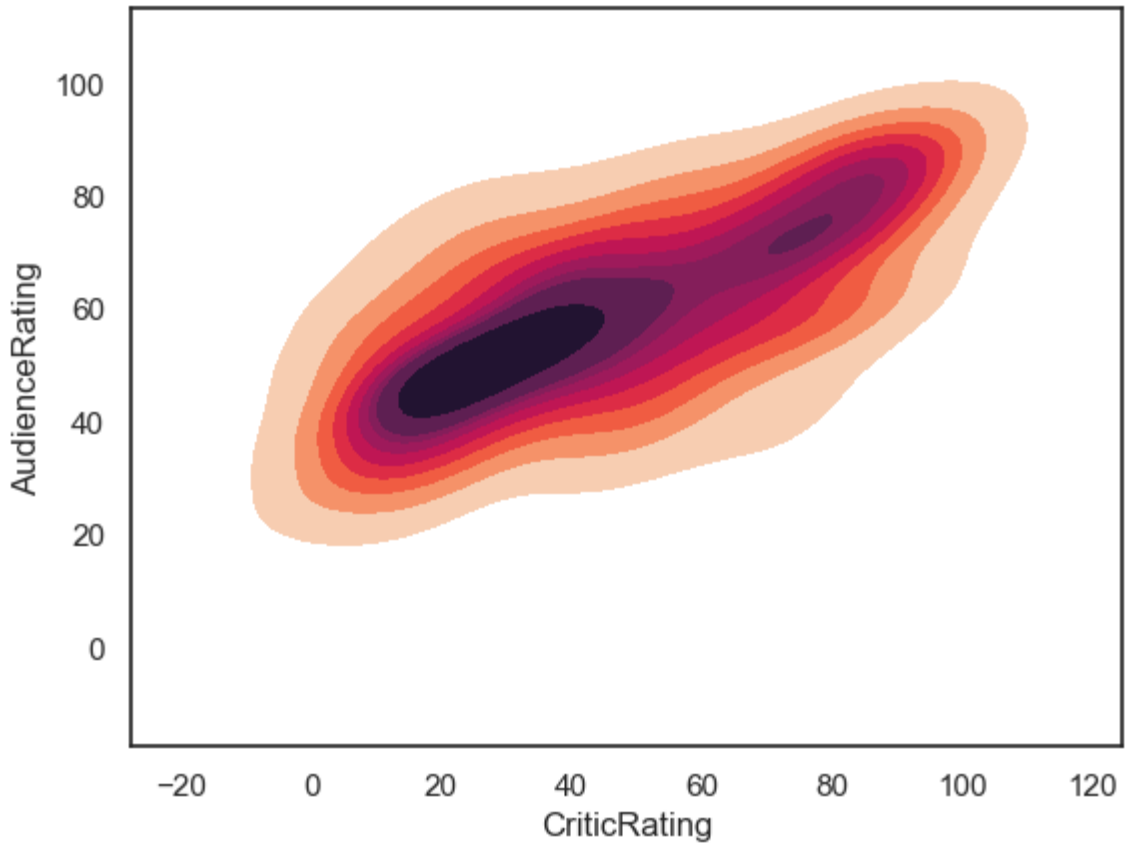
In [66]:
```
k1 = sns.kdeplot(x= movies.CriticRating, y=movies.AudienceRating)  # use X and
# where do u find more density and how density is distibuted across from the t
# center point is kernal this is calld KDE & insteade of dots it visualize lik
# we can able to clearly see the spread at the audience ratings
```



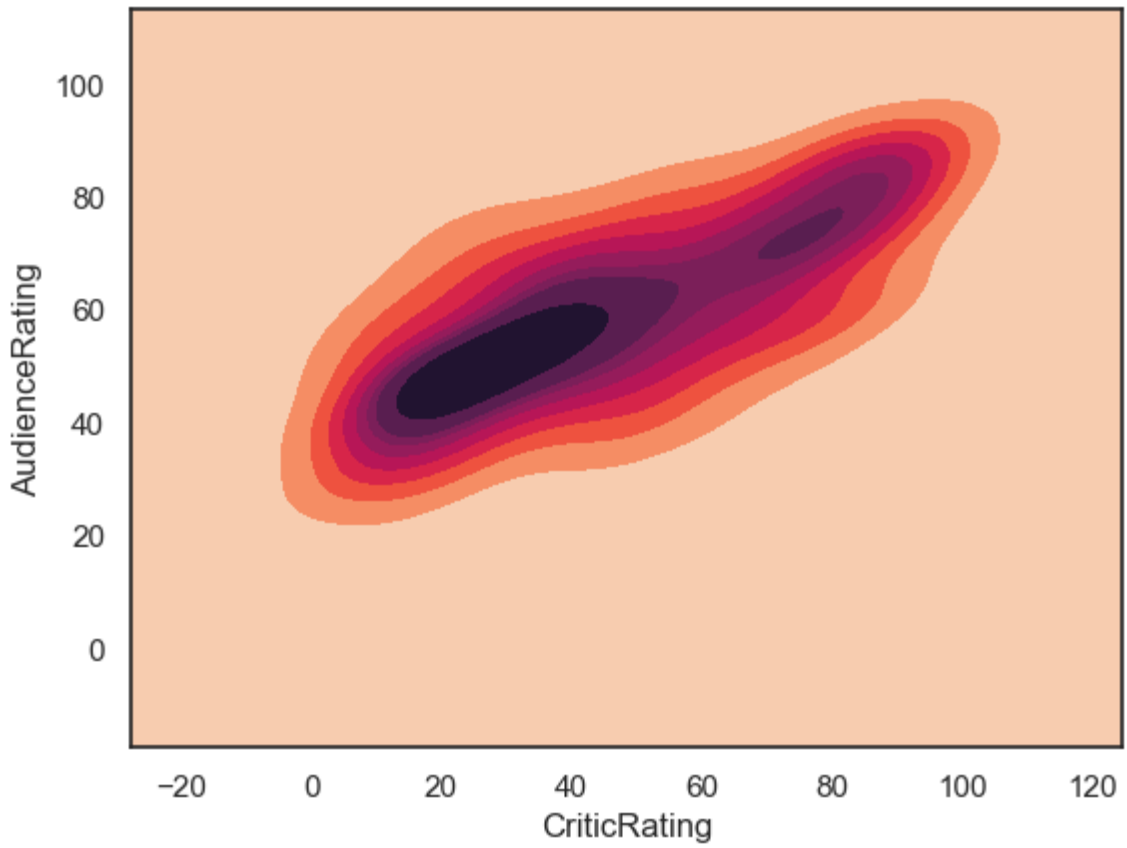
As with the convention in matplotlib, every continuous colormap has a reversed version, which has the suffix "_r":

- *When shade is set to True, Seaborn will fill the area under the curve or within the confidence interval with a color (usually a translucent shade) to visually emphasize the region of interest.*
- *When shade is set to False, Seaborn will not fill the area under the curve or within the confidence interval with any color. This can be useful when you want to emphasize the line or points in the plot without the distraction of shading.*

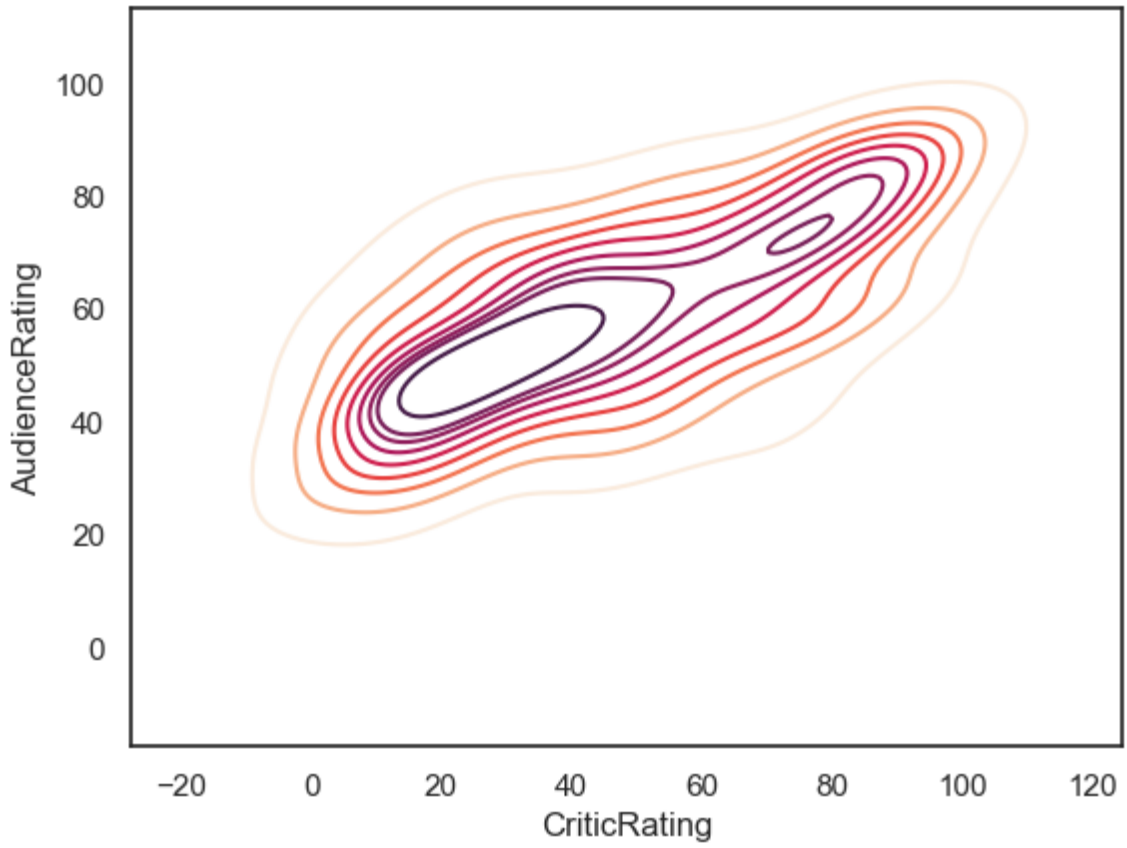
In [67]:
```
k1 = sns.kdeplot(x = movies.CriticRating, y = movies.AudienceRating, shade = T
```



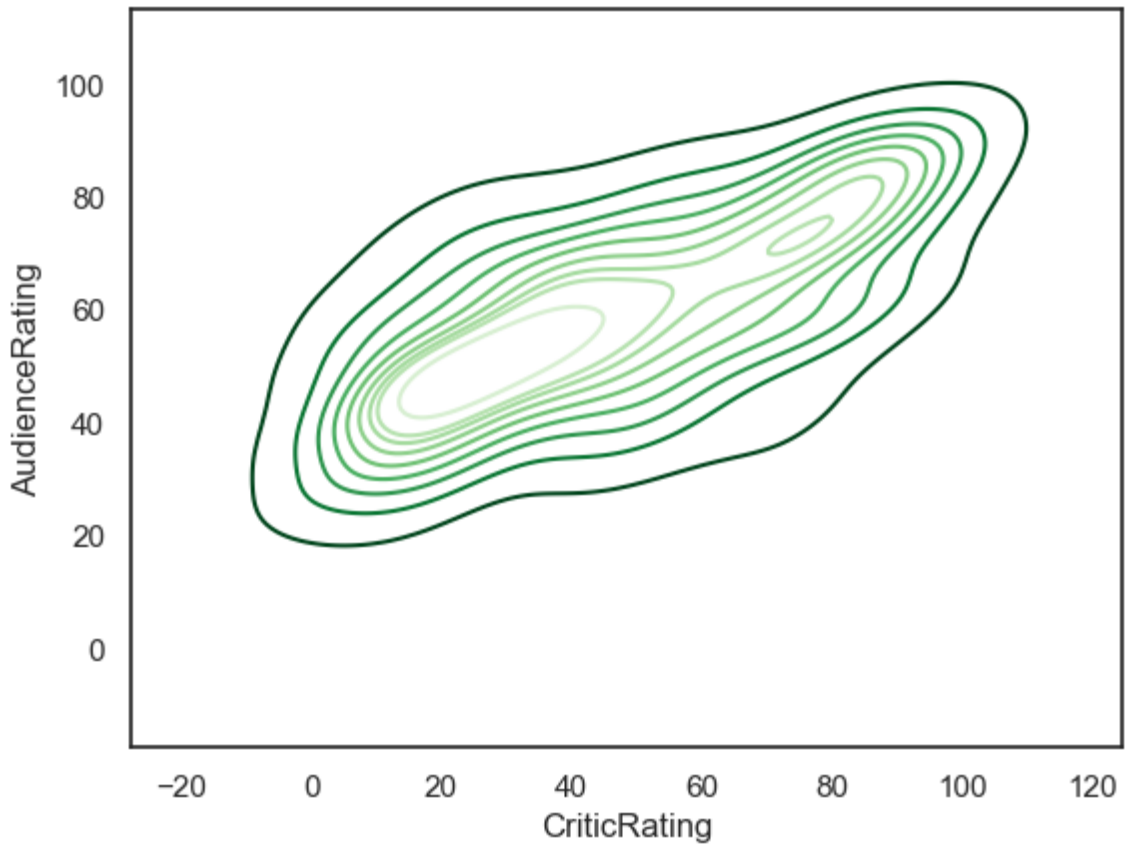
In [68]:
```
k1 = sns.kdeplot(x = movies.CriticRating, y = movies.AudienceRating, shade = T
```



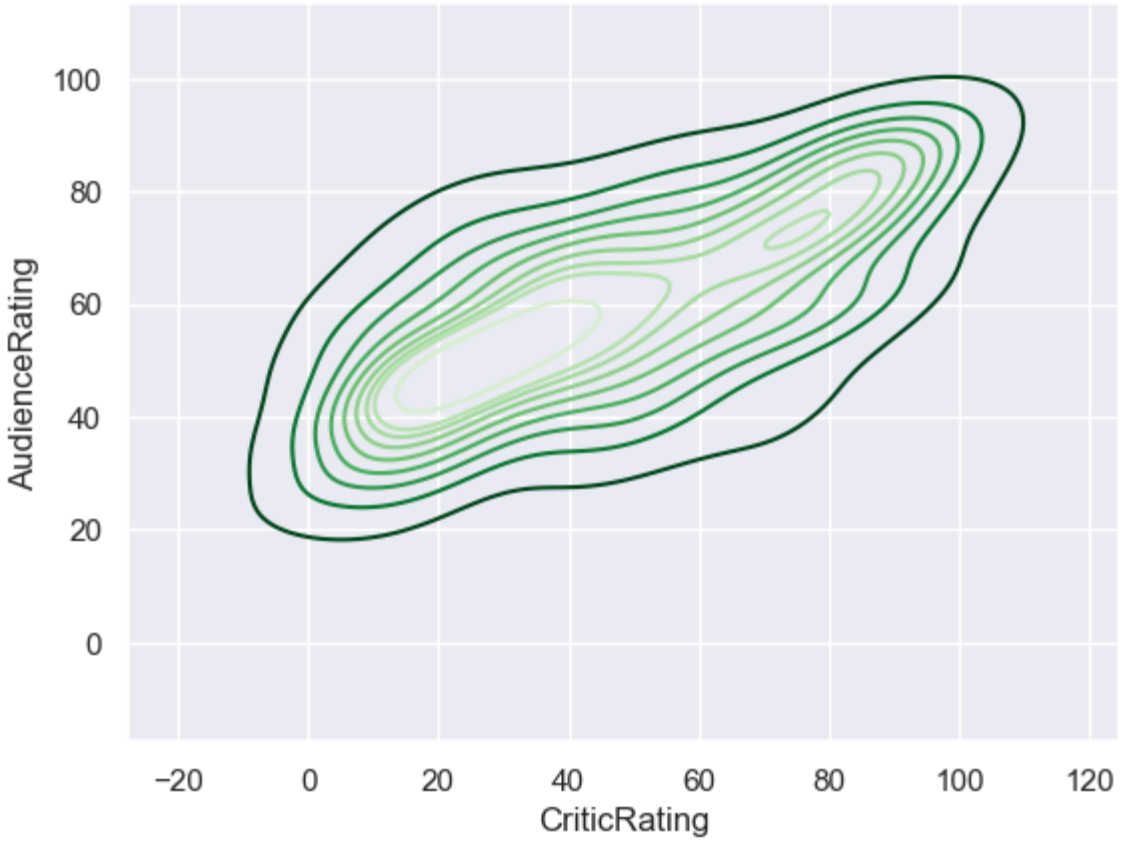
In [69]:
```
k1 = sns.kdeplot(x = movies.CriticRating, y = movies.AudienceRating, shade = F
```



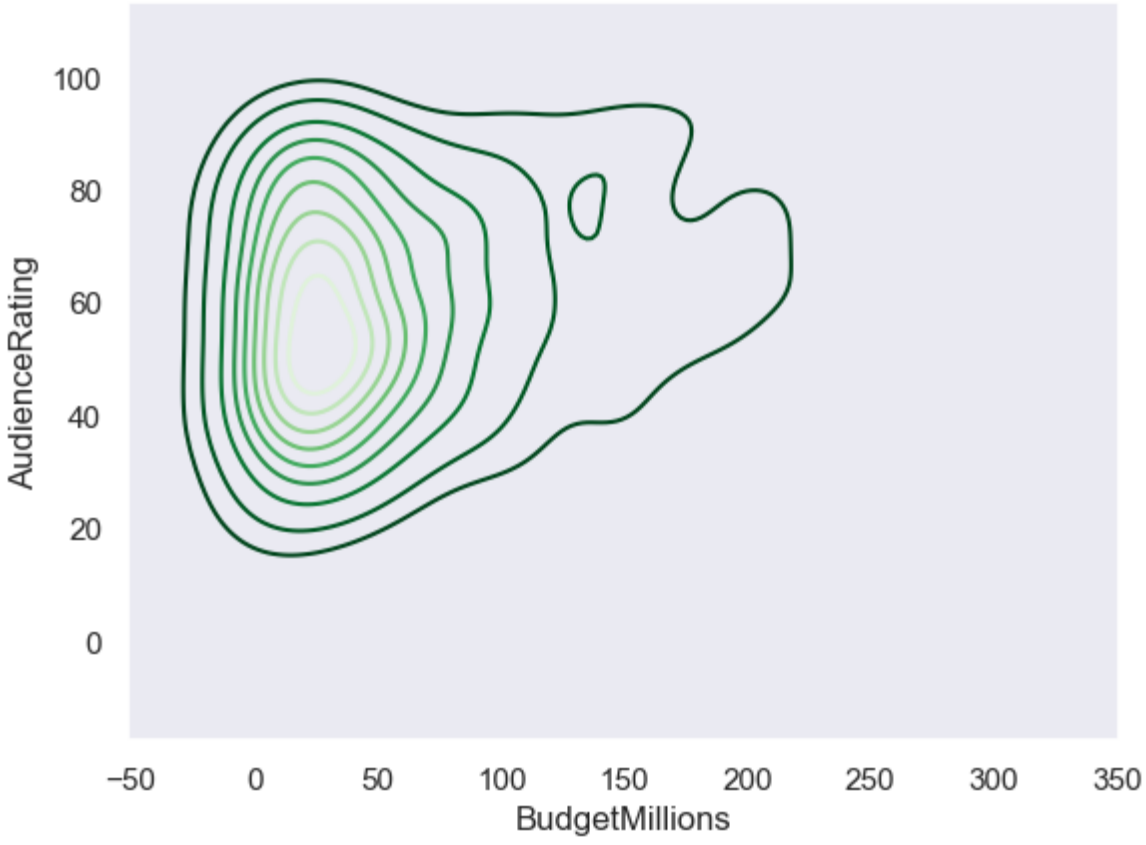
In [70]:
```
k1 = sns.kdeplot(x = movies.CriticRating, y = movies.AudienceRating, shade_low
```



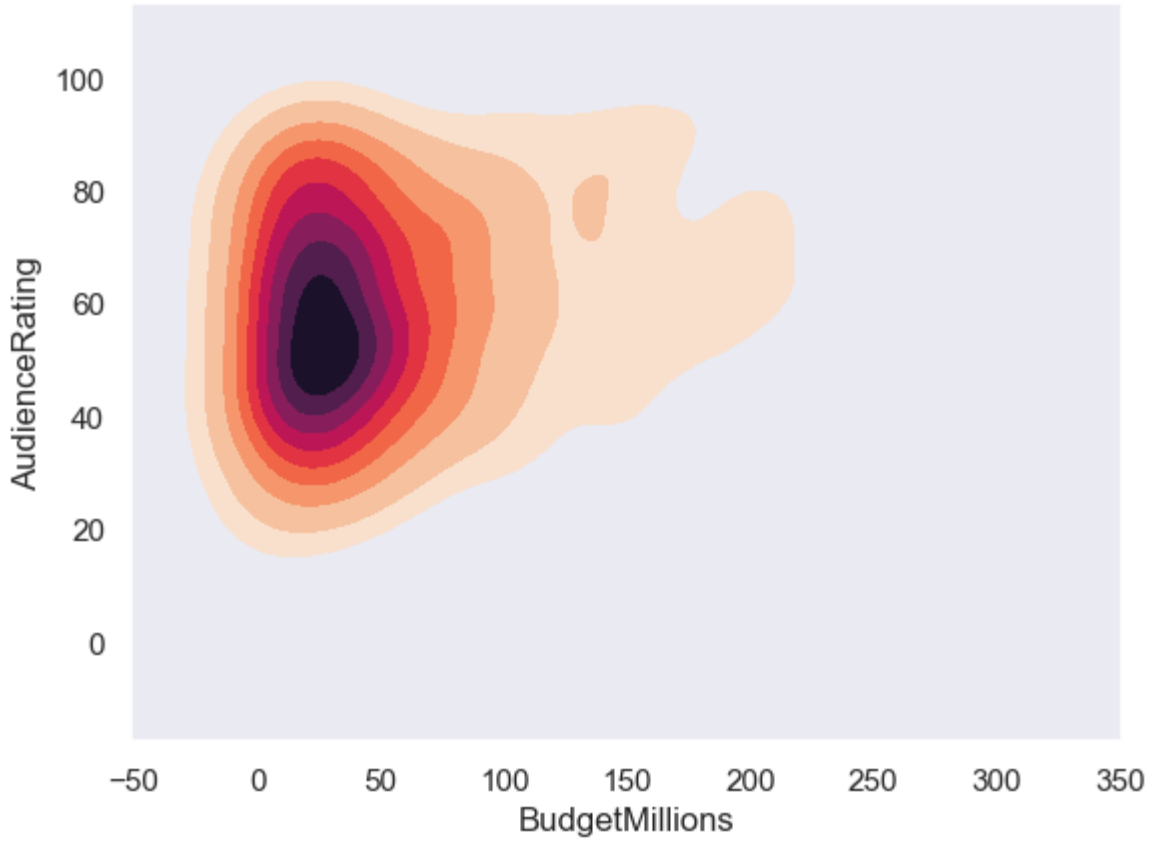
In [71]:
```
sns.set_style('darkgrid')  # the background we have is in the form of dark mod
k1 = sns.kdeplot(x = movies.CriticRating, y = movies. AudienceRating, shade_lo
```



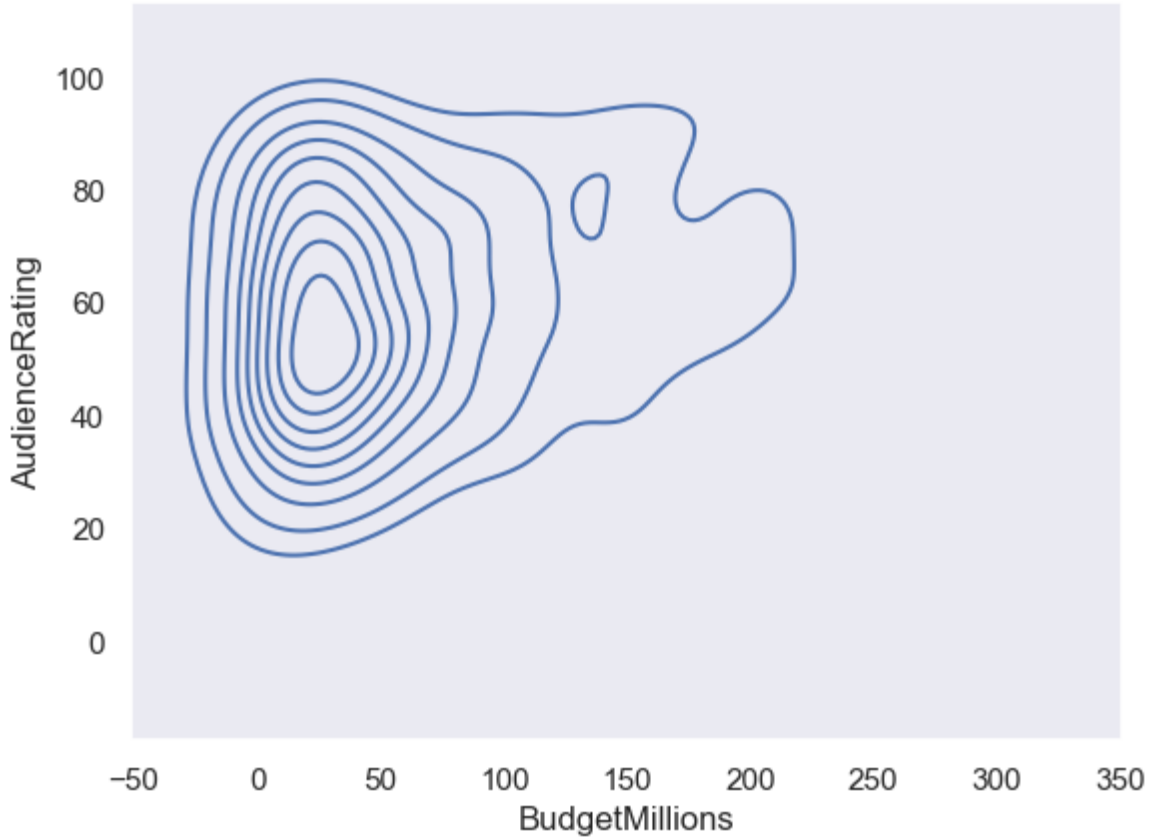
In [72]:
```
sns.set_style('dark')
k1 = sns.kdeplot(x = movies.BudgetMillions, y = movies. AudienceRating, shade_
```



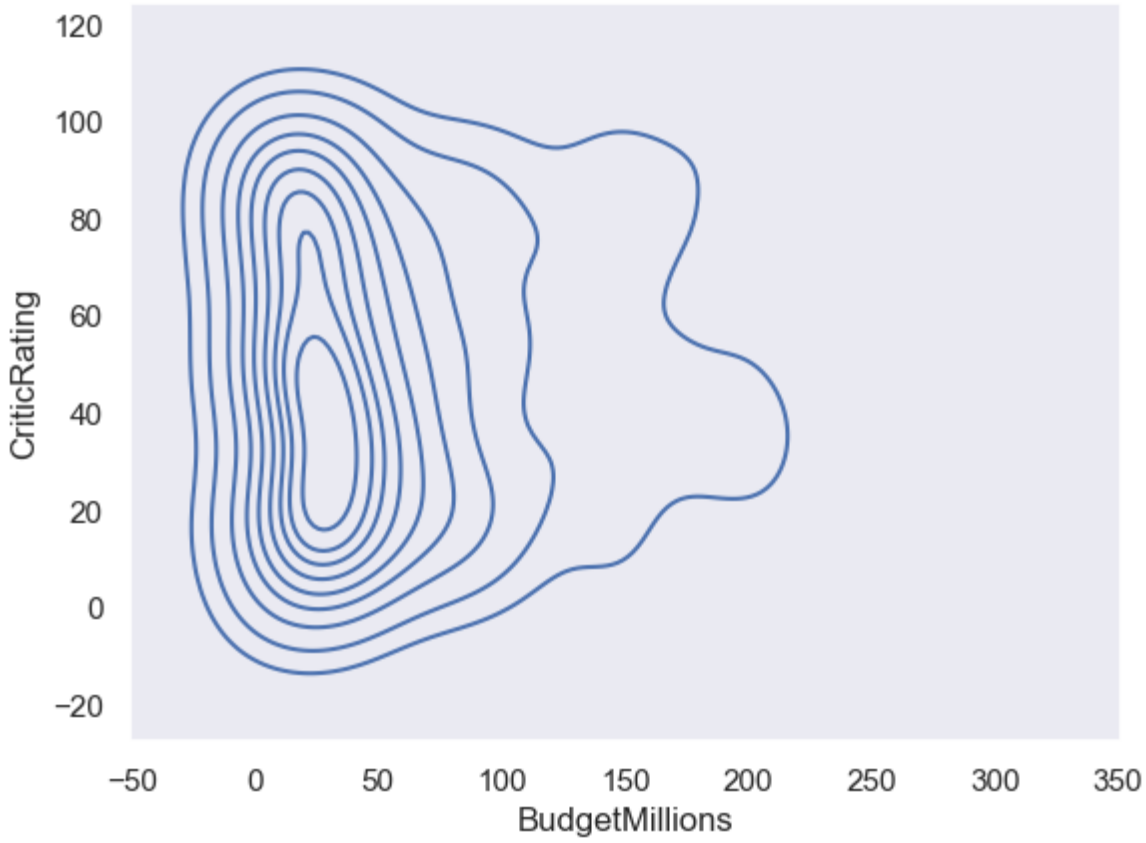
In [73]:
```
k1 = sns.kdeplot(x = movies.BudgetMillions, y = movies. AudienceRating, shade
```



In [74]:
```
sns.set_style('dark')
k1 = sns.kdeplot(x = movies.BudgetMillions, y = movies.AudienceRating)
```

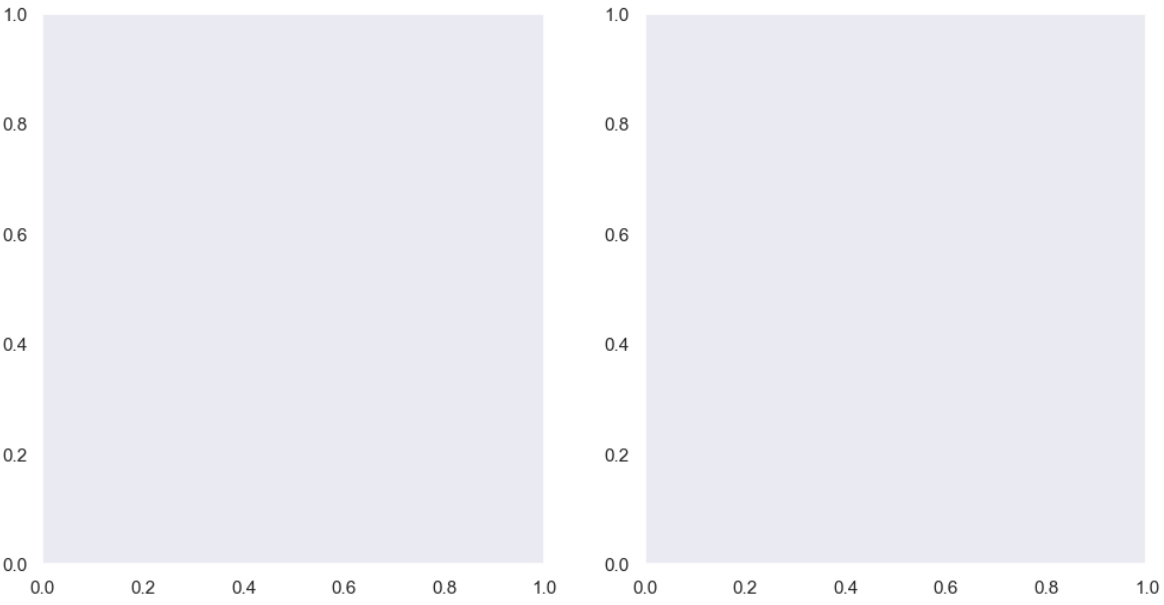


In [75]:
```
k2 = sns.kdeplot(x = movies.BudgetMillions, y = movies.CriticRating)
```



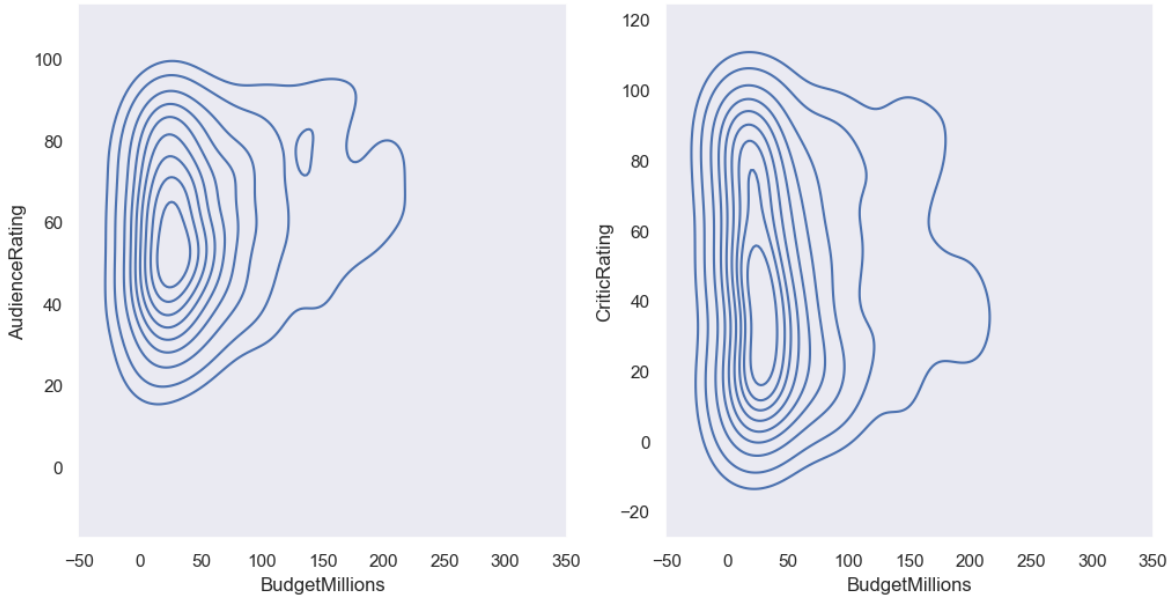
subplots

In [76]:
```
f, ax = plt.subplots(1, 2, figsize = (12, 6))
```



In [77]:
```
# In new version use arguments with keywords because "positional argument foll
```

In [78]:
```
f, axes = plt.subplots(1, 2, figsize = (12, 6))
k1 = sns.kdeplot(x = movies.BudgetMillions, y = movies.AudienceRating, ax = ax
k2 = sns.kdeplot(x = movies.BudgetMillions, y = movies.CriticRating, ax = axes
```

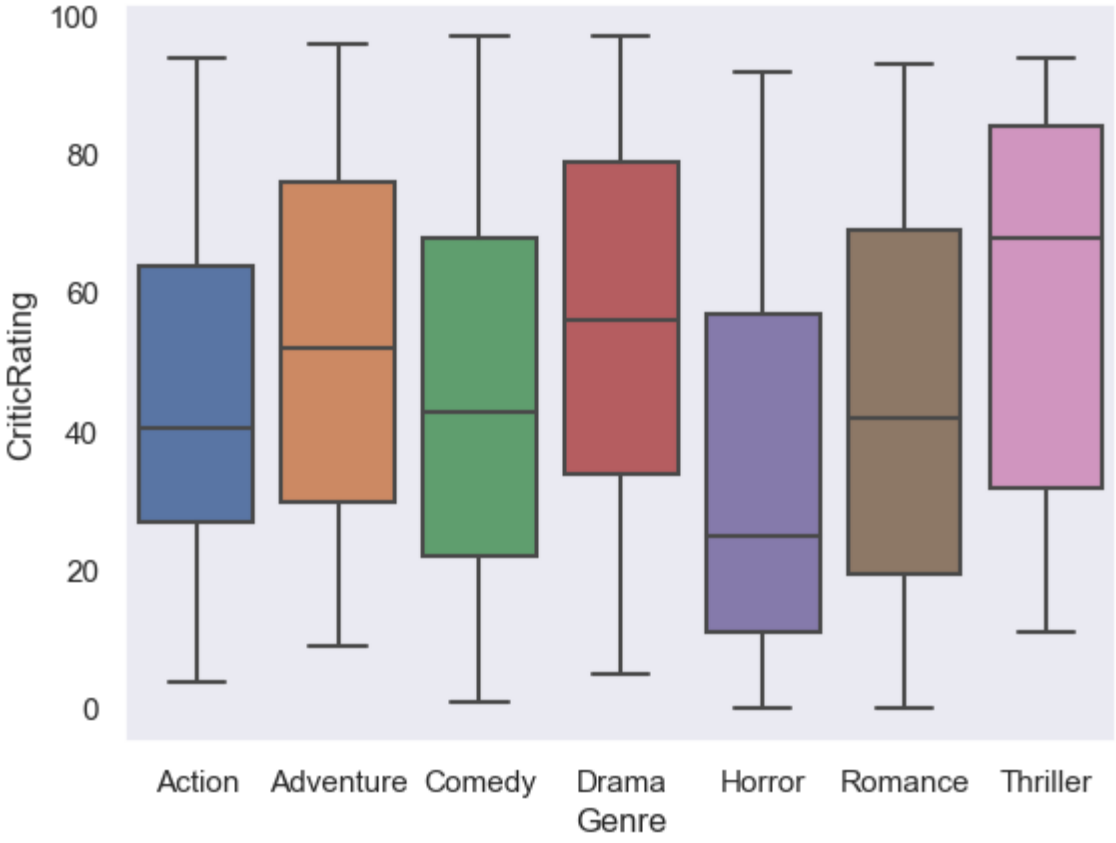


In [79]:
```
axes
```

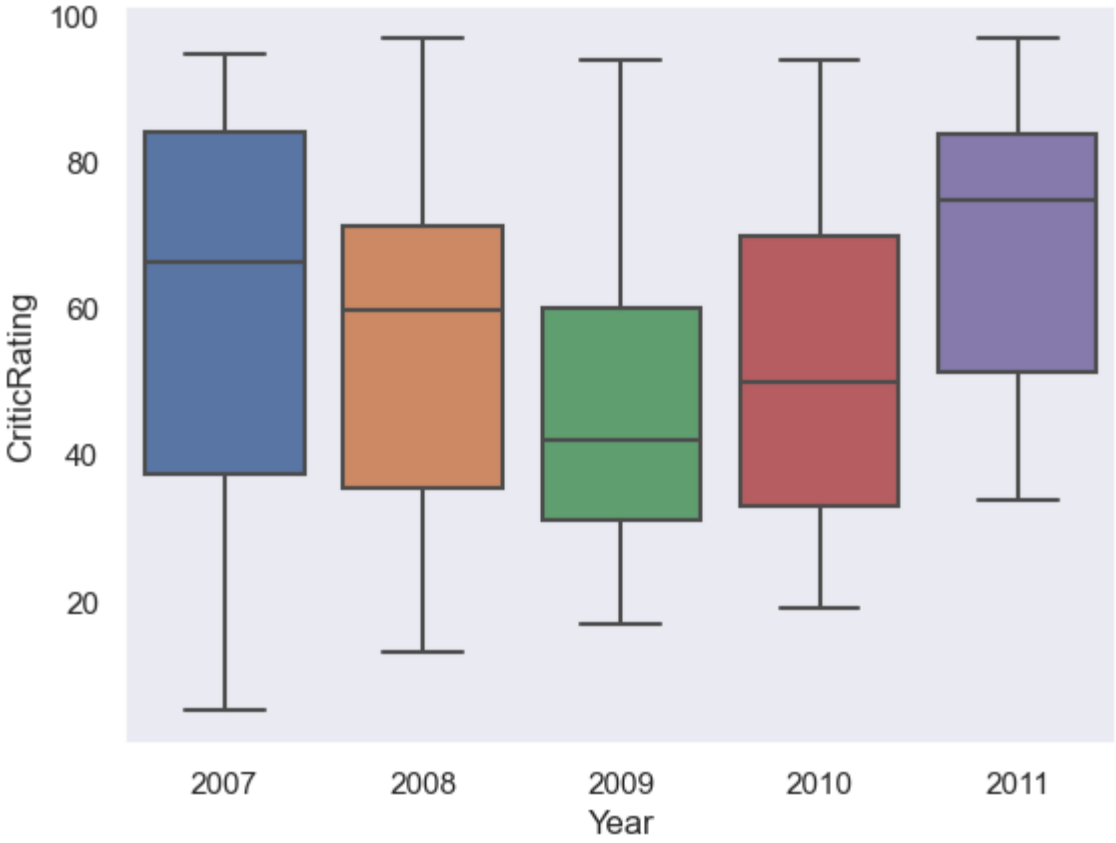
Out[79]:
```
array([<Axes: xlabel='BudgetMillions', ylabel='AudienceRating'>,
       <Axes: xlabel='BudgetMillions', ylabel='CriticRating'>],
      dtype=object)
```

box plots

In [80]:
```
w = sns.boxplot(data=movies, x = 'Genre', y = 'CriticRating')
# here we are finding critical rating in 'all movies category
```

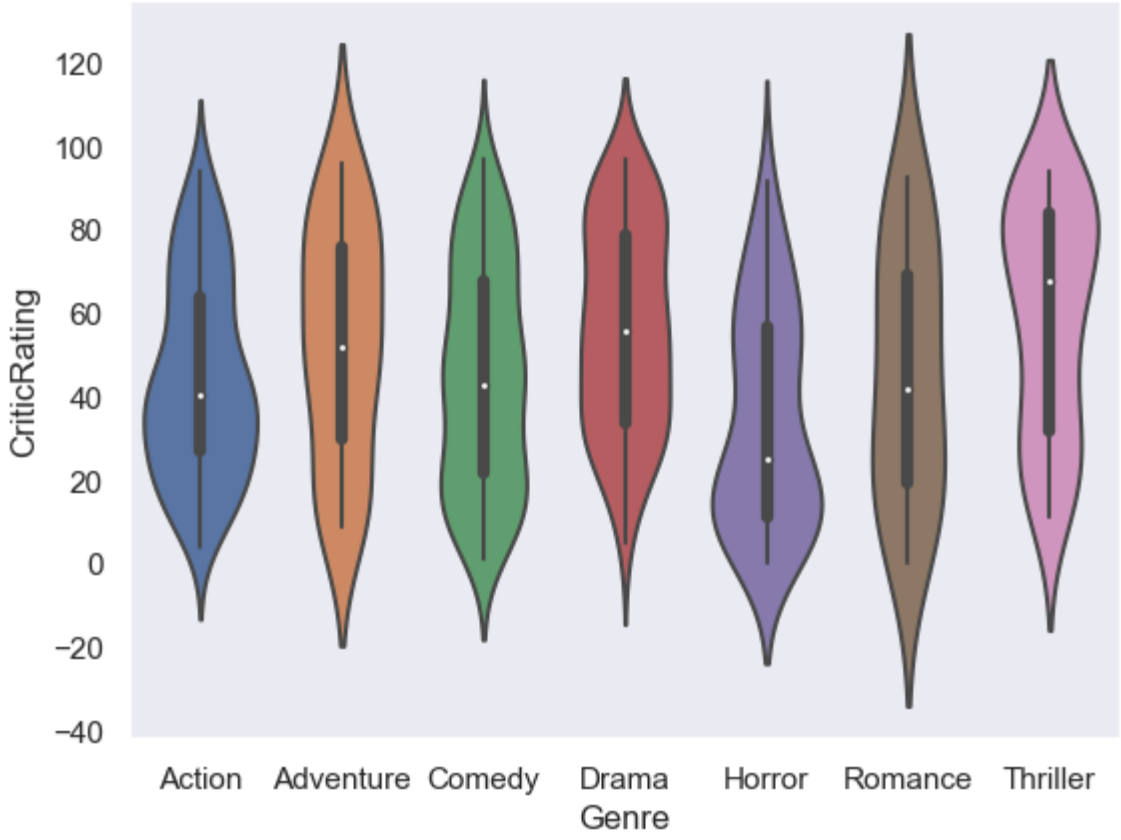


In [81]:
```
w1 = sns.boxplot(data=movies[movies.Genre == 'Drama'], x = 'Year', y = 'Critic
# here we are finding critical rating in 'movies of 5 years
```

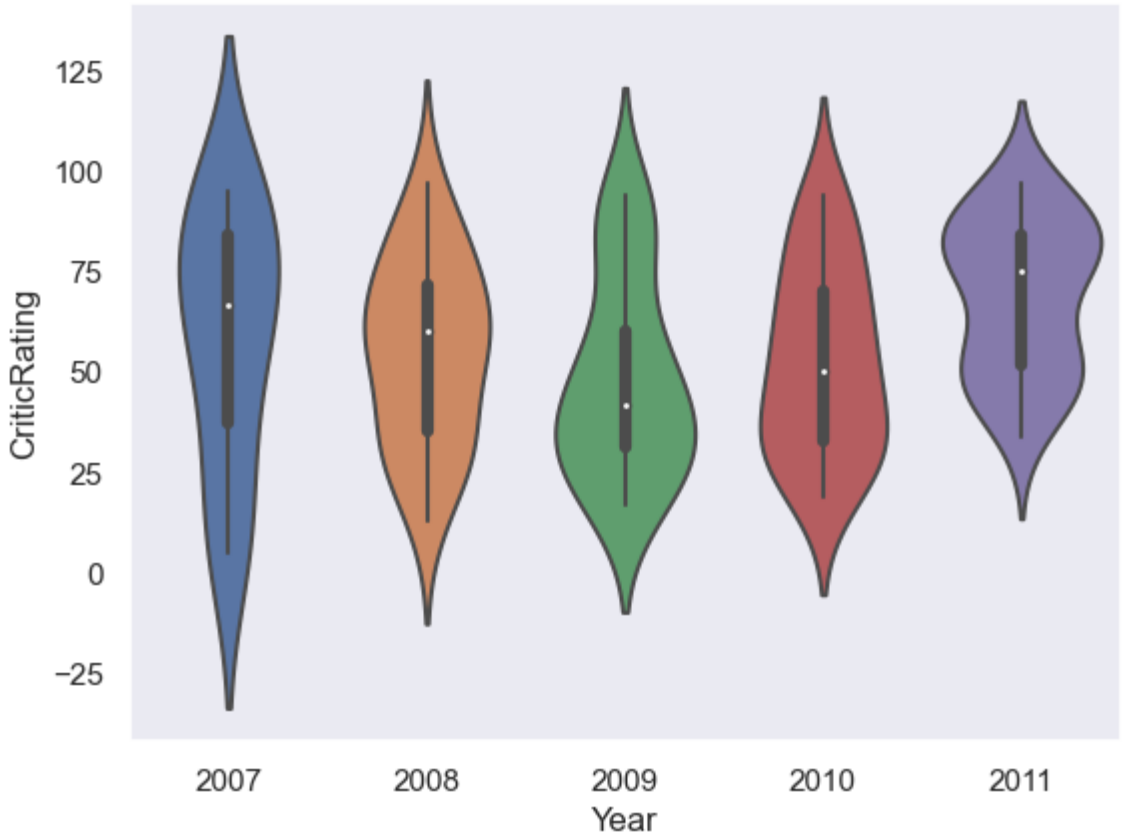


violin plot

In [82]:
```
z = sns.violinplot(data =movies, x = 'Genre', y = 'CriticRating')
```

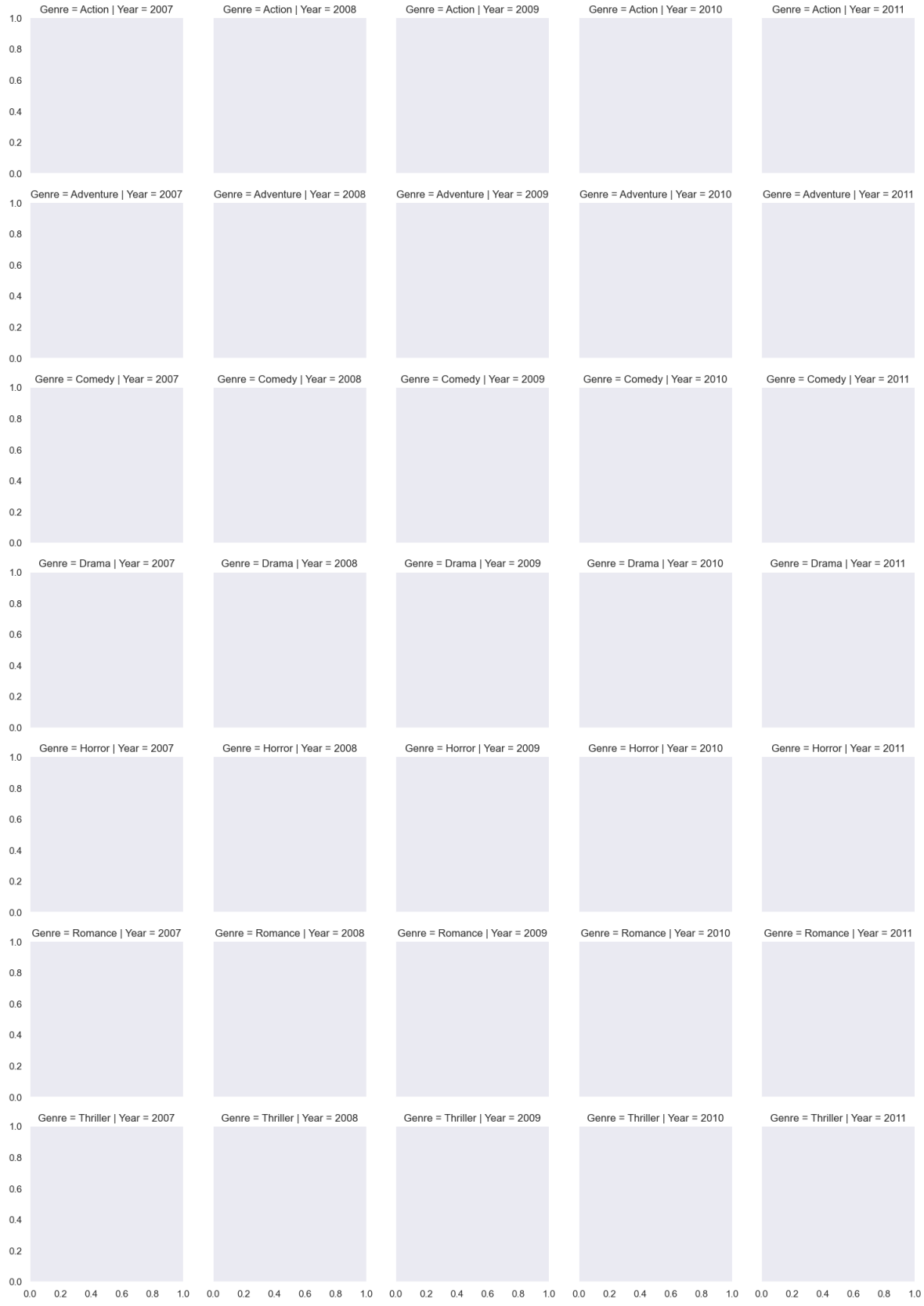


In [83]:
```
z1 = sns.violinplot(data = movies[movies.Genre == 'Drama'],  x = 'Year', y = '
```



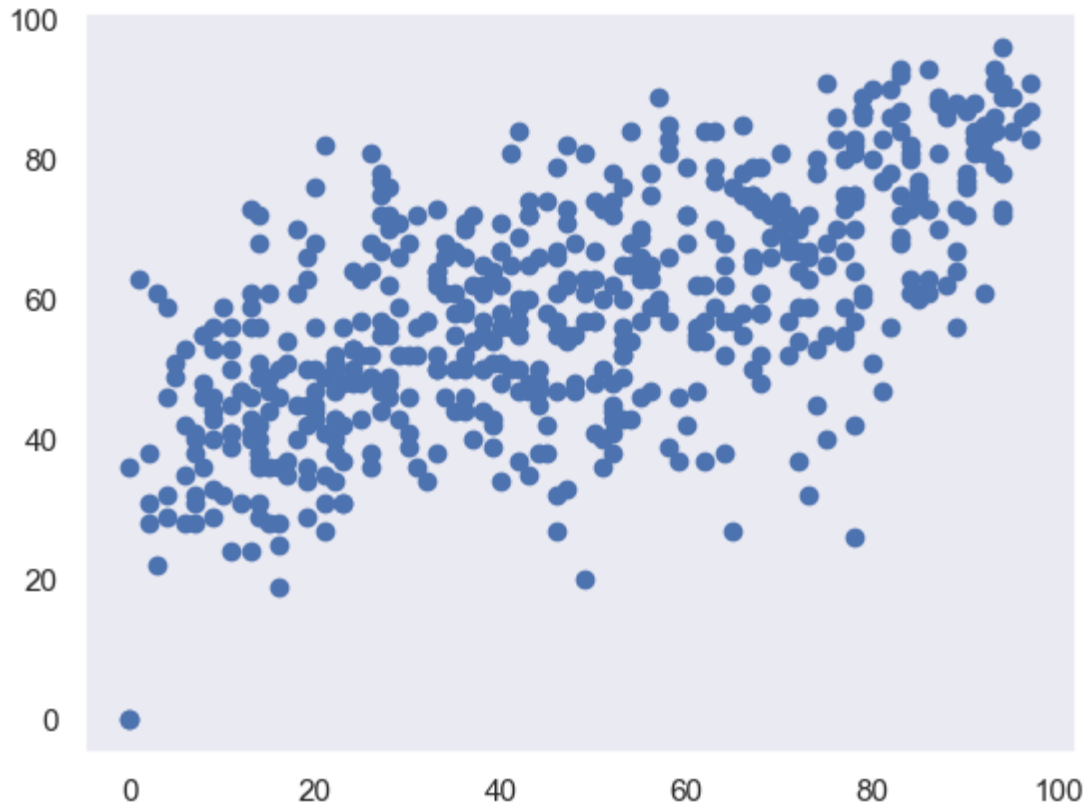
Facet Grid

In [84]:
```
g = sns.FacetGrid (movies, row = 'Genre', col = 'Year', hue = 'Genre')  #kind
```



In [85]:
```
plt.scatter(x = movies.CriticRating,  y = movies.AudienceRating)
```

Out[85]:
```
<matplotlib.collections.PathCollection at 0x2567d69e800>
```



In [ ]:
```
g = sns.FacetGrid(movies, row = 'Genre', col = 'Year', hue = 'Genre')
g = g.map(plt.scatter, 'CriticRating',  'AudienceRating')
# g = g.map(plt.scatter, x = movies.CriticRating,  y = movies.AudienceRating)
# as you can see scatterplots are mapped in facetgrid
```

In [ ]:
```
# you can populated any type of chart
g = sns.FacetGrid(movies, row='Genre', col = 'Year', hue = 'Genre')
g = g.map(plt.hist, 'BudgetMillions')
# as you can see scatterplots are mapped in facetgrid
```

In [ ]:
```
g =sns.FacetGrid (movies, row = 'Genre', col = 'Year', hue = 'Genre')
kws = dict(s=50, linewidth=0.5,edgecolor='black')
g = g.map(plt.scatter, 'CriticRating', 'AudienceRating',**kws )
# scatterplots are mapped in facetgrid
```

In [ ]:
```
sns.set_style('darkgrid')
f, axes = plt.subplots(2, 2, figsize = (15, 15))
k1 = sns.kdeplot(x = movies.BudgetMillions, y = movies.AudienceRating,ax=axes[
k2 = sns.kdeplot(x = movies.BudgetMillions, y = movies.CriticRating,ax = axes[

k1.set(xlim = (-20, 160))
k2.set(xlim = (-20, 160))

z1 = sns.violinplot(data = movies[movies.Genre == 'Drama'],  x = 'Year', y = '

k4 = sns.kdeplot(x = movies.CriticRating, y = movies.AudienceRating, shade = T
k4b = sns.kdeplot(x = movies.CriticRating, y = movies.AudienceRating, cmap='Re

plt.show()
```

In [ ]:
```
# How can you style your dashboard  using different color map
sns.set_style('dark', {'axes.facecolor' : 'black'})
f, axes = plt.subplots (2, 2, figsize = (15, 15))

# Plot[0, 0]
k1 = sns.kdeplot(x = movies.BudgetMillions, y = movies.AudienceRating, \
                 shade = True, shade_lowest=True,\
                 ax=axes[0,0])
k1b = sns.kdeplot(x = movies.BudgetMillions, y = movies.AudienceRating, cmap='
k1.set(xlim=(-20,160))



# Plot[0, 1]
k2 = sns.kdeplot(x = movies.BudgetMillions, y = movies.CriticRating, \
                 shade = True, shade_lowest=True, cmap='inferno',\
                 ax = axes[0,1])
k2b = sns.kdeplot(x = movies.BudgetMillions,y = movies.CriticRating,\
                  cmap = 'cool', ax = axes[0,1])
k2.set(xlim=(-20,160))


# Plot[1, 0]
z = sns.violinplot(data=movies[movies.Genre=='Drama'], \
                   x='Year', y = 'CriticRating', ax=axes[1,0])


# Plot[1, 1]
k4 = sns.kdeplot(x = movies.CriticRating, y = movies.AudienceRating, \
                 shade = True,shade_lowest=False,cmap='Blues_r', \
                 ax=axes[1,1])

k4b = sns.kdeplot(x = movies.CriticRating, y = movies.AudienceRating, \
                  cmap='gist_gray_r',ax = axes[1,1])


plt.show()
```