In [1]:

```
import pandas as pd
```

In [2]:

```
movies = pd.read_csv('Movie-Ratings-.csv')
```

In [3]:

```
len(movies)
```

Out[3]:

```
559
```

In [4]:

```
movies.head()
```

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

In [5]:

```
movies.columns
```

Out[5]:

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

In [6]:

```
# Adjustment
movies.columns = ['Film','Genre','CriticRating','AudienceRating','BudgetMillions','Year']
```

In [7]:

```
movies.head() # First 6 records
```

Out[7]:

	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 [8]:

```
movies.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 559 entries, 0 to 558
Data columns (total 6 columns):
Film              559 non-null object
Genre             559 non-null object
CriticRating      559 non-null int64
AudienceRating    559 non-null int64
BudgetMillions    559 non-null int64
Year              559 non-null int64
dtypes: int64(4), object(2)
memory usage: 21.9+ KB
```

In [9]:

```
movies.describe()  # Year !!!!!!
```

Out[9]:

	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

In [10]:

```
movies.Film = movies.Film.astype('category')
movies.Genre = movies.Genre.astype('category')
movies.Year = movies.Year.astype('category')
```

In [11]:

```
movies.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 559 entries, 0 to 558
Data columns (total 6 columns):
Film              559 non-null category
Genre             559 non-null category
CriticRating      559 non-null int64
AudienceRating    559 non-null int64
BudgetMillions    559 non-null int64
Year              559 non-null category
dtypes: category(3), int64(3)
memory usage: 17.6 KB
```

In [12]:

```
movies.Genre.cat.categories
```

Out[12]:

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

In [13]:

```
movies.Year.cat.categories
```

Out[13]:

```
Int64Index([2007, 2008, 2009, 2010, 2011], dtype='int64')
```

In [14]:

```
movies.describe()
```

Out[14]:

	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 [15]:

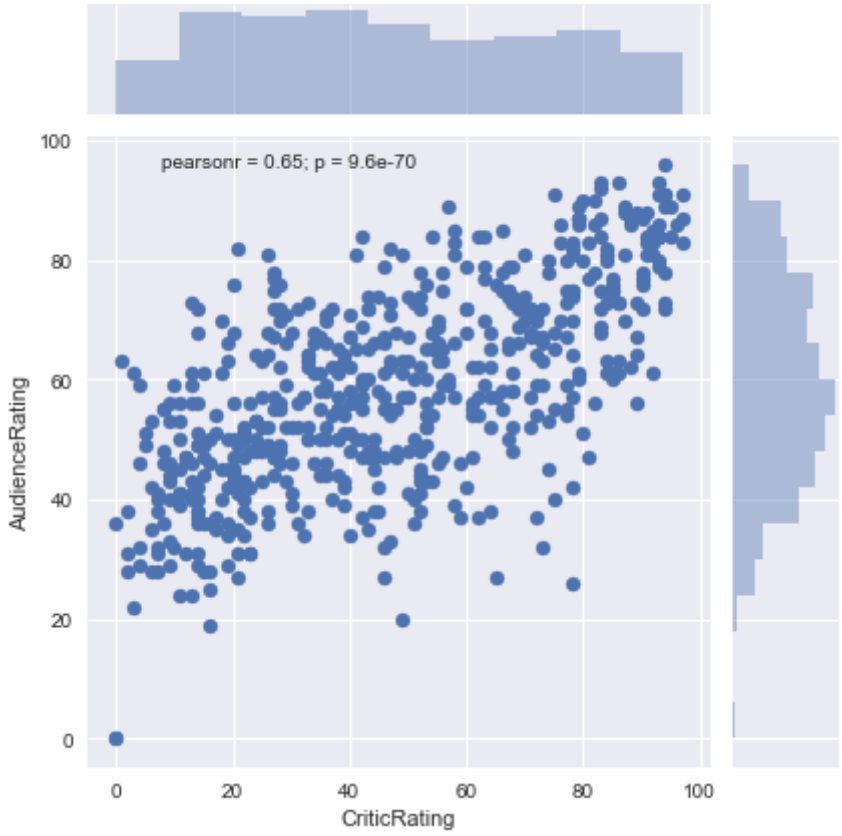
```
from matplotlib import pyplot as plt
import seaborn as sns
%matplotlib inline
import warnings
warnings.filterwarnings('ignore')
```

In [16]:

```
#JoinPlots
```

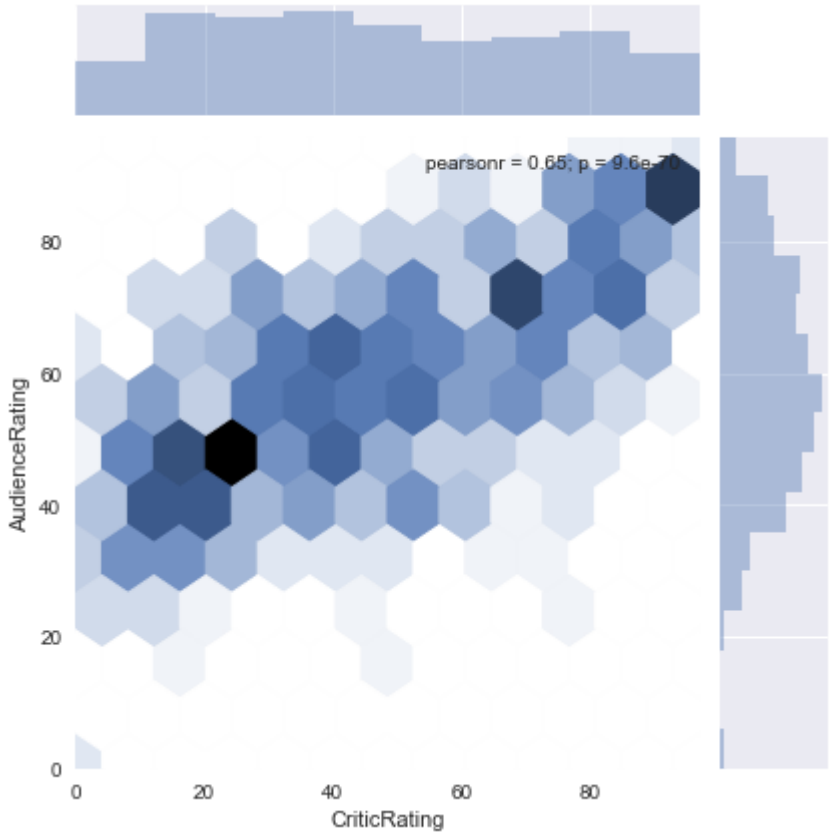
In [17]:

```
join1 = sns.jointplot(data=movies, x='CriticRating', y='AudienceRating')
```



In [18]:

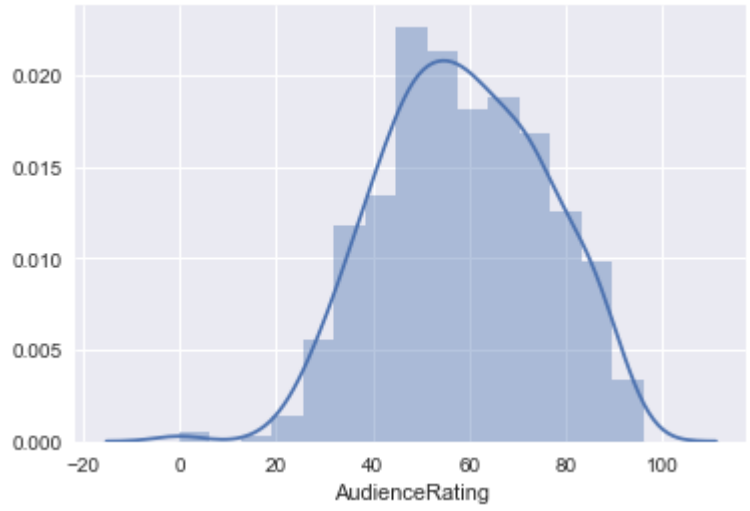
```
join2 = sns.jointplot(data=movies, x='CriticRating', y='AudienceRating', kind='hex')
#kind : { "scatter" | "reg" | "resid" | "kde" | "hex" }, optiona  ---  Kind of plot to draw
```



Histograms

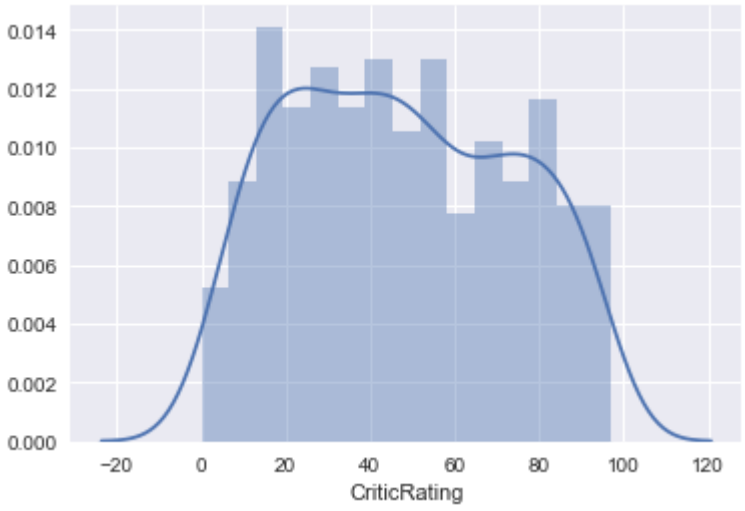
In [19]:

```
histo1 = sns.distplot(movies.AudienceRating, bins=15)
```



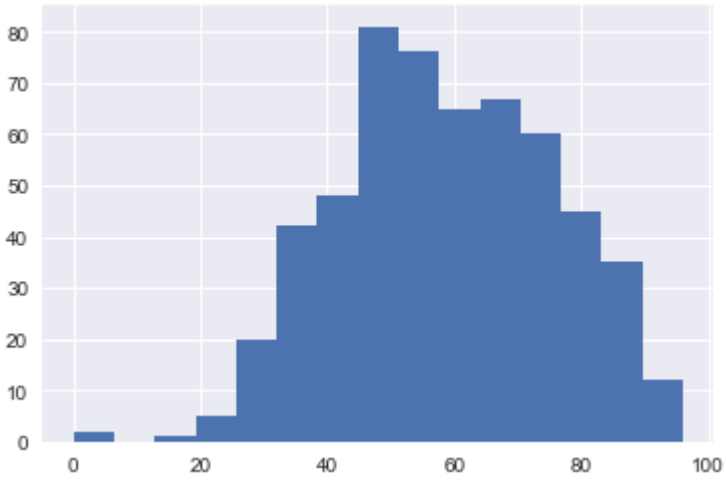
In [20]:

```
histo1 = sns.distplot(movies.CriticRating, bins=15)
```



In [21]:

```
sns.set_style('darkgrid')
#sns.set_style('white')
n1 = plt.hist(movies.AudienceRating, bins=15)
```



In [22]:

```
n1 = plt.hist(movies.CriticRating, bins=15 )
```

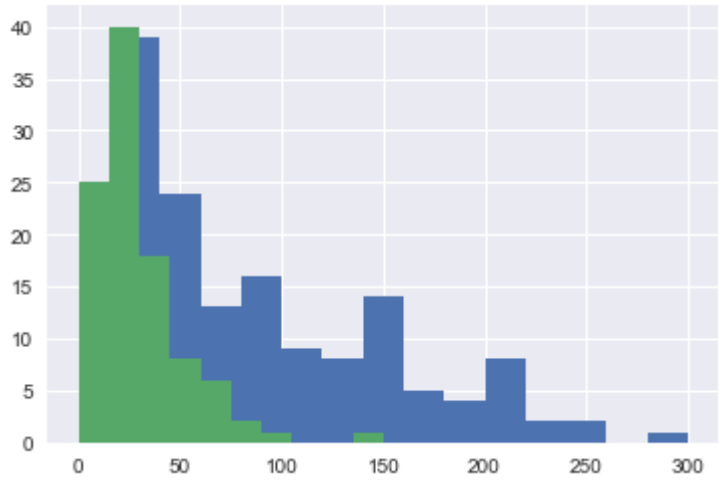
Stacked Histogram

In [23]:

```
plt.hist(movies[movies.Genre == "Action"].BudgetMillions, bins=15) # plt.show()
plt.hist(movies[movies.Genre == "Drama"].BudgetMillions) # plt.show()
```

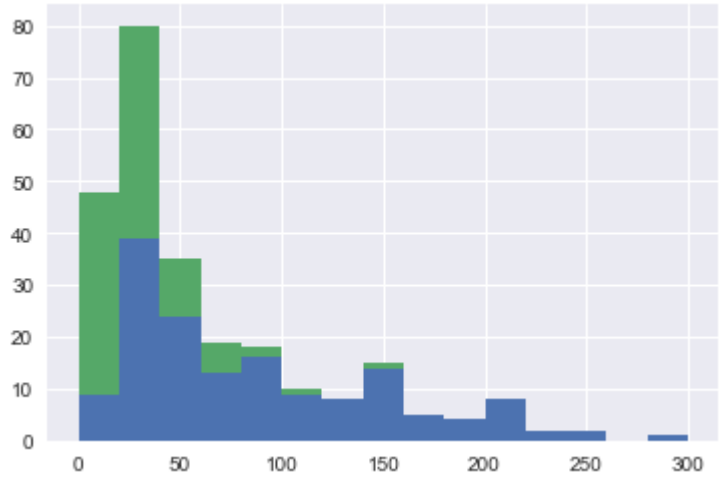
Out[23]:

```
(array([ 25.,  40.,  18.,   8.,   6.,   2.,   1.,   0.,   0.,   1.]),
 array([   0.,   15.,   30.,   45.,   60.,   75.,   90.,  105.,  120.,
         135.,  150.]),
 <a list of 10 Patch objects>)
```



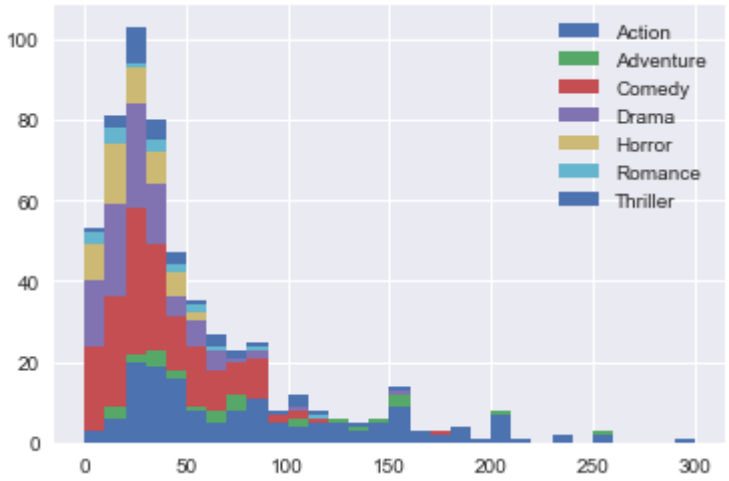
In [24]:

```
plt.hist([movies[movies.Genre == "Action"].BudgetMillions ,
          movies[movies.Genre == "Drama"].BudgetMillions],bins = 15 , stacked=True)
plt.show()
```



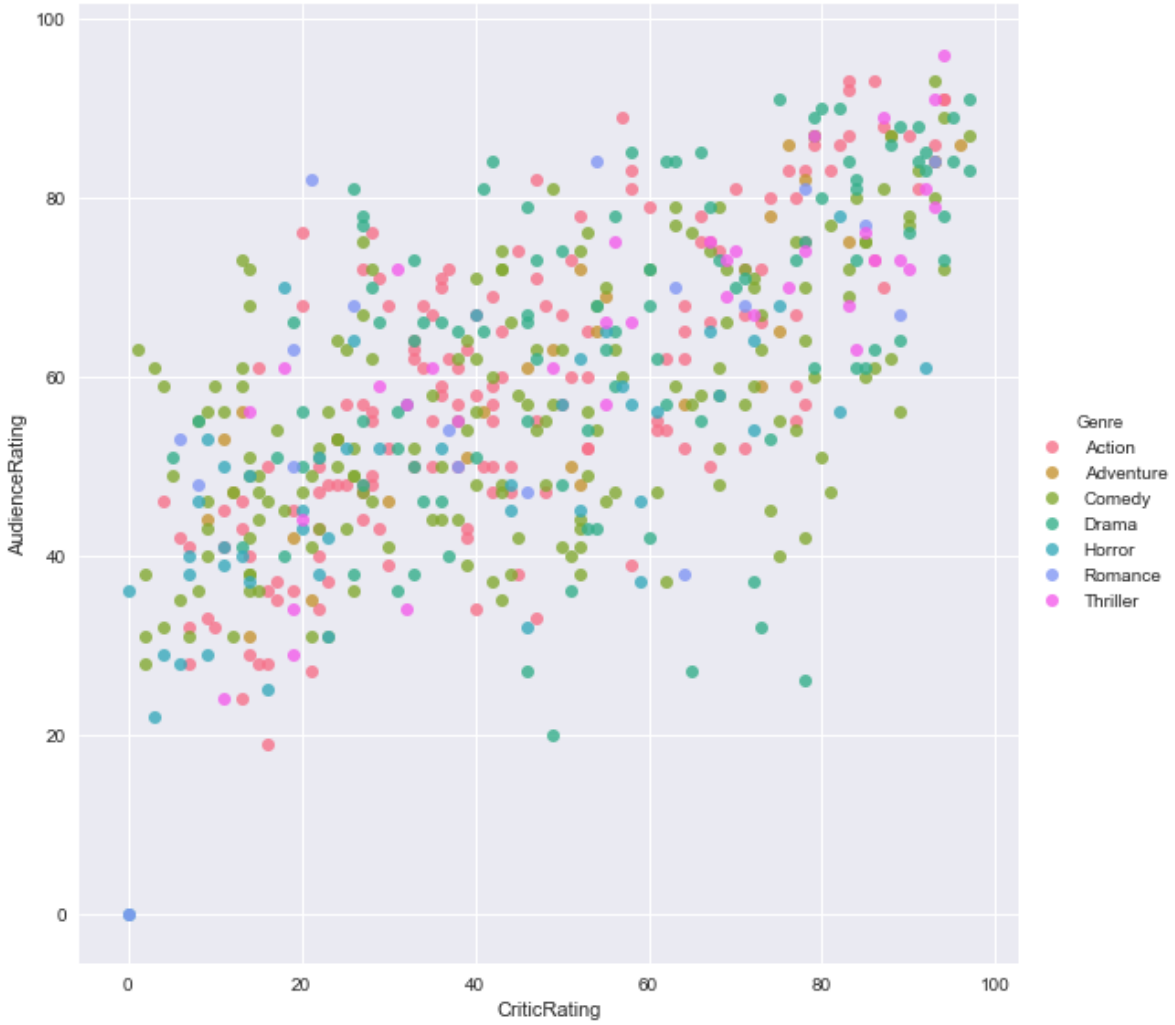
In [25]:

```
list1= list() # or list1= []
mylabel = list()
for gen in movies.Genre.cat.categories:
    list1.append( movies[movies.Genre == gen].BudgetMillions )
    mylabel.append(gen)

plt.hist(list1, bins=30 , stacked=True, rwidth=1 , label=mylabel)
plt.legend()
plt.show()
```



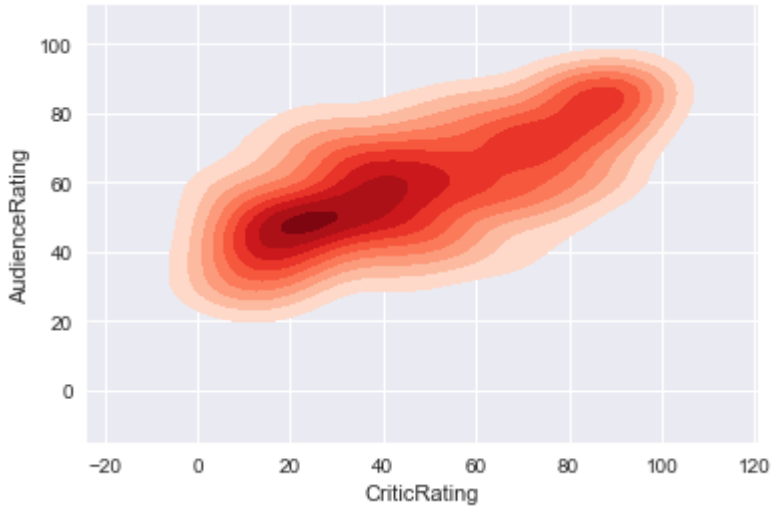
In [26]:

```
vis5 = sns.lmplot(data=movies , x='CriticRating', y='AudienceRating' , fit_reg=False , hue=
                  size=8 , aspect=1)
```



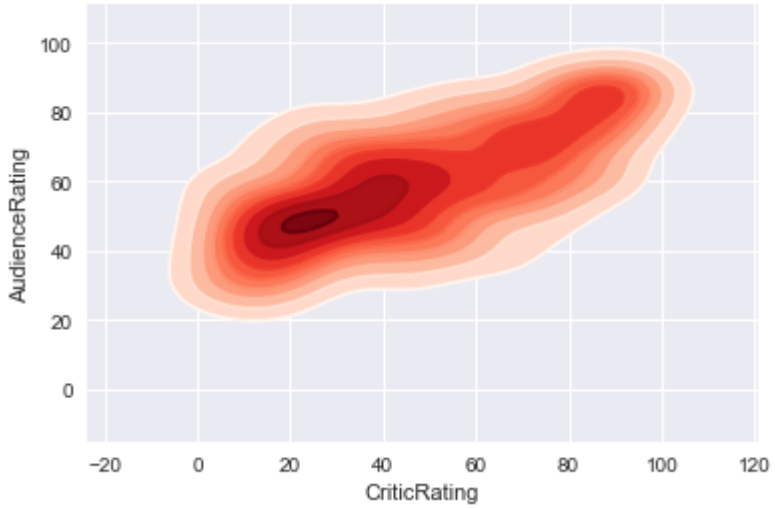
In [27]:

```
k1 = sns.kdeplot(movies.CriticRating,movies.AudienceRating,
                 shade=True , shade_lowest=False , cmap='Reds') # kernel density estimati
# Tipe
#k2 = sns.kdeplot(movies.CriticRating,movies.AudienceRating,
#                 cmap='Reds') # kernel density estimation  Plot
```



In [28]:

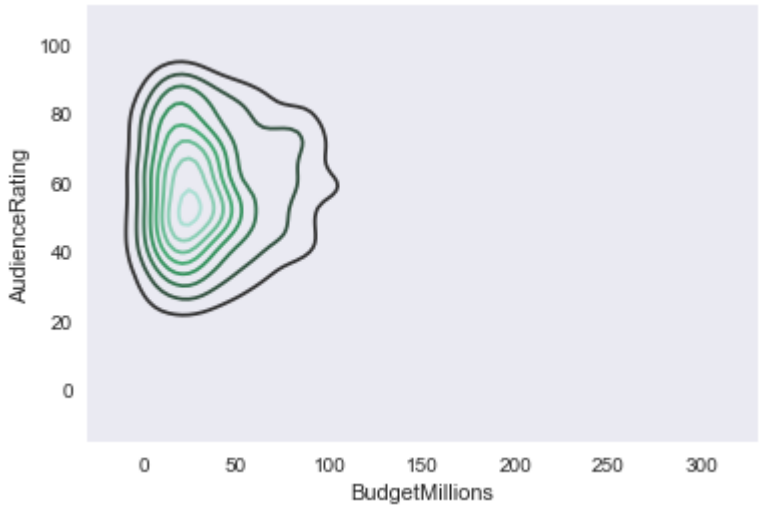
```
k1 = sns.kdeplot(movies.CriticRating,movies.AudienceRating,
                 shade=True , shade_lowest=False , cmap='Reds') # kernel density estimati
# Tipe
k2 = sns.kdeplot(movies.CriticRating,movies.AudienceRating,
                 cmap='Reds') # kernel density estimation  Plot
```



Working with Subplots()

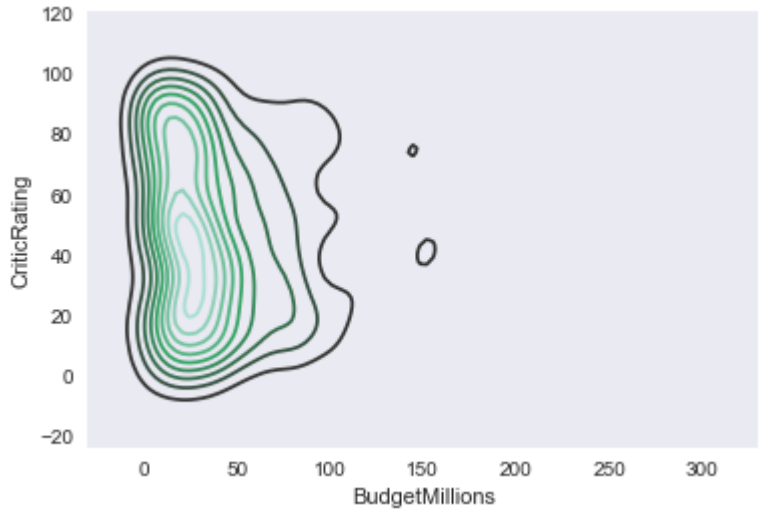
In [29]:

```
sns.set_style('dark')
k4 = sns.kdeplot(movies.BudgetMillions,movies.AudienceRating) # # Closer to normal dist
```



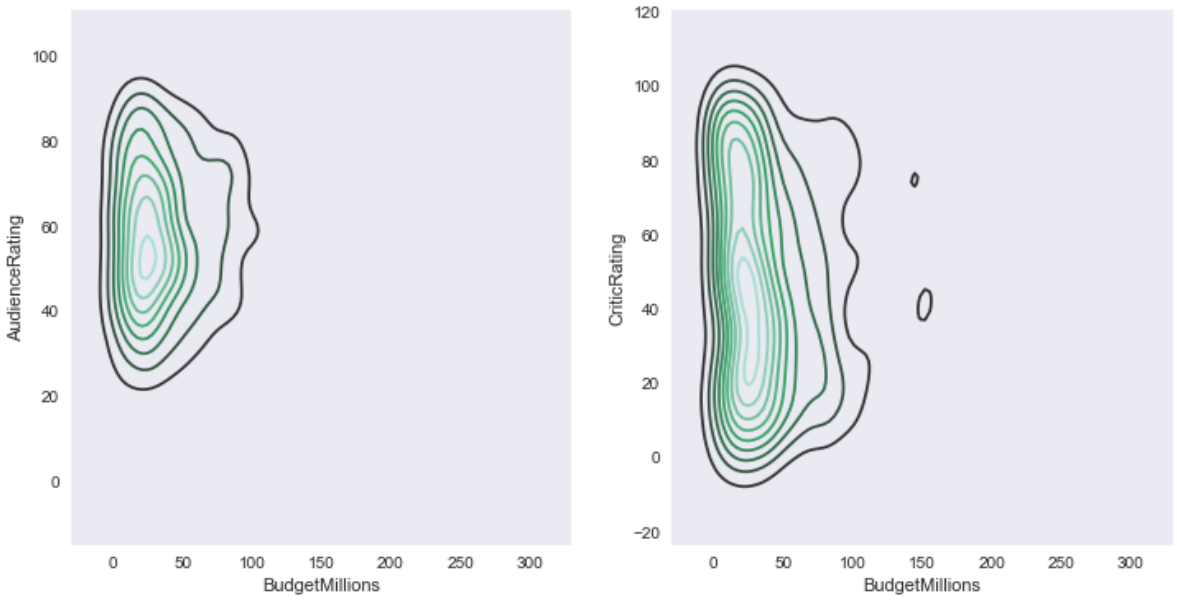
In [30]:

```
k5 = sns.kdeplot(movies.BudgetMillions,movies.CriticRating) # # Closer to uniform dist
```



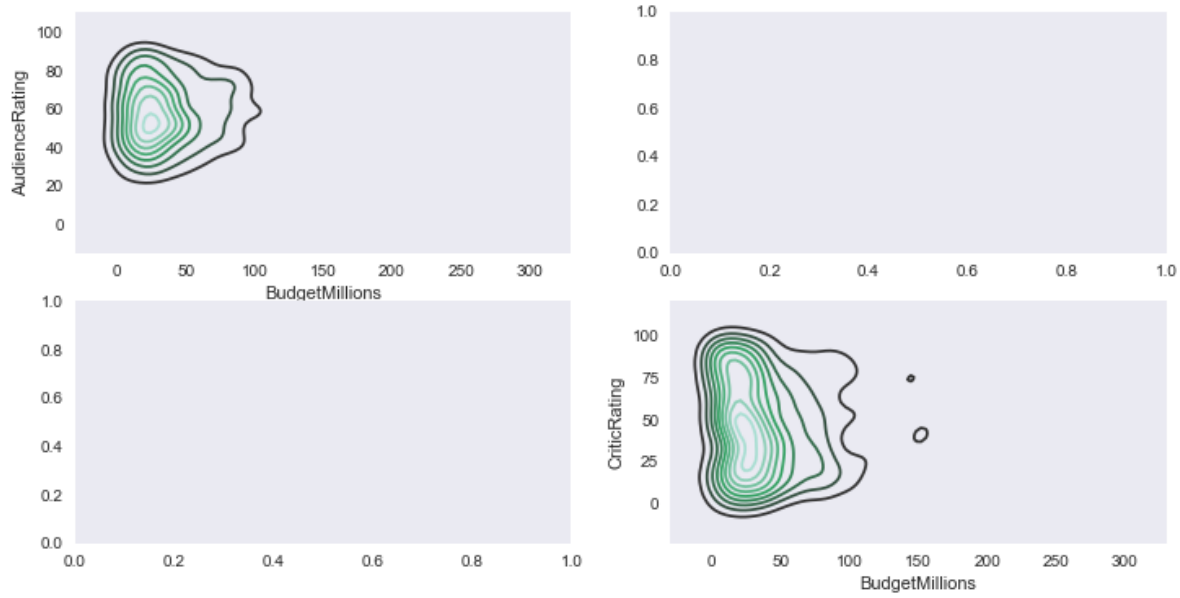
In [31]:

```
f, axes = plt.subplots(1, 2 , figsize=(12,6))
k4 = sns.kdeplot(movies.BudgetMillions,movies.AudienceRating , ax=axes[0])
k5 = sns.kdeplot(movies.BudgetMillions,movies.CriticRating , ax=axes[1])
# F IS THE FIGURE
# axes is ana array of length 2
```



In [32]:

```
f, axes = plt.subplots(2, 2 , figsize=(12,6))
k4 = sns.kdeplot(movies.BudgetMillions,movies.AudienceRating , ax=axes[0,0])
k5 = sns.kdeplot(movies.BudgetMillions,movies.CriticRating , ax=axes[1,1])
# F IS THE FIGURE
# axes is ana array of length 2
```

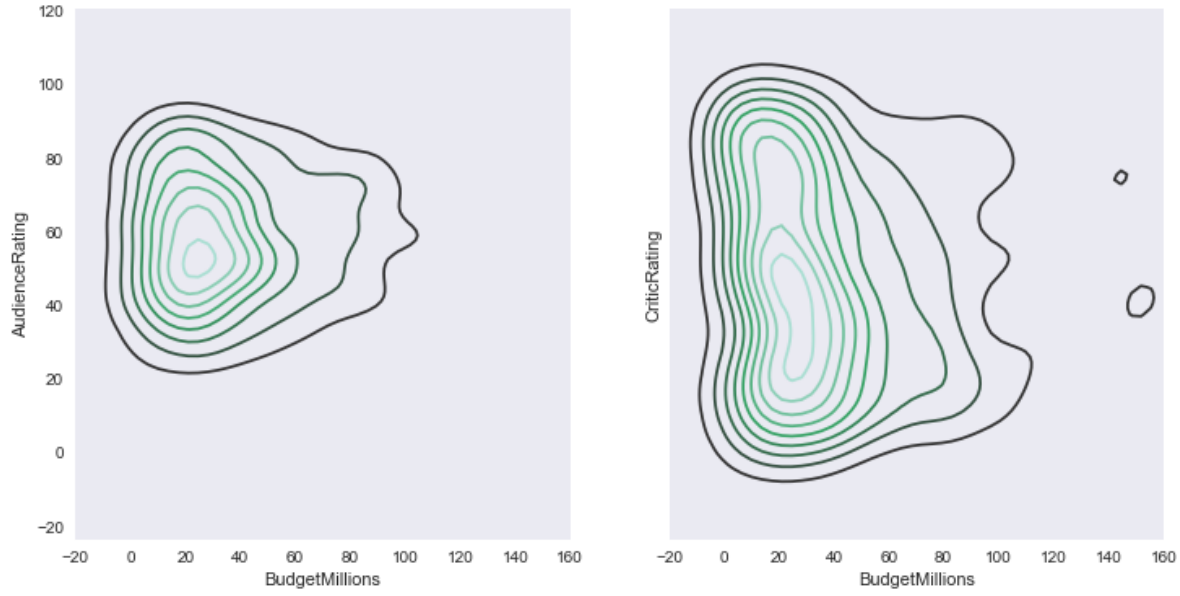


In [33]:

```
f, axes = plt.subplots(1, 2 , figsize=(12,6), sharex=True, sharey=True)
k4 = sns.kdeplot(movies.BudgetMillions,movies.AudienceRating , ax=axes[0])
k5 = sns.kdeplot(movies.BudgetMillions,movies.CriticRating , ax=axes[1])
k4.set(xlim=(-20,160))
#k4.set(xlim=(-20,160)) sharex is more better
# F IS THE FIGURE
# axes is ana array of length 2
```

Out[33]:

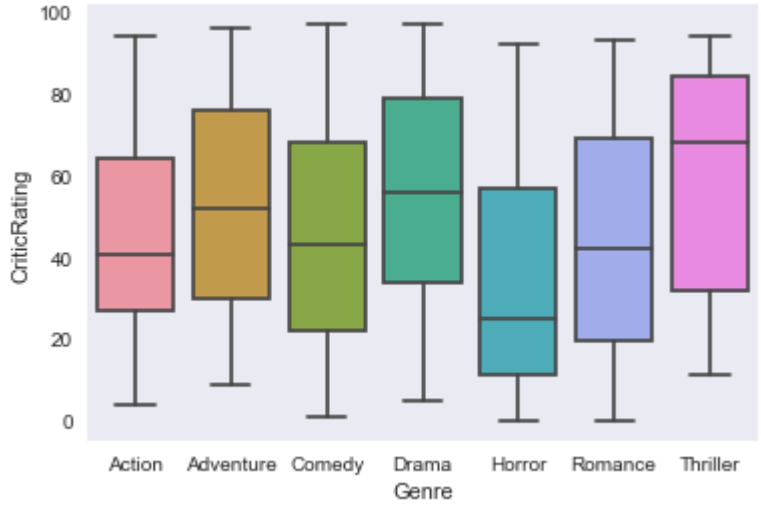
```
[(-20, 160)]
```



Violinplot VS Boxplots

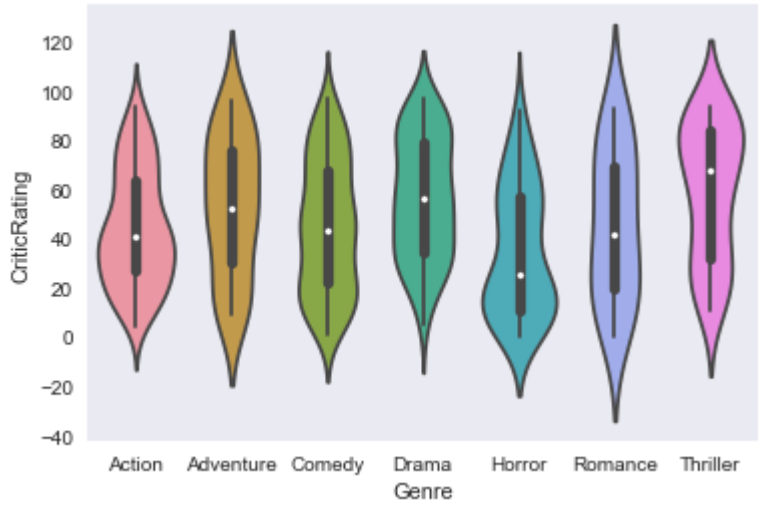
In [34]:

```
first = sns.boxplot(data=movies , x='Genre' , y='CriticRating')
```



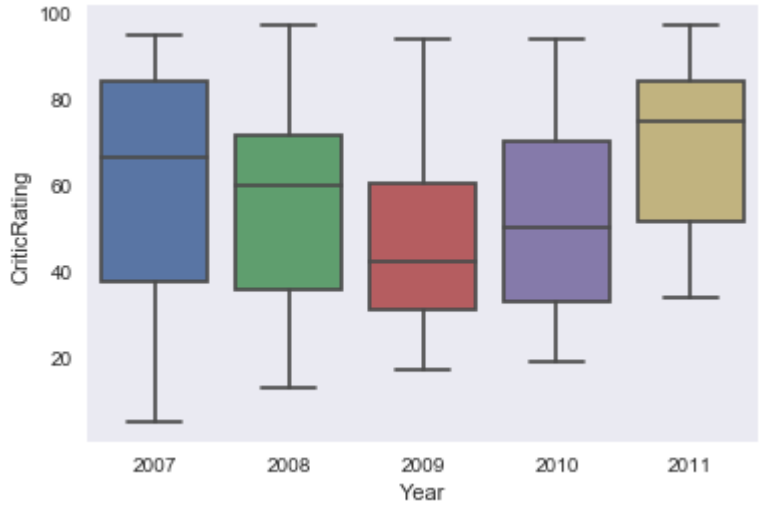
In [35]:

```
second = sns.violinplot(data=movies , x='Genre' , y='CriticRating')
# Width tells you the number of points in the area
```



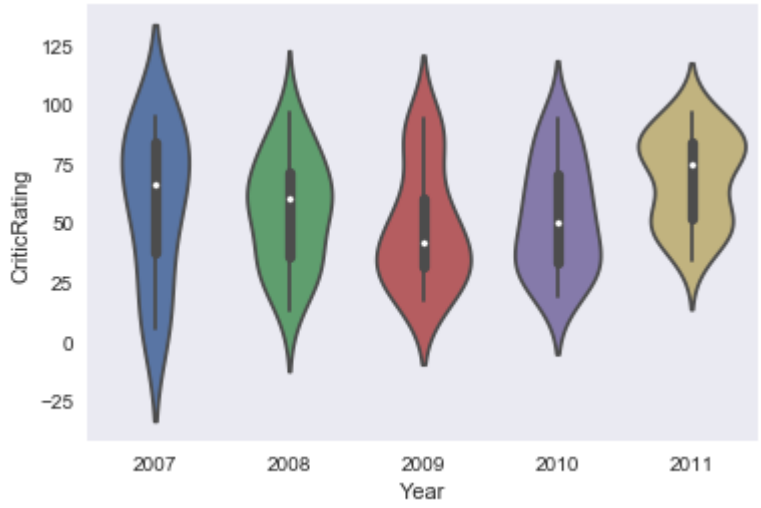
In [36]:

```
DramaOnlyBox = sns.boxplot(data=movies[movies.Genre=='Drama'] , x='Year' , y='CriticRating'
```



In [37]:

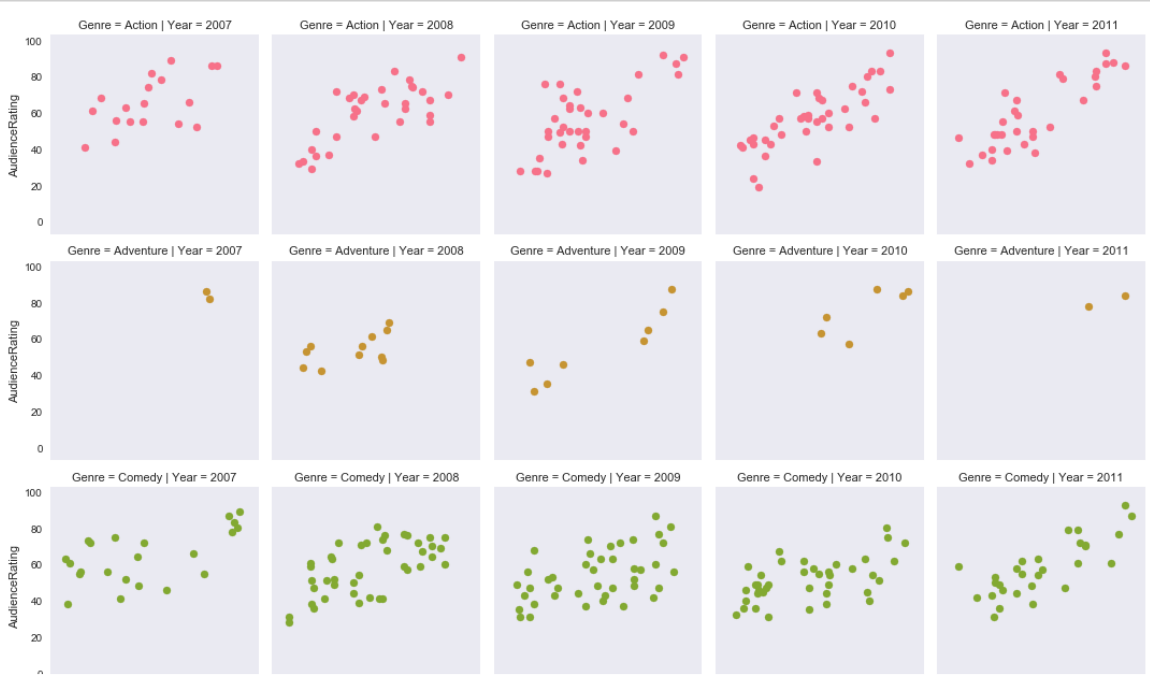
```
DramaOnlyViolin = sns.violinplot(data=movies[movies.Genre=='Drama'] , x='Year' , y='CriticR
```



vilonplots are better in visualisation

In [38]:

```
g = sns.FacetGrid(movies, row='Genre', col='Year' ,hue='Genre')
g = g.map(plt.scatter, 'CriticRating' , 'AudienceRating') # this is mapping
```



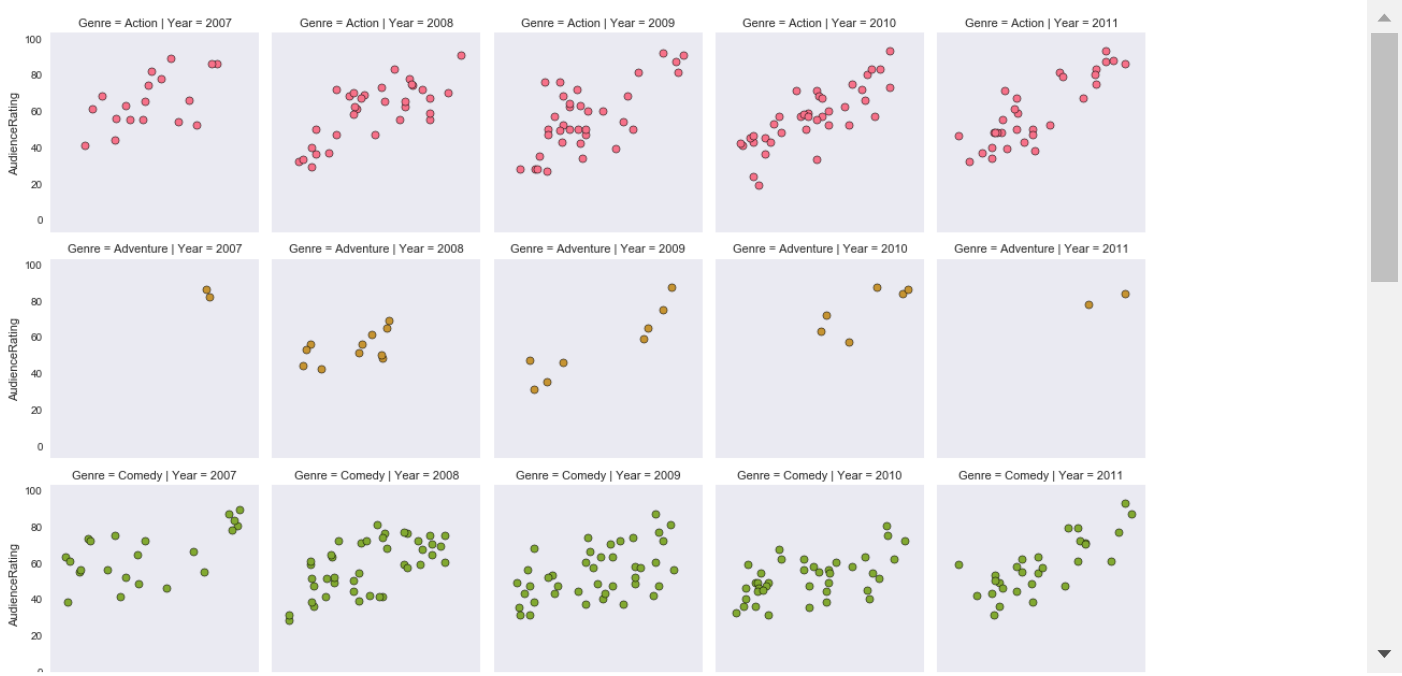
can populate with any much type of charts

In [39]:

```
g1 = sns.FacetGrid(movies, row='Genre', col='Year' ,hue='Genre')
g1 = g1.map(plt.hist, 'BudgetMillions' )
```

In [40]:

```
g3 = sns.FacetGrid(movies, row='Genre', col='Year' ,hue='Genre')
kws = dict(s=50, linewidth=0.5 , edgecolor='black' )
g3 = g3.map(plt.scatter, 'CriticRating' , 'AudienceRating', **kws)
```



In [41]:

```
kws
```

Out[41]:

```
{'edgecolor': 'black', 'linewidth': 0.5, 's': 50}
```

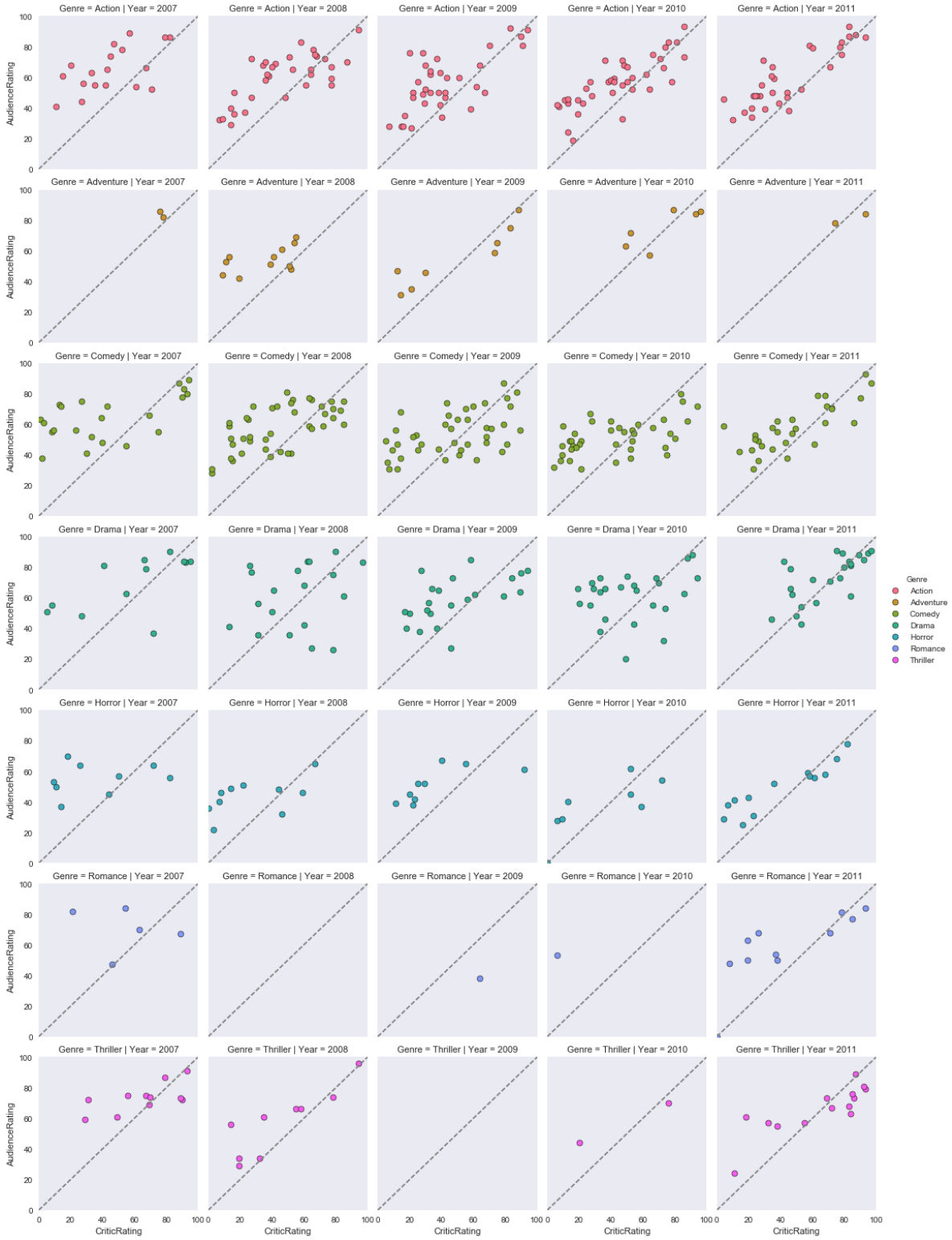
Coordinates and Diagonals

In [42]:

```
# controling axes and Diagonals
g3 = sns.FacetGrid(movies, row='Genre', col='Year' ,hue='Genre')
kws = dict(s=50, linewidth=0.5 , edgecolor='black' )
g3 = g3.map(plt.scatter, 'CriticRating' , 'AudienceRating', **kws)
g3.set(xlim=(0,100),ylim=(0,100))
for ax in g3.axes.flat:
    ax.plot((0,100),(0,100), c='gray' , ls='--')
g3.add_legend()
```

Out[42]:

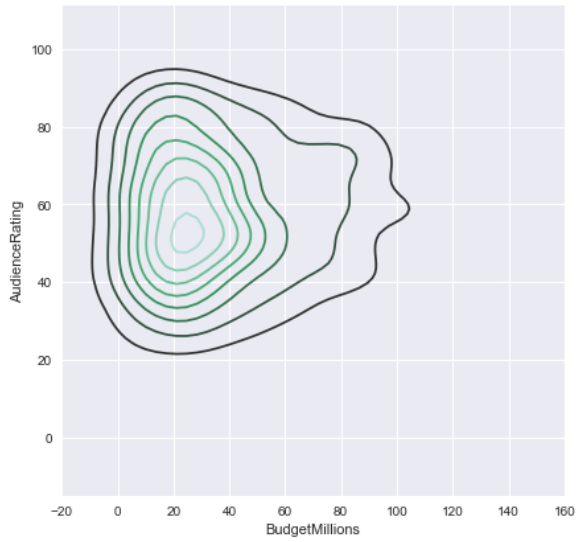
```
<seaborn.axisgrid.FacetGrid at 0x1278ea50>
```

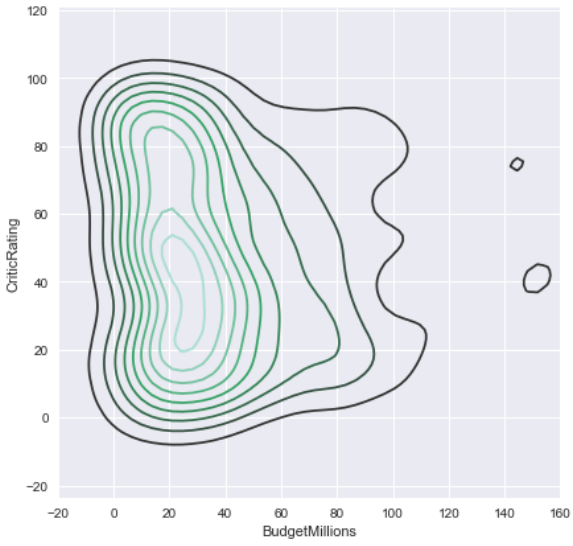


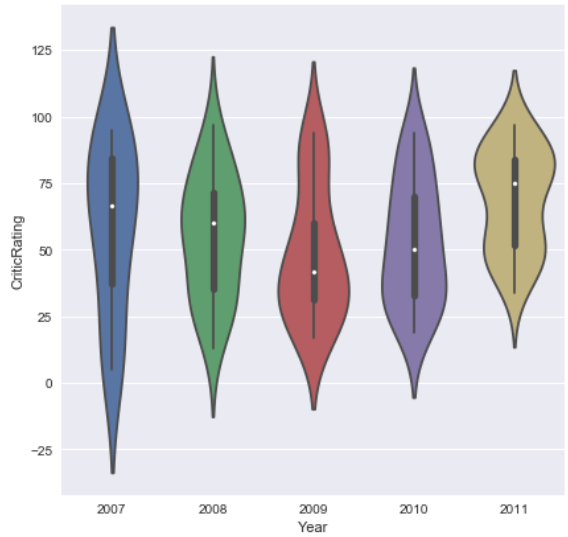
Building Dashboards in Python

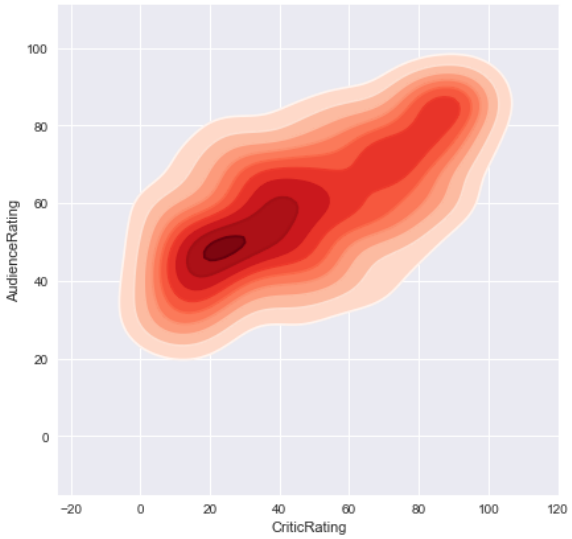
In [43]:

```
sns.set_style("darkgrid")
f, axes = plt.subplots(2, 2 , figsize=(15,15))

k1 = sns.kdeplot(movies.BudgetMillions,movies.AudienceRating , ax=axes[0,0])
k2 = sns.kdeplot(movies.BudgetMillions,movies.CriticRating , ax=axes[0,1])
z1 = sns.violinplot(data=movies[movies.Genre=='Drama'] , x='Year' , y='CriticRating',ax=axe
z2 = sns.kdeplot(movies.CriticRating,movies.AudienceRating,shade=True , shade_lowest=False
z2 = sns.kdeplot(movies.CriticRating,movies.AudienceRating,cmap='Reds')

#n1 = plt.hist(movies.CriticRating, bins=15 ,ax=axes[1,1]) # will not work because it just
#axes[1,1].hist(movies.CriticRating, bins=15) # this is works and vice versa will not work
# because axes is Pyplot object

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





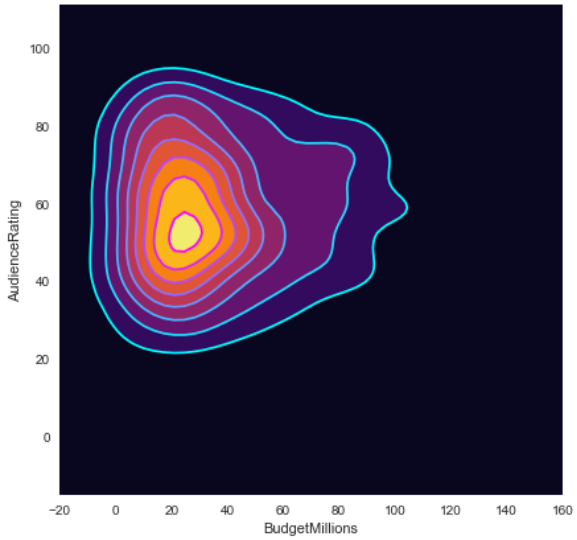


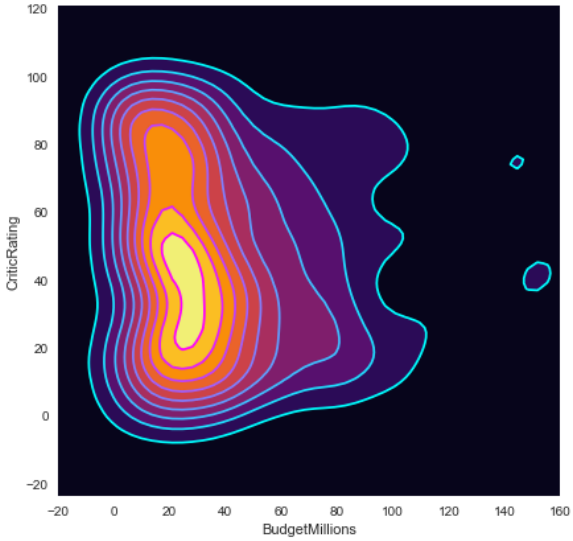


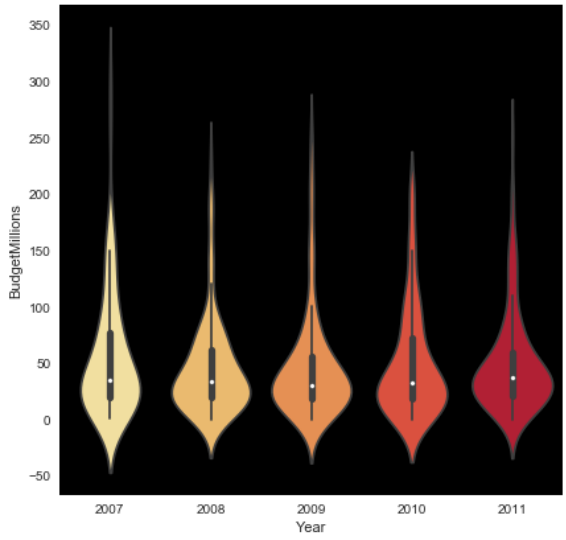
Styling Tips

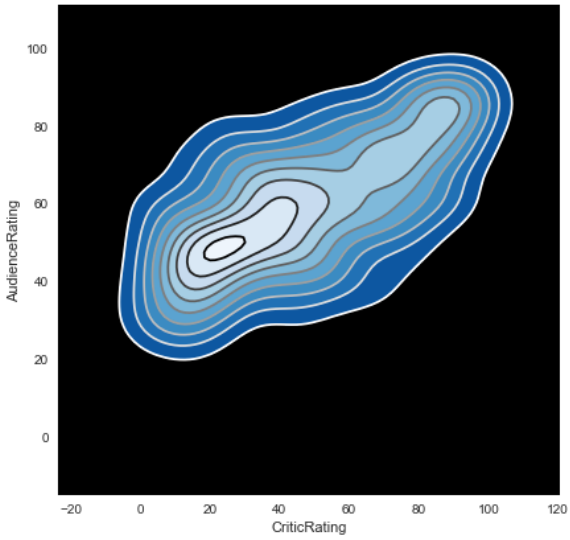
In [44]:

```
sns.set_style("dark", {"axes.facecolor": "black"})
f, axes = plt.subplots(2, 2 , figsize=(15,15))

# plot [0,0]
k1 = sns.kdeplot(movies.BudgetMillions,movies.AudienceRating ,
                 shade=True, shade_lowest=True, cmap='inferno', ax=axes[0,0])
k11 = sns.kdeplot(movies.BudgetMillions,movies.AudienceRating ,
                  cmap='cool', ax=axes[0,0])

# plot [0,1]
k2 = sns.kdeplot(movies.BudgetMillions,movies.CriticRating ,
                  shade=True, shade_lowest=True, cmap='inferno', ax=axes[0,1])
k22 = sns.kdeplot(movies.BudgetMillions,movies.CriticRating ,
                  cmap='cool', ax=axes[0,1])
# plot [1,0]
z1 = sns.violinplot(data=movies, x='Year' , y='BudgetMillions',
                   palette='YlOrRd', ax=axes[1,0])

# plot [1,1]
z2 = sns.kdeplot(movies.CriticRating,movies.AudienceRating,shade=True , shade_lowest=False
z22 = sns.kdeplot(movies.CriticRating,movies.AudienceRating,cmap='gist_gray_r')


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


AudienceRating
BudgetMillions


CriticRating
BudgetMillions


BudgetMillions
Year


AudienceRating
CriticRating

In [45]:

```
list1= list() # or list1= []
mylabel = list()
for gen in movies.Genre.cat.categories:
    list1.append( movies[movies.Genre == gen].BudgetMillions )
    mylabel.append(gen)

sns.set_style("whitegrid")
fig, axes = plt.subplots()
fig.set_size_inches(11.7 , 8.27) # Size of A4 Paper
plt.hist(list1, bins=30 , stacked=True, rwidth=1 , label=mylabel)
plt.title('Movie Budget Distribution', fontsize=35, color='DarkBlue', fontname='Console')
plt.ylabel('Number of Movies',fontsize=25, color='Red')
plt.xlabel('Budget',fontsize=25, color='Green')
plt.yticks(fontsize=20)
plt.xticks(fontsize=20)
plt.legend(prop={'size':20}, frameon=True, fancybox=True , shadow=True, framealpha=0.75)
plt.show()
```