module 5

July 29, 2021

0.1 Module 5

In this assignment, you are going to work on Histograms and Scatterplots.

We have preprocessed the data as "df" for you.

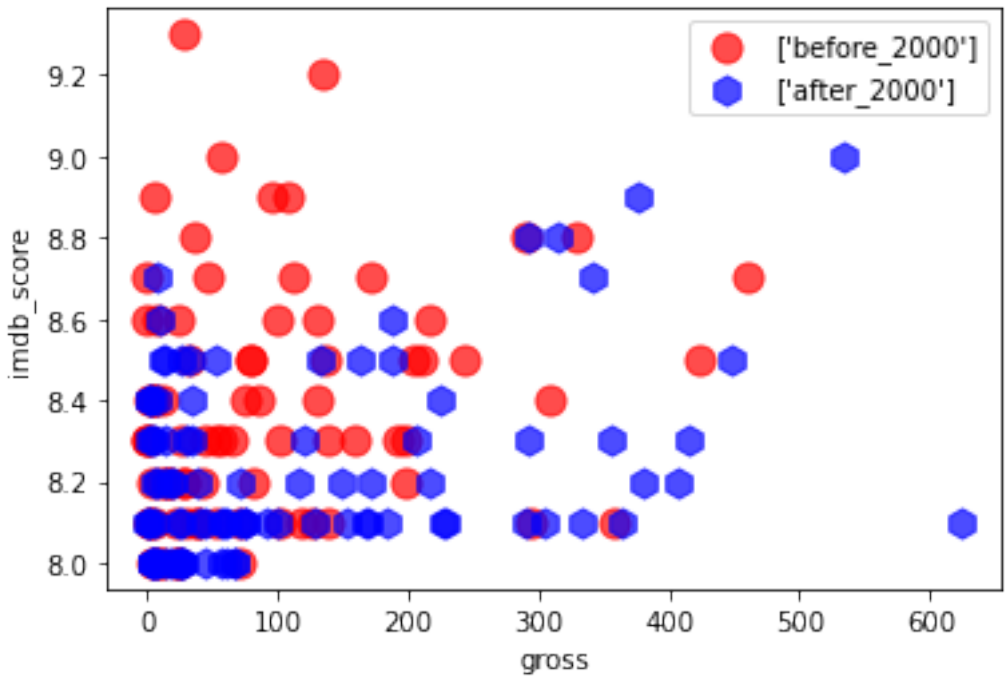
Follow the instructions and finish the rest part.

[1]:
```
%%capture
################################################################
### EXECUTE THIS CELL BEFORE YOU TO TEST YOUR SOLUTIONS ###
################################################################
import imp, os, sys
sol = imp.load_compiled("solutions", "./solutions.py")
sol.get_solutions("imdb.xlsx")
from nose.tools import assert_equal
from pandas.util.testing import assert_frame_equal, assert_series_equal
```

[2]:
```
# Loading the data
import pandas as pd
import numpy as np

xls = pd.ExcelFile('imdb.xlsx')
df = xls.parse('imdb')
df_directors = xls.parse('directors')
df_countries = xls.parse('countries')

df = pd.merge(left=df, right=df_countries,
              how='inner', left_on='country_id',
              right_on='id')

df = pd.merge(left=df, right=df_directors,
              how='inner', left_on='director_id',
              right_on='id')

print("Finished.")
```

```
Finished.
```

[3]:
```
"""Q1:
Is how much a movie makes indicative of how good it is?
Make a simple scatter plot comparing gross to imdb_score for movies during or after 2000 (title_year >= 2000) and before 2000 (title_year < 2000).
It may be useful to scale the x axis demarking gross. (Hint: Divide the gross amount by 1,000,000.)
Remember to put a legend indicating which color corresponds to which years.
What is your verdict?

Save your plot in a variable called plt1, and your dataframes in variables called df_after_2000 and df_before_2000
"""

import matplotlib.pyplot as plt1

# your code here
df_after_2000 = df[df['title_year']>=2000]
df_before_2000 = df[df['title_year']<2000]
plt1.scatter(
df_before_2000['gross'].div(1000000), df_before_2000["imdb_score"],
marker = "o",
color = 'r',
alpha = 0.7,
s = 124,
label = ['before_2000']
)
plt1.scatter(
df_after_2000['gross'].div(1000000), df_after_2000["imdb_score"],
marker = "h",
color = 'b',
alpha = 0.7,
s = 124,
label = ['after_2000']
)
plt1.xlabel('gross')
plt1.ylabel('imdb_score')
plt1.legend(loc = 'upper right')


plt1.show()
```

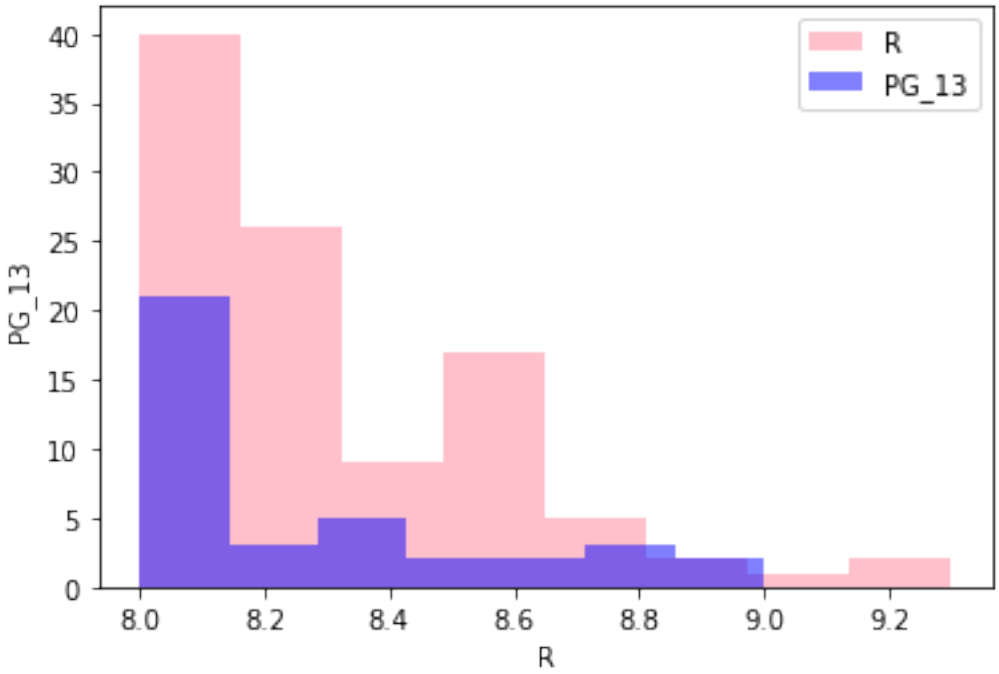


[4]:
```
assert_frame_equal(df_before_2000, sol.df_before_2000)
assert_frame_equal(df_after_2000, sol.df_after_2000)
np.testing.assert_array_equal(plt1, sol.plt1)
print("Success!")
```

```
Success!
```

[5]:
```
"""Q2:
Using numpy and pyplot, make an overlapping histogram that shows the score␣
 ↪distribution vs. count of R-Rated movies and PG-13 ones.
Describe your plot.

Save your plot in a variable called plt2, and your dataframes in variables␣
 ↪called df_R and df_PG13
"""

import matplotlib.pyplot as plt2

# your code here
df_R = df[df['content_rating'] == 'R']
df_PG13 = df[df['content_rating'] == 'PG-13']
plt2.hist(
df_R['imdb_score'],
alpha = 1,
color = 'pink',
```

```
label = 'R',
bins = 'auto'
)
plt2.hist(
df_PG13['imdb_score'],
alpha = 0.5,
color = 'blue',
label = 'PG_13',
bins = 'auto'
)
plt2.xlabel("R")
plt2.ylabel("PG_13")
plt2.legend(loc = 'best')

plt2.show()
```



[6]:
```
assert_frame_equal(df_R, sol.df_R)
assert_frame_equal(df_PG13, sol.df_PG13)
np.testing.assert_array_equal(plt2, sol.plt2)
print("Success!")
```

```
Success!
```

[ ]: