

```
In [1]: import seaborn as sns
```

```
In [94]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
plt.style.use('dark_background')
```

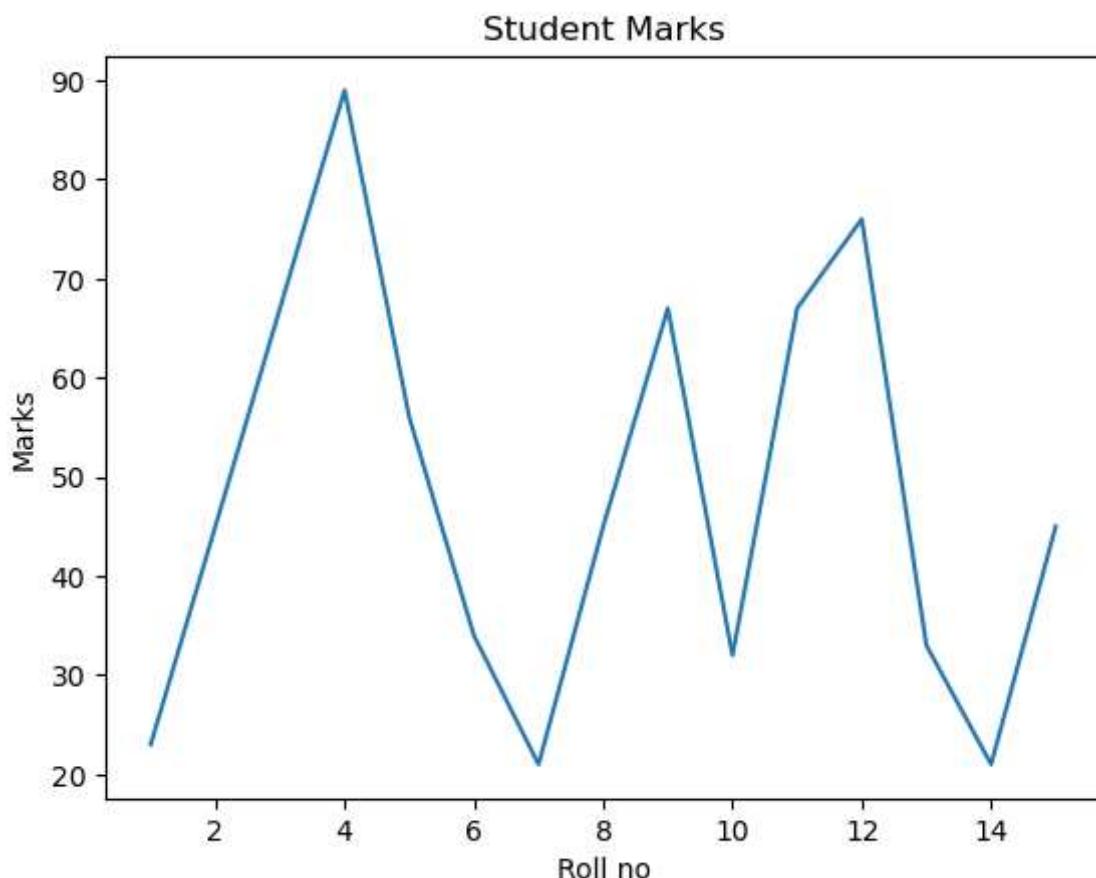
```
In [3]: roll_no = [1,2,3,4,5,6,7,8,9,10,11,12,13,14,15]
marks = [23,45,67,89,56,34,21,45,67,32,67,76,33,21,45]
sample_df = pd.DataFrame({"Roll no":roll_no, "Marks":marks})
sample_df.head()
```

```
Out[3]:
```

	Roll no	Marks
0	1	23
1	2	45
2	3	67
3	4	89
4	5	56

```
In [5]: sns.lineplot(x = "Roll no", y = "Marks", data = sample_df)
plt.title('Student Marks')
```

```
Out[5]: Text(0.5, 1.0, 'Student Marks')
```



```
In [8]: seaborn_df = sns.load_dataset('titanic')
seaborn_df.head()
```

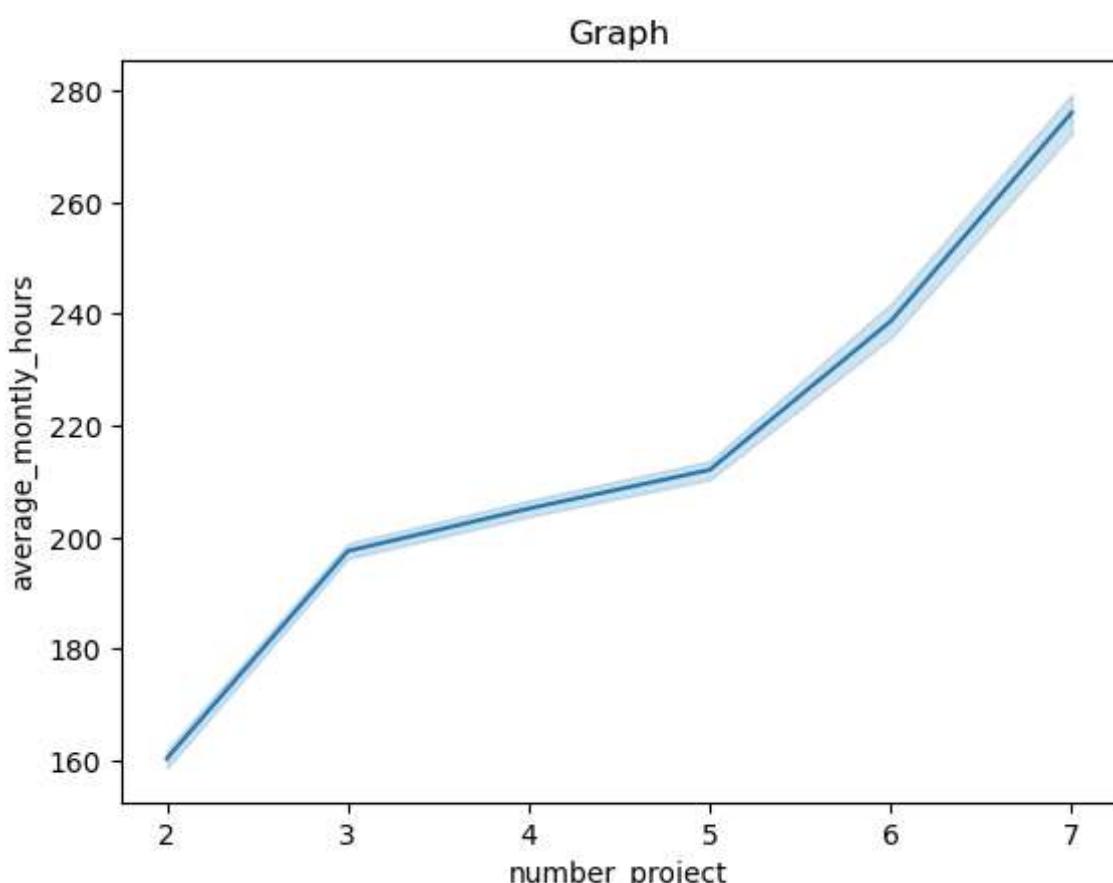
	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male	de
0	0	3	male	22.0	1	0	7.2500	S	Third	man	True	N.
1	1	1	female	38.0	1	0	71.2833	C	First	woman	False	
2	1	3	female	26.0	0	0	7.9250	S	Third	woman	False	N.
3	1	1	female	35.0	1	0	53.1000	S	First	woman	False	
4	0	3	male	35.0	0	0	8.0500	S	Third	man	True	N.

```
In [9]: df = pd.read_csv(r'C:\Users\harsh\Desktop\Python - Data Analysis\Seaborn\hr_data.csv')
df.head()
```

	employee_id	number_project	average_montly_hours	time_spend_company	Work_accident	left
0	1003	2	157	3	0	1
1	1005	5	262	6	0	1
2	1486	7	272	4	0	1
3	1038	5	223	5	0	1
4	1057	2	159	3	0	1

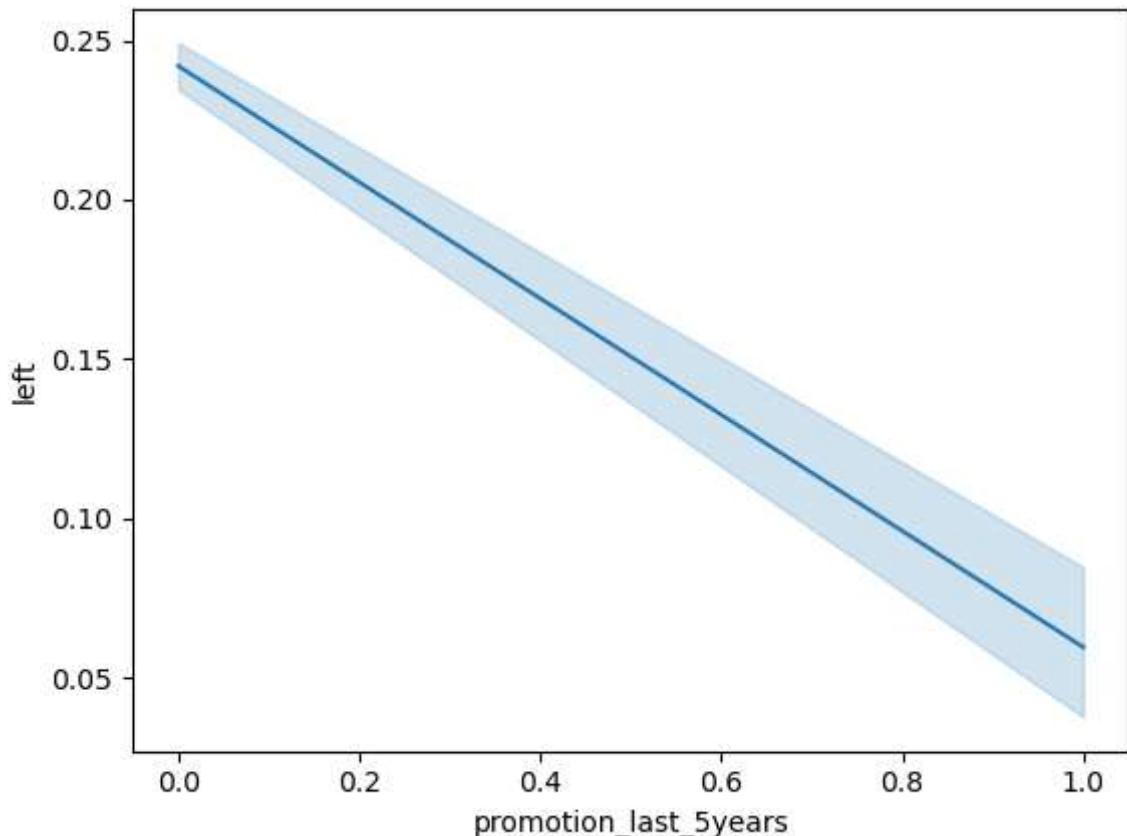
```
In [12]: sns.lineplot(x = 'number_project', y = 'average_montly_hours', data = df)
plt.title("Graph")
```

Out[12]: Text(0.5, 1.0, 'Graph')



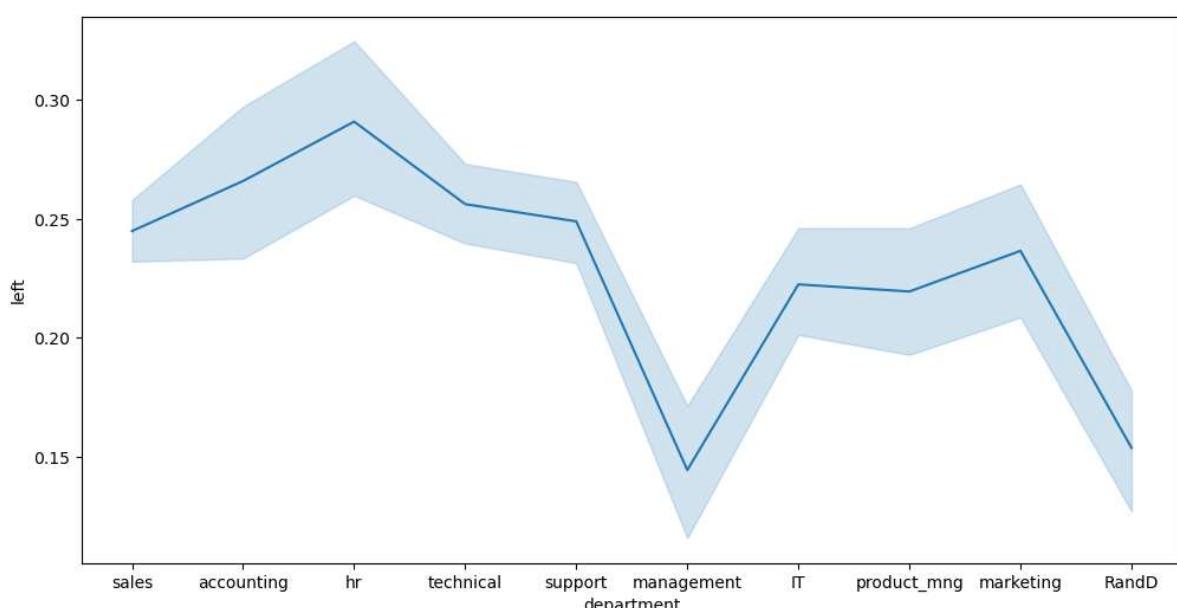
```
In [13]: sns.lineplot(x='promotion_last_5years', y='left', data = df)
```

```
Out[13]: <AxesSubplot:xlabel='promotion_last_5years', ylabel='left'>
```



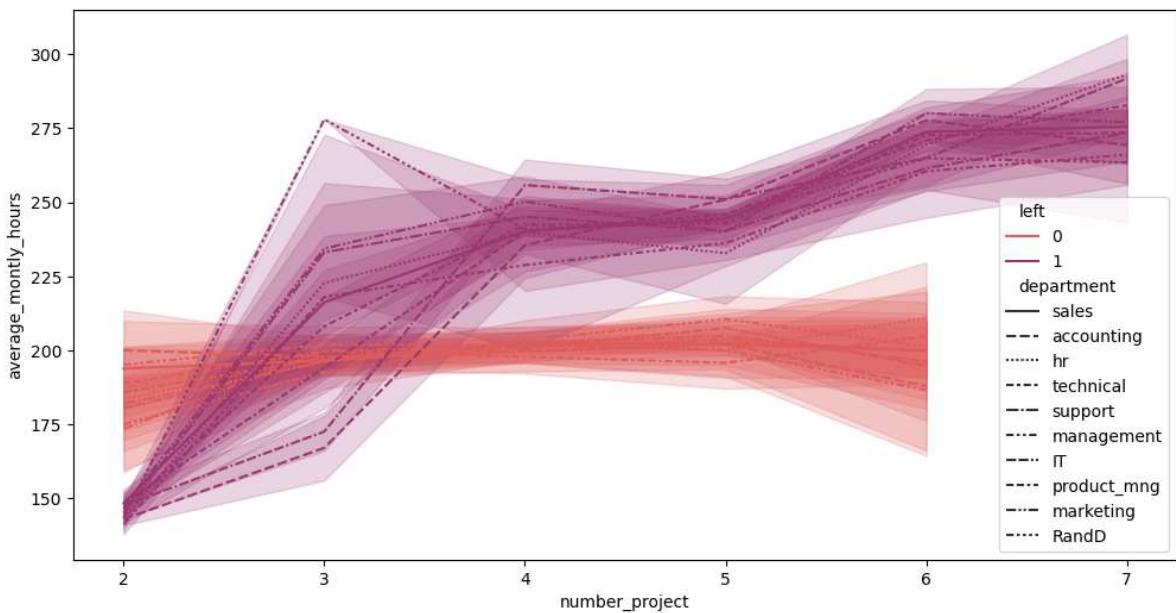
```
In [17]: plt.figure(figsize=(12,6))
sns.lineplot(x='department', y='left', data = df)
```

```
Out[17]: <AxesSubplot:xlabel='department', ylabel='left'>
```



```
In [32]: plt.figure(figsize=(12,6))
sns.lineplot(x = 'number_project', y = 'average_montly_hours', data = df,
             hue='left',
             style = 'department',
             legend = 'full',
             palette = 'flare')
```

In [32]: `<AxesSubplot:xlabel='number_project', ylabel='average_monthly_hours'>`

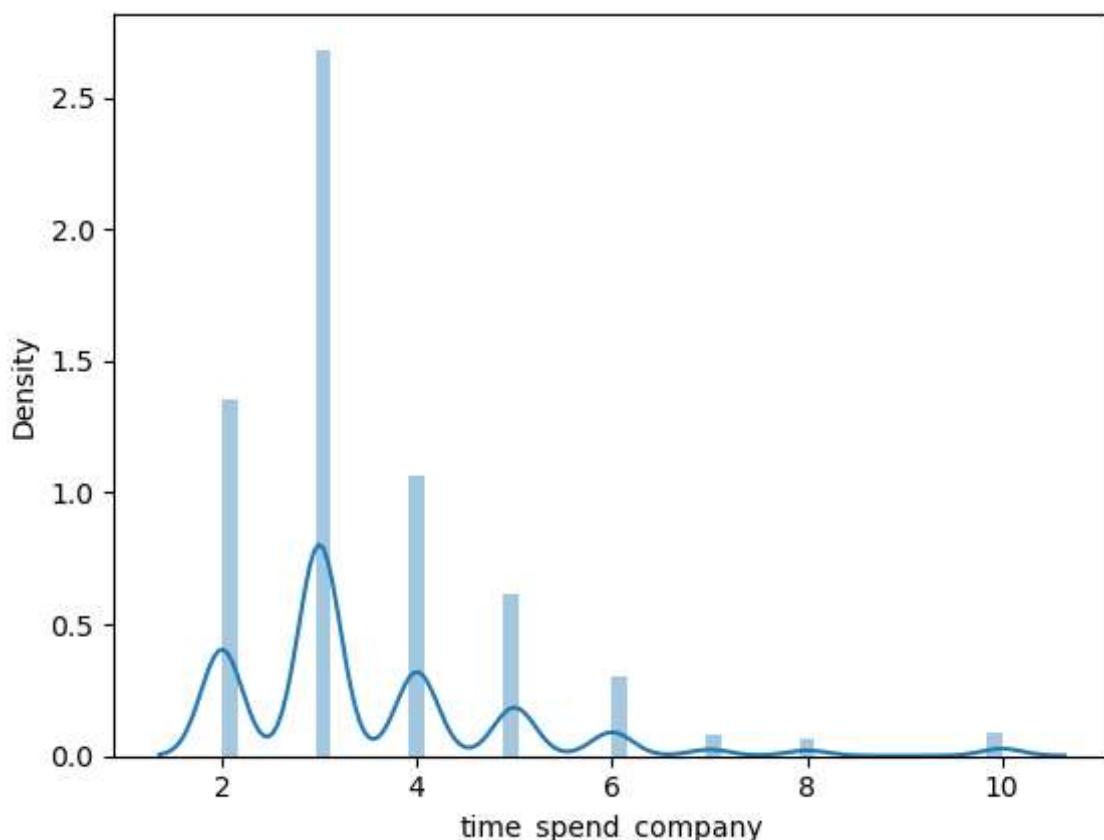


In [36]: `sns.distplot(df['time_spend_company'])`

C:\Users\harsh\anaconda3\lib\site-packages\seaborn\distributions.py:2619: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for histograms).

`warnings.warn(msg, FutureWarning)`

Out[36]: `<AxesSubplot:xlabel='time_spend_company', ylabel='Density'>`

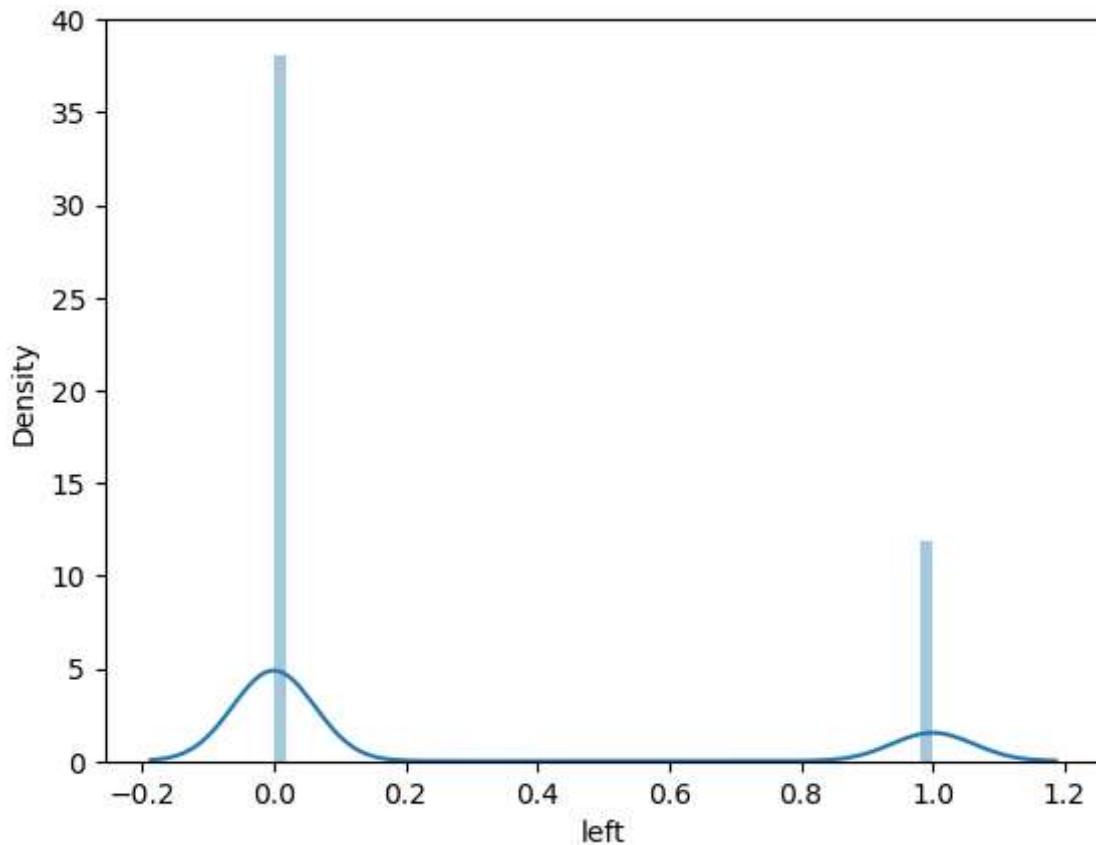


In [37]: `sns.distplot(df['left'])`

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\distributions.py:2619: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for histograms).
```

```
    warnings.warn(msg, FutureWarning)
```

```
Out[37]: <AxesSubplot:xlabel='left', ylabel='Density'>
```

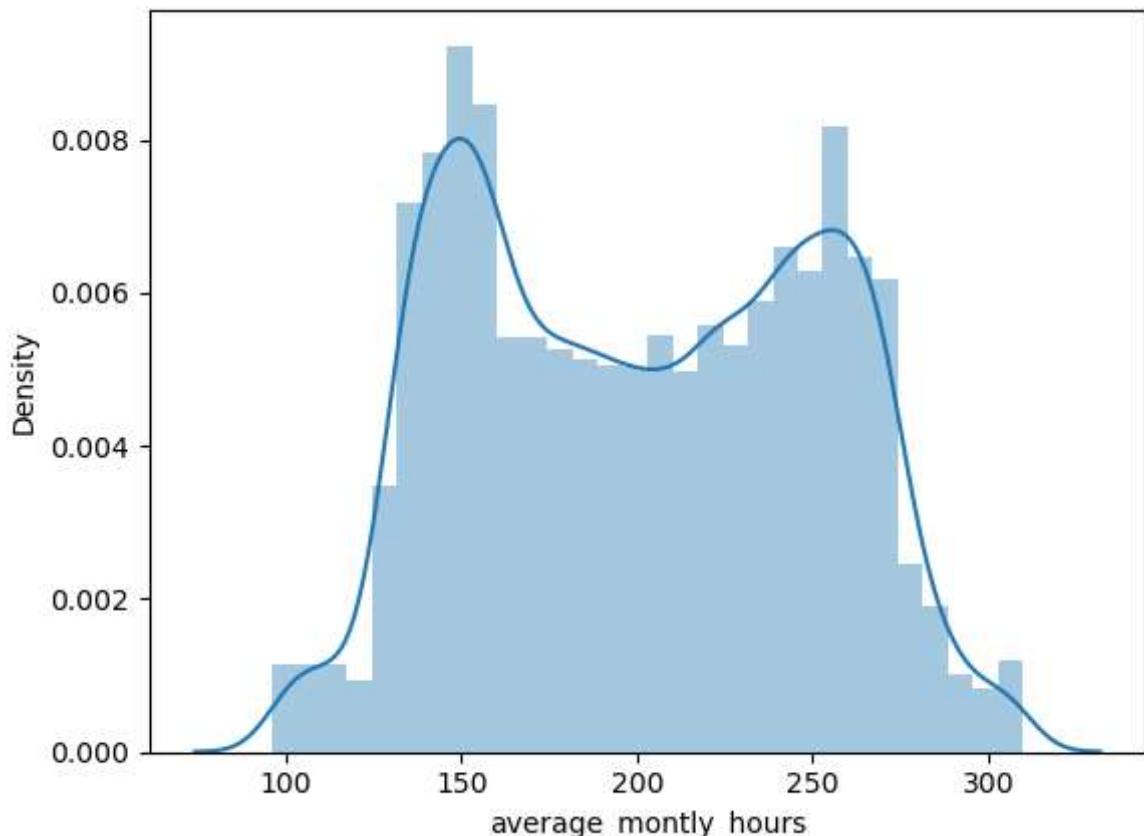


```
In [40]: sns.distplot(df['average_montly_hours'])
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\distributions.py:2619: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for histograms).
```

```
    warnings.warn(msg, FutureWarning)
```

```
Out[40]: <AxesSubplot:xlabel='average_montly_hours', ylabel='Density'>
```



In [41]: `df.describe()`

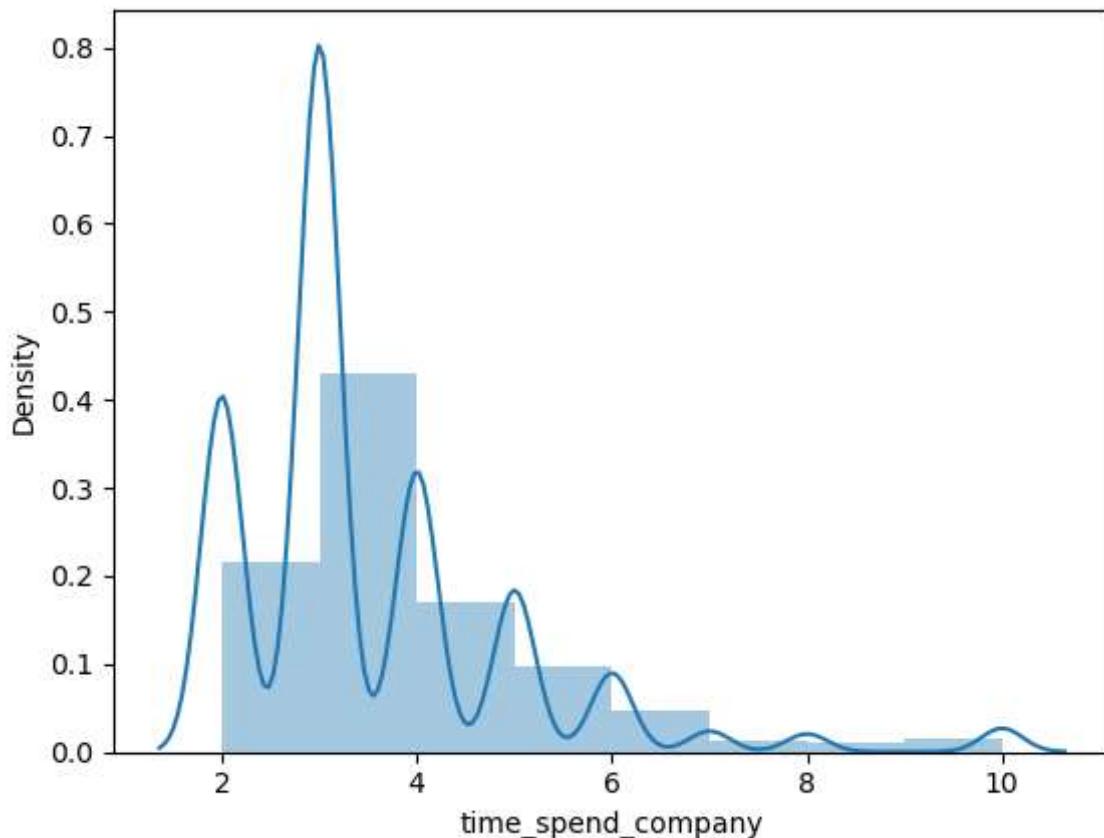
Out[41]:

	employee_id	number_project	average_monthly_hours	time_spend_company	Work_accident
count	14999.000000	14999.000000	14999.000000	14999.000000	14999.000000
mean	45424.627575	3.803054	201.050337	3.498233	0.144610
std	25915.900127	1.232592	49.943099	1.460136	0.351719
min	1003.000000	2.000000	96.000000	2.000000	0.000000
25%	22872.500000	3.000000	156.000000	3.000000	0.000000
50%	45448.000000	4.000000	200.000000	3.000000	0.000000
75%	67480.500000	5.000000	245.000000	4.000000	0.000000
max	99815.000000	7.000000	310.000000	10.000000	1.000000

In [44]: `bins = [2,3,4,5,6,7,8,9,10]
sns.distplot(df['time_spend_company'], bins = bins)`

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\distributions.py:2619: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for histograms).
    warnings.warn(msg, FutureWarning)
```

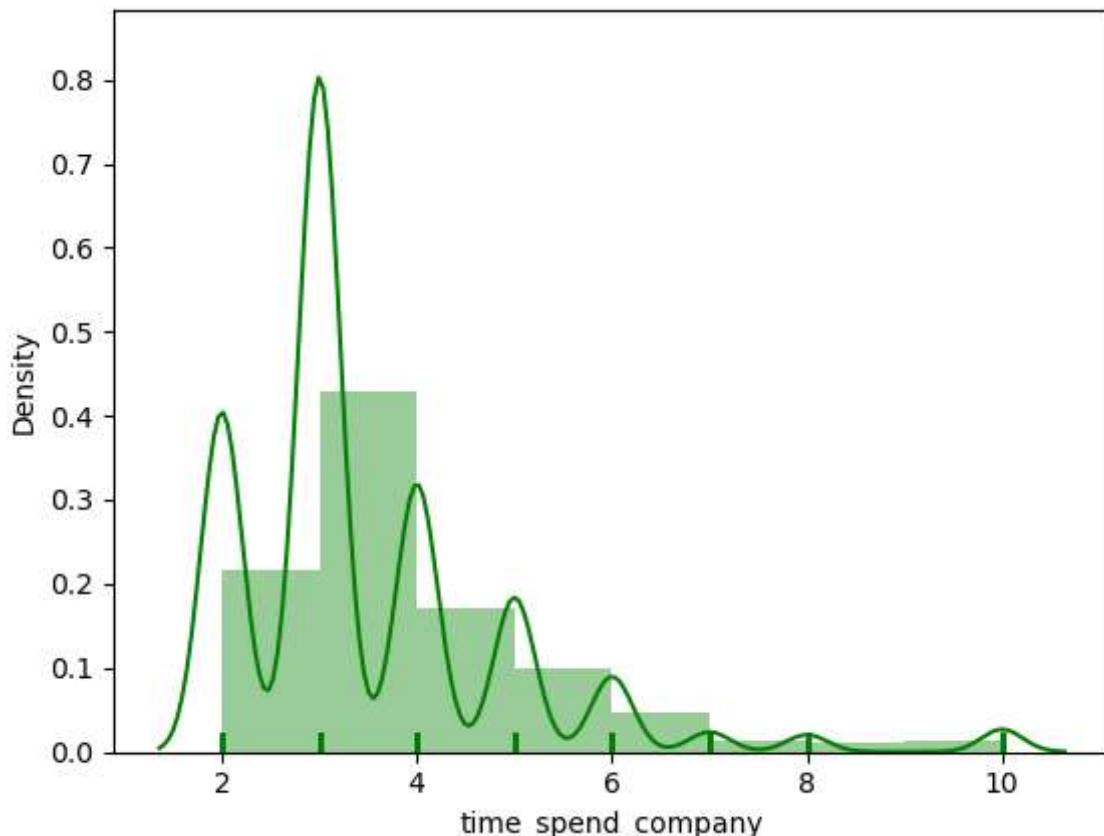
Out[44]: `<AxesSubplot:xlabel='time_spend_company', ylabel='Density'>`



```
In [58]: sns.distplot(df['time_spend_company'], bins = bins,
                     rug = True,
                     hist_kws = {'color':'red', 'edgecolor':'blue', 'Linewidth':3, 'alpha':
                     kde_kws = {'color':'orange', 'Linewidth':3}
                     color = 'green')
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\distributions.py:2619: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for histograms).
    warnings.warn(msg, FutureWarning)
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\distributions.py:2103: FutureWarning: The `axis` variable is no longer used and will be removed. Instead, assign variables directly to `x` or `y`.
    warnings.warn(msg, FutureWarning)
<AxesSubplot:xlabel='time_spend_company', ylabel='Density'>
```

Out[58]:



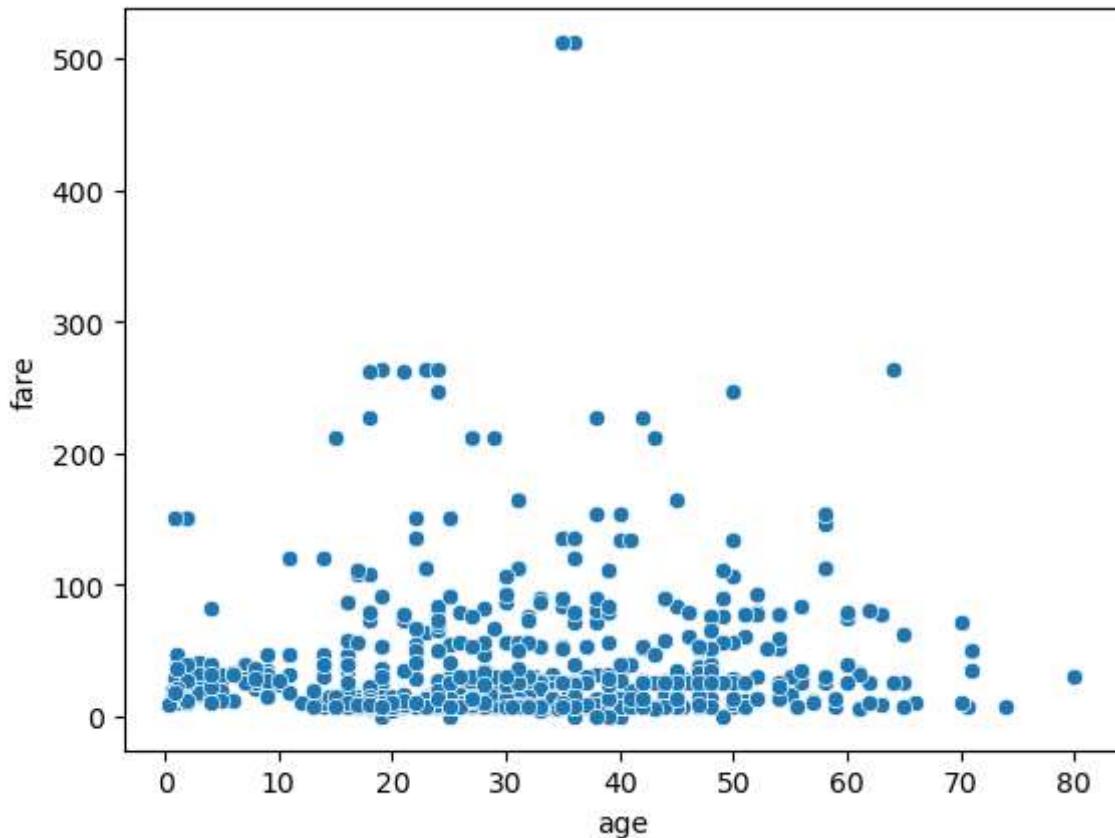
```
In [59]: titanic_df = sns.load_dataset('titanic')
titanic_df.head()
```

```
Out[59]:
```

	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male	de
0	0	3	male	22.0	1	0	7.2500	S	Third	man	True	N.
1	1	1	female	38.0	1	0	71.2833	C	First	woman	False	
2	1	3	female	26.0	0	0	7.9250	S	Third	woman	False	N.
3	1	1	female	35.0	1	0	53.1000	S	First	woman	False	
4	0	3	male	35.0	0	0	8.0500	S	Third	man	True	N.

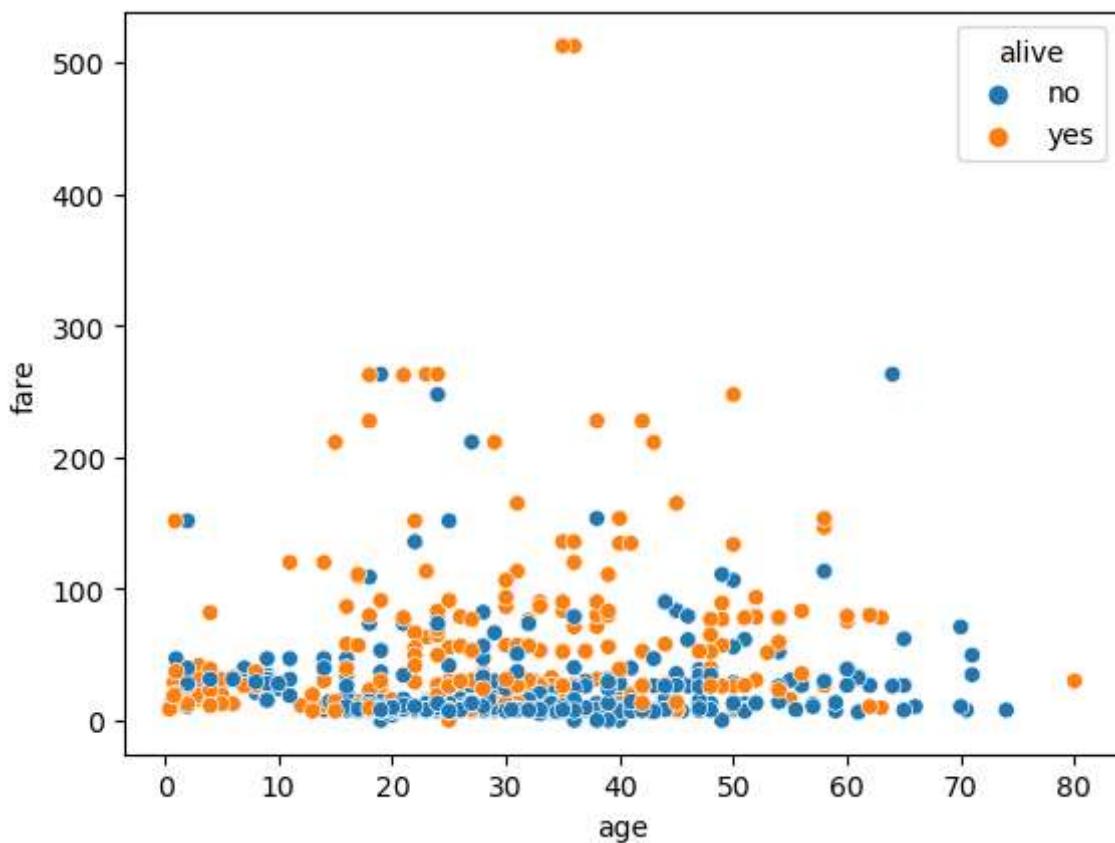
```
In [60]: sns.scatterplot(x = 'age', y = 'fare',
                      data = titanic_df)
```

```
Out[60]: <AxesSubplot:xlabel='age', ylabel='fare'>
```



```
In [61]: sns.scatterplot(x = 'age', y = 'fare',
                      data = titanic_df,
                      hue = 'alive')
```

```
Out[61]: <AxesSubplot:xlabel='age', ylabel='fare'>
```



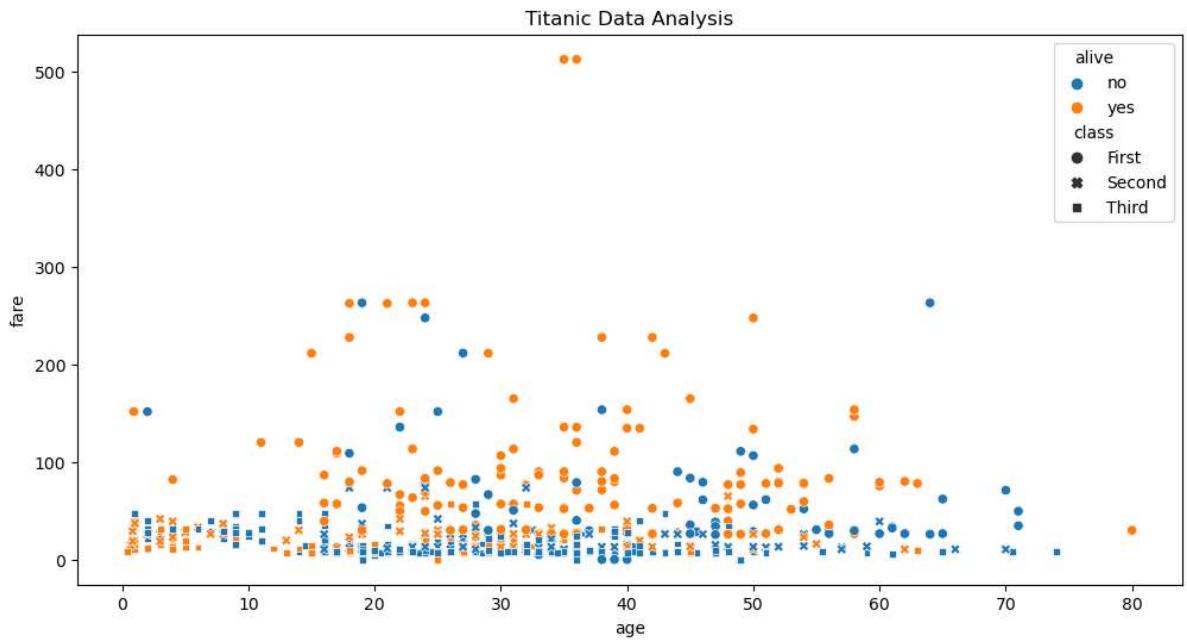
```
In [62]: plt.figure(figsize=(12,6))
sns.scatterplot(x = 'age', y = 'fare',
                 data = titanic_df,
```

```

        hue = 'alive',
        style = 'class')
plt.title('Titanic Data Analysis')

```

Out[62]: Text(0.5, 1.0, 'Titanic Data Analysis')

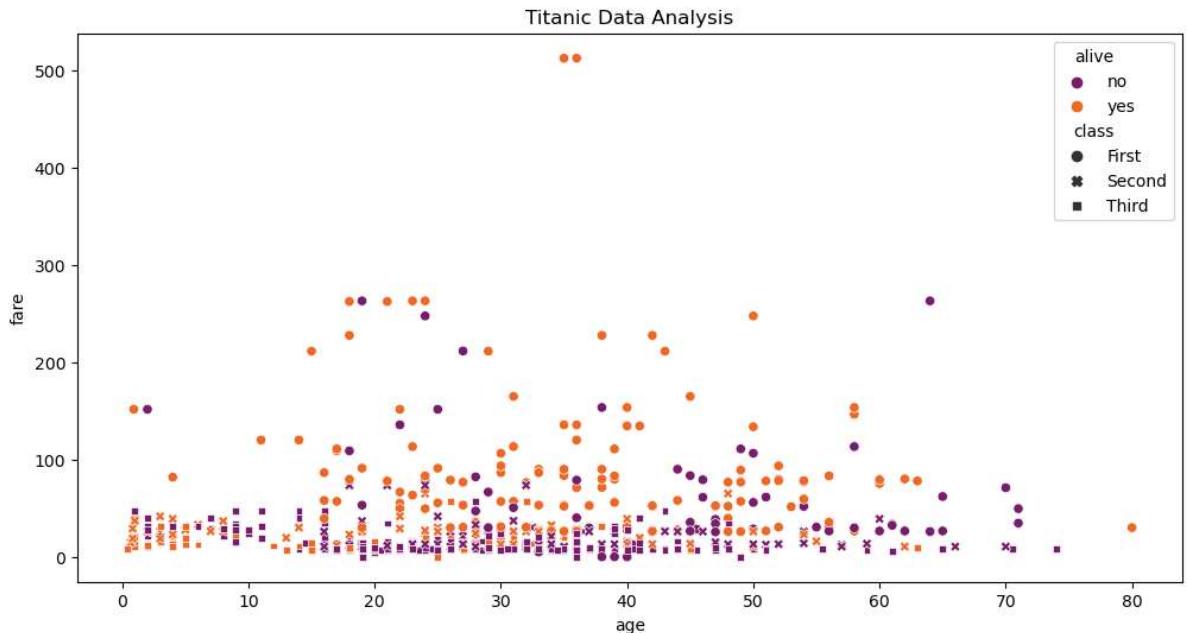


```

In [64]: plt.figure(figsize=(12,6))
sns.scatterplot(x = 'age', y = 'fare',
                 data = titanic_df,
                 hue = 'alive',
                 style = 'class',
                 palette = 'inferno')
plt.title('Titanic Data Analysis')

```

Out[64]: Text(0.5, 1.0, 'Titanic Data Analysis')

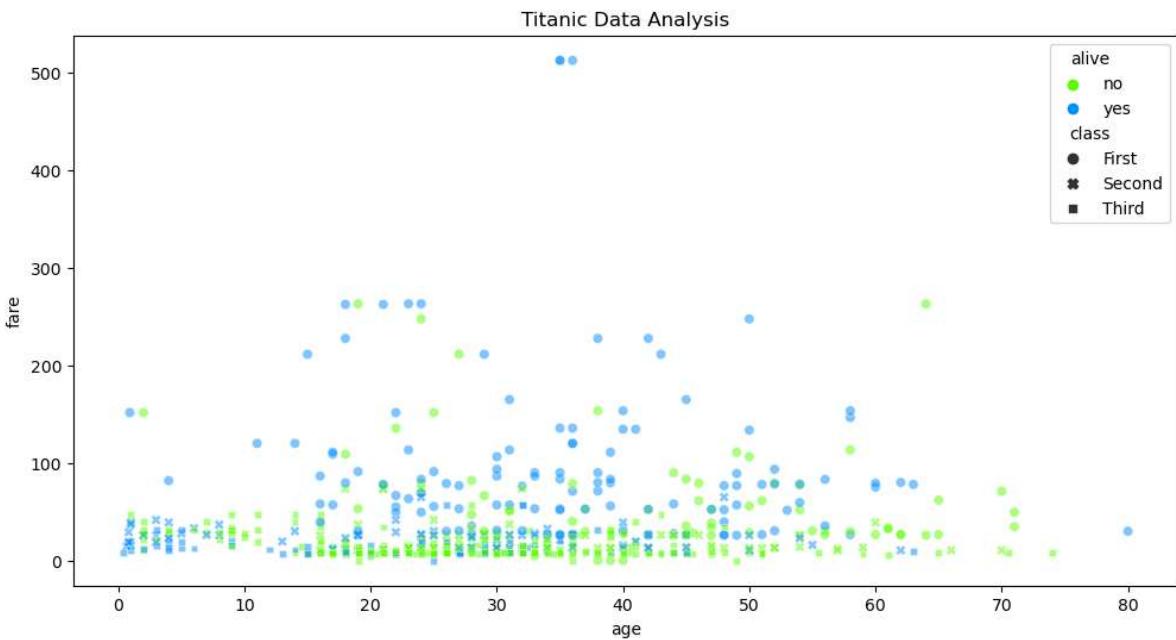


```

In [65]: plt.figure(figsize=(12,6))
sns.scatterplot(x = 'age', y = 'fare',
                 data = titanic_df,
                 hue = 'alive',
                 style = 'class',
                 palette = 'gist_rainbow', alpha = 0.5)
plt.title('Titanic Data Analysis')

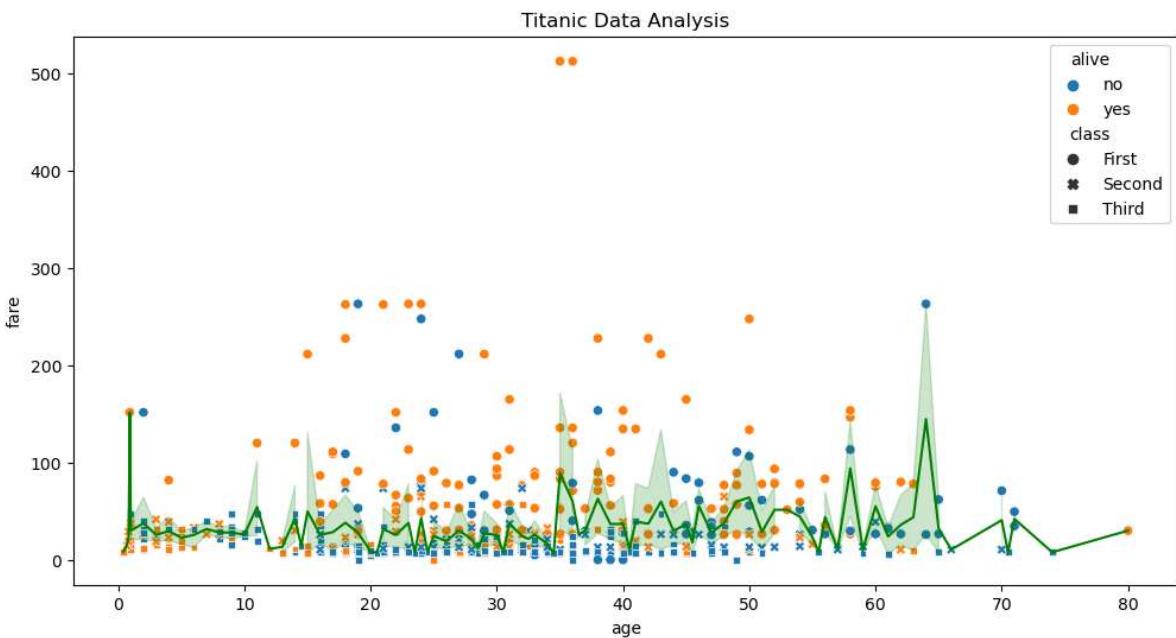
```

Out[65]: Text(0.5, 1.0, 'Titanic Data Analysis')



```
In [66]: plt.figure(figsize=(12,6))
sns.scatterplot(x = 'age', y = 'fare',
                 data = titanic_df,
                 hue = 'alive',
                 style = 'class')
sns.lineplot(x='age', y='fare', data=titanic_df, color='green')
plt.title('Titanic Data Analysis')
```

Out[66]: Text(0.5, 1.0, 'Titanic Data Analysis')

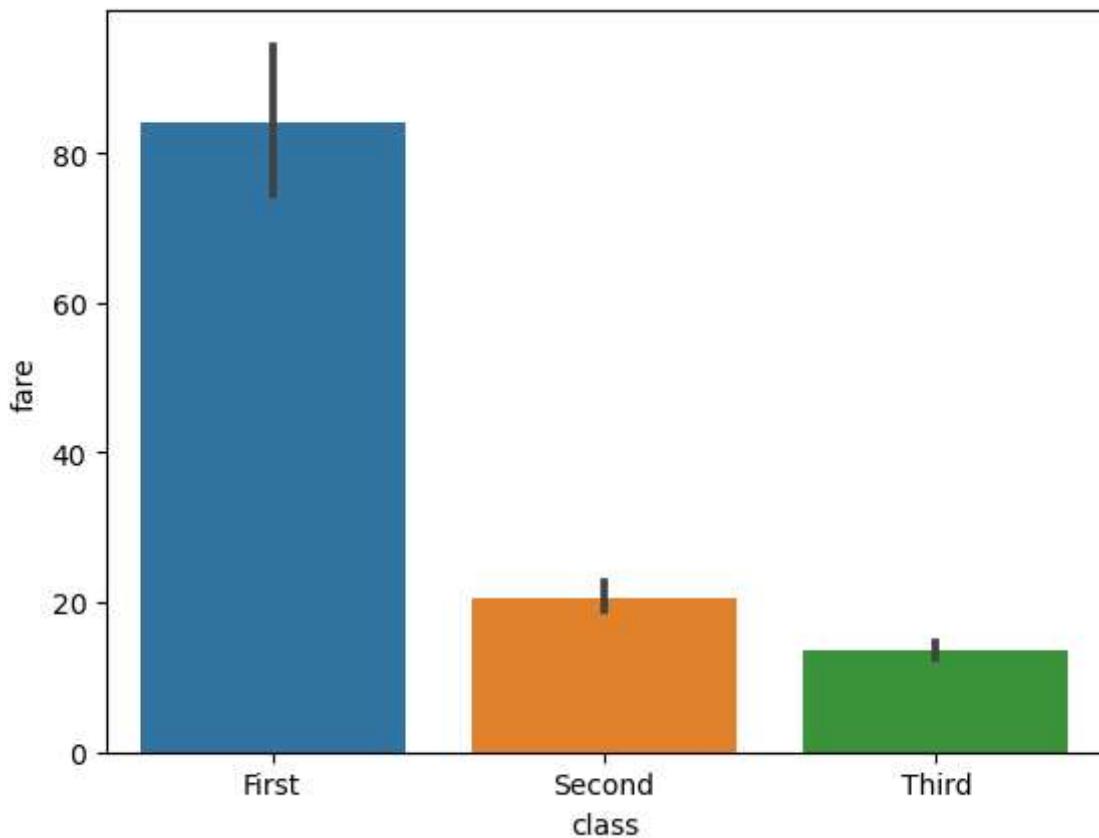


In [67]: titanic_df.head(1)

	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male	deck	em
0	0	3	male	22.0	1	0	7.25	S	Third	man	True	NaN	So

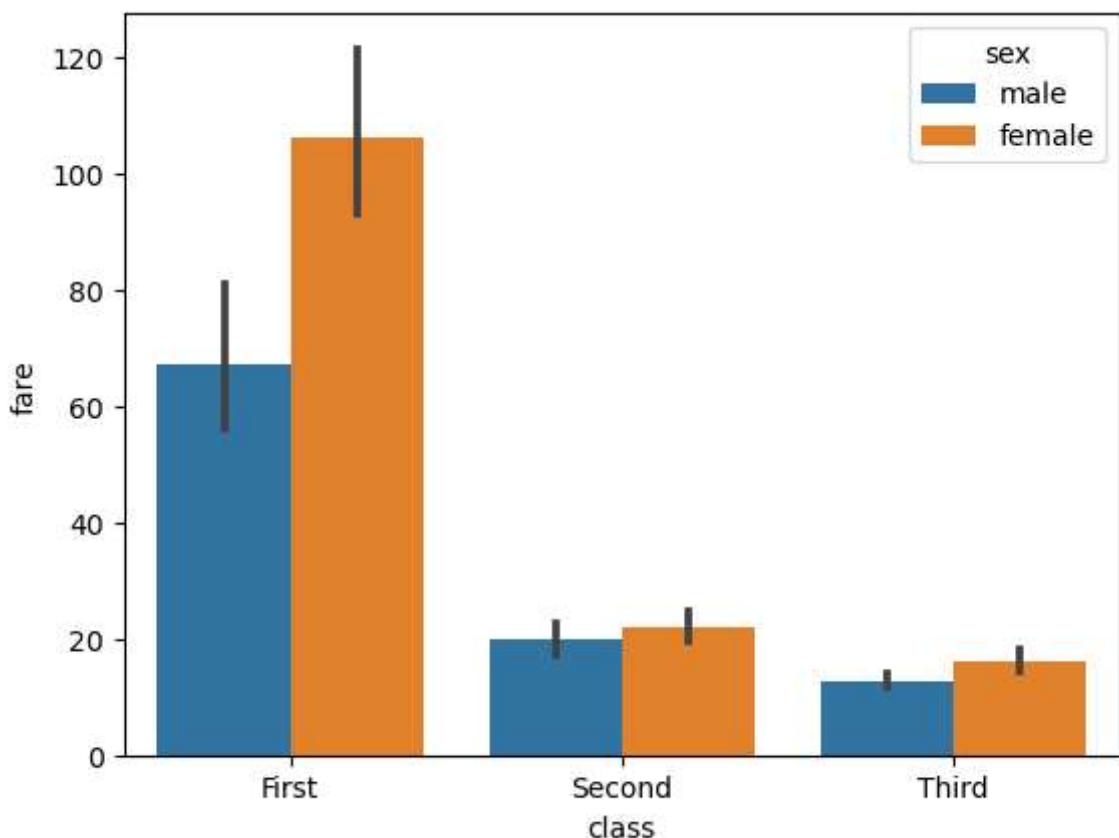
In [68]: sns.barplot(x = 'class', y = 'fare', data = titanic_df)

```
Out[68]: <AxesSubplot:xlabel='class', ylabel='fare'>
```



```
In [69]: sns.barplot(x = 'class', y = 'fare', data = titanic_df,  
                  hue = 'sex')
```

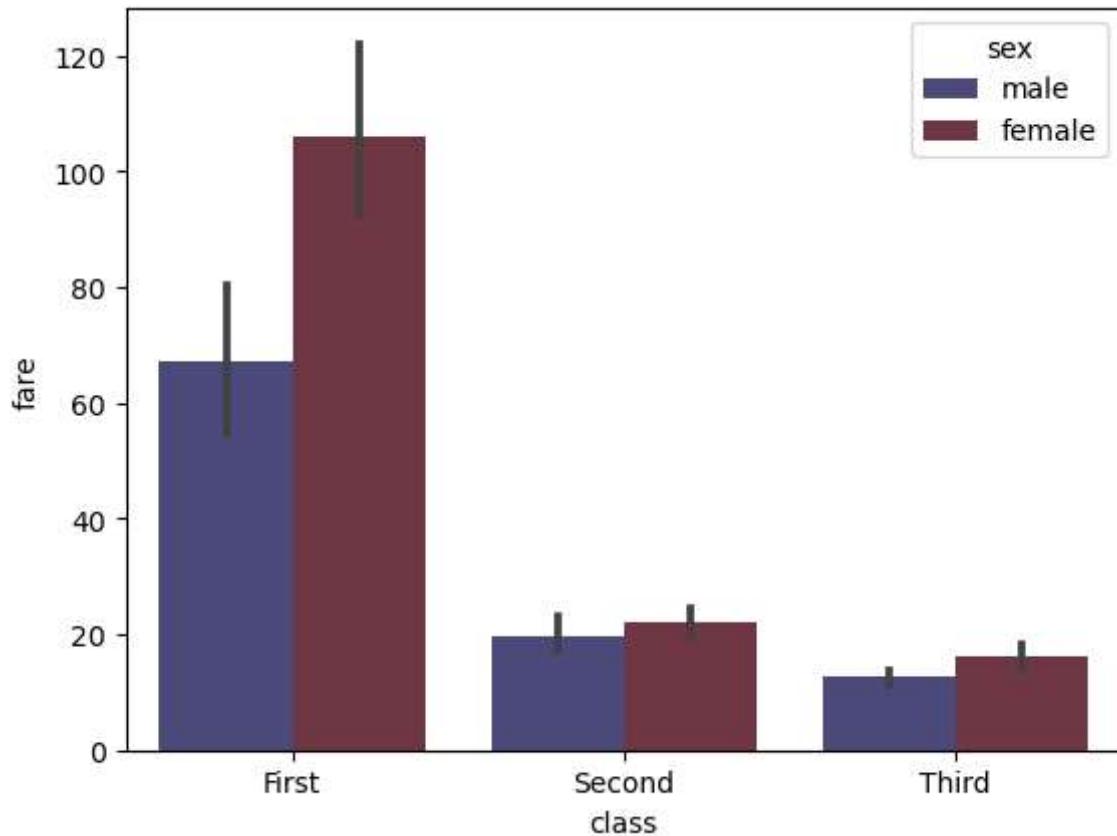
```
Out[69]: <AxesSubplot:xlabel='class', ylabel='fare'>
```



```
In [72]: sns.barplot(x = 'class', y = 'fare', data = titanic_df,  
                  hue = 'sex',
```

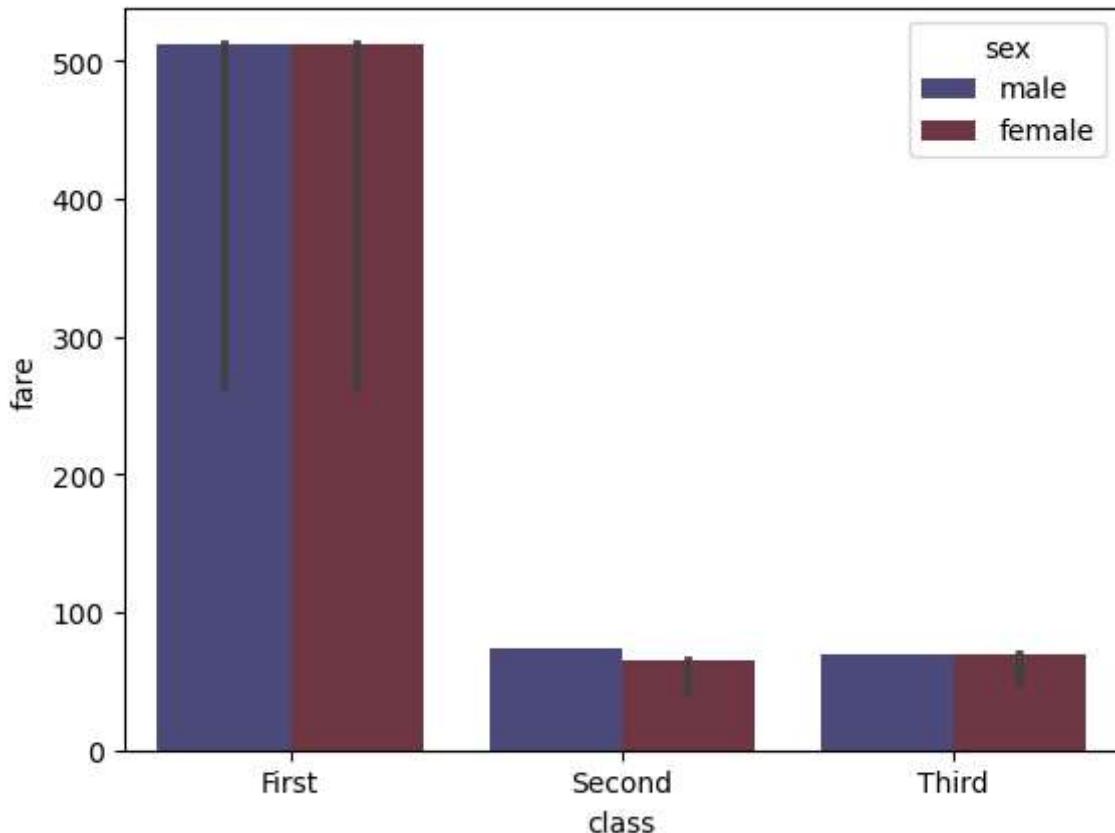
```
palette = 'icefire')
```

```
Out[72]: <AxesSubplot:xlabel='class', ylabel='fare'>
```



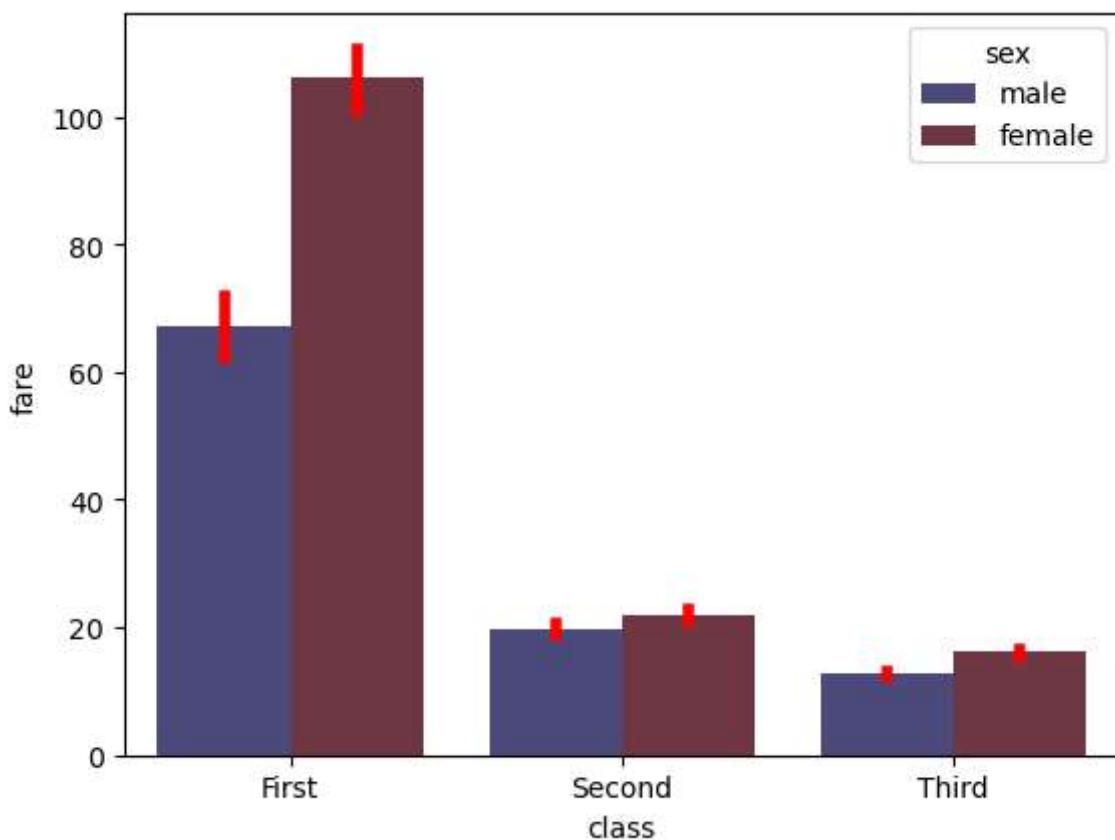
```
In [73]: sns.barplot(x = 'class', y = 'fare', data = titanic_df,  
                  hue = 'sex',  
                  palette = 'icefire',  
                  estimator = np.max)
```

```
Out[73]: <AxesSubplot:xlabel='class', ylabel='fare'>
```



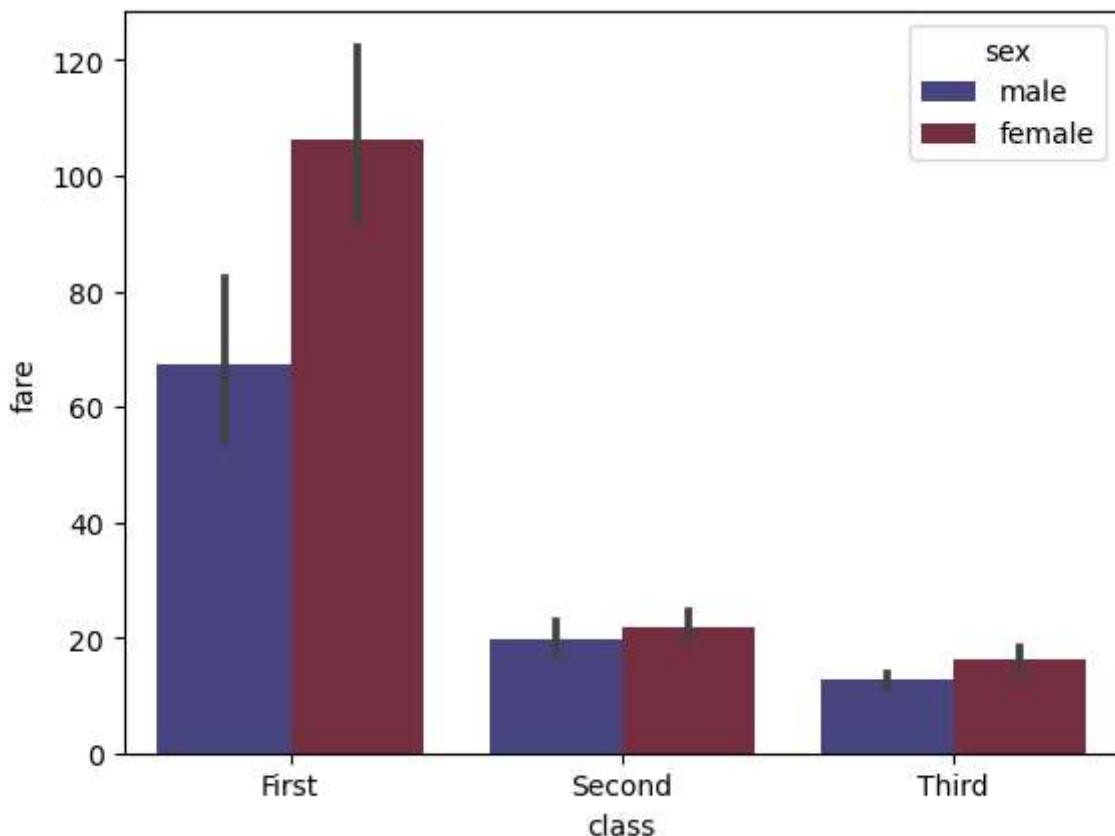
```
In [76]: sns.barplot(x = 'class', y = 'fare', data = titanic_df,
                  hue = 'sex',
                  palette = 'icefire',
                  ci = 50,
                  errcolor = 'red',
                  errwidth = 4)
```

Out[76]: <AxesSubplot:xlabel='class', ylabel='fare'>



```
In [79]: sns.barplot(x = 'class', y = 'fare', data = titanic_df,  
                  hue = 'sex',  
                  palette = 'icefire',  
                  saturation = 0.9)
```

```
Out[79]: <AxesSubplot:xlabel='class', ylabel='fare'>
```



```
In [81]: flight_df = sns.load_dataset('flights')  
flight_df.head()
```

```
Out[81]:   year  month  passengers  
0    1949    Jan       112  
1    1949    Feb       118  
2    1949    Mar       132  
3    1949    Apr       129  
4    1949    May       121
```

```
In [82]: flight_df = flight_df.pivot("month","year","passengers")  
flight_df.head()
```

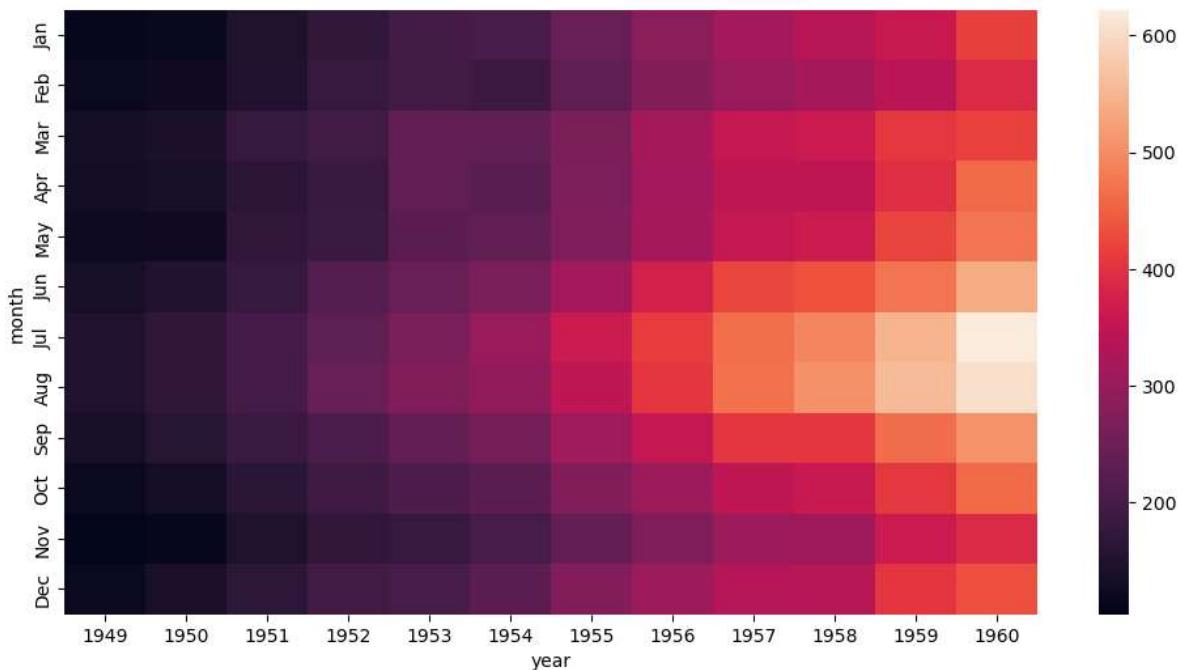
Out[82]:

year	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
month												
Jan	112	115	145	171	196	204	242	284	315	340	360	417
Feb	118	126	150	180	196	188	233	277	301	318	342	391
Mar	132	141	178	193	236	235	267	317	356	362	406	419
Apr	129	135	163	181	235	227	269	313	348	348	396	461
May	121	125	172	183	229	234	270	318	355	363	420	472

In [83]:

```
plt.figure(figsize=(12,6))
ax = sns.heatmap(flight_df)
```

Out[83]:



In [84]:

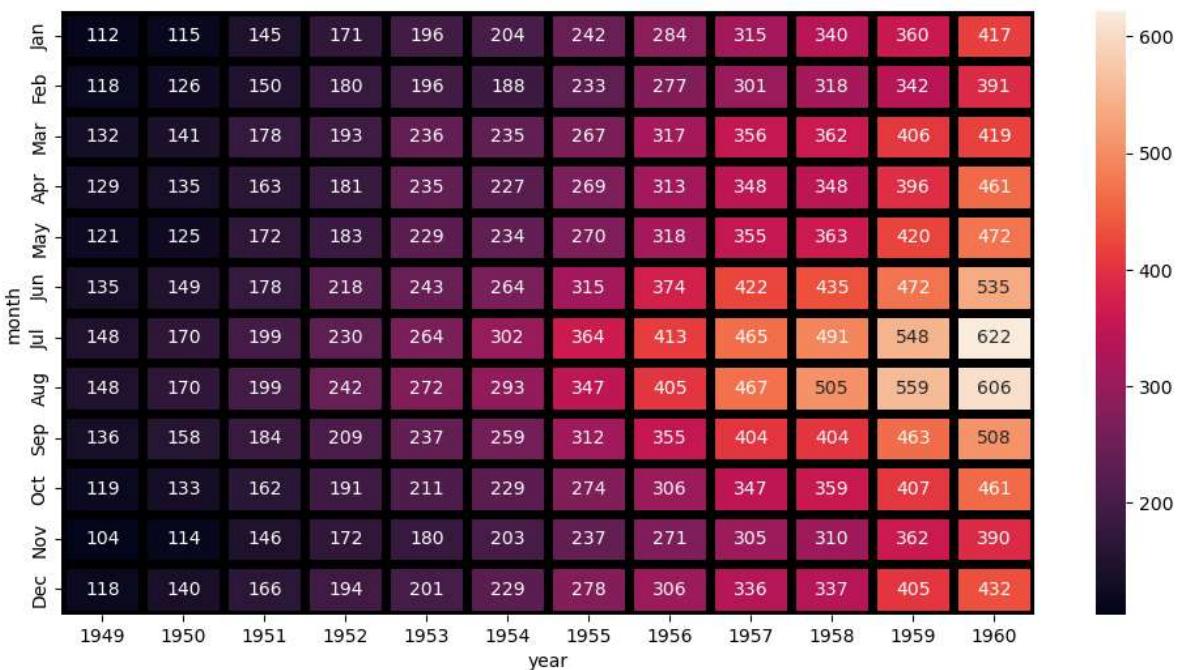
```
plt.figure(figsize=(12,6))
ax = sns.heatmap(flight_df, annot = True, fmt = 'd')
ax
```

Out[84]:



```
In [85]: plt.figure(figsize=(12,6))
ax = sns.heatmap(flight_df, annot = True, fmt = 'd', linecolor = 'k', linewidth = 5
ax
```

```
Out[85]: <AxesSubplot:xlabel='year', ylabel='month'>
```

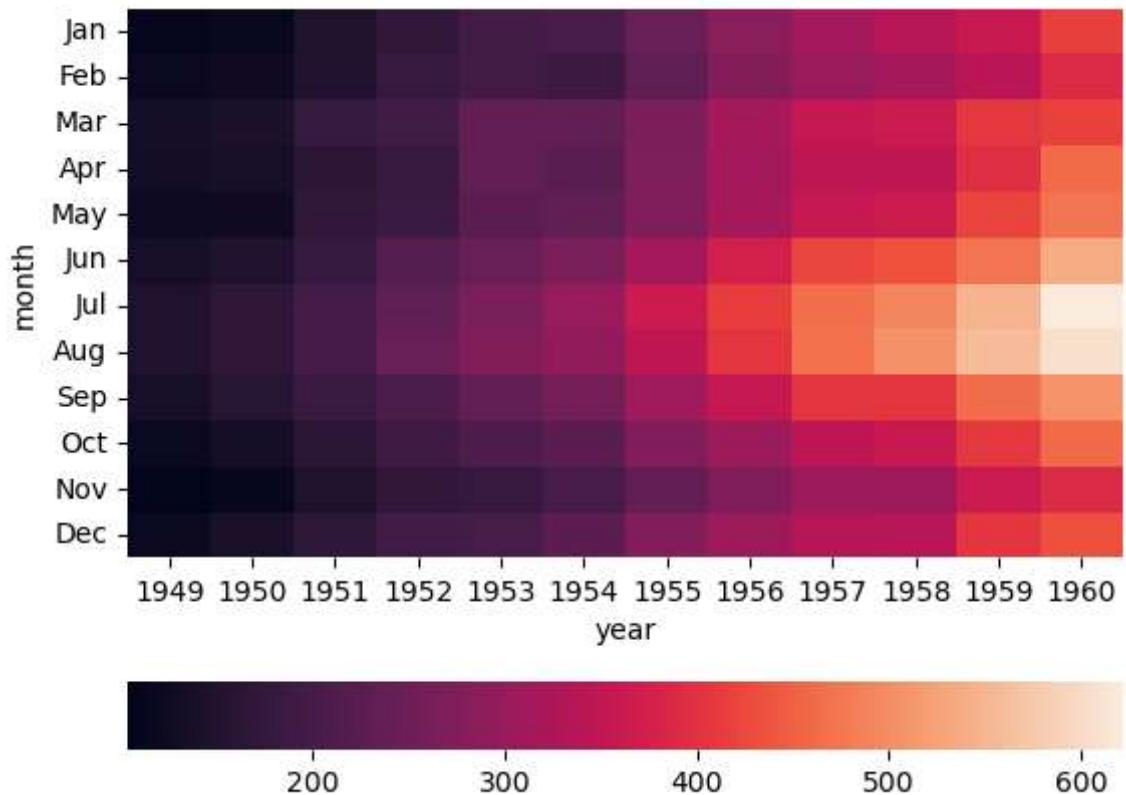


```
In [87]: plt.figure(figsize=(12,6))
ax = sns.heatmap(flight_df, annot = True, fmt = 'd', linecolor = 'k', linewidth = 5
                  cmap = 'Blues', cbar = False)
ax
```

```
Out[87]: <AxesSubplot:xlabel='year', ylabel='month'>
```

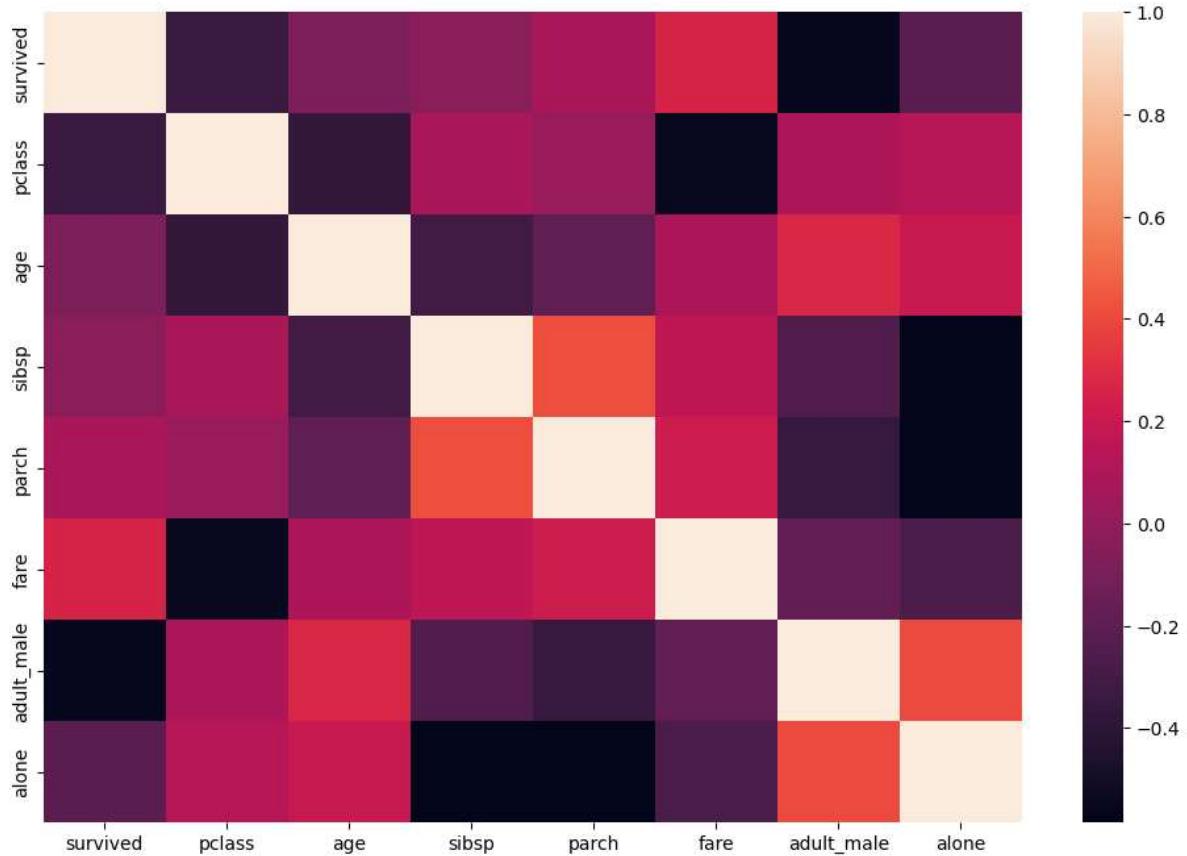


```
In [90]: grid_kws = {"height_ratios": (.4, .05), "hspace": .4}
f, (ax,cbar_ax) = plt.subplots(2, gridspec_kw = grid_kws)
ax = sns.heatmap(flight_df, cbar_kws={"orientation": "horizontal"}, ax=ax,
cbar_ax = cbar_ax)
```



```
In [91]: titanic_df = sns.load_dataset('titanic')
plt.figure(figsize=(12,8))
sns.heatmap(titanic_df.corr())
```

Out[91]: <AxesSubplot:>

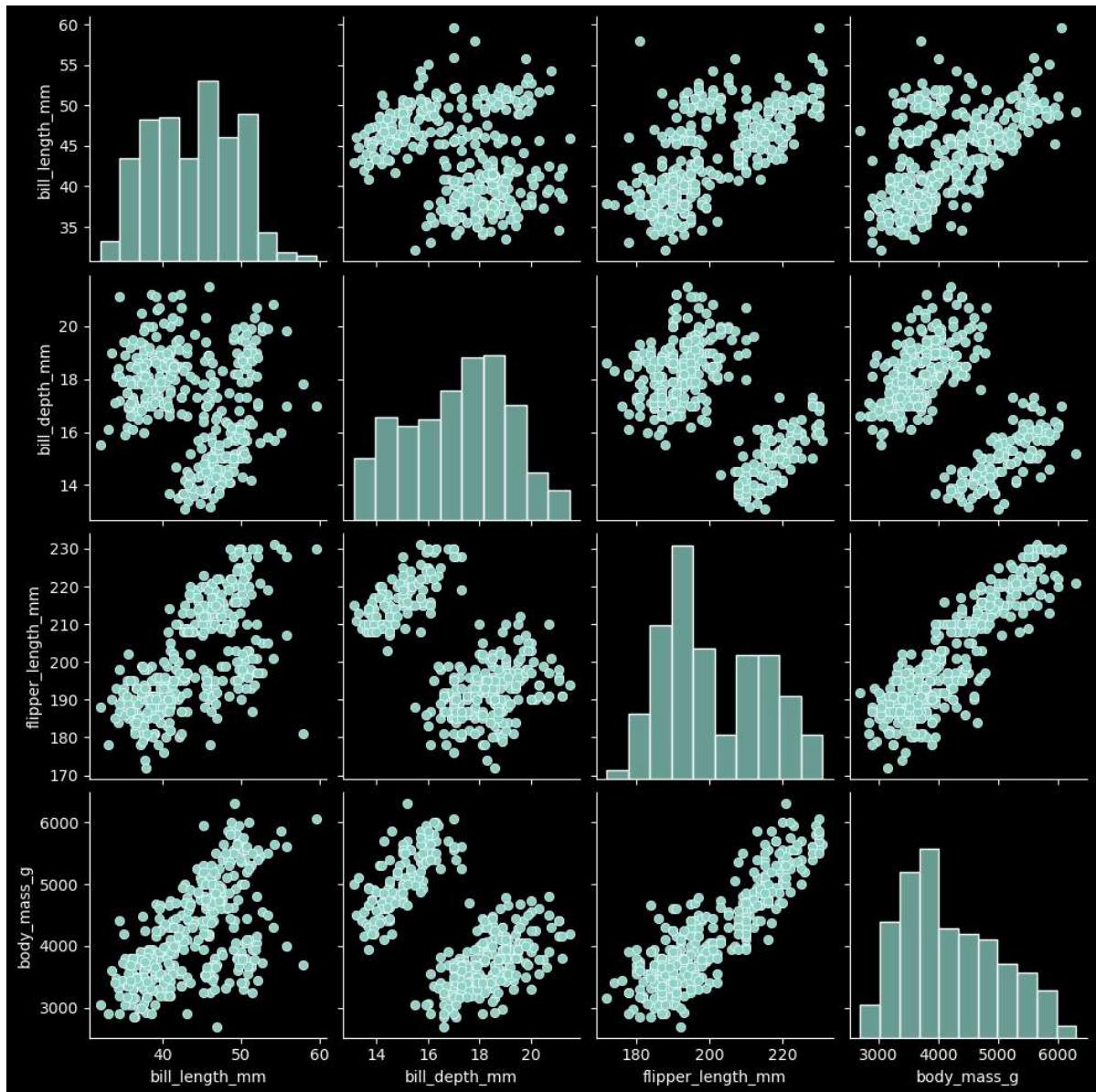


```
In [92]: penguins = sns.load_dataset('penguins')
penguins.head()
```

	species	island	bill_length_mm	bill_depth_mm	flipper_length_mm	body_mass_g	sex
0	Adelie	Torgersen	39.1	18.7	181.0	3750.0	Male
1	Adelie	Torgersen	39.5	17.4	186.0	3800.0	Female
2	Adelie	Torgersen	40.3	18.0	195.0	3250.0	Female
3	Adelie	Torgersen	NaN	NaN	NaN	NaN	NaN
4	Adelie	Torgersen	36.7	19.3	193.0	3450.0	Female

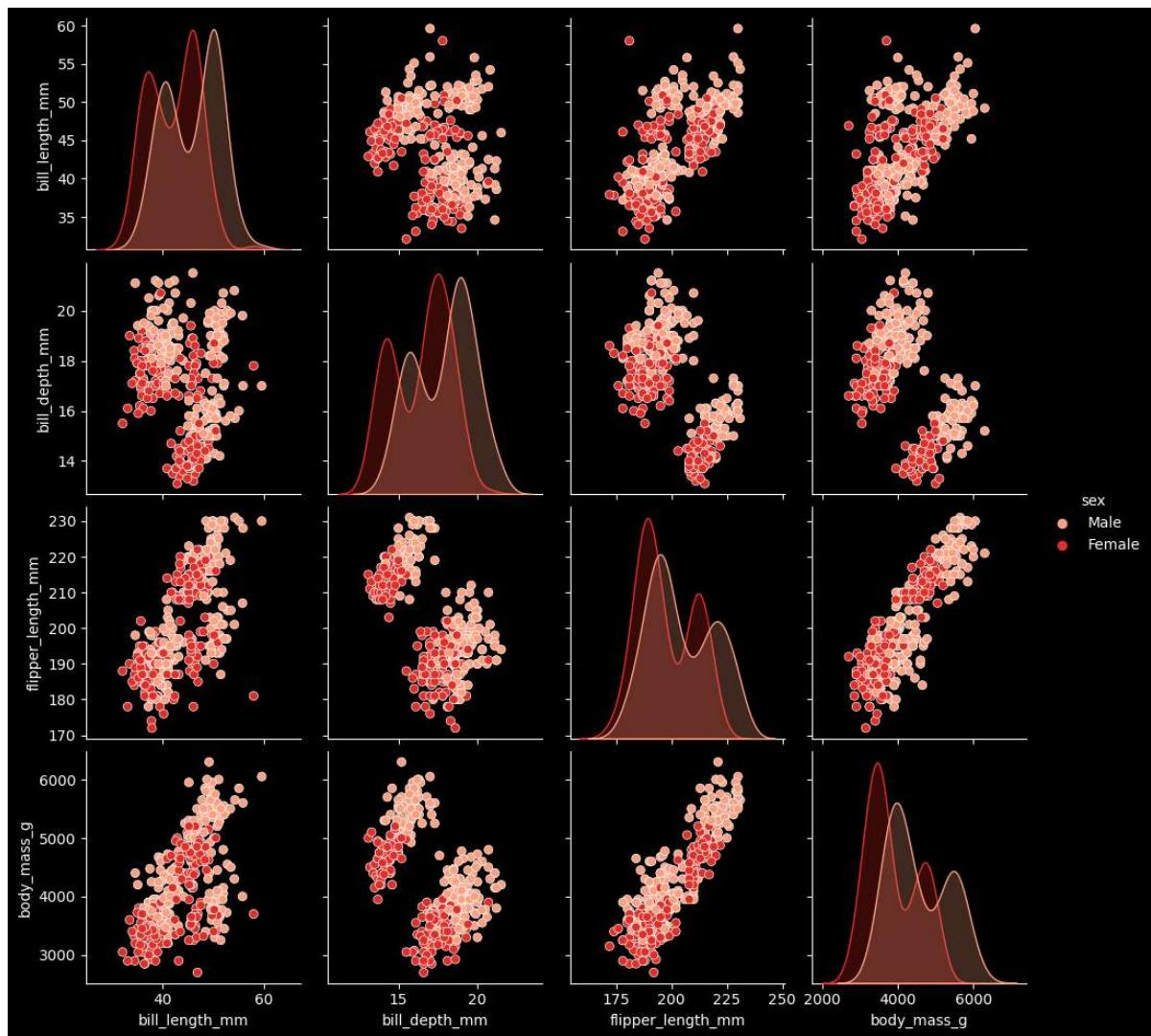
```
In [95]: plt.figure(figsize=(12,12))
sns.pairplot(penguins)
```

```
Out[95]: <seaborn.axisgrid.PairGrid at 0x23aa919edc0>
<Figure size 1200x1200 with 0 Axes>
```



```
In [96]: plt.figure(figsize=(12,12))
sns.pairplot(penguins, hue='sex', palette='Reds')
```

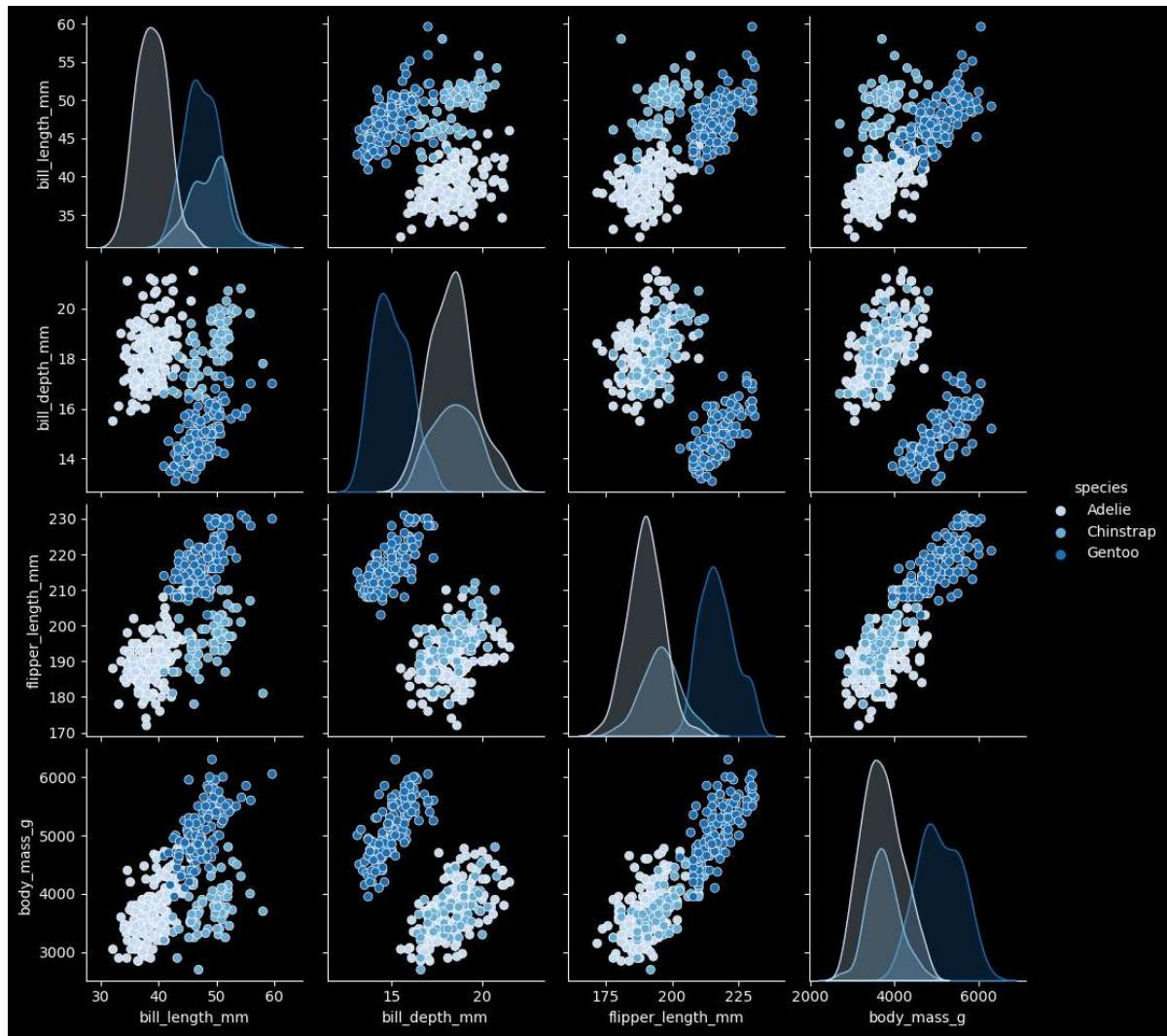
```
Out[96]: <seaborn.axisgrid.PairGrid at 0x23aaa6b76a0>
<Figure size 1200x1200 with 0 Axes>
```



```
In [98]: plt.figure(figsize=(12,12))
sns.pairplot(penguins, hue='species', palette='Blues')
```

```
Out[98]: <seaborn.axisgrid.PairGrid at 0x23aa97d7be0>
```

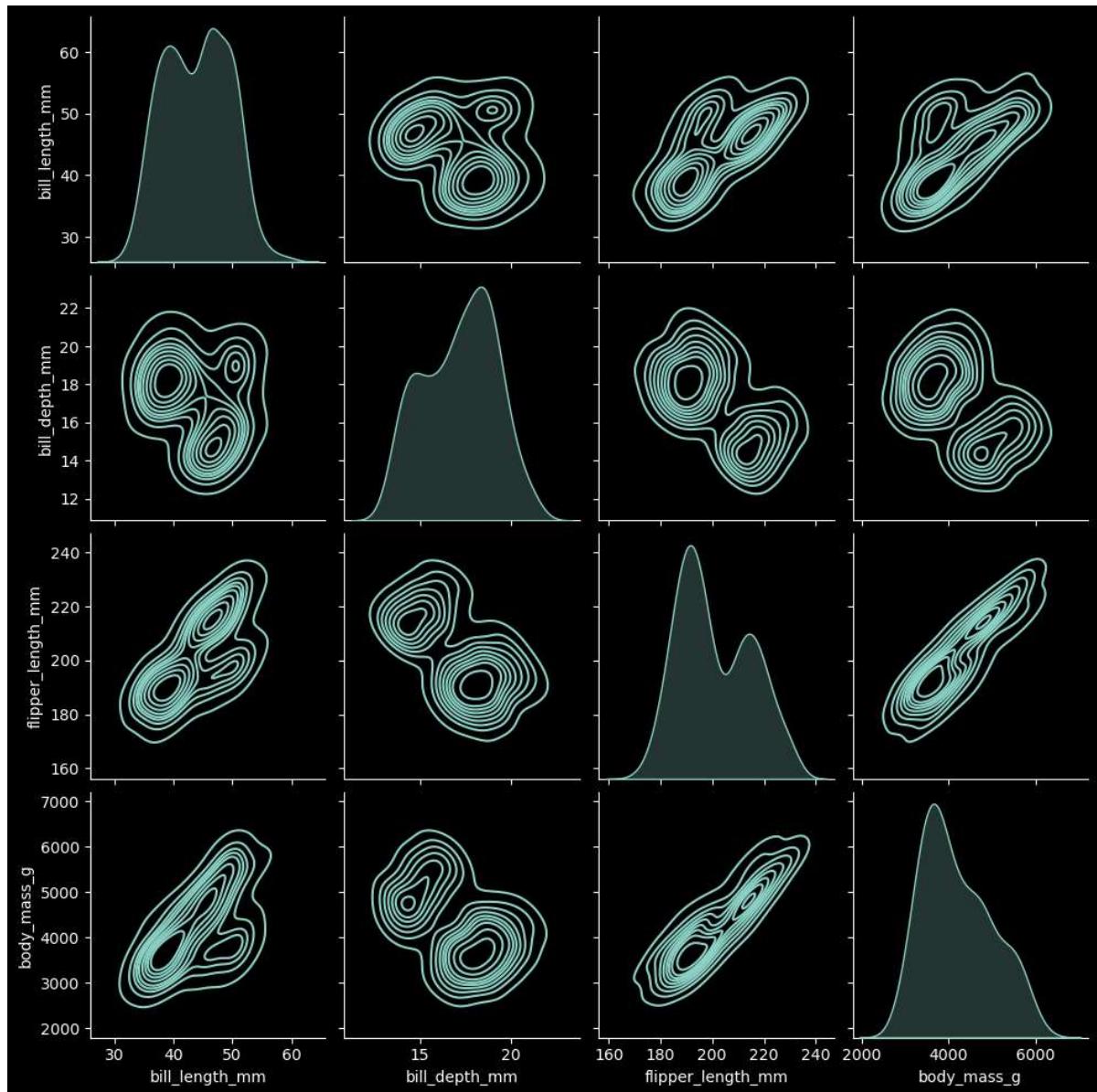
```
<Figure size 1200x1200 with 0 Axes>
```



```
In [100]: plt.figure(figsize=(12,12))
sns.pairplot(penguins, kind='kde', palette='Greens')
```

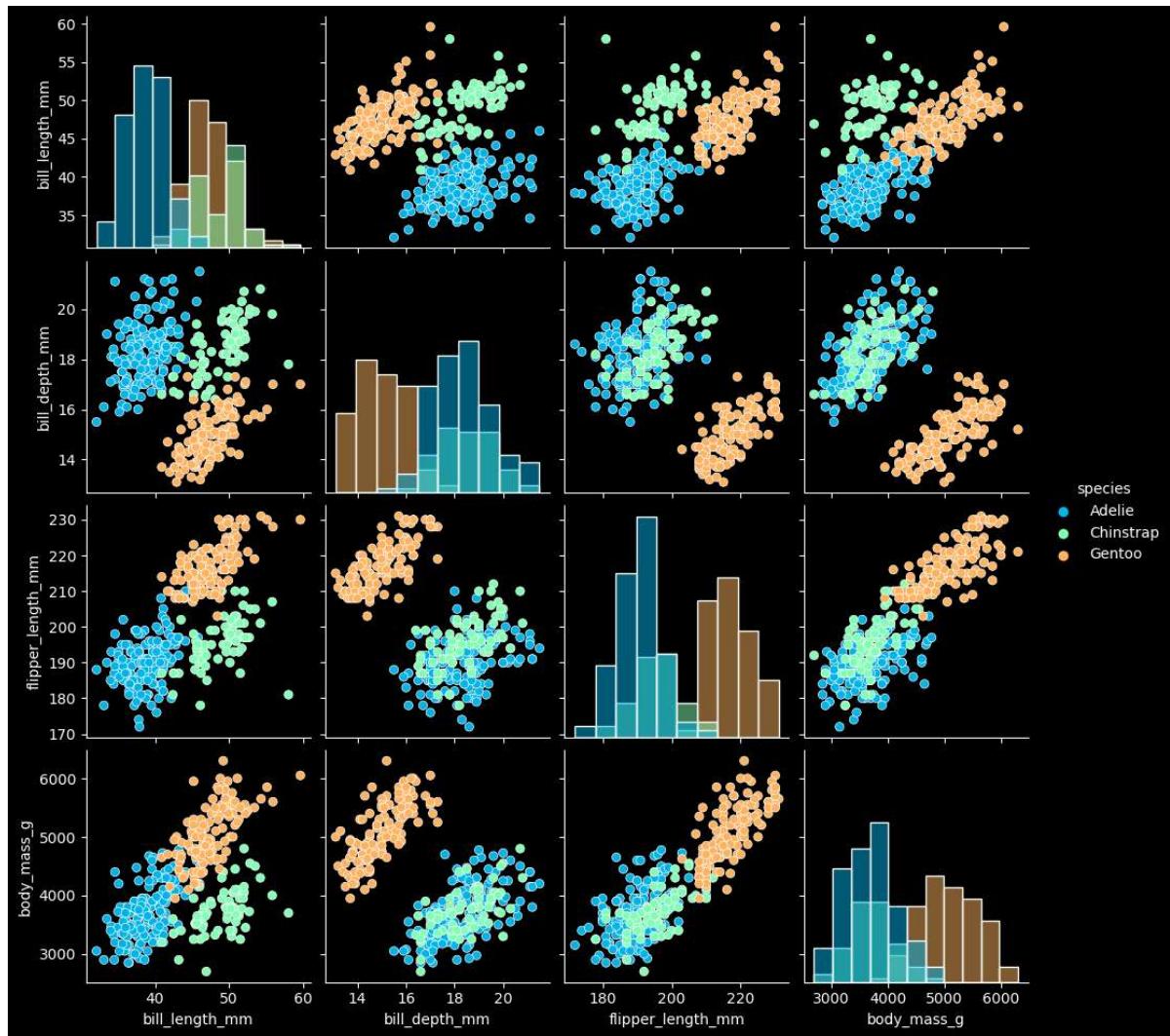
```
Out[100]: <seaborn.axisgrid.PairGrid at 0x23ab0a78040>
```

```
<Figure size 1200x1200 with 0 Axes>
```



```
In [103...]: plt.figure(figsize=(12,12))
sns.pairplot(penguins, hue='species', diag_kind = "hist", palette='rainbow')

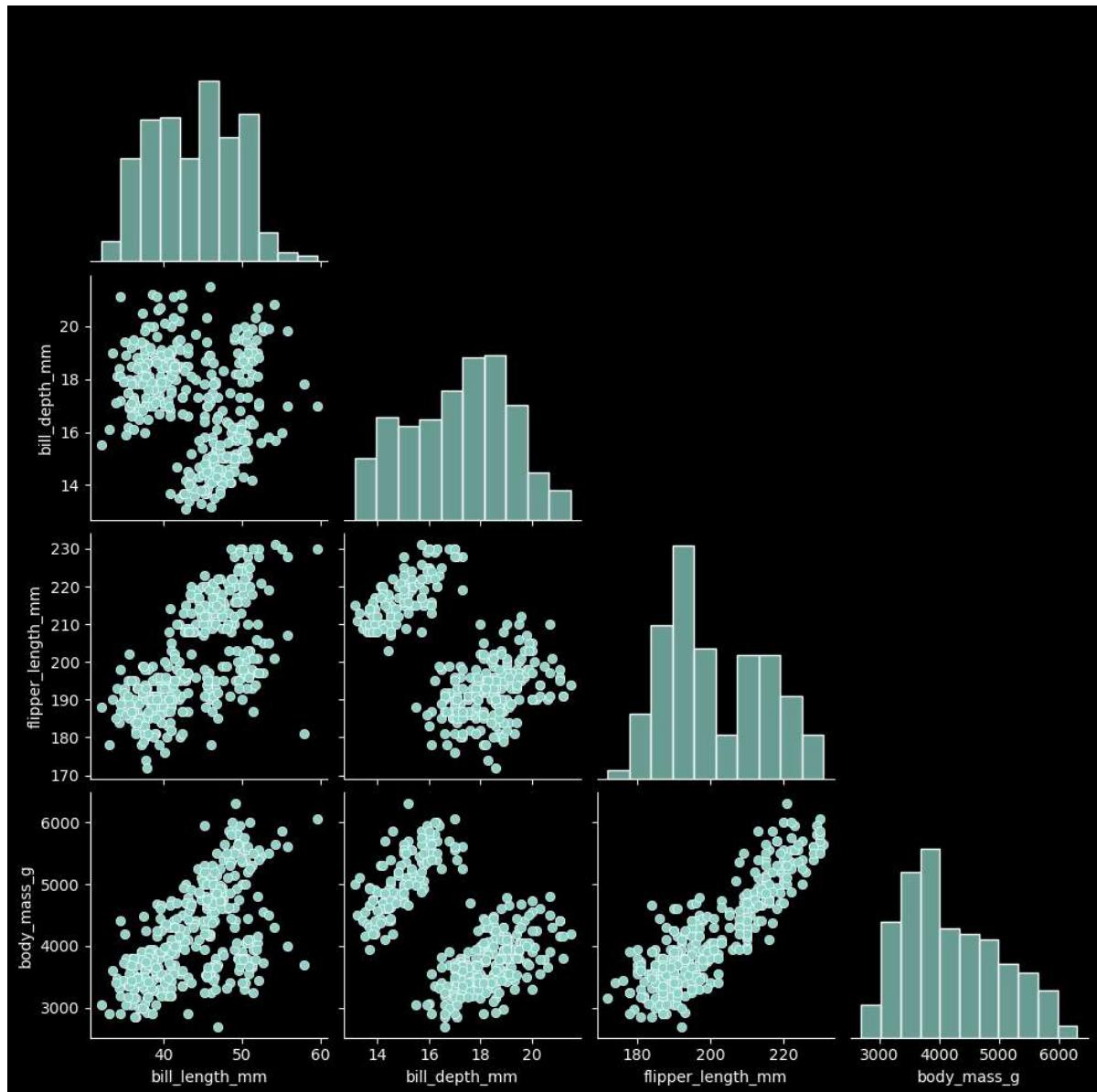
Out[103]: <seaborn.axisgrid.PairGrid at 0x23ab4d57b50>
<Figure size 1200x1200 with 0 Axes>
```



```
In [104]: plt.figure(figsize=(12,12))
sns.pairplot(penguins, corner = True)
```

```
Out[104]: <seaborn.axisgrid.PairGrid at 0x23ab4a067c0>
```

```
<Figure size 1200x1200 with 0 Axes>
```



```
In [106]: plt.figure(figsize=(12,12))
sns.pairplot(penguins, hue='species', markers = ['o', 's','D'], palette='inferno')

Out[106]: <seaborn.axisgrid.PairGrid at 0x23ab83c1520>
<Figure size 1200x1200 with 0 Axes>
```

