pratical-9

April 17, 2024

1 Data Visualization II

- 1. Use the inbuilt dataset 'titanic' as used in the above problem. Plot a box plot for distribution of age with respect to each gender along with the information about whether they survived or not. (Column names: 'sex' and 'age')
- 2. Write observations on the inference from the above statistics.

```
# import seaborn as sns

# titanic = sns.load_dataset("titanic")

# titanic.head(10)

# titanic.info

# titanic.describe()

# # Custom columns with all rows

# titanic.loc[:,['survived', 'alive']]

# # Now box plot

# sns.boxplot(x='sex', y='age', data = titanic)

# sns.boxenplot(x = 'sex', y ='age', data = titanic, hue = "survived")

[1]: import seaborn as sns

[2]: titanic = sns.load_dataset("titanic")
```

```
[2]: titanic = sns.load_dataset("titanic")
titanic
```

```
[2]:
          survived pclass
                                     age sibsp parch
                                                                            class
                               sex
                                                           fare embarked
     0
                 0
                              male 22.0
                                                         7.2500
                                                                           Third
                         3
                                              1
                                                     0
                                                                       S
     1
                 1
                         1 female 38.0
                                              1
                                                     0
                                                       71.2833
                                                                       С
                                                                           First
     2
                 1
                         3 female 26.0
                                              0
                                                         7.9250
                                                                       S
                                                     0
                                                                            Third
```

```
3
                                  35.0
                      1
                         female
                                                     0 53.1000
                                                                         S
                                                                             First
4
             0
                      3
                                  35.0
                                             0
                                                         8.0500
                                                                         S
                                                                             Third
                           male
             0
                      2
                                  27.0
                                                     0 13.0000
                                                                         S
                                                                            Second
886
                           male
                                             0
887
             1
                      1
                         female
                                  19.0
                                             0
                                                     0
                                                        30.0000
                                                                         S
                                                                             First
888
             0
                      3
                         female
                                   NaN
                                                     2
                                                        23.4500
                                                                         S
                                                                             Third
                                             1
                                                                         С
889
                      1
                           male
                                  26.0
                                             0
                                                     0
                                                        30.0000
                                                                             First
             1
890
             0
                      3
                           male
                                  32.0
                                             0
                                                         7.7500
                                                                             Third
             adult_male deck
                                embark_town alive
                                                     alone
       who
0
                   True
                          NaN
                                Southampton
                                                     False
       man
                                                no
1
     woman
                  False
                            C
                                  Cherbourg
                                               yes
                                                     False
2
     woman
                  False
                          NaN
                                Southampton
                                               yes
                                                      True
3
     woman
                  False
                            С
                                Southampton
                                               yes
                                                     False
4
                   True
                          NaN
                                Southampton
                                                      True
       man
                                                no
. .
886
                                Southampton
                   True
                          NaN
                                                      True
       man
                                                no
887
                  False
                            В
                                Southampton
                                                      True
     woman
                                               yes
888
     woman
                  False
                          NaN
                                Southampton
                                                no
                                                     False
889
                   True
                            С
                                  Cherbourg
                                               yes
                                                      True
       man
890
                   True
                          NaN
                                 Queenstown
                                                      True
       man
                                                no
```

[891 rows x 15 columns]

[3]: titanic.head(10)

[3]:	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	\
0	0	3	male	22.0	1	0	7.2500	S	Third	
1	1	1	female	38.0	1	0	71.2833	C	First	
2	1	3	female	26.0	0	0	7.9250	S	Third	
3	1	1	female	35.0	1	0	53.1000	S	First	
4	0	3	male	35.0	0	0	8.0500	S	Third	
5	0	3	male	NaN	0	0	8.4583	Q	Third	
6	0	1	male	54.0	0	0	51.8625	S	First	
7	0	3	male	2.0	3	1	21.0750	S	Third	
8	1	3	female	27.0	0	2	11.1333	S	Third	
9	1	2	female	14.0	1	0	30.0708	C	Second	
	who ad	$lult_male$	deck	embark	town al	ive al	.one			

	who	adult_male	deck	embark_town	alive	alone
0	man	True	NaN	Southampton	no	False
1	woman	False	C	Cherbourg	yes	False
2	woman	False	NaN	Southampton	yes	True
3	woman	False	C	Southampton	yes	False
4	man	True	NaN	Southampton	no	True
5	man	True	NaN	Queenstown	no	True
6	man	True	Ε	Southampton	no	True
7	child	False	${\tt NaN}$	Southampton	no	False

8 woman False NaN Southampton yes False 9 child False NaN Cherbourg yes False

[4]: titanic.info

[4]:	<box></box>	meth	od D	ataFram	e.info	of	survived	pcl	ass sex	age	sibsp
	parch	fa	are	embarke	d cla	ass \					
	0		0	3	male	22.0	1	0	7.2500	S	Third
	1		1	1	female	38.0	1	0	71.2833	С	First
	2		1	3	female	26.0	0	0	7.9250	S	Third
	3		1	1	female	35.0	1	0	53.1000	S	First
	4		0	3	male	35.0	0	0	8.0500	S	Third
				•••		•••					
	886		0	2	male	27.0	0	0	13.0000	S	Second
	887		1	1	female	9.0	0	0	30.0000	S	First
	888		0	3	female	e NaN	1	2	23.4500	S	Third
	889		1	1	male	26.0	0	0	30.0000	C	First
	890		0	3	male	32.0	0	0	7.7500	Q	Third
		who	adu	.lt_male	deck	embark_	town alive	al	one		
	0	man		True	NaN	Southam	pton no	Fa	.lse		

	who	adult_male	deck	embark_town	alive	alone
0	man	True	NaN	Southampton	no	False
1	woman	False	C	Cherbourg	yes	False
2	woman	False	NaN	Southampton	yes	True
3	woman	False	C	Southampton	yes	False
4	man	True	NaN	${\tt Southampton}$	no	True
	•••	••• •••			••	
886	man	True	NaN	Southampton	no	True
			NaN B		-	True True
886	man	True		Southampton	no	
886 887	man woman	True False	В	Southampton Southampton	no yes	True
886 887 888	man woman woman	True False False	B NaN	Southampton Southampton Southampton	no yes no	True False

[891 rows x 15 columns]>

[5]: titanic.describe()

[5]:		survived	pclass	200	giban	parch	fare
[5].		Survived	pcrass	age	sibsp	parcii	lare
	count	891.000000	891.000000	714.000000	891.000000	891.000000	891.000000
	mean	0.383838	2.308642	29.699118	0.523008	0.381594	32.204208
	std	0.486592	0.836071	14.526497	1.102743	0.806057	49.693429
	min	0.000000	1.000000	0.420000	0.000000	0.000000	0.000000
	25%	0.000000	2.000000	20.125000	0.000000	0.000000	7.910400
	50%	0.000000	3.000000	28.000000	0.000000	0.000000	14.454200
	75%	1.000000	3.000000	38.000000	1.000000	0.000000	31.000000
	max	1.000000	3.000000	80.000000	8.000000	6.000000	512.329200

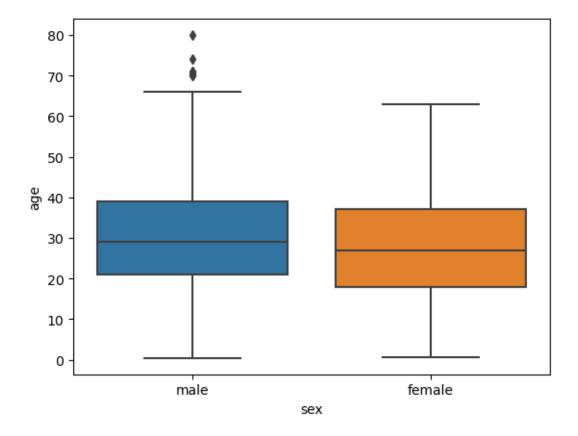
```
[6]: # Custom columns with all rows
titanic.loc[:,['survived', 'alive']]
```

```
[6]:
           survived alive
     0
                   0
     1
                       yes
     2
                       yes
     3
                       yes
     4
                   0
                        no
     886
                   0
                        no
     887
                       yes
     888
                        no
     889
                       yes
     890
                        no
```

[891 rows x 2 columns]

```
[7]: # Now box plot
sns.boxplot(x='sex', y='age', data = titanic)
```

[7]: <Axes: xlabel='sex', ylabel='age'>



[8]: sns.boxenplot(x = 'sex', y = 'age', data = titanic, hue = "survived")

F:\Anaconda3\Lib\site-packages\seaborn\categorical.py:1794: FutureWarning: use_inf_as_na option is deprecated and will be removed in a future version. Convert inf values to NaN before operating instead.

with pd.option_context('mode.use_inf_as_na', True):

F:\Anaconda3\Lib\site-packages\seaborn\categorical.py:1794: FutureWarning: use_inf_as_na option is deprecated and will be removed in a future version. Convert inf values to NaN before operating instead.

with pd.option_context('mode.use_inf_as_na', True):

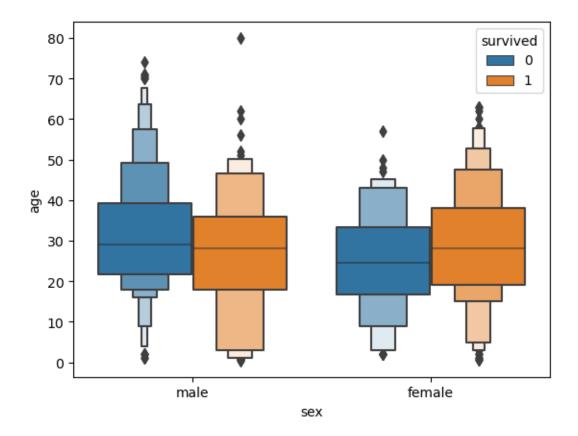
F:\Anaconda3\Lib\site-packages\seaborn\categorical.py:1794: FutureWarning: use_inf_as_na option is deprecated and will be removed in a future version. Convert inf values to NaN before operating instead.

with pd.option_context('mode.use_inf_as_na', True):

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with pd.option_context('mode.use_inf_as_na', True):

[8]: <Axes: xlabel='sex', ylabel='age'>



[]:[