Handling missing values by using csv file

In [1]: ▶ import pandas as pd

Out[2]:		Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	Fare
	0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500
	1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71.2833
	2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.925(
	3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.100(
	4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500

Out[3]: (891, 12)

Out[4]:

In [4]: ▶	<pre>#returns true where there is a null value df.isnull()</pre>
-----------	--

	Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	Fare	Cabin
0	False	False	False	False	False	False	False	False	False	False	True
1	False	False	False	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False	False	False	True
3	False	False	False	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False	False	False	True
886	False	False	False	False	False	False	False	False	False	False	True
887	False	False	False	False	False	False	False	False	False	False	False
888	False	False	False	False	False	True	False	False	False	False	True
889	False	False	False	False	False	False	False	False	False	False	False
890	False	False	False	False	False	False	False	False	False	False	True

891 rows × 12 columns

```
In [5]: #coloumnwise null values
df.isnull().sum()
```

```
Out[5]: PassengerId
         Survived
                           0
         Pclass
                           0
         Name
                           0
         Sex
                           0
                        177
         Age
                           0
         SibSp
         Parch
                           0
         ticket
                           0
         Fare
                           0
                         687
         Cabin
         Embarked
                           2
         dtype: int64
```

Out[6]: 866

In [7]: ▶ ##filling null values

df2=df.fillna(value=0) #wherever null value will be present zero will replo df2

ticket	Parch	SibSp	Age	Sex	Name	Pclass	Survived	Passengerld		Out[7]:
A/5 21171	0	1	22.0	male	Braund, Mr. Owen Harris	3	0	1	0	
PC 17599	0	1	38.0	female	Cumings, Mrs. John Bradley (Florence Briggs Th	1	1	2	1	
STON/O2. 3101282	0	0	26.0	female	Heikkinen, Miss. Laina	3	1	3	2	
113803	0	1	35.0	female	Futrelle, Mrs. Jacques Heath (Lily May Peel)	1	1	4	3	
373450	0	0	35.0	male	Allen, Mr. William Henry	3	0	5	4	
211536	0	0	27.0	male	Montvila, Rev. Juozas	2	0	887	886	
112053	0	0	19.0	female	Graham, Miss. Margaret Edith	1	1	888	887	
W./C. 6607	2	1	0.0	female	Johnston, Miss. Catherine Helen "Carrie"	3	0	889	888	
111369	0	0	26.0	male	Behr, Mr. Karl Howell	1	1	890	889	
370376	0	0	32.0	male	Dooley, Mr. Patrick	3	0	891	890	
	A/5 21171 PC 17599 STON/O2. 3101282 113803 373450 211536 112053 W./C. 6607 111369	0 A/5 21171 0 PC 17599 0 STON/O2. 3101282 0 113803 0 373450 0 211536 0 112053 2 W./C. 6607 0 111369	1 0 PC 17599 0 0 STON/O2. 3101282 1 0 113803 0 0 373450 0 0 211536 0 0 112053 1 2 W./C. 6607 0 0 111369	22.0 1 0 A/5 21171 38.0 1 0 PC 17599 26.0 0 0 STON/O2. 3101282 35.0 1 0 113803 35.0 0 0 373450 27.0 0 0 211536 19.0 0 112053 0.0 1 2 W/C. 6607	male 22.0 1 0 A/5 21171 female 38.0 1 0 PC 17599 female 26.0 0 0 STON/O2. 3101282 female 35.0 1 0 113803 male 35.0 0 0 373450 male 27.0 0 0 211536 female 19.0 0 0 112053 female 0.0 1 2 W/C. 6607 male 26.0 0 0 111369	Braund, Mr. Owen Harris male 22.0 1 0 A/5 21171 Cumings, Mrs. John Bradley (Florence Briggs Th female 38.0 1 0 PC 17599 Heikkinen, Miss. Laina female 26.0 0 0 STON/O2. 3101282 Futrelle, Mrs. Jacques Heath (Lily May Peel) female 35.0 1 0 113803 Allen, Mr. William Henry male 35.0 0 0 373450 Montvila, Rev. male 27.0 0 0 211536 Juozas female 19.0 0 0 112053 Graham, Miss. Margaret Edith female 19.0 0 0 112053 Catherine Helen "Carrie" female 0.0 1 2 W./C. 6007 Behr, Mr. Karl Howell male 26.0 0 0 111369 Dooley, Mr. male 32.0 0 0 370376	Braund, male 22.0	Braund, Mr. Owen Male 22.0 1 0 A/5 21171	1	0 1 0 3 Braund, Harris Mrs. Owen Harris male 22.0 1 0 A/5 21171 1 2 1 1 Enable (Florence Briggs Th female 38.0 1 0 PC 17599 2 3 1 3 Miss. Laina Heath (Lily May Peel) female 26.0 0 0 STON/O2. 3101282 3 4 1 1 Heikkinen, Miss. Laina Heath (Lily May Peel) female 35.0 1 0 113803 4 5 0 3 William Heath (Lily May Peel) male 35.0 1 0 113803 886 887 0 2 Montvila, Rev. Juozas male 35.0 0 0 373450 887 888 1 1 Miss. Miss. Margaret Edith female 19.0 0 0 112053 888 889 0 3 Behr, Mr. Karl Howell male 26.0 0 0 111369 <t< td=""></t<>

891 rows × 12 columns

In [8]: df2.isnull().sum().sum()

Out[8]: 0

In [9]: ▶ df3=df.fillna(value=5)
df3

Out[9]:	Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	F
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.25
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71.28
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.92
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.10
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.05
886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	13.00
887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	30.00
888	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	5.0	1	2	W./C. 6607	23.45
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.00
890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.75

891 rows × 12 columns

In [10]: ▶ #filling null values with previous value

df4=df.fillna(method='pad') df4

Out[10]:		Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	Fi
	0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.25
	1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71.28
	2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.92
	3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.10
	4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.05
8	86	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	13.00
8	87	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	30.00
8	88	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	19.0	1	2	W./C. 6607	23.45
8	89	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.00
8	90	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.75

891 rows × 12 columns

In [11]: #filling null values with the next value
 df5=df.fillna(method='bfill')
 df5

Out[11]:	Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	Fi
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.25
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71.28
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.92
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.10
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.05
886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	13.00
887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	30.00
888	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	26.0	1	2	W./C. 6607	23.45
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.00
890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.75

891 rows × 12 columns

Out[12]:	Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	
886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	
887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	
888	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	female	1	2	W./C. 6607	·
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	
890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	

891 rows × 12 columns

Out[13]:		Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	Fi
-	0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7
	1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71.28
	2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9
	3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	5
	4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8
	886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	1
	887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	3
	888	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	1	1	2	W./C. 6607	23
	889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	3
	890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7

891 rows × 12 columns

In [14]: ▶ #filling different null values in different coloumns

df8=df.fillna({'Cabin':'abcd','Age':'wer'})
df8

Out[14]:		Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	Fi
	0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.25
	1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71.28
	2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.92
	3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.10
	4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.05
8	86	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	13.00
8	87	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	30.00
8	88	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	wer	1	2	W./C. 6607	23.45
8	89	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.00
8	90	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.75

891 rows × 12 columns

In [15]:

#dropna()
df10=df.dropna()

df10

Out[15]:		Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	Far
	1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71.283
	3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.100
	6	7	0	1	McCarthy, Mr. Timothy J	male	54.0	0	0	17463	51.862
	10	11	1	3	Sandstrom, Miss. Marguerite Rut	female	4.0	1	1	PP 9549	16.700
	11	12	1	1	Bonnell, Miss. Elizabeth	female	58.0	0	0	113783	26.550
											•••
8	71	872	1	1	Beckwith, Mrs. Richard Leonard (Sallie Monypeny)	female	47.0	1	1	11751	52.554:
8	72	873	0	1	Carlsson, Mr. Frans Olof	male	33.0	0	0	695	5.000
8	79	880	1	1	Potter, Mrs. Thomas Jr (Lily Alexenia Wilson)	female	56.0	0	1	11767	83.158
8	87	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	30.000
8	89	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.000

183 rows × 12 columns

Out[16]:		Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	F
	0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2
	1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71.28
	2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.92
	3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.10
	4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0
	886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	13.00
	887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	30.00
	888	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	NaN	1	2	W./C. 6607	23.4
	889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.00
	890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.7

891 rows × 12 columns

import numpy as np

df12=df.replace(to_replace=np.nan,value=89767)

df12

Out[17]:		Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	
	0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	
	1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	7
	2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	
	3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	5
	4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	
8	886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	1
:	887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	3
1	888	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	89767.0	1	2	W./C. 6607	2
1	889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	3
:	890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	

891 rows × 12 columns

Out[18]:		Passengerld	Survived	Pclass	Name	Sex	Age	SibSp	Parch	ticket	F
	0	1	5	3	Braund, Mr. Owen Harris	male	22.0	1	5	A/5 21171	7.2
	1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	5	PC 17599	71.28
	2	3	1	3	Heikkinen, Miss. Laina	female	26.0	5	5	STON/O2. 3101282	7.92
	3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	5	113803	53.10
	4	5	5	3	Allen, Mr. William Henry	male	35.0	5	5	373450	8.0
	886	887	5	2	Montvila, Rev. Juozas	male	27.0	5	5	211536	13.00
	887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	5	5	112053	30.00
	888	889	5	3	Johnston, Miss. Catherine Helen "Carrie"	female	NaN	1	2	W./C. 6607	23.4
	889	890	1	1	Behr, Mr. Karl Howell	male	26.0	5	5	111369	30.00
	890	891	5	3	Dooley, Mr. Patrick	male	32.0	5	5	370376	7.7

891 rows × 12 columns

In [19]: ▶ print(df.head(9)) #default=5

	Passengeria	Survivea	PCTASS
0	1	0	3
1	2	1	1
2	3	1	3
3	4	1	1
4	5	0	3
5	6	0	3
6	7	0	1
7	8	0	3
8	9	1	3

	Name	Sex	Age	SibSp
\				
0	Braund, Mr. Owen Harris	male	22.0	1
1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1
2	Heikkinen, Miss. Laina	female	26.0	0
3	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1
4	Allen, Mr. William Henry	male	35.0	0
5	Moran, Mr. James	male	NaN	0
6	McCarthy, Mr. Timothy J	male	54.0	0
7	Palsson, Master. Gosta Leonard	male	2.0	3
8	Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)	female	27.0	0

	Parch	ticket	Fare	Cabin	Embarked
0	0	A/5 21171	7.2500	NaN	S
1	0	PC 17599	71.2833	C85	C
2	0	STON/02. 3101282	7.9250	NaN	S
3	0	113803	53.1000	C123	S
4	0	373450	8.0500	NaN	S
5	0	330877	8.4583	NaN	Q
6	0	17463	51.8625	E46	S
7	1	349909	21.0750	NaN	S
8	2	347742	11 1333	NaN	ς

In [20]: | #let us have dataframe information df.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 12 columns):

#	Column	Non-Null Count	Dtype		
0	PassengerId	891 non-null	int64		
1	Survived	891 non-null	int64		
2	Pclass	891 non-null	int64		
3	Name	891 non-null	object		
4	Sex	891 non-null	object		
5	Age	714 non-null	float64		
6	SibSp	891 non-null	int64		
7	Parch	891 non-null	int64		
8	ticket	891 non-null	object		
9	Fare	891 non-null	float64		
10	Cabin	204 non-null	object		
11	Embarked	889 non-null	object		
dtypes: float64(2), int64(5), object(5)					
03.7. KD					

memory usage: 83.7+ KB

```
#replacing NA in age with mean of age
In [21]:
              mean=np.mean(df.loc[~df["Age"].isna(), "Age"].values)
              print(mean)
              df14=df.fillna({'Age':mean})
              print(df14)
              29.69911764705882
                   PassengerId
                                 Survived
                                            Pclass
              0
                              1
                                         0
              1
                              2
                                         1
                                                 1
              2
                              3
                                                 3
                                         1
              3
                              4
                                         1
                                                 1
              4
                              5
                                         0
                                                 3
              . .
                            . . .
                                       . . .
                                                . . .
                                                 2
              886
                            887
                                         0
              887
                            888
                                         1
                                                 1
                                                 3
              888
                            889
                                         0
                                         1
                                                 1
              889
                            890
              890
                                                 3
                            891
                                                                    Name
                                                                             Sex
                                                                                         Age
              \
              0
                                               Braund, Mr. Owen Harris
                                                                            male
                                                                                   22.000000
              1
                   Cumings, Mrs. John Bradley (Florence Briggs Th...
                                                                          female
                                                                                   38.000000
              2
                                                Heikkinen, Miss. Laina
                                                                          female
                                                                                   26.000000
              3
                         Futrelle, Mrs. Jacques Heath (Lily May Peel)
                                                                          female
                                                                                   35.000000
              4
                                              Allen, Mr. William Henry
                                                                            male
                                                                                   35.000000
                                                                             . . .
              . .
                                                 Montvila, Rev. Juozas
                                                                            male 27.000000
              886
              887
                                          Graham, Miss. Margaret Edith
                                                                          female 19.000000
              888
                             Johnston, Miss. Catherine Helen "Carrie"
                                                                          female
                                                                                   29.699118
              889
                                                 Behr, Mr. Karl Howell
                                                                            male
                                                                                   26.000000
              890
                                                    Dooley, Mr. Patrick
                                                                            male
                                                                                  32.000000
                   SibSp Parch
                                                         Fare Cabin Embarked
                                             ticket
              0
                       1
                               0
                                          A/5 21171
                                                       7.2500
                                                                NaN
                                                                            S
                                                                            C
              1
                        1
                                           PC 17599
                                                     71.2833
                                                                C85
              2
                                                                            S
                                  STON/02. 3101282
                                                       7.9250
                                                                NaN
                                                                            S
              3
                        1
                               0
                                             113803
                                                    53.1000
                                                               C123
              4
                        0
                                             373450
                                                                            S
                               0
                                                       8.0500
                                                                NaN
                                                                            S
              886
                       0
                               0
                                             211536
                                                     13.0000
                                                                NaN
              887
                        0
                               0
                                                                B42
                                                                            S
                                             112053
                                                     30.0000
                               2
                                                                            S
              888
                        1
                                         W./C. 6607
                                                      23.4500
                                                                NaN
                                                                            C
              889
                        0
                               0
                                             111369
                                                      30.0000
                                                               C148
              890
                                                                            Q
                       0
                               0
                                             370376
                                                       7.7500
                                                                NaN
```

[891 rows x 12 columns]

```
#replacing na in cabin with the most frequent value
In [22]:
              mode=df.loc[:,"Cabin"].mode()[0]
              print(mode)
              df15=df.fillna({'Cabin':mode})
              print(df15)
              B96 B98
                   PassengerId
                                 Survived
                                            Pclass
              0
                                                  3
                              1
                                         0
              1
                              2
                                         1
                                                  1
              2
                              3
                                         1
                                                  3
              3
                              4
                                                  1
                                         1
              4
                              5
                                         0
                                                  3
              886
                            887
                                         0
                                                  2
                                                  1
              887
                            888
                                         1
                                                  3
                                         0
              888
                            889
                                         1
                                                  1
              889
                            890
                                                  3
              890
                            891
                                         0
                                                                    Name
                                                                              Sex
                                                                                         Sib
                                                                                     Age
              Sp
                  \
              0
                                                Braund, Mr. Owen Harris
                                                                             male
                                                                                    22.0
              1
                   Cumings, Mrs. John Bradley (Florence Briggs Th...
              1
                                                                           female
                                                                                   38.0
              1
              2
                                                 Heikkinen, Miss. Laina
                                                                           female
              0
                         Futrelle, Mrs. Jacques Heath (Lily May Peel)
              3
                                                                           female
                                                                                    35.0
              1
              4
                                               Allen, Mr. William Henry
                                                                                   35.0
                                                                             male
              0
              . . .
                                                  Montvila, Rev. Juozas
              886
                                                                             male
                                                                                   27.0
              0
              887
                                          Graham, Miss. Margaret Edith
                                                                           female
              0
              888
                             Johnston, Miss. Catherine Helen "Carrie"
                                                                           female
                                                                                     NaN
              1
              889
                                                  Behr, Mr. Karl Howell
                                                                             male
                                                                                    26.0
              0
              890
                                                    Dooley, Mr. Patrick
                                                                             male 32.0
              0
                   Parch
                                                           Cabin Embarked
                                      ticket
                                                  Fare
              0
                                                7.2500
                                                        B96 B98
                                                                         S
                        0
                                   A/5 21171
              1
                        0
                                    PC 17599
                                              71.2833
                                                             C85
                                                                         C
              2
                                                                         S
                        0
                           STON/02. 3101282
                                               7.9250
                                                        B96 B98
                                                                         S
                                              53.1000
              3
                        0
                                      113803
                                                            C123
              4
                        0
                                      373450
                                                8.0500
                                                        B96 B98
                                                                         S
                                                                       . . .
                                                                         S
              886
                        0
                                      211536
                                              13.0000
                                                        B96 B98
                                                                         S
              887
                        0
                                      112053
                                               30.0000
                                                             B42
                                                                         S
                        2
              888
                                 W./C. 6607
                                               23.4500
                                                        B96 B98
                                                                         C
              889
                                      111369
                                              30.0000
                                                            C148
```

890 0 370376 7.7500 B96 B98 Q

[891 rows x 12 columns]

```
M mode=df.loc[:,"Embarked"].mode()[0]
In [25]:
              print(mode)
              df16=df.fillna({'Embarked':mode})
              print(df16)
              S
                                  Survived
                    PassengerId
                                             Pclass
                                                      \
              0
                               1
                                          0
                                                   3
              1
                               2
                                          1
                                                   1
              2
                               3
                                          1
                                                   3
              3
                               4
                                          1
                                                   1
              4
                               5
                                                   3
                                          0
                                                   2
              886
                             887
                                          0
              887
                             888
                                          1
                                                   1
                                                   3
              888
                             889
                                          0
                                                   1
                                          1
              889
                             890
                                          0
                                                   3
              890
                             891
                                                                     Name
                                                                                      Age Sib
                                                                               Sex
              Sp
                   \
              0
                                                 Braund, Mr. Owen Harris
                                                                                     22.0
                                                                              male
              1
              1
                    Cumings, Mrs. John Bradley (Florence Briggs Th...
                                                                            female
                                                                                     38.0
              1
              2
                                                 Heikkinen, Miss. Laina
                                                                            female
                                                                                     26.0
              0
              3
                         Futrelle, Mrs. Jacques Heath (Lily May Peel)
              1
              4
                                               Allen, Mr. William Henry
                                                                              male
                                                                                     35.0
              0
              . . .
              886
                                                   Montvila, Rev. Juozas
                                                                                    27.0
                                                                              male
              0
              887
                                           Graham, Miss. Margaret Edith
                                                                            female
                                                                                     19.0
              0
              888
                              Johnston, Miss. Catherine Helen "Carrie"
                                                                            female
                                                                                      NaN
              1
              889
                                                   Behr, Mr. Karl Howell
                                                                                     26.0
                                                                              male
              0
              890
                                                     Dooley, Mr. Patrick
                                                                              male 32.0
              0
                    Parch
                                      ticket
                                                   Fare Cabin Embarked
              0
                                   A/5 21171
                                                7.2500
                                                          NaN
                                                                       S
              1
                                                                       C
                        0
                                    PC 17599
                                               71.2833
                                                          C85
              2
                        0
                           STON/02. 3101282
                                                7.9250
                                                          NaN
                                                                       S
              3
                        0
                                                                       S
                                      113803
                                               53.1000
                                                         C123
                                                                       S
              4
                        0
                                      373450
                                                8.0500
                                                          NaN
                                                                     . . .
                                                    . . .
                                                           . . .
              . .
                      . . .
                                          . . .
                                                                      S
              886
                        0
                                      211536
                                               13.0000
                                                          NaN
                                                                       S
              887
                        0
                                      112053
                                               30.0000
                                                          B42
                                                                       S
              888
                        2
                                  W./C. 6607
                                               23.4500
                                                          NaN
                                                                       C
              889
                        0
                                      111369
                                               30.0000
                                                         C148
              890
                                      370376
                                                7.7500
                                                          NaN
                                                                       Q
```

[891 rows x 12 columns]

In []: M

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