Pandas - 19BCP138

--> Importing Library

```
import pandas as pd
import numpy as np
```

--> Given Data

```
data  =  {'birds':  ['Cranes', 'Cranes', 'plovers', 'spoonbills', 'spoonbills',
                     'Cranes', 'plovers', 'Cranes', 'spoonbills', 'spoonbills'],
          'age': [3.5, 4, 1.5, np.nan, 6, 3, 5.5, np.nan, 8, 4],
          'visits': [2, 4, 3, 4, 3, 4, 2, 2, 3, 2],
          'priority': ['yes', 'yes', 'no', 'yes', 'no', 'no', 'no', 'yes', 'no', 'no']}
labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
```

--> Create a dataframebirds from this dictionary data which has the index labels

```
df = pd.DataFrame.from_dict(data)
labels = pd.DataFrame.from_dict(labels)

df['labels'] = labels
df = df.set_index('labels')
df
```

labels	birds	age	visits	priority
a	Cranes	3.5	2	yes
b	Cranes	4.0	4	yes
c	plovers	1.5	3	no
d	spoonbills	NaN	4	yes
e	spoonbills	6.0	3	no
f	Cranes	3.0	4	no
g	plovers	5.5	2	no
h	Cranes	NaN	2	yes
i	spoonbills	8.0	3	no
j	spoonbills	4.0	2	no

--> Display a summary of the basic information about birds DataFrame and its data

```
print(df.info())
```

```
<class 'pandas.core.frame.DataFrame'>
Index: 10 entries, a to j
Data columns (total 4 columns):
 #   Column    Non-Null Count  Dtype
---  ------    --------------  -----
 0   birds     10 non-null     object
 1   age       8 non-null      float64
 2   visits    10 non-null     int64
 3   priority  10 non-null     object
dtypes: float64(1), int64(1), object(2)
memory usage: 400.0+ bytes
None
```

--> Print the first 2 rows of the 'birds' dataframe

```
print(df.iloc[:2])
```

```
          birds  age  visits priority
labels
a       Cranes  3.5       2      yes
b       Cranes  4.0       4      yes
```

--> Print all the rows with only 'birds' and 'age' columns from the dataframe

```
print(df[['birds', 'age']])
```

```
              birds  age
labels
a           Cranes  3.5
b           Cranes  4.0
c          plovers  1.5
d       spoonbills  NaN
e       spoonbills  6.0
f           Cranes  3.0
g          plovers  5.5
h           Cranes  NaN
i       spoonbills  8.0
j       spoonbills  4.0
```

--> Select [2, 3, 7] rows and in columns ['birds', 'age', 'visits']

```
df[['birds', 'age', 'visits']].iloc[[2, 3, 7]]
```

labels	birds	age	visits
c	plovers	1.5	3
d	spoonbills	NaN	4
h	Cranes	NaN	2

--> Select the rows where the number of visits is less than 4

```
df[df['visits']<4]
```

labels	birds	age	visits	priority
a	Cranes	3.5	2	yes
c	plovers	1.5	3	no
e	spoonbills	6.0	3	no
g	plovers	5.5	2	no
h	Cranes	NaN	2	yes
i	spoonbills	8.0	3	no
j	spoonbills	4.0	2	no

--> Select the rows with columns ['birds', 'visits'] where the age is missing i.e.NaN

```
temp= df[df['age'].isnull()]
temp[['birds', 'visits']]
```

labels	birds	visits
d	spoonbills	4
h	Cranes	2

--> Select the rows where the birds is a Cranes and the age is less than 4

```
df[(df['birds'] == 'Cranes') & (df['age'] < 4)]
```

labels	birds	age	visits	priority
a	Cranes	3.5	2	yes
f	Cranes	3.0	4	no

--> Select the rows the age isbetween 2 and 4(inclusive)

```
df[(df['age'] <= 4) & (df['age'] >= 2)]
```

labels	birds	age	visits	priority
a	Cranes	3.5	2	yes
b	Cranes	4.0	4	yes
f	Cranes	3.0	4	no
j	spoonbills	4.0	2	no

--> Find the total number of visits of the bird Cranes

+ Code + Text

```
df[(df['birds'] == 'Cranes') & (df['visits'].notnull())].sum()
```

```
birds       CranesCranesCranesCranes
age                             10.5
visits                            12
priority                yesyesnoyes
dtype: object
```

--> Append a new row 'k' to dataframe with your choice of values for each column. Then delete that row to return the original Data Frame.

```
df.loc['k'] = ['Cranes', 4.5, 4, 'yes']
df
```

labels	birds	age	visits	priority
a	Cranes	3.5	2	yes
b	Cranes	4.0	4	yes
c	plovers	1.5	3	no
d	spoonbills	NaN	4	yes
e	spoonbills	6.0	3	no
f	Cranes	3.0	4	no
g	plovers	5.5	2	no
h	Cranes	NaN	2	yes
i	spoonbills	8.0	3	no
j	spoonbills	4.0	2	no
k	Cranes	4.5	4	yes

```
df = df.drop('k')
df
```

labels	birds	age	visits	priority
a	Cranes	3.5	2	yes
b	Cranes	4.0	4	yes
c	plovers	1.5	3	no
d	spoonbills	NaN	4	yes
e	spoonbills	6.0	3	no
f	Cranes	3.0	4	no
g	plovers	5.5	2	no
h	Cranes	NaN	2	yes
i	spoonbills	8.0	3	no
j	spoonbills	4.0	2	no