In [1]:
```
import pandas as pd
```

In [2]:
```
df=pd.read_csv(r"C:\Users\student\Desktop\iris.csv")
print(df)
```

```
     sepal_length  sepal_width petal_length  petal_width    species
0             5.1          3.5          1.4          0.2         se
1             4.9          3.0          1.4          0.2     setosa
2             4.7          3.2          1.3          0.2     setosa
3             4.6          3.1          1.5          0.2     setosa
4             5.0          3.6          1.4          0.2     setosa
..            ...          ...          ...          ...        ...
146           6.3          2.5            5          1.9  virginica
147           6.5          3.0          5.2          2.0  virginica
148           6.2          3.4          5.4          2.3  virginica
149           5.9          3.0          5.1          1.8  virginica
150           5.8          3.2          5,2          NaN  virginica

[151 rows x 5 columns]
```

In [3]:
```
print(df.info())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 151 entries, 0 to 150
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype  
---  ------        --------------  -----  
 0   sepal_length  151 non-null    float64
 1   sepal_width   151 non-null    float64
 2   petal_length  151 non-null    object 
 3   petal_width   150 non-null    float64
 4   species       151 non-null    object 
dtypes: float64(3), object(2)
memory usage: 6.0+ KB
None
```

In [4]:
```
df.fillna(120, inplace=True)
print(df.to_string())
```

```
     sepal_length  sepal_width petal_length  petal_width     species
0             5.1          3.5          1.4          0.2          se
1             4.9          3.0          1.4          0.2      setosa
2             4.7          3.2          1.3          0.2      setosa
3             4.6          3.1          1.5          0.2      setosa
4             5.0          3.6          1.4          0.2      setosa
5             5.4          3.9          1.7          0.4      setosa
6             4.6          3.4          1.4          0.3      setosa
7             5.0          3.4          1.5          0.2      setosa
8             4.4          2.9          1.4          0.2      setosa
9             4.9          3.1          1.5          0.1      setosa
10            5.4          3.7          1.5          0.2      setosa
11            4.8          3.4          1.6          0.2      setosa
12            4.8          3.0          1.4          0.1      setosa
13            4.3          3.0          1.1          0.1      setosa
14            5.8          4.0          1.2          0.2      setosa
15            5.7          4.4          1.5          0.4      setosa
16            5.4          3.9          1.3          0.4      setosa
17            5.1          3.5          1.4          0.3      setosa
```

In [5]:
```
print(df.to_string)
```

```
<bound method DataFrame.to_string of      sepal_length  sepal_width petal_lengt
h  petal_width    species
0             5.1          3.5          1.4          0.2         se
1             4.9          3.0          1.4          0.2     setosa
2             4.7          3.2          1.3          0.2     setosa
3             4.6          3.1          1.5          0.2     setosa
4             5.0          3.6          1.4          0.2     setosa
..            ...          ...          ...          ...        ...
146           6.3          2.5            5          1.9  virginica
147           6.5          3.0          5.2          2.0  virginica
148           6.2          3.4          5.4          2.3  virginica
149           5.9          3.0          5.1          1.8  virginica
150           5.8          3.2          5,2        120.0  virginica

[151 rows x 5 columns]>
```

In [11]:
```
print(df["sepal_length"].loc[0:7].sum())
#print("Sum: ",dataset_1["sepal_length"].sum())
print("Average: ",df["sepal_length"].loc[0:7].mean())
```

```
39.3
Average:  4.9125
```

In [9]:
```
c=df.dropna()
print(c)
```

```
     sepal_length  sepal_width petal_length  petal_width    species
0             5.1          3.5          1.4          0.2         se
1             4.9          3.0          1.4          0.2     setosa
2             4.7          3.2          1.3          0.2     setosa
3             4.6          3.1          1.5          0.2     setosa
4             5.0          3.6          1.4          0.2     setosa
..            ...          ...          ...          ...        ...
146           6.3          2.5            5          1.9  virginica
147           6.5          3.0          5.2          2.0  virginica
148           6.2          3.4          5.4          2.3  virginica
149           5.9          3.0          5.1          1.8  virginica
150           5.8          3.2          5,2        120.0  virginica

[151 rows x 5 columns]
```

In [10]:
```
print(df.drop(["sepal_length"],axis=1))
```

```
     sepal_width petal_length  petal_width    species
0            3.5          1.4          0.2         se
1            3.0          1.4          0.2     setosa
2            3.2          1.3          0.2     setosa
3            3.1          1.5          0.2     setosa
4            3.6          1.4          0.2     setosa
..           ...          ...          ...        ...
146          2.5            5          1.9  virginica
147          3.0          5.2          2.0  virginica
148          3.4          5.4          2.3  virginica
149          3.0          5.1          1.8  virginica
150          3.2          5,2        120.0  virginica

[151 rows x 4 columns]
```

In [12]:
```
print(df["sepal_length"].loc[0:7])
```

```
0    5.1
1    4.9
2    4.7
3    4.6
4    5.0
5    5.4
6    4.6
7    5.0
Name: sepal_length, dtype: float64
```

In [15]:
```
print(df["sepal_length"].sum())
print(df["sepal_length"].mean())
```

```
882.3
5.843046357615895
```

In [20]:
```
x = df.loc[0]
y =df.loc[1]
z = df.loc[2]
print(x)
print("")
print(y)
print("")
print(z)
```

```
sepal_length    5.1
sepal_width     3.5
petal_length    1.4
petal_width     0.2
species          se
Name: 0, dtype: object

sepal_length       4.9
sepal_width          3
petal_length       1.4
petal_width        0.2
species         setosa
Name: 1, dtype: object

sepal_length       4.7
sepal_width        3.2
petal_length       1.3
petal_width        0.2
species         setosa
Name: 2, dtype: object
```

In [17]:
```
  = df.loc[0:150]
```

```
  File "<ipython-input-17-a36b879cc335>", line 1
    a to z = df.loc[0:150]
      ^
SyntaxError: invalid syntax
```

In [18]:
```
print(df.head(5))
```

```
   sepal_length  sepal_width petal_length  petal_width species
0           5.1          3.5          1.4          0.2      se
1           4.9          3.0          1.4          0.2  setosa
2           4.7          3.2          1.3          0.2  setosa
3           4.6          3.1          1.5          0.2  setosa
4           5.0          3.6          1.4          0.2  setosa
```

In [21]:
```
print(df.tail(5))
```

```
     sepal_length  sepal_width petal_length  petal_width    species
146           6.3          2.5            5          1.9  virginica
147           6.5          3.0          5.2          2.0  virginica
148           6.2          3.4          5.4          2.3  virginica
149           5.9          3.0          5.1          1.8  virginica
150           5.8          3.2          5,2        120.0  virginica
```

In [24]:
```
x=df["sepal_length"].mean()
df["sepal_length"].fillna(x,inplace=True)
print(x)
print(df)
```

```
5.843046357615895
     sepal_length  sepal_width petal_length  petal_width    species
0             5.1          3.5          1.4          0.2         se
1             4.9          3.0          1.4          0.2     setosa
2             4.7          3.2          1.3          0.2     setosa
3             4.6          3.1          1.5          0.2     setosa
4             5.0          3.6          1.4          0.2     setosa
..            ...          ...          ...          ...        ...
146           6.3          2.5            5          1.9  virginica
147           6.5          3.0          5.2          2.0  virginica
148           6.2          3.4          5.4          2.3  virginica
149           5.9          3.0          5.1          1.8  virginica
150           5.8          3.2          5,2        120.0  virginica

[151 rows x 5 columns]
```

In [25]:
```
df=pd.read_csv(r"C:\Users\student\Desktop\iris.csv")
print(df)
```

```
     sepal_length  sepal_width petal_length  petal_width    species
0             5.1          3.5          1.4          0.2         se
1             4.9          3.0          1.4          0.2     setosa
2             4.7          3.2          1.3          0.2     setosa
3             4.6          3.1          1.5          0.2     setosa
4             5.0          3.6          1.4          0.2     setosa
..            ...          ...          ...          ...        ...
147           6.5          3.0          5.2          2.0  virginica
148           6.2          3.4          5.4          2.3  virginica
149           5.9          3.0          5.1          1.8  virginica
150           5.8          3.2          5,2          NaN  virginica
151           5.9          3.9          NaN          NaN         se

[152 rows x 5 columns]
```

In [31]:
```
#x=df["petal_length"].sum()
df["petal_length"].fillna(3.5,inplace=True)
print(x)
print(df)
df[]
```

```
0    1.5
dtype: object
     sepal_length  sepal_width petal_length  petal_width    species
0             5.1          3.5          1.4          0.2         se
1             4.9          3.0          1.4          0.2     setosa
2             4.7          3.2          1.3          0.2     setosa
3             4.6          3.1          1.5          0.2     setosa
4             5.0          3.6          1.4          0.2     setosa
..            ...          ...          ...          ...        ...
147           6.5          3.0          5.2          2.0  virginica
148           6.2          3.4          5.4          2.3  virginica
149           5.9          3.0          5.1          1.8  virginica
150           5.8          3.2          5,2          NaN  virginica
151           5.9          3.9          3.5          NaN         se

[152 rows x 5 columns]
```

In [33]:
```
print(df["petal_length"])
```

```
0      1.4
1      1.4
2      1.3
3      1.5
4      1.4
      ...
147    5.2
148    5.4
149    5.1
150    5,2
151    3.5
Name: petal_length, Length: 152, dtype: object
```

In [34]:
```
df.loc[150,"petal_length"]=5.5
print(df["petal_length"])
```

```
0      1.4
1      1.4
2      1.3
3      1.5
4      1.4
      ...
147    5.2
148    5.4
149    5.1
150    5.5
151    3.5
Name: petal_length, Length: 152, dtype: object
```

In [47]:
```
df.loc[df['petal_length'] > 4.5]=5
print(df["petal_length"])
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-47-a3e831a69adc> in <module>
----> 1 df.loc[df['petal_length'] > 4]=5
      2 print(df["petal_length"])

~\anaconda3\lib\site-packages\pandas\core\ops\common.py in new_method(self, oth
er)
     63         other = item_from_zerodim(other)
     64
---> 65         return method(self, other)
     66
     67     return new_method

~\anaconda3\lib\site-packages\pandas\core\ops\__init__.py in wrapper(self, othe
r)
    368         rvalues = extract_array(other, extract_numpy=True)
    369
--> 370         res_values = comparison_op(lvalues, rvalues, op)
    371
    372         return self._construct_result(res_values, name=res_name)

~\anaconda3\lib\site-packages\pandas\core\ops\array_ops.py in comparison_op(lef
t, right, op)
    242
    243     elif is_object_dtype(lvalues.dtype):
--> 244         res_values = comp_method_OBJECT_ARRAY(op, lvalues, rvalues)
    245
    246     else:

~\anaconda3\lib\site-packages\pandas\core\ops\array_ops.py in comp_method_OBJEC
T_ARRAY(op, x, y)
     54         result = libops.vec_compare(x.ravel(), y.ravel(), op)
     55     else:
---> 56         result = libops.scalar_compare(x.ravel(), y, op)
     57     return result.reshape(x.shape)
     58

pandas\_libs\ops.pyx in pandas._libs.ops.scalar_compare()

TypeError: '>' not supported between instances of 'str' and 'int'
```

In [44]:
```
df.loc[["petal_length"] > 4.5] = 5
df["petal_length"]
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-44-0a489ae09c91> in <module>
----> 1 df.loc[["petal_length"] > 4.5] = 5
      2 df["petal_length"]

TypeError: '>' not supported between instances of 'list' and 'float'
```

In [49]:
```
print(df["petal_length"])
df.loc[df['petal_length'] > 4.5, 'petal_length'] = 5
df["petal_length"]
```

```
0      1.4
1      1.4
2      1.3
3      1.5
4      1.4
      ...
147    5.2
148    5.4
149    5.1
150    5.5
151    3.5
Name: petal_length, Length: 152, dtype: object

---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-49-c5ba10365728> in <module>
      1 print(df["petal_length"])
----> 2 df.loc[df['petal_length'] > 4.5, 'petal_length'] = 5
      3 df["petal_length"]

~\anaconda3\lib\site-packages\pandas\core\ops\common.py in new_method(self, oth
er)
     63         other = item_from_zerodim(other)
     64
---> 65         return method(self, other)
     66
     67     return new_method

~\anaconda3\lib\site-packages\pandas\core\ops\__init__.py in wrapper(self, othe
r)
    368         rvalues = extract_array(other, extract_numpy=True)
    369
--> 370         res_values = comparison_op(lvalues, rvalues, op)
    371
    372         return self._construct_result(res_values, name=res_name)

~\anaconda3\lib\site-packages\pandas\core\ops\array_ops.py in comparison_op(lef
t, right, op)
    242
    243     elif is_object_dtype(lvalues.dtype):
--> 244         res_values = comp_method_OBJECT_ARRAY(op, lvalues, rvalues)
    245
    246     else:

~\anaconda3\lib\site-packages\pandas\core\ops\array_ops.py in comp_method_OBJEC
T_ARRAY(op, x, y)
     54         result = libops.vec_compare(x.ravel(), y.ravel(), op)
     55     else:
---> 56         result = libops.scalar_compare(x.ravel(), y, op)
     57     return result.reshape(x.shape)
     58

pandas\_libs\ops.pyx in pandas._libs.ops.scalar_compare()
```

```
TypeError: '>' not supported between instances of 'str' and 'float'
```

In [50]:
```
df=pd.read_csv(r"C:\Users\student\Desktop\iris.csv")
print(df)
```

```
     sepal_length  sepal_width petal_length  petal_width    species
0             5.1          3.5          1.4          0.2         se
1             4.9          3.0          1.4          0.2     setosa
2             4.7          3.2          1.3          0.2     setosa
3             4.6          3.1          1.5          0.2     setosa
4             5.0          3.6          1.4          0.2     setosa
..            ...          ...          ...          ...        ...
147           6.5          3.0          5.2          2.0  virginica
148           6.2          3.4          5.4          2.3  virginica
149           5.9          3.0          5.1          1.8  virginica
150           5.8          3.2          5,2          NaN  virginica
151           5.9          3.9          NaN          NaN         se

[152 rows x 5 columns]
```

In [51]:
```
print(df["petal_length"])
df.loc[df['petal_length'] > 4.5, 'petal_length'] = 5
df["petal_length"]
```

```
0      1.4
1      1.4
2      1.3
3      1.5
4      1.4
      ...
147    5.2
148    5.4
149    5.1
150    5,2
151    NaN
Name: petal_length, Length: 152, dtype: object

---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-51-c5ba10365728> in <module>
      1 print(df["petal_length"])
----> 2 df.loc[df['petal_length'] > 4.5, 'petal_length'] = 5
      3 df["petal_length"]

~\anaconda3\lib\site-packages\pandas\core\ops\common.py in new_method(self, oth
er)
     63         other = item_from_zerodim(other)
     64
---> 65         return method(self, other)
     66
     67     return new_method

~\anaconda3\lib\site-packages\pandas\core\ops\__init__.py in wrapper(self, othe
r)
    368         rvalues = extract_array(other, extract_numpy=True)
    369
--> 370         res_values = comparison_op(lvalues, rvalues, op)
    371
    372         return self._construct_result(res_values, name=res_name)

~\anaconda3\lib\site-packages\pandas\core\ops\array_ops.py in comparison_op(lef
t, right, op)
    242
    243     elif is_object_dtype(lvalues.dtype):
--> 244         res_values = comp_method_OBJECT_ARRAY(op, lvalues, rvalues)
    245
    246     else:

~\anaconda3\lib\site-packages\pandas\core\ops\array_ops.py in comp_method_OBJEC
T_ARRAY(op, x, y)
     54         result = libops.vec_compare(x.ravel(), y.ravel(), op)
     55     else:
---> 56         result = libops.scalar_compare(x.ravel(), y, op)
     57     return result.reshape(x.shape)
     58

pandas\_libs\ops.pyx in pandas._libs.ops.scalar_compare()
```

```
TypeError: '>' not supported between instances of 'str' and 'float'
```

In [53]:
```
df=pd.read_csv(r"C:\Users\student\Desktop\iris2.csv")
print(df)
```

```
     sepal_length  sepal_width  petal_length  petal_width    species
0             5.1          3.5           1.4          0.2         se
1             4.9          3.0           1.4          0.2     setosa
2             4.7          3.2           1.3          0.2     setosa
3             4.6          3.1           1.5          0.2     setosa
4             5.0          3.6           1.4          0.2     setosa
..            ...          ...           ...          ...        ...
146           6.3          2.5           5.0          1.9  virginica
147           6.5          3.0           5.2          2.0  virginica
148           6.2          3.4           5.4          2.3  virginica
149           5.9          3.0           5.1          1.8  virginica
150           5.8          3.2           5.5          NaN  virginica

[151 rows x 5 columns]
```

In [54]:
```
df.loc[df['petal_length'] > 4.5, 'petal_length'] = 5
df["petal_length"]
```

Out[54]:
```
0      1.4
1      1.4
2      1.3
3      1.5
4      1.4
      ...
146    5.0
147    5.0
148    5.0
149    5.0
150    5.0
Name: petal_length, Length: 151, dtype: float64
```

In [ ]:
```
for i in df.index:
    if df.loc[i,"petal_length"]
```