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1. Đọc file csv và hiển thị dữ liệu

```
In [9]: import pandas as pd

# Đặt tên cột
column_names = ["sepal_length", "sepal_width", "petal_length", "petal_width"
df = pd.read_csv("iris.data", header=None, names=column_names)
pd.set_option("display.max_rows", None) # Hiê'n thị tâ't ca' các dòng
print(df)
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53 5.5 2.3 4.0 1.3 Iris-versicolor	51	6.4	3.2	4.5	1.5	Iris-versicolor
	52	6.9	3.1	4.9	1.5	Iris-versicolor
	53	5.5	2.3	4.0	1.3	Iris-versicolor
	54	6.5	2.8	4.6	1.5	Iris-versicolor

55	5.7	2.8	4.5	1.3	Iris-versicolor
56	6.3	3.3	4.7	1.6	Iris-versicolor
57	4.9	2.4	3.3	1.0	Iris-versicolor
58	6.6	2.9	4.6	1.3	Iris-versicolor
59	5.2	2.7	3.9	1.4	Iris-versicolor
60	5.0	2.0	3.5	1.0	Iris-versicolor
61	5.9	3.0	4.2	1.5	Iris-versicolor
62	6.0	2.2	4.0	1.0	Iris-versicolor
63	6.1	2.9	4.7	1.4	Iris-versicolor
64	5.6	2.9	3.6	1.3	Iris-versicolor
65	6.7	3.1	4.4	1.4	Iris-versicolor
66	5.6	3.0	4.5	1.5	Iris-versicolor
67	5.8	2.7	4.1	1.0	Iris-versicolor
68	6.2	2.2	4.5	1.5	Iris-versicolor
69	5.6	2.5	3.9	1.1	Iris-versicolor
70	5.9	3.2	4.8	1.8	Iris-versicolor
71	6.1	2.8	4.0	1.3	Iris-versicolor
72	6.3	2.5	4.9	1.5	Iris-versicolor
73	6.1	2.8	4.7	1.2	Iris-versicolor
74	6.4	2.9	4.3	1.3	Iris-versicolor
75	6.6	3.0	4.4	1.4	Iris-versicolor
76	6.8	2.8	4.8	1.4	Iris-versicolor
77 77	6.7	3.0	5.0	1.7	Iris-versicolor
78	6.0	2.9	4.5	1.5	Iris-versicolor
79	5.7	2.6	3.5	1.0	Iris-versicolor
80	5.5	2.4	3.8	1.1	Iris-versicolor
81	5.5	2.4	3.7	1.0	Iris-versicolor
82	5.8	2.7	3.9	1.2	Iris-versicolor
83	6.0	2.7	5.1	1.6	Iris-versicolor
84	5.4	3.0	4.5	1.5	Iris-versicolor
85	6.0	3.4	4.5	1.6	Iris-versicolor
86	6.7	3.1	4.7	1.5	Iris-versicolor
87	6.3	2.3	4.4	1.3	Iris-versicolor
88	5.6	3.0	4.1	1.3	Iris-versicolor
89	5.5	2.5	4.0	1.3	
				_	
90	5.5	2.6	4.4	1.2	Iris-versicolor
91	6.1	3.0	4.6	1.4	Iris-versicolor
92	5.8	2.6	4.0	1.2	Iris-versicolor
93	5.0	2.3	3.3	1.0	Iris-versicolor
94	5.6	2.7	4.2	1.3	Iris-versicolor
95	5.7	3.0	4.2	1.2	Iris-versicolor
96	5.7	2.9	4.2	1.3	Iris-versicolor
97	6.2	2.9	4.3	1.3	Iris-versicolor
98	5.1	2.5	3.0	1.1	Iris-versicolor
99	5.7	2.8	4.1	1.3	Iris-versicolor
100	6.3	3.3	6.0	2.5	Iris-virginica
101	5.8	2.7	5.1	1.9	Iris-virginica
102	7.1	3.0	5.9	2.1	Iris-virginica
103	6.3	2.9	5.6	1.8	Iris-virginica
					_
104	6.5	3.0	5.8	2.2	Iris-virginica
105	7.6	3.0	6.6	2.1	Iris-virginica
106	4.9	2.5	4.5	1.7	Iris-virginica
107	7.3	2.9	6.3	1.8	Iris-virginica
108	6.7	2.5	5.8	1.8	Iris-virginica
109	7.2	3.6	6.1	2.5	Iris-virginica
110	6.5	3.2	5.1	2.0	Iris-virginica
110	0.5	J. Z	J. I	۷. ۷	TIT2-ATIATIITCQ

111	6.4	2.7	5.3	1.9	Iris-virginica
112	6.8	3.0	5.5	2.1	Iris-virginica
113	5.7	2.5	5.0	2.0	Iris-virginica
114	5.8	2.8	5.1	2.4	Iris-virginica
115	6.4	3.2	5.3	2.3	Iris-virginica
116	6.5	3.0	5.5	1.8	Iris-virginica
117	7.7	3.8	6.7	2.2	Iris-virginica
118	7.7	2.6	6.9	2.3	Iris-virginica
119	6.0	2.2	5.0	1.5	Iris-virginica
120	6.9	3.2	5.7	2.3	Iris-virginica
121	5.6	2.8	4.9	2.0	Iris-virginica
122	7.7	2.8	6.7	2.0	Iris-virginica
123	6.3	2.7	4.9	1.8	Iris-virginica
124	6.7	3.3	5.7	2.1	Iris-virginica
125	7.2	3.2	6.0	1.8	Iris-virginica
126	6.2	2.8	4.8	1.8	Iris-virginica
127	6.1	3.0	4.9	1.8	Iris-virginica
128	6.4	2.8	5.6	2.1	Iris-virginica
129	7.2	3.0	5.8	1.6	Iris-virginica
130	7.4	2.8	6.1	1.9	Iris-virginica
131	7.9	3.8	6.4	2.0	Iris-virginica
132	6.4	2.8	5.6	2.2	Iris-virginica
133	6.3	2.8	5.1	1.5	Iris-virginica
134	6.1	2.6	5.6	1.4	Iris-virginica
135	7.7	3.0	6.1	2.3	Iris-virginica
136	6.3	3.4	5.6	2.4	Iris-virginica
137	6.4	3.1	5.5	1.8	Iris-virginica
138	6.0	3.0	4.8	1.8	Iris-virginica
139	6.9	3.1	5.4	2.1	Iris-virginica
140	6.7	3.1	5.6	2.4	Iris-virginica
141	6.9	3.1	5.1	2.3	Iris-virginica
142	5.8	2.7	5.1	1.9	Iris-virginica
143	6.8	3.2	5.9	2.3	Iris-virginica
144	6.7	3.3	5.7	2.5	Iris-virginica
145	6.7	3.0	5.2	2.3	Iris-virginica
146	6.3	2.5	5.0	1.9	Iris-virginica
147	6.5	3.0	5.2	2.0	Iris-virginica
148	6.2	3.4	5.4	2.3	Iris-virginica
149	5.9	3.0	5.1	1.8	Iris-virginica
					5

2. Cho biết kiểu dữ liệu các cột

```
In [10]: import pandas as pd

column_names = ["sepal_length", "sepal_width", "petal_length", "petal_width"
df = pd.read_csv("iris.data", header=None, names=column_names)

print("== Kiêủ dữ liệu của các cột ==")
print(df.dtypes)
```

```
== Kiêủ dữ liệu của các cột ==
sepal_length float64
sepal_width float64
petal_length float64
petal_width float64
species object
dtype: object
```

3. Hiển thị các giá trị thống kê (count, mean, std,...)

```
In [11]: import pandas as pd
         column_names = ["sepal_length", "sepal_width", "petal_length", "petal_width"
         df = pd.read csv("iris.data", header=None, names=column names)
         print("== Thông kê mô tả các thuộc tính sô'==")
        print(df.describe())
       == Thông kê mô tả các thuộc tính số'==
              sepal length sepal width petal length petal width
                           150.000000
                150.000000
                                          150.000000
                                                      150.000000
       count
       mean
                  5.843333
                              3.054000
                                            3.758667
                                                        1.198667
                  0.828066
                              0.433594
                                            1.764420
                                                        0.763161
       std
                 4.300000
       min
                              2.000000
                                            1.000000
                                                        0.100000
       25%
                 5.100000
                             2.800000
                                            1.600000
                                                        0.300000
                                           4.350000
5.100000
                 5.800000
       50%
                              3.000000
                                                        1.300000
                 6.400000 3.300000
       75%
                                                        1.800000
                 7.900000
                             4.400000
                                            6.900000
                                                        2.500000
       max
```

4. Trực quan hóa lần lượt các thuộc tính dùng các dạng đồ thị histogram

```
In [12]: import pandas as pd
import matplotlib.pyplot as plt

# Doc dw lieu ne'u chua co'
column_names = ["sepal_length", "sepal_width", "petal_length", "petal_width"
df = pd.read_csv("iris.data", header=None, names=column_names)

numeric_columns = ["sepal_length", "sepal_width", "petal_length", "petal_width",

for col in numeric_columns:
    plt.figure(figsize=(6, 4))
    plt.hist(df[col], bins=15, edgecolor='black', color='skyblue')
    plt.title(f'Histogram of {col}')
    plt.xlabel(col)
    plt.ylabel('Frequency')
    plt.grid(True)
    plt.show()
```







