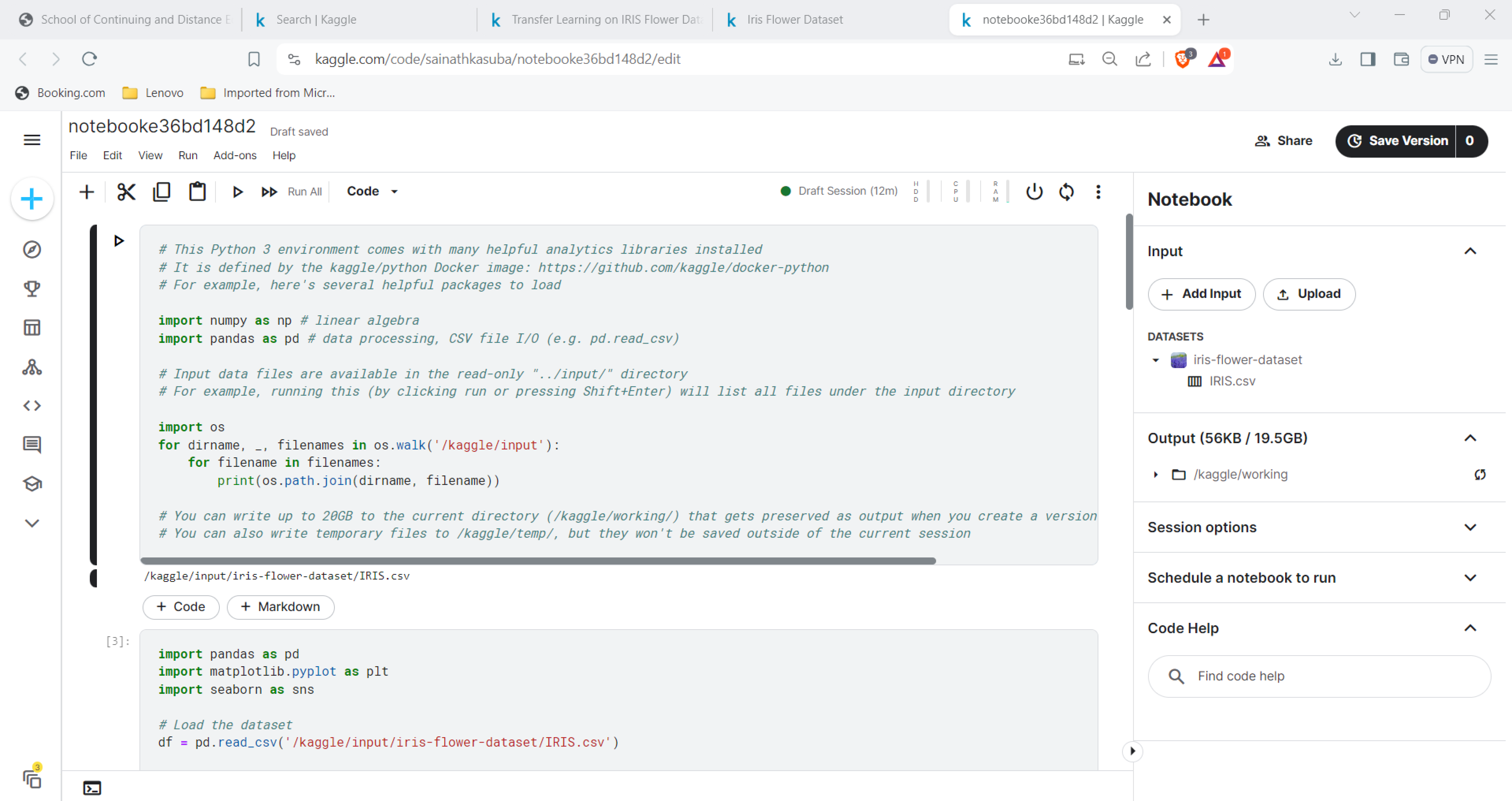
Assignment 3

1. Take any dataset of your own from Kaggle/Kdnuggets, apply Data analytics and Data visualization using Pandas, Matplotlib and Seaborn . Do various kinds of EDA analytics.

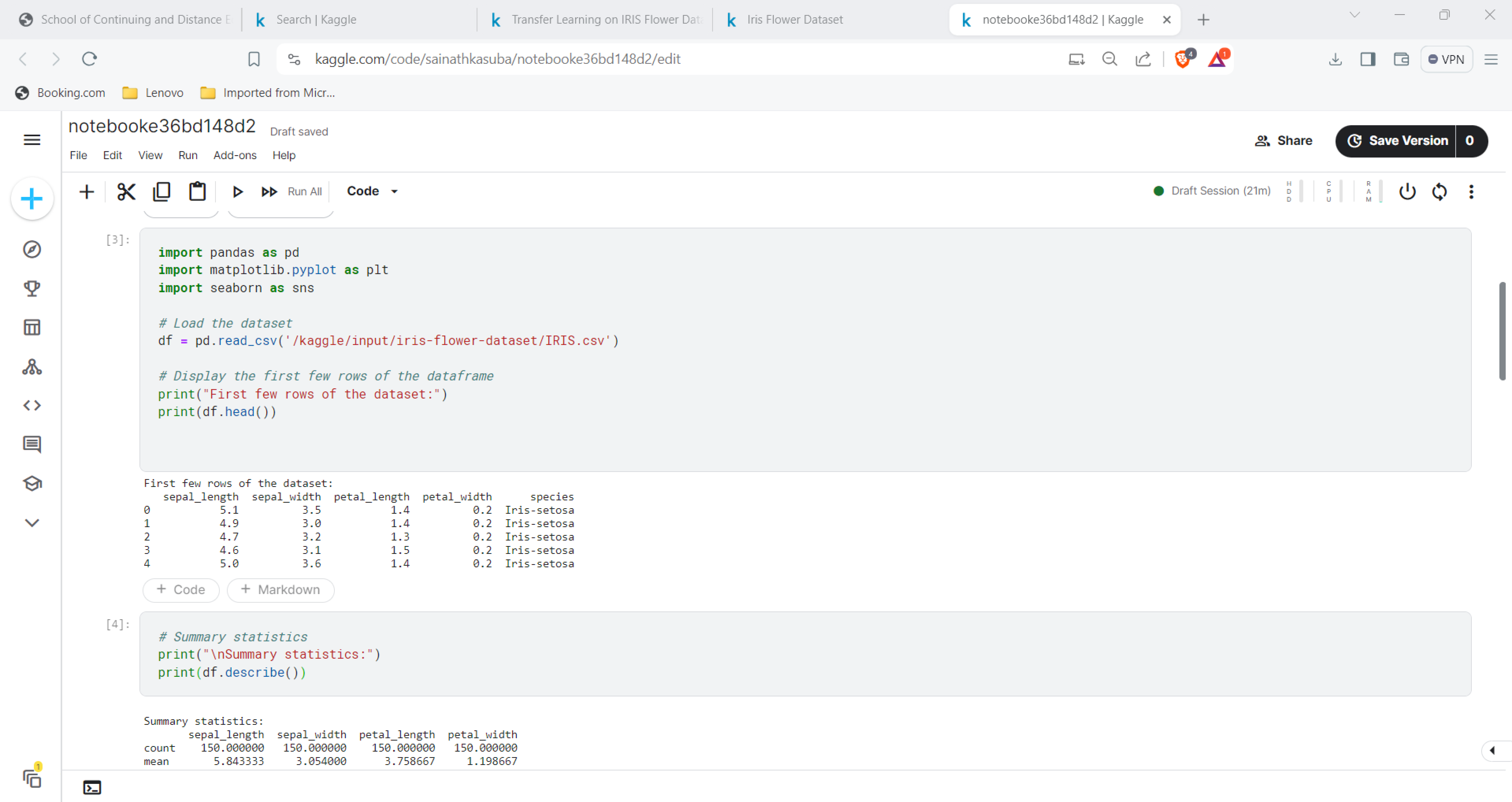


```python
# This Python 3 environment comes with many helpful analytics libraries installed
# It is defined by the kaggle/python Docker image: https://github.com/kaggle/docker-python
# For example, here's several helpful packages to load

import numpy as np # linear algebra
import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)

# Input data files are available in the read-only "../input/" directory
# For example, running this (by clicking run or pressing Shift+Enter) will list all files under the input directory

import os
for dirname, _, filenames in os.walk('/kaggle/input'):
    for filename in filenames:
        print(os.path.join(dirname, filename))

# You can write up to 20GB to the current directory (/kaggle/working/) that gets preserved as output when you create a version
# You can also write temporary files to /kaggle/temp/, but they won't be saved outside of the current session
```

```
/kaggle/input/iris-flower-dataset/IRIS.csv
```

[3]:

```python
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Load the dataset
df = pd.read_csv('/kaggle/input/iris-flower-dataset/IRIS.csv')
```

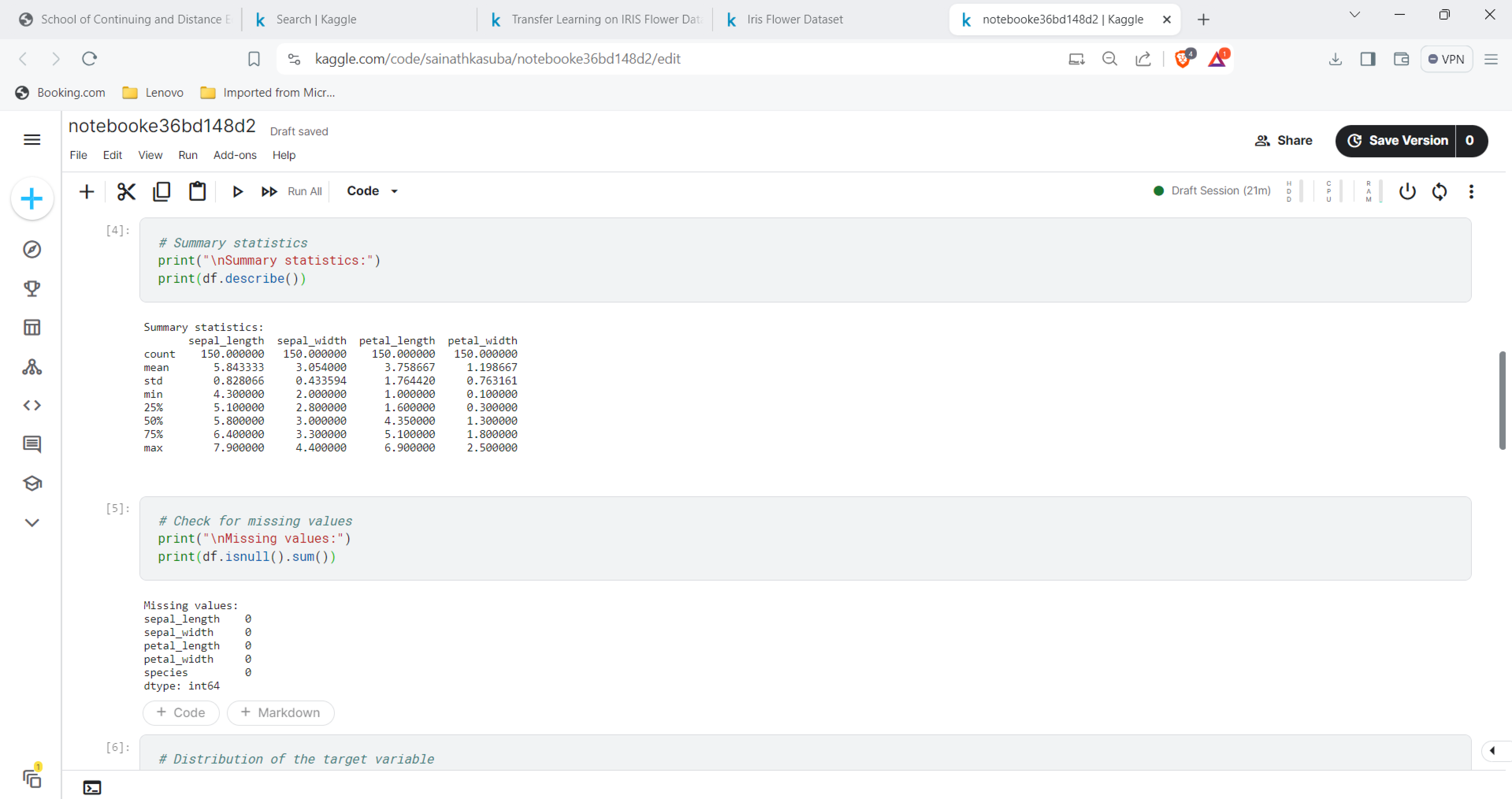


```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Load the dataset
df = pd.read_csv('/kaggle/input/iris-flower-dataset/IRIS.csv')

# Display the first few rows of the dataframe
print("First few rows of the dataset:")
print(df.head())
```

```
First few rows of the dataset:
   sepal_length  sepal_width  petal_length  petal_width      species
0           5.1          3.5           1.4          0.2  Iris-setosa
1           4.9          3.0           1.4          0.2  Iris-setosa
2           4.7          3.2           1.3          0.2  Iris-setosa
3           4.6          3.1           1.5          0.2  Iris-setosa
4           5.0          3.6           1.4          0.2  Iris-setosa
```

```
# Summary statistics
print("\nSummary statistics:")
print(df.describe())
```

```
Summary statistics:
       sepal_length  sepal_width  petal_length  petal_width
count    150.000000   150.000000    150.000000   150.000000
mean       5.843333     3.054000      3.758667     1.198667
```



[4]:

```
# Summary statistics
print("\nSummary statistics:")
print(df.describe())
```

```
Summary statistics:
       sepal_length  sepal_width  petal_length  petal_width
count    150.000000   150.000000    150.000000   150.000000
mean       5.843333     3.054000      3.758667     1.198667
std        0.828066     0.433594      1.764420     0.763161
min        4.300000     2.000000      1.000000     0.100000
25%        5.100000     2.800000      1.600000     0.300000
50%        5.800000     3.000000      4.350000     1.300000
75%        6.400000     3.300000      5.100000     1.800000
max        7.900000     4.400000      6.900000     2.500000
```

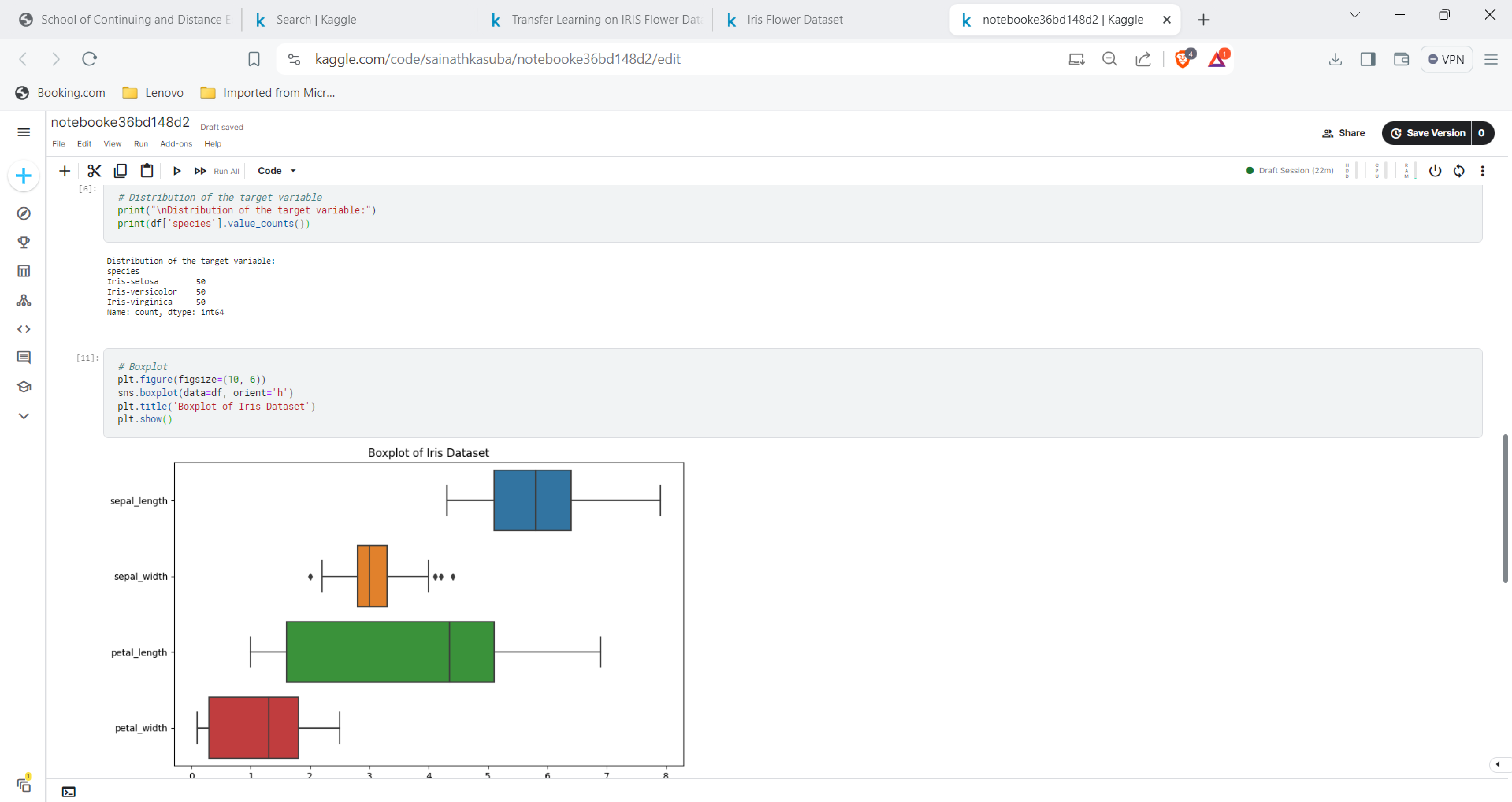
[5]:

```
# Check for missing values
print("\nMissing values:")
print(df.isnull().sum())
```

```
Missing values:
sepal_length    0
sepal_width     0
petal_length    0
petal_width     0
species         0
dtype: int64
```

[6]:

```
# Distribution of the target variable
```



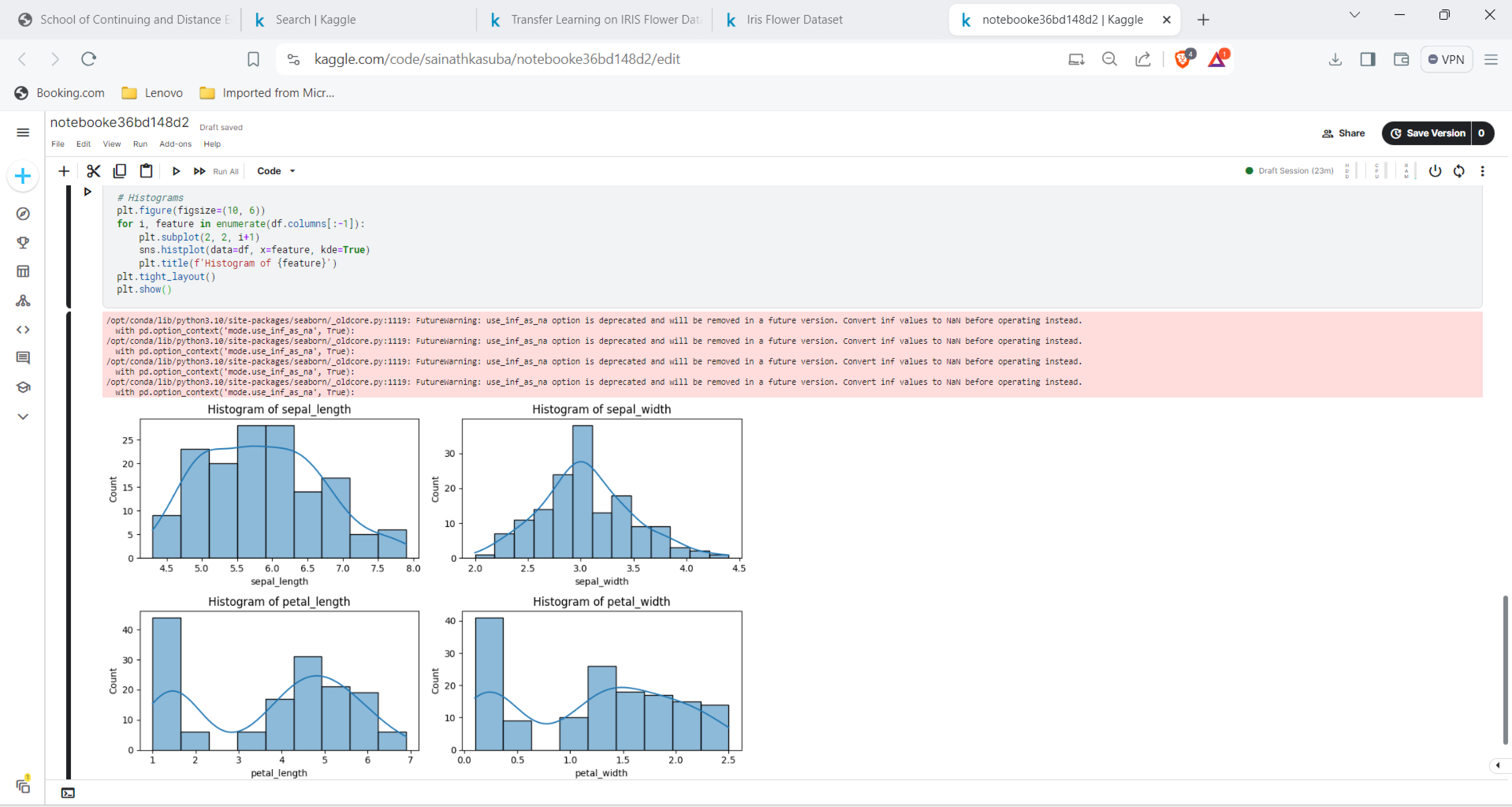
[6]:

```
# Distribution of the target variable
print("\nDistribution of the target variable:")
print(df['species'].value_counts())
```

```
Distribution of the target variable:
species
Iris-setosa        50
Iris-versicolor    50
Iris-virginica     50
Name: count, dtype: int64
```

[11]:

```
# Boxplot
plt.figure(figsize=(10, 6))
sns.boxplot(data=df, orient='h')
plt.title('Boxplot of Iris Dataset')
plt.show()
```



```python
# Histograms
plt.figure(figsize=(10, 6))
for i, feature in enumerate(df.columns[:-1]):
    plt.subplot(2, 2, i+1)
    sns.histplot(data=df, x=feature, kde=True)
    plt.title(f'Histogram of {feature}')
plt.tight_layout()
plt.show()
```

```
/opt/conda/lib/python3.10/site-packages/seaborn/_oldcore.py:1119: 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):
/opt/conda/lib/python3.10/site-packages/seaborn/_oldcore.py:1119: 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):
/opt/conda/lib/python3.10/site-packages/seaborn/_oldcore.py:1119: FutureWarning: use_inf_as_na option is deprecated and will be removed in a future version. Convert inf values to NaN before operating instead.
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  with pd.option_context('mode.use_inf_as_na', True):
```