data-analysis-2

November 16, 2025

```
[5]: ! pip install seaborn --break-system-packages
```

```
Defaulting to user installation because normal site-packages is not writeable
Collecting seaborn
  Downloading seaborn-0.13.2-py3-none-any.whl.metadata (5.4 kB)
Requirement already satisfied: numpy!=1.24.0,>=1.20 in
/home/bsh/.local/lib/python3.13/site-packages (from seaborn) (2.2.2)
Requirement already satisfied: pandas>=1.2 in
/home/bsh/.local/lib/python3.13/site-packages (from seaborn) (2.2.3)
Requirement already satisfied: matplotlib!=3.6.1,>=3.4 in
/home/bsh/.local/lib/python3.13/site-packages (from seaborn) (3.10.3)
Requirement already satisfied: contourpy>=1.0.1 in
/home/bsh/.local/lib/python3.13/site-packages (from
matplotlib!=3.6.1,>=3.4->seaborn) (1.3.2)
Requirement already satisfied: cycler>=0.10 in
/home/bsh/.local/lib/python3.13/site-packages (from
matplotlib!=3.6.1,>=3.4->seaborn) (0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in
/home/bsh/.local/lib/python3.13/site-packages (from
matplotlib!=3.6.1,>=3.4->seaborn) (4.58.5)
Requirement already satisfied: kiwisolver>=1.3.1 in
/home/bsh/.local/lib/python3.13/site-packages (from
matplotlib!=3.6.1,>=3.4->seaborn) (1.4.8)
Requirement already satisfied: packaging>=20.0 in /usr/lib/python3.13/site-
packages (from matplotlib!=3.6.1,>=3.4->seaborn) (25.0)
Requirement already satisfied: pillow>=8 in
/home/bsh/.local/lib/python3.13/site-packages (from
matplotlib!=3.6.1,>=3.4->seaborn) (10.4.0)
Requirement already satisfied: pyparsing>=2.3.1 in
/home/bsh/.local/lib/python3.13/site-packages (from
matplotlib!=3.6.1,>=3.4->seaborn) (3.2.3)
Requirement already satisfied: python-dateutil>=2.7 in /usr/lib/python3.13/site-
packages (from matplotlib!=3.6.1,>=3.4->seaborn) (2.9.0)
Requirement already satisfied: pytz>=2020.1 in /usr/lib/python3.13/site-packages
(from pandas>=1.2->seaborn) (2025.2)
Requirement already satisfied: tzdata>=2022.7 in
/home/bsh/.local/lib/python3.13/site-packages (from pandas>=1.2->seaborn)
(2025.1)
```
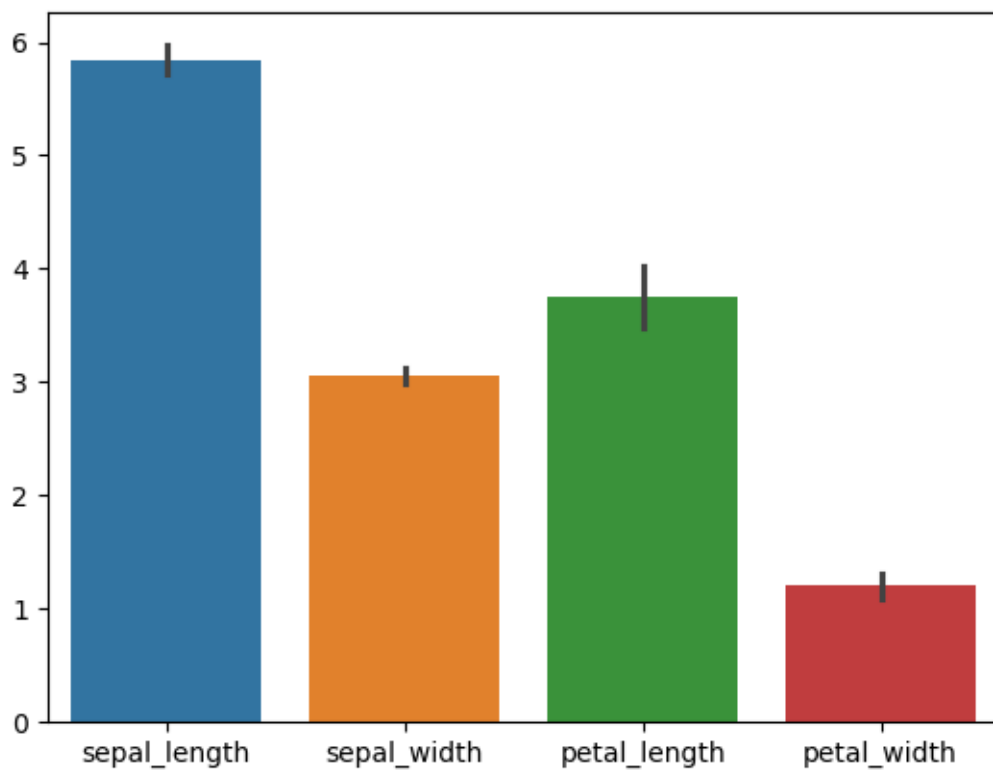
```python
[6]: import pandas as pd
     import numpy as np
     import seaborn as sns
```

```python
[7]: df = pd.read_csv("archive/IRIS.csv")
```

```python
[9]: sns.barplot(df)
```
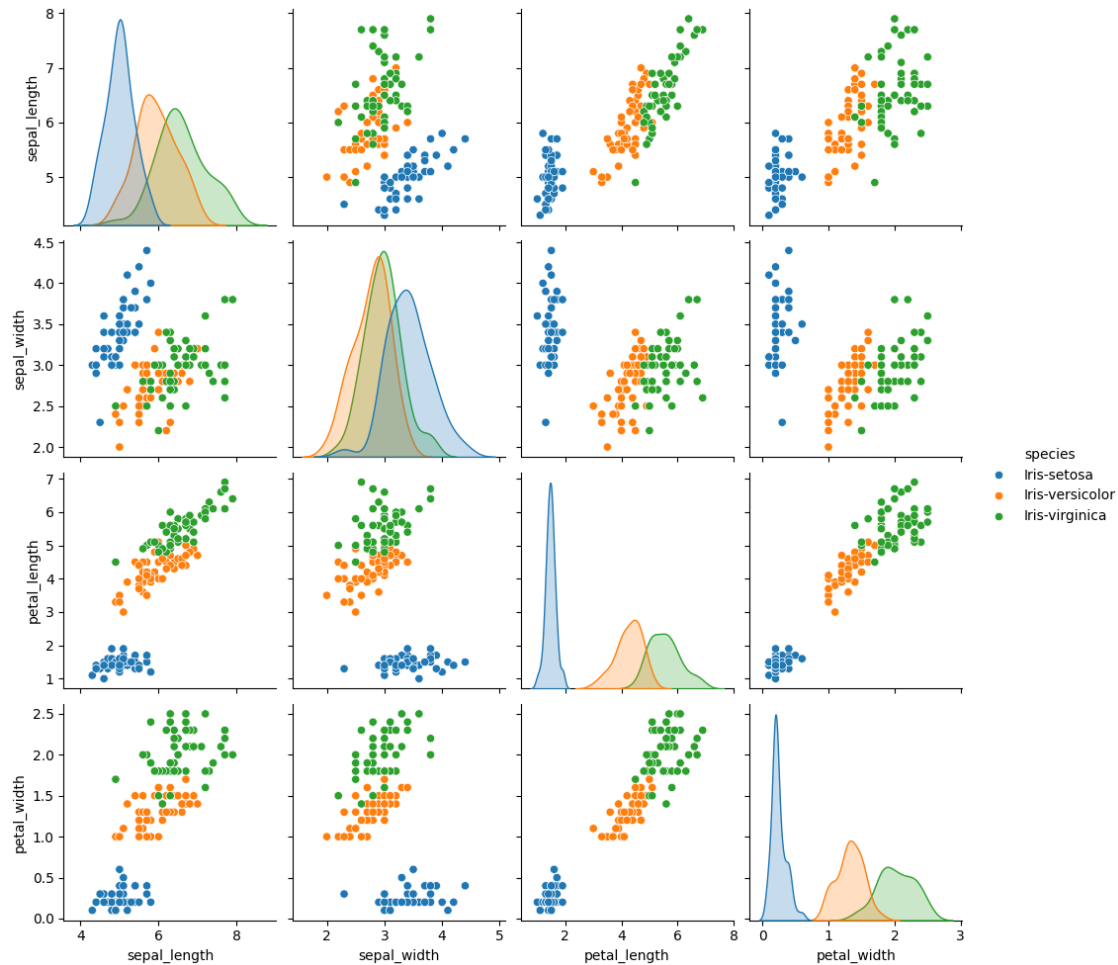
```
[9]: <Axes: >
```



```python
[11]: sns.pairplot(df, hue='species')
```

```
[11]: <seaborn.axisgrid.PairGrid at 0x79d6b795dbd0>
```

```
[12]: correlation_matrix = df.select_dtypes(include=["float64", "int64"]).corr()
      correlation_matrix
```
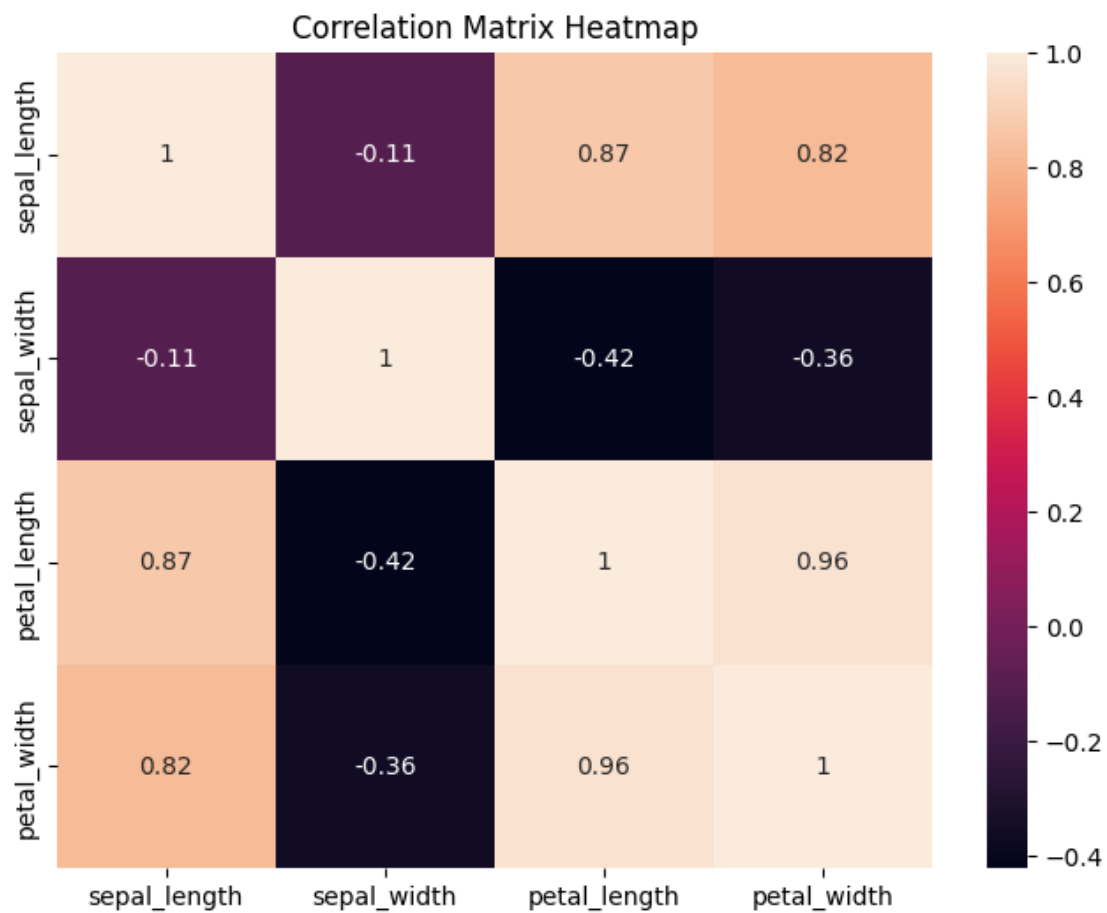
```
[12]:               sepal_length  sepal_width  petal_length  petal_width
      sepal_length      1.000000    -0.109369      0.871754     0.817954
      sepal_width      -0.109369     1.000000     -0.420516    -0.356544
      petal_length      0.871754    -0.420516      1.000000     0.962757
      petal_width       0.817954    -0.356544      0.962757     1.000000
```

```
[13]: import matplotlib.pyplot as plt
```
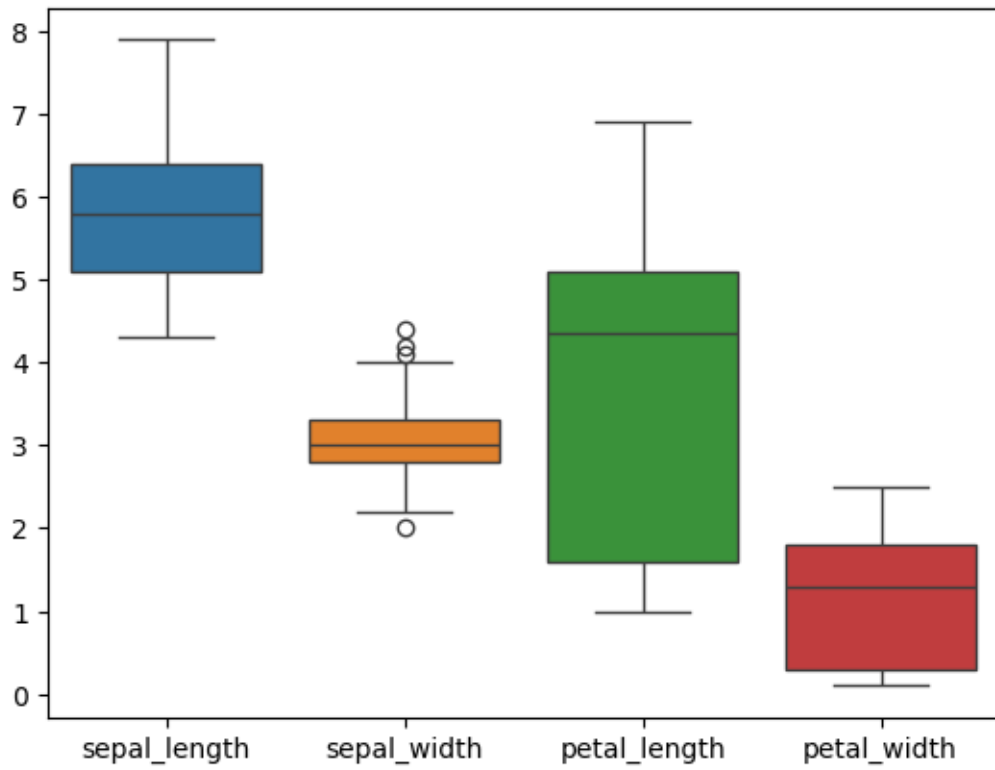
```
[16]: plt.figure(figsize=(8, 6))
      sns.heatmap(correlation_matrix, annot=True)
      plt.title("Correlation Matrix Heatmap")
```

```
[16]: Text(0.5, 1.0, 'Correlation Matrix Heatmap')
```
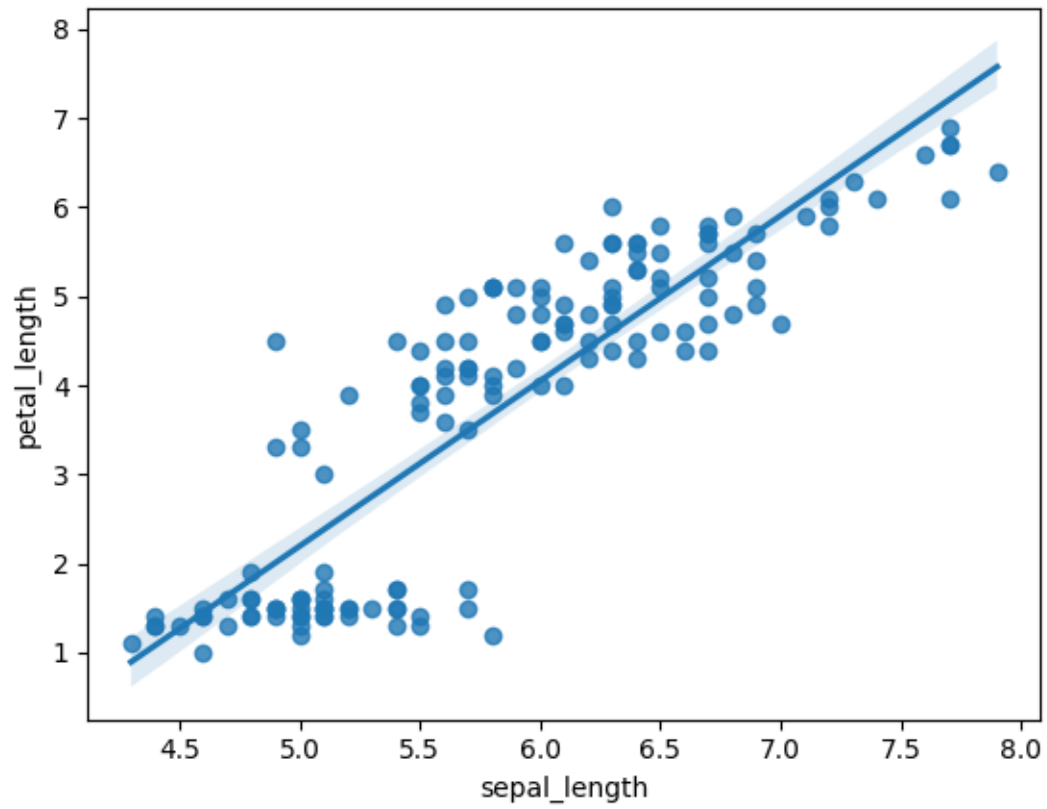
Correlation Matrix Heatmap

	sepal_length	sepal_width	petal_length	petal_width
sepal_length	1	-0.11	0.87	0.82
sepal_width	-0.11	1	-0.42	-0.36
petal_length	0.87	-0.42	1	0.96
petal_width	0.82	-0.36	0.96	1

[17]:
```
sns.boxplot(df)
```

[17]: `<Axes: >`
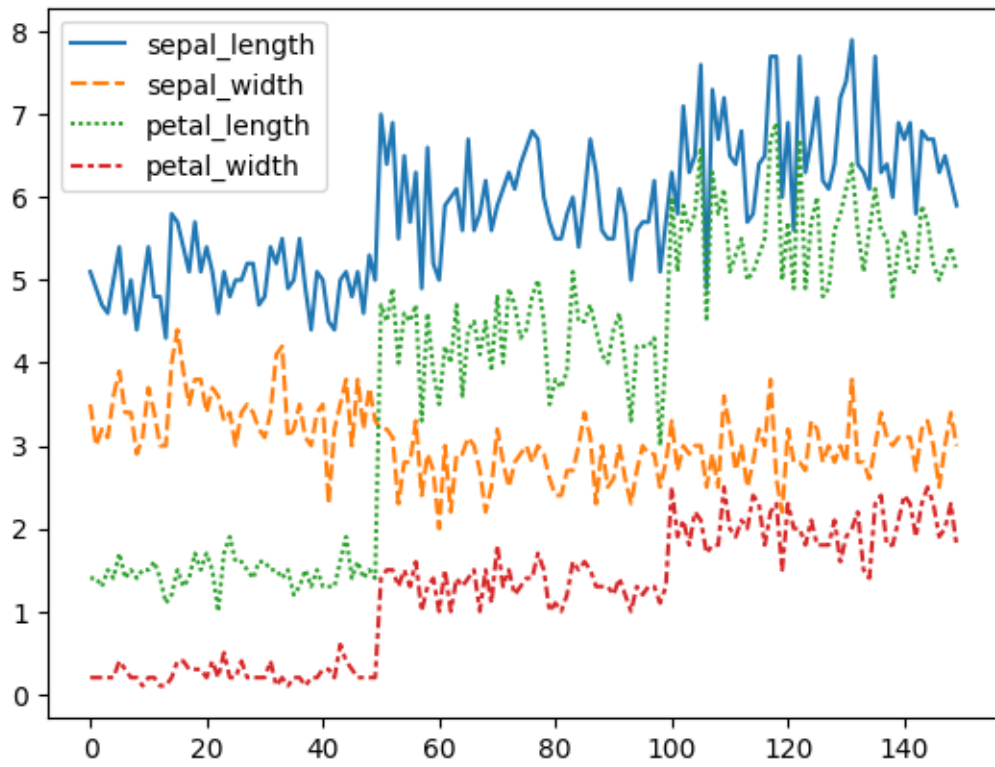
```
[20]: sns.regplot(data=df, x="sepal_length", y="petal_length")
```

```
[20]: <Axes: xlabel='sepal_length', ylabel='petal_length'>
```

```
[21]: sns.lineplot(df)
```

```
[21]: <Axes: >
```

[ ]:

[ ]: