

Code A

```
import pandas as pd
import os
import pathlib as pl

script_dir = pl.Path(__file__).parent.absolute()
print(f"Script Directory: {script_dir}")
os.chdir(script_dir)

df = pd.read_csv("iris.csv")
del df["Species"], df["Id"]
print(df.corr())
```

Code B

```
import pandas as pd
import os
import pathlib as pl
import matplotlib.pyplot as plt
import seaborn as sb

script_dir = pl.Path(__file__).parent.absolute()
print(f"Script Directory: {script_dir}")
os.chdir(script_dir)

df = pd.read_csv("iris.csv")
del df["Species"], df["Id"]

corr_mat = df.corr()
sb.heatmap(corr_mat, annot=True, cmap="coolwarm", fmt='.2f')
plt.title("Correlation Plot - Iris Dataset")
plt.show()
```

Code C

```
import pandas as pd
import os
import pathlib as pl
import matplotlib.pyplot as plt
import seaborn as sb
from scipy import stats

script_dir = pl.Path(__file__).parent.absolute()
print(f"Script Directory: {script_dir}")
os.chdir(script_dir)

df = pd.read_csv("iris.csv")

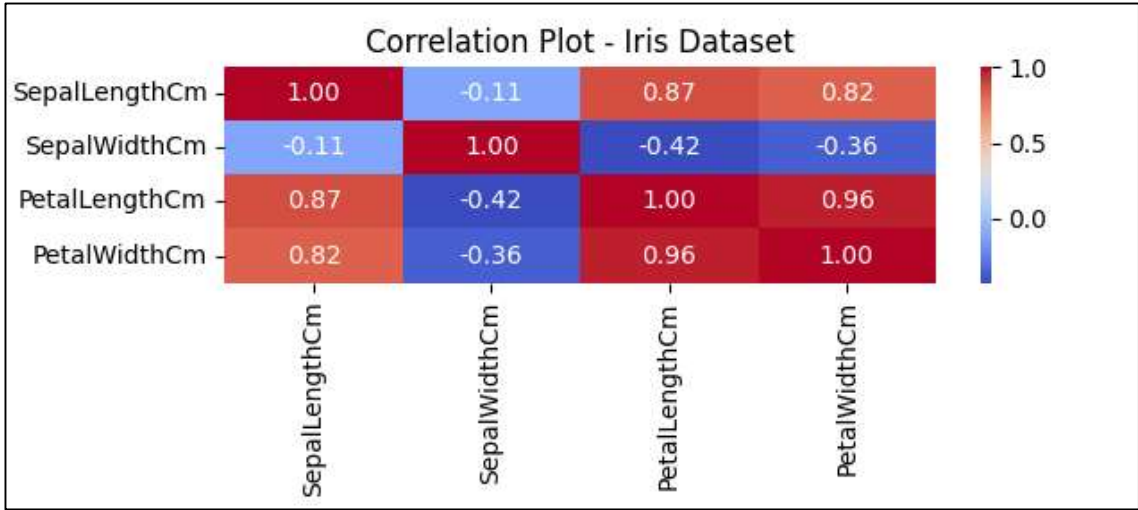
sepal_width_anova = stats.f_oneway(
    df["SepalWidthCm"][df["Species"] == "Iris-setosa"],
    df["SepalWidthCm"][df["Species"] == "Iris-versicolor"],
    df["SepalWidthCm"][df["Species"] == "Iris-virginica"],
)

print(f"Sepal Length ANOVA F-statistic: {sepal_width_anova.statistic}")
print(f"Sepal Length ANOVA p-value: {sepal_width_anova.pvalue}")
```

Output A

```
PS C:\DevParapalli\Projects\RTMNU-SEM-6> & "C:/Program Files/Python310/python.exe" "c:/DevParapalli/Projects/RTMNU-SEM-6/PS-II/Practical 04/a.py"
Script Directory: c:\DevParapalli\Projects\RTMNU-SEM-6\PS-II\Practical 04
SepalLengthCm SepalWidthCm PetalLengthCm PetalWidthCm
SepalLengthCm 1.000000 -0.109369 0.871754 0.817954
SepalWidthCm -0.109369 1.000000 -0.420516 -0.356544
PetalLengthCm 0.871754 -0.420516 1.000000 0.962757
PetalWidthCm 0.817954 -0.356544 0.962757 1.000000
PS C:\DevParapalli\Projects\RTMNU-SEM-6>
```

Output B:



Output C

```
PS C:\DevParapalli\Projects\RTMNU-SEM-6> & "C:/Program Files/Python310/python.exe" "c:/DevParapalli/Projects/RTMNU-SEM-6/PS-II/Practical 04/c.py"
Script Directory: c:\DevParapalli\Projects\RTMNU-SEM-6\PS-II\Practical 04
Sepal Length ANOVA F-statistic: 47.36446140299382
Sepal Length ANOVA p-value: 1.3279165184572242e-16
PS C:\DevParapalli\Projects\RTMNU-SEM-6>
```