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DISTRICT– SOLAN (H.P.) PIN–173234(INDIA)
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18B1WCI674: MACHINE LEARNING LAB

Assignment-4 (Seaborn)

Jan 05, 2026

Instructions

1. Use Jupyter Notebook or Google Colab.
2. Use only **Seaborn** for plotting.
3. Matplotlib may be used only for displaying plots.
4. Use any suitable dataset.
5. Label all plots properly.

Overview of Seaborn

Seaborn is a Python library built on top of Matplotlib for creating statistical visualizations with minimal code.

Part A: Seaborn Basics

1. Install Seaborn:

```
pip install seaborn
```

2. Import Seaborn:

```
import seaborn as sns
```

3. Load a built-in dataset.

1. Basic Plotting

1. Plot a line graph:

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

data = sns.load_dataset("tips")
sns.lineplot(x="size", y="total_bill", data=data)
plt.show()
```

2. Plot a scatter plot:

—

3. Add title and axis labels:

—

4. Change marker style:

   —

5. Add legend:

   —

6. Enable grid:

   —

2. Statistical Plots

1. Plot a bar chart:

   ```
   sns.barplot(x="day", y="total_bill", data=data)
   plt.show()
   ```

2. Plot a horizontal bar chart:

   —

3. Plot a histogram:

   —

4. Change number of bins:

   —

5. Plot a box plot:

   —

6. Plot a violin plot:

   —

3. Advanced Visualization

1. Create a pair plot:

   ```
   sns.pairplot(data)
   plt.show()
   ```

2. Create a heatmap:

   —

3. Add annotations to heatmap:

   —

4. Customize color palette:

   —

Instructions

1. Use Jupyter Notebook or Google Colab.
2. Use only **Plotly** for plotting.
3. Generate interactive plots.
4. Use any suitable dataset.

Overview of Plotly

Plotly is an interactive visualization library used to create dynamic and web-based plots.

Part A: Plotly Basics

1. Install Plotly:

```
pip install plotly
```

2. Import Plotly Express:

```
import plotly.express as px
```

1. Basic Plotting

1. Plot a line graph:

```
import plotly.express as px

x = [1,2,3,4,5]
y = [10,20,30,40,50]

fig = px.line(x=x, y=y)
fig.show()
```

2. Plot a scatter plot:

—

3. Add title and labels:

—

4. Change marker size:

—

5. Change color:

—

2. Statistical Plots

1. Plot a bar chart:

```
subjects = ["ML","AI","DL"]
marks = [80,85,90]

fig = px.bar(x=subjects, y=marks)
fig.show()
```

2. Plot a horizontal bar chart:

—

3. Plot a histogram:

—

4. Change number of bins:

—

5. Plot a box plot:

—

6. Plot a pie chart:

—