Minor in AI

Class Notes

March 05

Title: Seaborn-Advanced and attractive visualizations

Syllabus:

- Customize plots to make them more informative and appealing
- Present data visually to convey insights.

Seaborn is a Python data visualization library built on top of Matplotlib, designed to make statistical graphics more attractive and informative. It was created by Michael Waskom and first released in 2012. Seaborn is middle name of Michael. Seaborn simplifies complex visualizations and integrates well with Pandas data structures, making it ideal for exploratory data analysis.

Seaborn provides various plot types, including:

- Relational plots (scatterplot, lineplot)
- Categorical plots (boxplot, violinplot, barplot, swarmplot)
- Distribution plots (histplot, kdeplot)
- Regression plots (regplot, residplot)
- Matrix plots (heatmap, clustermap)

It is widely used in data science and statistical analysis.

Activities discussed:

- Categorical data and continuous data
- Penguin types and bill in data science

Seaborn already has data loaded with penguin, titanic, flights etc.

Sample Programs:

Note: refer collab and video for more

Program for scatter plot on penguins

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

# Load built-in dataset
penguins = sns.load_dataset("penguins")

# Create scatter plot
sns.scatterplot(data=penguins, x="bill_length_mm", y="bill_depth_mm",
hue="species", style="species")

# Show the plot
plt.show()
```

Program on flights data:

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

# Load dataset
flights = sns.load_dataset("flights")

# Pivot table
flights_pivot = flights.pivot(index="month", columns="year",
values="passengers")

# Plot heatmap
plt.figure(figsize=(10, 6))
sns.heatmap(flights_pivot, annot=True, fmt="d", cmap="coolwarm")
```

```
# Labels
plt.xlabel("Year")
plt.ylabel("Month")
plt.title("Number of Passengers (Flights Dataset)")

plt.show()
```