**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()