# Internship Report

Shadow Fox Internship

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## Introduction

During my internship at Shadow Fox, I worked on understanding and applying different concepts of Data Science. The goal of my project was to learn how to represent raw data in a way that makes it easier to read, understand, and explain.  
  
Data visualization plays an important role in data science. It helps in converting numbers and tables into meaningful graphs and charts, so that patterns, trends, and comparisons can be understood quickly.

## Tools and Libraries Used

1. Pandas – A Python library used for handling and analyzing structured data. It provides DataFrames which are very powerful for data manipulation.

2. Seaborn – A Python library built on top of Matplotlib, mainly used to make statistical graphs with less code and better styling.

## Visualization Techniques Learned

### In Seaborn:

1. Line Plot – To study trends over time (e.g., stock prices, temperature).

2. Scatter Plot – To check relations between two variables (e.g., height vs weight).

3. Bar Plot – To compare averages or counts across categories.

4. Histogram – To see the distribution of values (e.g., age group, exam marks).

5. Box Plot – To find median, range, and outliers.

6. Violin Plot – Combination of box plot and density distribution.

7. Heatmap – To visualize correlations or matrix values using colors.

### In Pandas:

1. Line Plot – Default continuous data visualization.

2. Bar Plot – For categorical data representation.

3. Histogram – Frequency distribution of a numeric column.

4. Pie Chart – To show proportions.