Practical – 4

Aim: Practical 4: Write a program to compute summary statistics such as mean, median, mode, standard deviation and variance of the given different types of data.

- Code:

```python
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np

data_set = pd.read_csv("/content/drive/MyDrive/temp/prac_4.csv")
df = pd.DataFrame(data_set)
# ! getting only int or flot data cols
num_data = df.select_dtypes(include=["int64", "float64"])
stats = {
    "Mean": num_data.mean(),
    "Median": num_data.median(),
    "Mode": num_data.mode().iloc[0],
    "Standard Deviation": num_data.std(),
    "Variance": num_data.var()
}
state_table = pd.DataFrame(stats)
print("Result\n")
print(state_table)
fig, axes = plt.subplots(2, 2, figsize=(10, 8))
temp_state_table = state_table.drop(index = "Release Year", errors = "ignore")
temp_state_table2 = state_table.drop(index = "Active Players (millions)", errors = "ignore")
temp_table = num_data.drop(columns = "Release Year")
# ! Hist chart
axes[0, 0].hist(num_data, bins=5, edgecolor='black', alpha=0.7)
axes[0, 0].set_title("Histogram of Numerical Data")
axes[0, 0].set_xlabel("Value")
axes[0, 0].set_ylabel("Frequency")
# ! Box chart
temp_table.boxplot(ax=axes[0, 1])
axes[0, 1].set_title("Box Plot of Numerical Data")
axes[0, 1].set_xlabel("Columns")
axes[0, 1].set_ylabel("Value")
# ! Bar Plot graph
temp_state_table[["Mean", "Median", "Mode"]].plot(kind="bar", ax=axes[1, 0])
axes[1, 0].set_title("Comparison of Mean, Median, Mode")
axes[1, 0].set_ylabel("Value")
# ! Bar Plot
temp_state_table2[["Standard Deviation", "Variance"]].plot(kind="bar", ax=axes[1, 1])
axes[1, 1].set_title("Standard Deviation & Variance")
```

```
axes[1, 1].set_ylabel("Value")
plt.tight_layout()
plt.show()
```
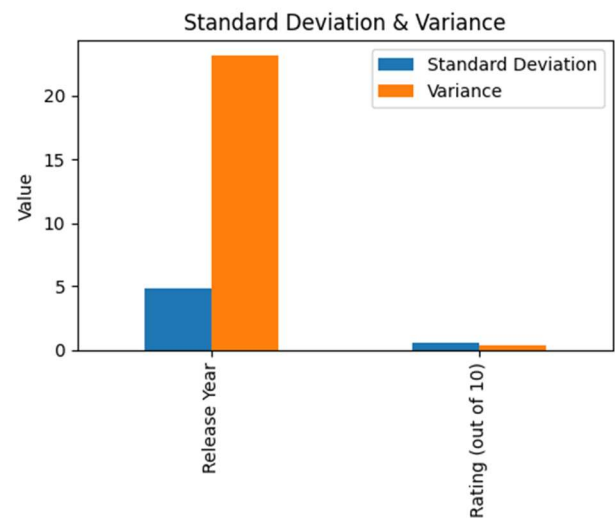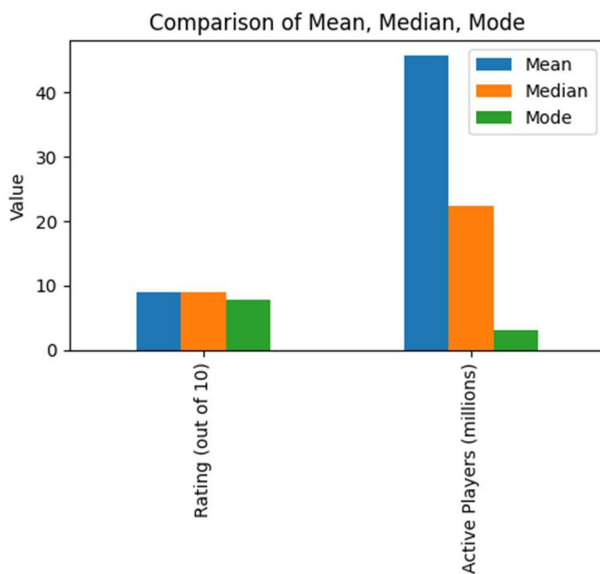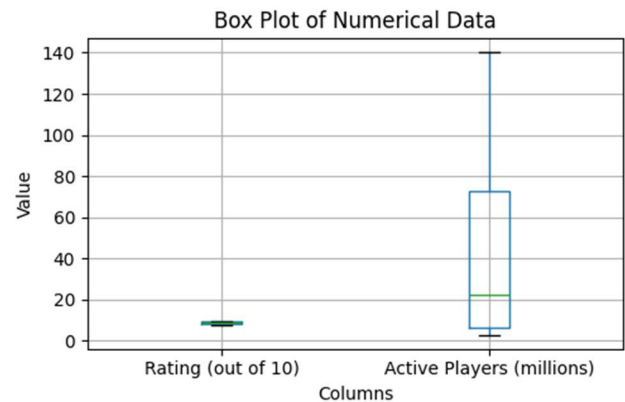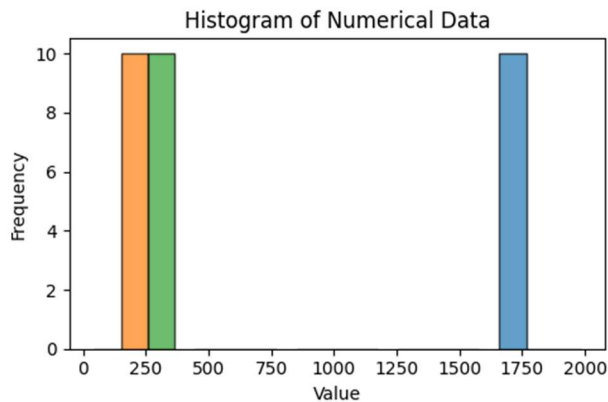
- Output:

Result

	Mean	Median	Mode	Standard Deviation \
Release Year	2017.00	2018.50	2020.0	4.807402
Rating (out of 10)	8.95	8.95	7.8	0.602310
Active Players (millions)	45.70	22.50	3.0	50.760987

	Variance
Release Year	23.111111
Rating (out of 10)	0.362778
Active Players (millions)	2576.677778

Faculty Signature: _____   Date: _____