



Shri Yashwantrao Bhonsale Education Society's
YASHWANTRAO BHONSALE INSTITUTE OF TECHNOLOGY

(DTE CODE : 3470) (MSBTE Code : 1742)

Approved by AICTE, DTE & Affiliated to Mumbai University & MSBTE Mumbai
(NBA Accredited ME, CE, EE Diploma Programs)

Practical No 20

Aim

Write a Python program to calculate mean, median, standard deviation, variance, and correlation coefficients of a given array.

Apparatus / Software Required

- Python Interpreter (Python 3.14.2)

Theory

◆ NumPy is widely used for performing statistical operations on data. It provides built-in functions to calculate measures like mean, median, variance, standard deviation, and correlation coefficient.

These statistical measures help in:

- Understanding data distribution
- Analyzing variability
- Finding relationships between variables

◆ Important Statistical Terms

- Mean: Average of all elements
- Median: Middle value after sorting
- Variance: Measure of data spread
- Standard Deviation: Square root of variance
- Correlation Coefficient: Measures relationship between two variables (range: -1 to 1)

◆ Important Methods Used

★ 1. `np.array()` (Most Important)

- Creates NumPy array



Shri Yashwantrao Bhonsale Education Society's
YASHWANTRAO BHONSALE INSTITUTE OF TECHNOLOGY

(DTE CODE : 3470) (MSBTE Code : 1742)

Approved by AICTE, DTE & Affiliated to Mumbai University & MSBTE Mumbai
(NBA Accredited ME, CE, EE Diploma Programs)

np.array(data)

★ 2. **np.mean()**

- Calculates mean

np.mean(array)

★ 3. **np.median()**

- Calculates median

np.median(array)

★ 4. **np.var()**

- Calculates variance

np.var(array)

★ 5. **np.std()**

- Calculates standard deviation

np.std(array)

★ 6. **np.corrcoef()**

- Calculates correlation coefficient

np.corrcoef(array1, array2)

👉 Returns correlation matrix

📁 **Working of This Practical**



Shri Yashwantrao Bhonsale Education Society's
YASHWANTRAO BHONSALE INSTITUTE OF TECHNOLOGY

(DTE CODE : 3470) (MSBTE Code : 1742)

Approved by AICTE, DTE & Affiliated to Mumbai University & MSBTE Mumbai
(NBA Accredited ME, CE, EE Diploma Programs)

.....
.....
.....
.....
.....
.....
.....
.....
.....

Conclusion

.....
.....
.....
.....
.....
.....
.....
.....