

Lab Assignment 1

Objectives :

- a) Create a dictionary of 5 students with their names as keys and marks as values. Calculate the average marks, Highest scorer, and print the name of students who scored above average.
b) You have a list of temperatures for 7 days: temps = [30.5, 32.0, 29.8, 31.2, 30.1, 28.9, 33.0]

Write a function that returns: 1. The maximum and minimum temperature, 2. The average temperature, 3. A list of temperatures above the average.

- c) Given: student = {"name": "Alice", "score": 92, "subject": "Math"}. Print a formatted message: "Alice scored 92 in Math."
d) Create a CSV file data.csv with the following content:

name,score

Alice,91

Bob,85

Charlie,78

Note: You have to add at least 20 random values in this csv file. Write code to read the file, print each name and score, count how many students scored above 80.

- e) Write a function grade_score that returns

- 'A' for 85 and above
- 'B' for 70–84
- 'C' for 50–69
- 'F' below 50

- f) You are given a list of students, where each student record contains:

```
students = [("Bob", [88, 82, 80, 80, 85]), ("Charlie", [90, 92, 88, 94, 91]), ("Alice", [80, 85, 90, 75, 85]), ("David", [70, 75, 72, 68, 70]), ("Eve", [88, 82, 80, 80, 85])]
```

Use a lambda function to: Calculate the average marks for each student. Sort students: First by highest average marks (descending) If averages are equal, sort by name alphabetically

- g) Create a tuple of employees: employees = (

```
("E001", "Alice", 45000),  
("E002", "Bob", 52000),  
("E003", "Charlie", 38000),  
("E004", "David", 60000)
```

)

- Use map() to apply: 10% bonus if salary $\geq 50,000$, 5% bonus otherwise
- Store updated salaries as a new tuple.
- Convert salaries into a NumPy array.
- Find: Mean salary, Standard deviation