NumPy Assessment

1. 1. A teacher stores the scores of 10 students in a 1D NumPy array. Write code to display the 1D array and print scores greater than 50.
2. 2. Using the same scores array, find the mean score of the class.
3. 3. Determine the median of the scores to check the central tendency.
4. 4. Find the mode of the scores to identify the most frequent score.
5. 5. You are given a 2D NumPy array containing temperatures recorded over 4 weeks (rows) for 7 days (columns). Display the full array and the temperature of the second week.
6. 6. Find the highest temperature of the month using NumPy.
7. 7. Normalize all temperatures using Min-Max normalization formula.
8. 8. Calculate the standard deviation of the temperature data.
9. 9. A supermarket tracks stock of 3 products over 4 weeks and 5 categories. Represent this using a 3D NumPy array. Write code to access stock of 2nd product in week 3.
10. 10. Calculate the total stock of each product over all weeks and categories.
11. 11. A 1D NumPy array holds survey ratings (scale of 1–10) from 50 people. Find how many people rated more than 7.
12. 12. Count how many people gave a neutral rating (rating == 5).
13. 13. Normalize the ratings between 0 and 1.
14. 14. A fitness app stores 7 days of step count for 5 users in a 2D array. Find the average steps per user.
15. 15. Display the steps recorded on day 3 for all users.
16. 16. Identify users who walked more than 7000 steps on any day.
17. 17. Record the results of 10 trials for 3 chemical samples using a 2D array. Calculate the mean result for each chemical.
18. 18. Determine which trial had the highest deviation from the mean for each sample.
19. 19. A hospital records 3 vital signs for 2 patients over 5 days. Store this in a 3D array and retrieve the vitals for the first patient on day 4.
20. 20. Find the mode of a particular vital sign for one patient across all days.