

Different Operations using NumPy, Pandas and Matplotlib

Problem:

1. Create a Numpy array with values from 1 to 10. Perform element-wise addition by 2 and subtraction by 3.
2. Calculate the mean, median, and standard deviation of a given NumPy array.
3. Create two Numpy arrays and calculate their dot product.
4. Explain the difference between 'np.zeros' and 'np.ones' function in NumPy.
5. Create a pandas DataFrame from a dictionary containing student names, ages, and grades.
6. Load a CSV into pandas DataFrame.
7. Filter the DataFrame to select only students with grades above 90.
8. Sort the DataFrame by grade in descending order.
9. Plot a bar chart to visualize the average grades of different age groups.
10. Create a scatter plot to show the relationship between age and grade.
11. Customize the appearance of a line plot by adding labels, titles and legends.
12. Save a matplotlib file as an image file.
13. Generate a pie chart to represent the % of students in different grade ranges.