**Scenario-Based Questions (Pandas + Seaborn)**

1. You have two DataFrames: students (with student IDs and names) and grades (with student IDs and exam scores). How would you combine them so that only students with recorded grades are included?
2. You need to merge employee and department DataFrames, ensuring all departments are shown even if no employees belong to them. What kind of join will you use?
3. A university has separate DataFrames for Spring, Summer, and Fall admissions. How would you combine them vertically into a single DataFrame?
4. You’re merging two DataFrames but lose some rows from the first one. Which type of join might be causing this?
5. A retail store wants to know the total sales per product category. Which Pandas operation would help you summarize this?
6. You need to find the average rating given by each customer in a reviews dataset. How can groupby() help?
7. You're analyzing test scores and want to count how many students fall into each grade bracket (A, B, C). Which combo of operations is best suited?
8. You have a dataset of continuous values like age, and you want to group people into age brackets (e.g., 0–18, 19–35). What technique will you use?
9. A dataset contains temperatures in Celsius. You want to categorize them as 'Cold', 'Warm', or 'Hot'. Which method will you apply?
10. You want to apply a 10% discount to all prices in a 'Price' column. Which operation will help you do this efficiently?
11. You need to rename all column names to lowercase. How would you approach this using Pandas?
12. After preprocessing a large dataset, you want to save it to a CSV file but without the index. How would you do that in Pandas?
13. You want to visualize the distribution of a single numeric column such as "Income". Which Pandas plot would be ideal?
14. You want to compare the monthly sales of two different products over a year. What kind of plot should you use?
15. You’re analyzing student performance across subjects and want to see the relationship between math and science scores. Which Pandas plot type is appropriate?
16. You want to see both the histogram and KDE curve for customers' ages in one plot. Which Seaborn function should you use?
17. To visualize how two numerical variables (e.g., weight and height) relate and are distributed, which Seaborn plot combines both scatter and histograms?
18. You want to compare median income across three job categories. Which Seaborn plot gives you a distribution and median view?
19. A survey collected gender-wise responses for four product preferences. Which plot best shows response counts by gender?
20. You’re analyzing a correlation matrix of features in a dataset. How can you visualize all pairwise correlations clearly using color intensity?