# 4.11.3 Group by the Spending Ranges

**Nice** work grouping the schools based on the spending bins—Maria is impressed! Now she would like you get the average math and reading scores, the average percentage of students who passed math and reading, and the average overall passing percentage. Once you get this data, you need to create a new DataFrame with these averages and percentages, based on the spending bins, to show how school spending affects score averages and passing rates.

The final DataFrame will contain the average math and reading scores, the percentage of students who passed math and reading, and the overall percentage of students who passed for each spending bin. To get these averages and percentages, we'll use the `groupby()` function to group the data on the spending bins in the index column, "Spending Ranges (Per Student)."

First, let's create four new Series with the following data:

- Average Math Score
- Average Reading Score
- Average % Passing Math

- Average % Passing Reading
- Average % Overall Passing

### REWIND

---

To create a Series that has a column as the index, use the `groupby()` function on the DataFrame and add the column inside the parentheses.

We'll create each Series using the `groupby()` function on the "Spending Ranges (Per Student)" column. For each Series, we'll use the `mean()` method to get the averages of the Average Math Score column, Average Reading Score column, % Passing Math column, and % Passing Reading column. For the average "% Overall Passing," we'll add the "% Passing Math" and "% Passing Reading" columns and then divide by 2.

To get these averages, add the following code to a new cell and run the cell.

```
# Calculate averages for the desired columns.
spending_math_scores = per_school_summary_df.groupby(["Spending Ranges (Per

spending_reading_scores = per_school_summary_df.groupby(["Spending Ranges (P

spending_passing_math = per_school_summary_df.groupby(["Spending Ranges (Per

spending_passing_reading = per_school_summary_df.groupby(["Spending Ranges (

overall_passing_spending = per_school_summary_df.groupby(["Spending Ranges (
```

Retake

Now that we have all the averages, we can add them to a new DataFrame.