**Practical Exercise 19 - Exploring the Include Option**

**Exercise Description**

**In this practical exercise, our goal is to work with the include option for matrices to thoroughly understand how they behave.**

Here are the instructions for the exercise:

1. Extend the 15-matrices.yaml workflow with a new job:
   1. It should be called include-example.
   2. It should be run on ubuntu-latest.
   3. It should have a matrix with three parameters:
      1. color, with values red and green;
      2. shape, with values circle and square;
      3. size, with values small and large.
   4. Additionally, add the following combination to the include array:
      * 1. include:
        2. - color: red
        3. shape: triangle
   5. The job name should have the following format: <color value>-<shape value>-<size value>
   6. The job should contain a single step, named Dummy step, which prints the combination of color, shape, and size to the screen following the same format as the job name.
2. Commit the changes and push the code. Trigger the workflow manually from the UI and take a few moments to inspect the result of the workflow run. How many jobs were generated? Which combinations were present?
3. Now extend the include-example job by:
   1. Adding a new entry **at the beginning** of the include array containing:
      * 1. include:
        2. - opacity: 50
   2. Adjust both the job name option and the echo statement of the Dummy step to include the value of the opacity parameter.
4. Commit the changes and push the code. Trigger the workflow manually from the UI and take a few moments to inspect the result of the workflow run. How many jobs were generated? Which combinations were present?
5. Now extend the include option of the include-example job by adding the following two entries to the array immediately after the opacity entry:
   1. The first entry should have two parameters: color, with a value of red, and opacity, with a value of 75.
   2. The second entry should have two parameters: shape, with a value of circle, and opacity, with a value of 100.
6. At this point in time, the include option should look like this:
   * 1. include:
     2. - opacity: 50
     3. - color: red
     4. opacity: 75
     5. - shape: circle
     6. opacity: 100
     7. - color: red
     8. shape: triangle
7. Commit the changes and push the code. Trigger the workflow manually from the UI and take a few moments to inspect the result of the workflow run. Which combinations were present? How were the values of certain properties overwritten based on the new entries?
8. Last but not least, move the first entry of the include array (opacity: 50) to the last position in the array.
9. Commit the changes and push the code. Trigger the workflow manually from the UI and take a few moments to inspect the result of the workflow run. How did this change impact the values of the opacity property for the generated jobs?