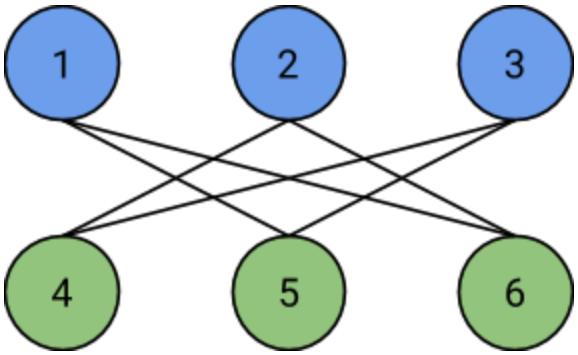

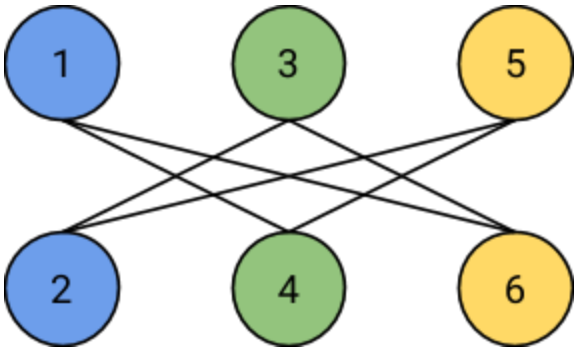

Vertex Number	N(V) Colors	Color Assigned
1	NONE	1 (Blue)
2	NONE	1 (Blue)
3	NONE	1 (Blue)
4	1	2 (Green)
5	1	2 (Green)
6	1	2 (Green)

Vertex Number	N(V) Colors	Color Assigned
1	NONE	1 (Blue)
2	NONE	1 (Blue)
3	1	2 (Green)
4	1	2 (Green)
5	1,2	3 (Yellow)
6	1,2	3 (Yellow)

In the left example, the greedy graph coloring algorithm will return the optimal solution because the linear iteration done by the algorithm will process the first three nodes before encountering a node that has an already-colored neighbor. In the right example, however, the algorithm does not find the optimal solution as it did before, returning a total of three colors required to color this graph, despite it having the same layout as before, only with a different arrangement of vertex IDs. This non-optimized solution is also result of the way in which the algorithm iterates since it will encounter nodes with already-colored neighbors after only two iterations.