Given an undirected graph⤸ with maximum degree ↴ D, find a graph coloring⤸ using at most $D + 1$ colors.

For example:
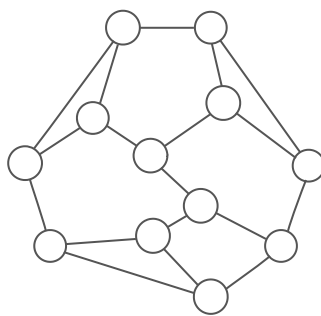
This graph's maximum degree (D) is 3, so we have 4 colors ($D + 1$). Here's one possible coloring:
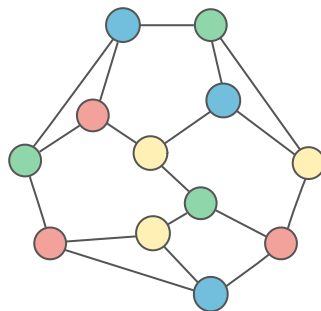
Graphs are represented by a list of N node objects, each with a label, a set of neighbors, and a color:

```python
                                                                Python 3.6 ▾
class GraphNode:


    def __init__(self, label):
        self.label = label
        self.neighbors = set()
        self.color = None



a = GraphNode('a')
b = GraphNode('b')
c = GraphNode('c')

a.neighbors.add(b)
b.neighbors.add(a)
b.neighbors.add(c)
c.neighbors.add(b)


graph = [a, b, c]
```

Want more coding interview help?

Check out **interviewcake.com** for more advice, guides, and practice questions.