suma1.py - C:/Users/surya/suma1.py (3.12.2)

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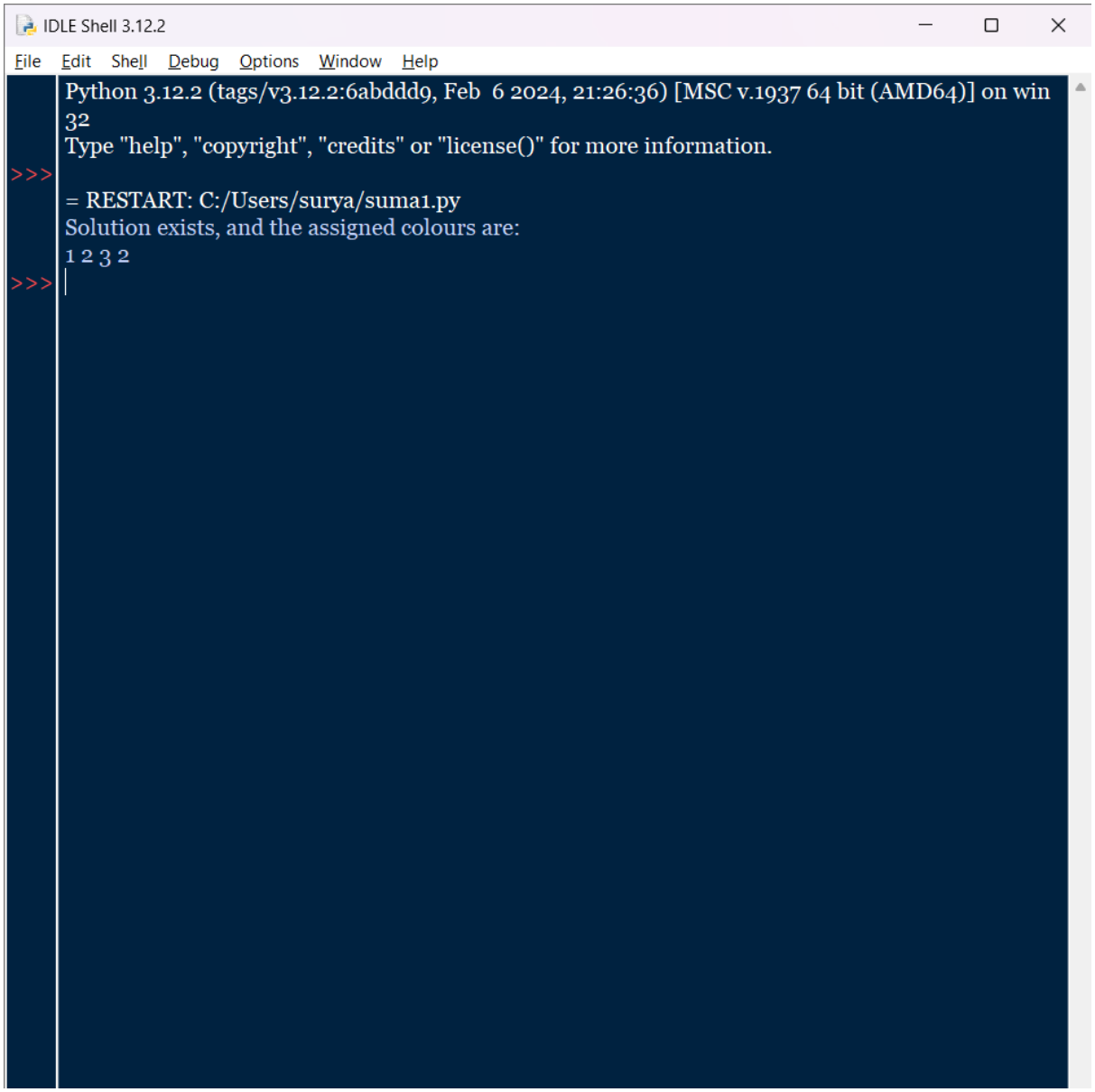
```
class Graph:
    def __init__(self, vertices):
        self.V = vertices
        self.graph = [[0 for _ in range(vertices)] for _ in range(vertices)]

    def isSafe(self, v, colour, c):
        for i in range(self.V):
            if self.graph[v][i] == 1 and colour[i] == c:
                return False
        return True

    def graphColourUtil(self, m, colour, v):
        if v == self.V:
            return True
        for c in range(1, m + 1):
            if self.isSafe(v, colour, c):
                colour[v] = c
                if self.graphColourUtil(m, colour, v + 1):
                    return True
                colour[v] = 0
        return False

    def graphColouring(self, m):
        colour = [0] * self.V
        if not self.graphColourUtil(m, colour, 0):
            print("No solution exists.")
            return False
        print("Solution exists, and the assigned colours are:")
        for c in colour:
            print(c, end=' ')
        return True
if __name__ == '__main__':
    g = Graph(4)
    g.graph = [[0, 1, 1, 1], [1, 0, 1, 0], [1, 1, 0, 1], [1, 0, 1, 0]]
    m = 3
    g.graphColouring(m)
```


IDLE Shell 3.12.2
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Python 3.12.2 (tags/v3.12.2:6abddd9, Feb 6 2024, 21:26:36) [MSC v.1937 64 bit (AMD64)] on win 32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/surya/suma1.py
Solution exists, and the assigned colours are:
1 2 3 2
>>>