AI LAB EXP – 2

DEVELOPING AGENT PROGRAMS FOR REAL WORLD

Graph Coloring Problem

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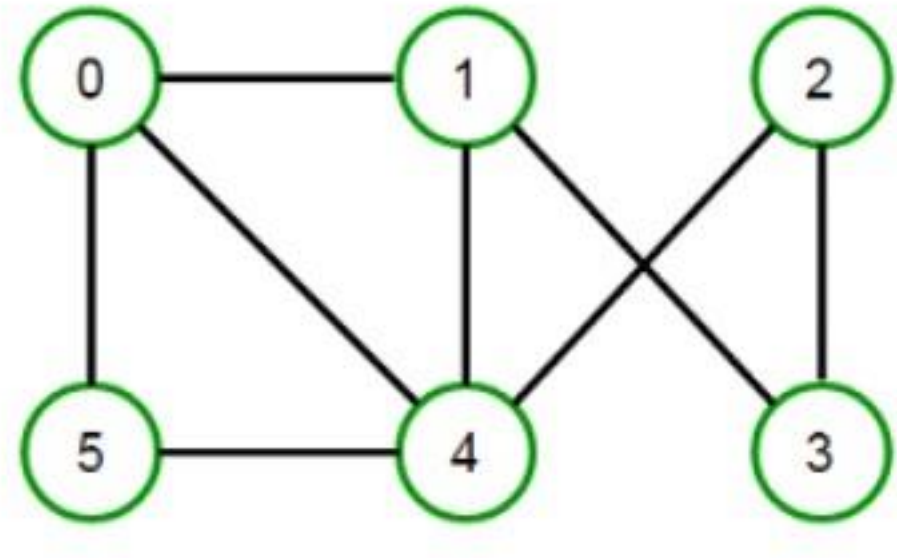
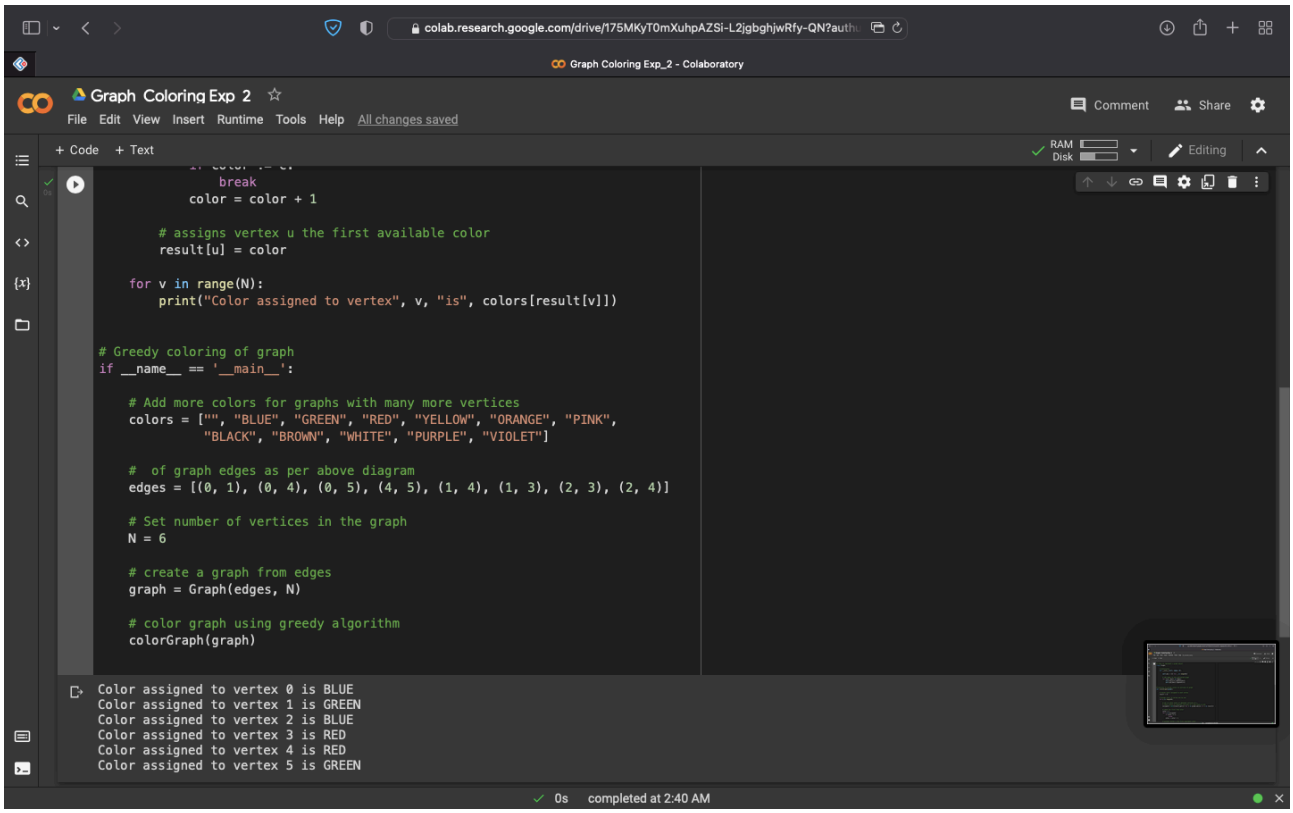
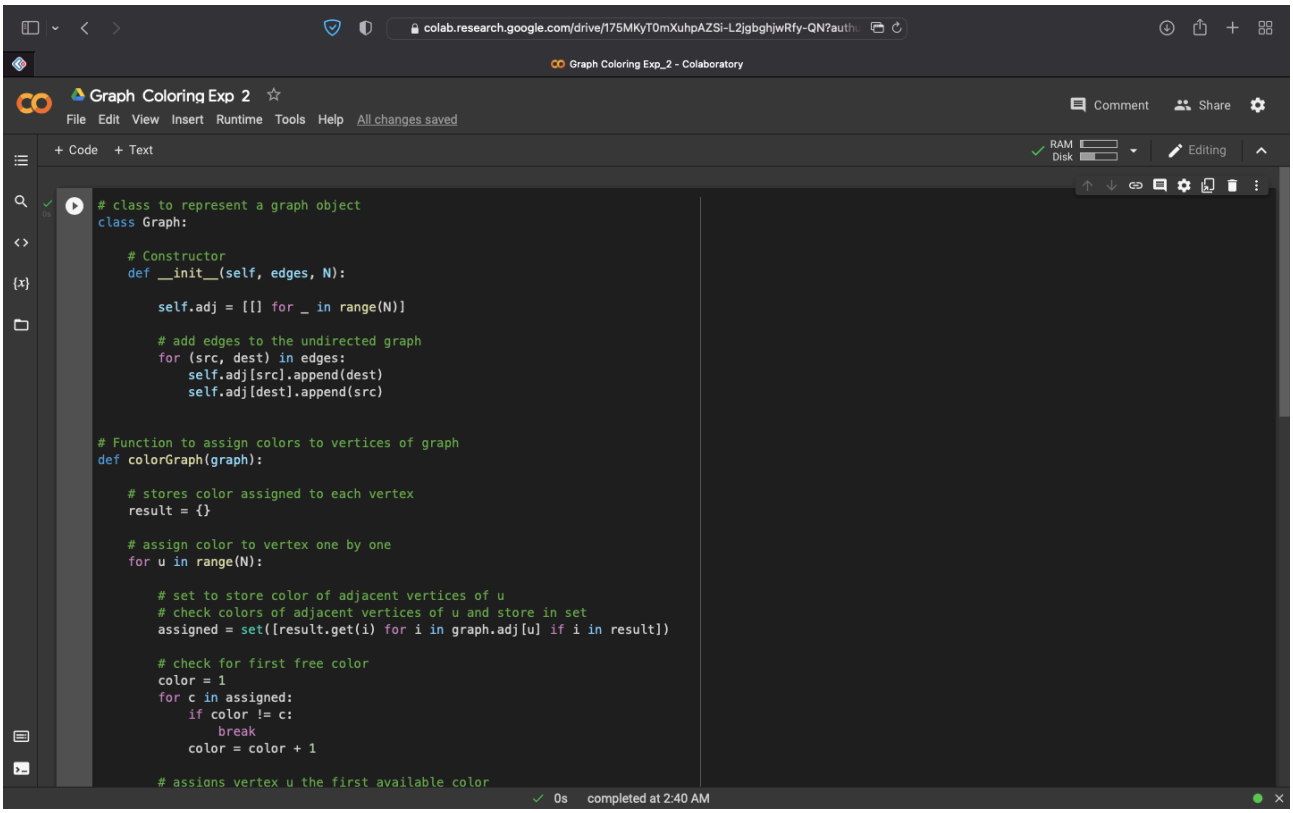
CODE: (Vertex Colouring)

```
class Graph:
    def __init__(self, edges, n):
self.adjList = [[] for _ in range(n)] for (src, dest)
in edges:

self.adjList[src].append(dest)
self.adjList[dest].append(src)

 def colorGraph(graph, n):
    result = {}
for u in range(n):
assigned = set([result.get(i) for i in
graph.adjList[u] if i in resul

t])
color = 1

        for c in assigned:
            if color != c:
break

            color = color + 1
        result[u] = color
for v in range(n):
print(f'Color assigned to vertex {v} is
'BLACK', 'BROWN', 'WHITE', 'PURPLE', 'VOILET']
edges = [(0, 1), (0, 4), (0, 5), (4, 5), (1, 4), (1,
3), (2, 3), (2, 4)] n=6
graph = Graph(edges, n)
```

Graph before Vertex Colouring:








```
Color assigned to vertex 0 is BLUE
Color assigned to vertex 1 is GREEN
Color assigned to vertex 2 is BLUE
Color assigned to vertex 3 is RED
Color assigned to vertex 4 is RED
Color assigned to vertex 5 is GREEN
```

Graph after Vertex Colouring: