DAA Lab Pract7

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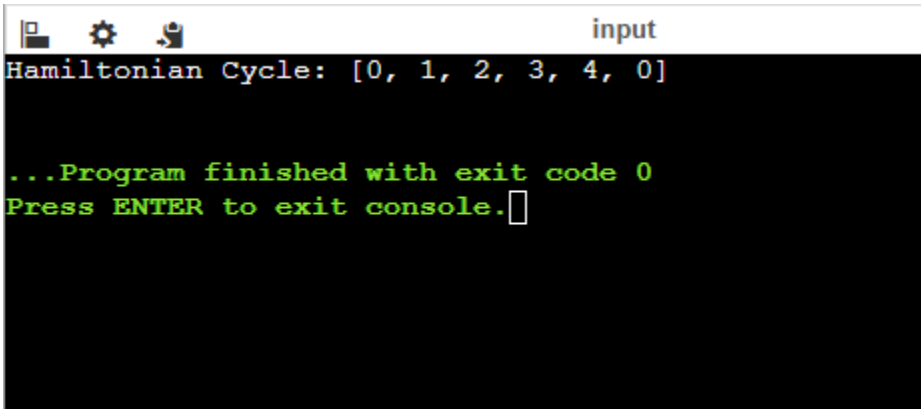
Code :

```
# Hamiltonian Cycle using Backtracking

def is_safe(v, pos, path, graph):
    if graph[path[pos - 1]][v] == 0:
        return False
    if v in path:
        return False
    return True

def hamiltonian_util(graph, path, pos):
    if pos == len(graph):
        return graph[path[pos - 1]][path[0]] == 1
    for v in range(1, len(graph)):
        if is_safe(v, pos, path, graph):
            path[pos] = v
            if hamiltonian_util(graph, path, pos + 1):
                return True
            path[pos] = -1
    return False

def hamiltonian_cycle(graph):
    path = [-1] * len(graph)
    path[0] = 0
    if not hamiltonian_util(graph, path, 1):
        print("No Hamiltonian Cycle found.")
        return
    path.append(path[0])
    print("Hamiltonian Cycle:", path)

# Example graph (adjacency matrix)
graph = [
```

```
    [0, 1, 1, 0, 1],
    [1, 0, 1, 1, 0],
    [1, 1, 0, 1, 0],
    [0, 1, 1, 0, 1],
    [1, 0, 0, 1, 0]
]

hamiltonian_cycle(graph)
```

Output :



Git Hub repo link : https://github.com/24tiwaria2-code/DAA-