Lab Experiment 03

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Resource Allocation graph (RAG)

Code :

```
def check_deadlock(processes, resources, allocation, request):


    st_req = [[0] * resources for _ in range(processes)]  # Request status matrix
    st_pro = [[0] * resources for _ in range(processes)]  # Process status matrix
    flag = 0

    while True:
        found = False
        for i in range(processes):
            if all(allocation[i][j] > 0 for j in range(resources)):
                for j in range(resources):
                    if request[i][j] == 1:
                        st_req[i][j] += 1
                        if st_req[i][j] > 1 and flag == 1:
                            return True  # Deadlock detected
                        found = True
                        break
                if found:
                    st_pro[i] = allocation[i].copy()
                    flag = 1
                    break

        if not found:
            break

    return False  # No deadlock detected

# Example usage (assuming you have the allocation and request matrices)
processes = 3
resources = 3
allocation = [
    [1, 0, 0],
```

```
    [2, 1, 1],
    [0, 1, 2]
]
request = [
    [0, 1, 0],
    [0, 1, 0],
    [2, 0, 1]
]

if check_deadlock(processes, resources, allocation, request):
    print("Deadlock detected")
else:
    print("No deadlock detected")
```

Output :

```
PS C:\Users\skaro> & C:/Users/skaro/AppData/Local/Microsoft/WindowsApps/python3.11.exe f:/Coding/Codes/Python/RAG.py
Deadlock detected
PS C:\Users\skaro>
```