

E. Case Study 5: Graph Analysis - Traffic Monitoring

6. Implement a Python program to calculate degree centrality for a traffic network graph.

```
import networkx as nx

# Create a graph
G = nx.Graph()

# Add edges to the graph (example: road network)
# Add nodes (intersections) and edges (roads) between them
G.add_edges_from([
    ('A', 'B'), ('A', 'C'), ('B', 'C'),
    ('B', 'D'), ('C', 'D'), ('D', 'E'),
    ('E', 'F'), ('E', 'G')
])

# Calculate degree centrality
degree_centrality = nx.degree_centrality(G)

# Print degree centrality of each node
for node, centrality in degree_centrality.items():
    print(f"Node {node}: Degree Centrality = {centrality}")
```