Comparisons of LR and GCN performance:

- **Accuracy Comparison**:
    - The GCN model achieved a significantly higher accuracy of approximately 95.9%, outperforming the LR model.
- **Precision and Recall**:
    - Both models demonstrate higher precision, recall, and F1-scores across multiple classes compared to LR.
    - The GCN model exhibits better precision, recall, and F1-scores for most classes, indicating its superior ability to classify nodes accurately across diverse categories.
- **Confusion Matrix Analysis**:
    - The confusion matrices reveal that the GCN model achieved fewer misclassifications and demonstrated better class-wise discrimination than LR.
    - In particular, the GCN model shows lower off-diagonal values in the confusion matrix, indicating fewer instances of misclassification across different classes.
- **Model Complexity and Training Time**:
    - While both models require training, the GCN model tends to be more complex due to its deeper architecture and the use of graph convolutional layers.
    - Despite its complexity, the GCN model achieved superior performance with relatively fewer misclassifications, showcasing the effectiveness of leveraging graph structure and node features.
- **Generalization and Robustness**:
    - The GCN model's superior performance suggests better generalization and robustness to noise or variations in the dataset compared to LR.
    - The ability of the GCN model to capture intricate relationships and dependencies among nodes in the graph likely contributes to its enhanced performance.
- **Interpretability**:
    - LR models typically offer better interpretability due to their simpler linear nature, making it easier to understand the impact of individual features on the classification decision.
    - In contrast, GCN models may provide less interpretability, as they operate on graph structures and complex interactions among nodes, making it challenging to discern the exact influence of individual features.

Overall, the GCN model demonstrates superior performance in node classification tasks on graph-structured data compared to traditional LR models, highlighting the effectiveness of leveraging graph convolutional architectures for such tasks.