Neo4j Report Specification

Goal:
To explore Neo4j as a graph database, focusing on its architecture, unique features, and use of the Graph Data Science (GDS) package for graph analytics.

1. Introduction to Graph Databases
    Define what graph databases are and why they are used.
    Introduce Neo4j's property graph model and the GDS package.
    Briefly describe key differences between graph databases and relational databases.

2. Core Concepts in Neo4j
    Explain nodes, relationships, and properties in Neo4j.
    Describe how Cypher is used for querying graph data.
    Provide a simple example query to illustrate its functionality.

3. Graph Algorithms with GDS
    Overview of key graph algorithms available in the GDS package:
        Shortest path
        PageRank
        Community detection
    Explain how these algorithms solve real-world problems (e.g., recommendations, fraud detection).

4. Performance and Scalability
    Discuss how Neo4j manages scalability and performance.
    Briefly explain clustering and causal consistency.

5. Use Cases and Applications
    Highlight practical applications of Neo4j in various industries.
    Provide a short case study showcasing Neo4j's strengths.

Report Format:
    Groups of up to 2 people.
    Length: 3–4 pages (excluding cover page and references).
    Evaluation Criteria:
        Clarity and conciseness of explanation.
        Understanding of Neo4j concepts and GDS capabilities.
        Use of simple diagrams and practical examples.