Assignment for 2025 DBMS

A. **Scenario:**

A university wants to create a centralized database to store student records, courses, and faculty information. The database must support complex queries, such as retrieving students enrolled in multiple classes, filtering records based on grade ranges, and sorting results by student name or grade.

Question:

Explain how SQL can be used to manage and retrieve data efficiently in such a university database system. Discuss the role of different SQL command types (DDL, DML, DCL) in building and managing the database. How would multi-table queries and sorting operations be useful in this scenario? Illustrate with examples where possible

B. **Scenario:**

A multinational retail company plans to implement a new database system to manage its inventory, sales, and customer information across stores located in different countries. The company is debating between using a centralized relational database and a distributed database system.

Question:

Discuss the key differences between a centralized relational database and a distributed database system. What factors should the company consider when choosing between these two architectures? Explain the advantages and disadvantages of distributed database systems in this context, and recommend the most suitable database architecture for the company, providing reasons.