IS.220: Lecture 1: essay

1. **Explain the main functions of a Database Management System (DBMS).**
    - Discuss how a DBMS facilitates defining, constructing, manipulating, and sharing databases.
    - Include examples of how these functions are applied in real-world scenarios.
    -
2. **Compare and contrast the file-based approach and the database approach to data management.**
    - Highlight the key differences in data organization, redundancy, sharing, and security.
    - Explain why the database approach is preferred in most modern applications.
    -
3. **What are the main characteristics of the database approach, and how do they contribute to efficient data management?**
    - Discuss self-describing nature, program-data independence, data abstraction, multiple views, and multi-user transaction processing.
    -
4. **Describe the advantages of using a DBMS and situations where it may not be suitable.**
    - Explain benefits such as data sharing, redundancy control, security, and integrity enforcement.
    - Provide examples of cases where a DBMS might not be the best choice due to cost, simplicity, or performance constraints.
    -
5. **Using a university database as an example, explain how entities, attributes, and relationships are structured in a database system.**
    - Define entities like students, courses, and instructors.
    - Discuss how relationships like enrollment, prerequisites, and teaching assignments are modeled in a database.