Lab 10: NoSQL Databases (4% of total grade)

Purpose: To explore NoSQL database types.
Submission: One member of the group to submit a link to your Google Slides. Shared with mbebis.edu@gmail.com as an 'Editor'.

Presentation Time: ~5 minutes per group (everyone must speak)
Goal: Learn and present one major type of NoSQL database.

Requirements:

1. Research your assigned database type using reliable sources.
    - Paste links to sources in notes of slides.
2. Create a short **slide deck** using Google Slides so all group members can work on the same document together.
3. Prepare a **5-minute presentation** to share your findings with the class.
    - *Everyone in the group must speak at least once.*

Questions to Answer in Your Presentation

1. What is this type of NoSQL database?
    - How does it store data?
2. What are typical use cases?
    - What kinds of problems is it good at solving?
3. What are its advantages and disadvantages?
4. How does it compare to relational databases*?
    - What are the key differences in data structure and schema design?
    - How does querying work compared to SQL?
    - How do they differ in terms of scalability, performance, and consistency?
    - In what situations would a relational database be better, and when would this NoSQL type be a better fit?
5. What are some popular technologies that use this model?
    - Name at least one example (e.g., MySQL for relational databases).

***Relational Databases Recap (SQL)**

- Data stored in tables (rows + columns)
- Fixed schema (must define structure before adding data)
- Use SQL to query
- Typically scales vertically (upgrade one server)
- Can struggle with very large or fast-growing datasets
- Great for apps needing strict data accuracy (e.g., banking)

RDBs are best used when:

- Data is highly structured
- Relationships between data are important
- You need strong consistency and complex queries

Lab 10: NoSQL Databases - Grading Rubric

Criteria	Excellent (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt)
Understanding of Database Type	Clear and accurate explanation of the type and how it works (2 pts)	Mostly accurate, some unclear points (1 pt)	Incomplete or unclear explanation (0 pts)
Popular Technologies Mentioned	At least one specific and correct technology named (1 pt)		No examples provided (0 pts)
Use Cases and Real-World Relevance	Strong, relevant examples and use cases	Strong, relevant examples and use cases	Few or unclear use cases.
Strengths & Weaknesses	Clearly explained with thoughtful analysis	Basic explanation	Lacking or very vague
Comparison to Relational Databases	Clear comparison with specific points	Some comparison made	Comparison missing or confusing
Slide Quality	Well-organized, visually clear, minimal text, use of visuals	Mostly clear, just text, no visuals	Slides are cluttered or hard to follow
Group Participation	All group members contribute meaningfully	One or more member(s) say very little	One or more members do not participate
Sources Cited	All sources are cited in slide notes (2 pts)		Some or no sources cited