Subject:	DATA 210: Database Design & Analytics
Created by:	Angel Paudel
Title of Project:	Using DBMS to manage data to solve one business challenge
Deadline:	Every **Wednesday at 17:00** starting May 7, 2025
Last Modified:	April 29, 2025

Please read **all** instructions and informations carefully.

The assignment contributes **100% to your VCS grade (16%)** and will only be reflected fully after all the deliverables are completed (on week 8).

Background

This project guides students through designing a database system for a real or fictitious company. The workflow aligns with the syllabus, progressively building skills from foundational concepts (Weeks 1–4) to advanced normalization, relationships, and documentation (Weeks 5–8). By Week 8, students will present a functional database system with dummy data matching organizational requirement and a detailed presentation.

Activity Type:	Group
Group Size	4 (Four)
Register your group:	https://research.angelwrites.xyz/data-210-team
Register before:	May 7, 2025; 5.00 PM
Random group creation at:	May 7, 2025; 5.15 PM (for any names/person who are yet to be involved in any groups)

Project Objective

Students are to develop a database system addressing a specific business problem,

incorporating normalization, relationships, and stakeholder feedback. The final deliverable

must include a demo, documentation, and a presentation.

Weekly Activities & Deliverables

WK2 (May 14): Identify the Company & Prepare Concept Paper

Deliverable:

- 1-page Concept Paper (PDF/Word)

- Stakeholder Consultation Evidence (email/photo/meeting notes)

  Naming Convention: WK2_[Team Name]_ConceptPaper

Instructions:

1. Company Selection:

   - Choose a real or fictitious company with a database-related problem (e.g., Nishu Fancy needs stock management to manage inventory).

2. Problem & Solution:

   - Describe the problem and proposed database solution (e.g., "An SQL inventory system to reduce stock mismanagement").

3. Stakeholder Interaction:

   - Validate the problem with a stakeholder (e.g., company manager). Include proof of consultation.

Rubric Focus:

- Problem clarity | Solution/Business feasibility | Stakeholder evidence

WK3 (May 21): Define Project Scope

Deliverable:

- Project Scope Document (PDF) + Gantt Chart (Image/PDF)
  Naming Convention: WK3_[Team Name]_ProjectScope

Instructions:

1. Objectives:

- Define SMART goals (e.g., "Design a normalized inventory DB using MySQL by Week 8").

2. Deliverables & Timeline:

   - List outputs (ERD, normalized tables) and deadlines using a Gantt chart.

3. Roles & Boundaries:

   - Assign team roles and clarify scope limits (e.g., "Focus on inventory, not sales").

Rubric Focus:

- Clear objectives | Deliverables/timeline | Roles documented

WK4 (May 28): Initial Database Design

Deliverable:

- Preliminary Schema (Word/PDF) + Assumptions Document
  Naming Convention: <mark>WK4_[Team Name]_InitialDesign</mark>

- Mid-term presentation in-class

Instructions:

1. Entities & Attributes:

   - Identify tables (e.g., Products, Suppliers) and attributes (e.g., SupplierID INT).

2. Scalability:

    - Justify future needs (e.g., "Add Customers table for future sales tracking").

3. Assumptions:

    - Document design assumptions (e.g., "Initial inventory capped at 1,000 items").

Rubric Focus:

- Entities/attributes | Schema draft | Scalability | Presentation quality

WK5 (June 4): Entity Relationship Diagram (ERD) & Normalization

Deliverable:

- ERD (Image/PDF) + Normalization Steps (Word) + Feedback Summary Naming Convention: <mark>WK5_[Team Name]_ERDNormalization</mark>

Instructions:

1. ERD Development:

    - Map relationships (e.g., Products → Suppliers) using tools like Canva, Lucidchart, or any other tool you prefer.

2. Normalization (3NF):

- Remove redundancies (e.g., split SupplierCategory into a separate table).

3. Stakeholder Feedback:

- Conduct a feedback session (photo/screenshot required).

Rubric Focus:

- ERD clarity | 3NF justification | Feedback documentation

WK6 (June 11): Define Relationships & Iterative Refinements

Deliverable:

- Refined Schema (Word/PDF) + Change Log including any updates made

  Naming Convention: WK6_[Team Name]_RelationshipsRefinements

Instructions:

1. Relationship Mapping:

   o Define one-to-many/many-to-many relationships (e.g., Orders ↔ Products).

2. Refinements:

   o Adjust schema based on Week 5 feedback (e.g., add OrderDate).

3. Change Log:

- Track modifications with reasons (e.g., "Added BatchID for inventory tracking").

Rubric Focus:

- Relationships | Feedback incorporation | Justifications

WK7 (June 18): Draft Documentation & Presentation

Deliverable:

- Draft Documentation (PDF) + Presentation Slides (PPT)

  Naming Convention: WK7_[Team Name]_DraftDoc

  and WK7_[Team Name]_Presentation

Instructions:

1. Documentation:

   - Include ERD, normalization steps, and user stories (e.g., "How staff update inventory").

2. Presentation:

   - Use visuals: ERD snapshots, mockups, and progress charts.

Rubric Focus:

- Visuals/narrative | Progress consistency | Feedback incorporation

WK8 (June 25): Final Demo, Documentation & Presentation

Deliverable:

- Final Documentation (PDF) + Demo Video or real-time showcase

  Naming Convention: <mark>WK8_[Team Name]_FinalSubmission</mark>

Instructions:

1. Demo:

    o   Showcase CRUD operations (e.g., add/products, generate reports).

    o   All other key functionalities you have added and see as value

2. Final Documentation:

    o   Integrate Week 7 feedback. Add scalability plans (e.g., cloud migration).

3. Presentation (**on June 15 and/or June 18**):

    o   Overall presentation of the project

Rubric Focus:

- Demo functionality | Professionalism + Presentation quality | Final document

  quality

Final Deliverable

By Week 8, students will need to submit:

1. A fully functional database system with dummy data.

2. Professional documentation and presentation.

Marking Scheme

Specific breakdown is listed under for the course based on different checkpoints along the way. All deadlines are Wednesday, 17.00 Nepal time for project submissions.

Checkpoint 1: WK4 presentation (*grades to be posted based on presentation quality; google drive team folder completeness for all activities due until WK4*)	WK1, WK2, WK3 VCS [6% of total grade]
Checkpoint 2: WK6 Survey (*grades to be posted based on survey details/quality; google drive team folder completeness for all activities due until WK6*)	WK4, WK5 VCS [4% of total grade]
Checkpoint 3: WK8 presentation + demo (*final point – graded based on presentation quality, documentation quality, demo presentation and complteness of all things submitted*)	WK6, WK7, WK8 VCS [6% of total grade]