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Advanced Database Systems
1st Semester SY 2025-2026
Narrative Report on Final Project Progress

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Narrative Report:

Mr. De Guzman initiated the technical setup by creating the group's GitHub repository to centralize version control, documentation, and schema revisions. Concurrently, Mr. dela Cruz prepared the standardized templates for both the Narrative Report and the Contribution Report to ensure uniform documentation formatting across submissions.

To accomplish the day's objectives, the group began by implementing the database schema using DBeaver and phpMyAdmin. The purpose of creating the database first was to validate structural feasibility before translating it into an Entity-Relationship Diagram (ERD). This allowed the group to detect structural inconsistencies, improper foreign key mappings, and normalization issues early in the process.

The group formally agreed to use Crow's Foot notation for the ERD due to its clarity in representing cardinality and relationship multiplicity. This decision improved visualization and ensured that one-to-many and many-to-many relationships were explicitly defined.

During schema development, minor deviations were made from the initially proposed system policies. These adjustments were necessary to introduce proper normalization, relevant junction tables (e.g., user_roles, role_permissions, user_levels), and to ensure role-based access control was structurally enforced within the database design.

Mr. De Guzman focused on database construction, constraint implementation, and schema verification within DBeaver. At the same time, Mr. Macaraeg and Mr. dela Cruz replicated the verified schema in draw.io using Crow's Foot notation. This parallel workflow increased efficiency while maintaining consistency between the physical schema and the conceptual ERD.

One of the primary challenges encountered was organizing the 16 identified entities in a way that remained readable and professionally structured. Considerations included:

- Avoiding excessive crossing of relationship lines
- Grouping related entities logically (RBAC, Content, Gamification, Subscription)
- Ensuring junction tables were positioned between related parent entities
- Maintaining balanced spatial distribution across the diagram

Multiple layout revisions were performed to prevent the relationship arrows from appearing cluttered. The final layout was arranged by functional domains to improve readability.

After completing the ERD, the group conducted a final cross-checking session. This involved validating:

- Alignment between system policies and database constraints
- Correct cardinalities in Crow's Foot notation
- Presence of appropriate foreign keys
- Proper handling of derived attributes (e.g., level determination from XP)
- Completeness of role-based access control structure

This final validation ensured consistency between the documented system policies and the technical implementation of the database schema.

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