Final Task & Time Management Document

Team Members: TEAM NO 8

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Course: Database Systems 5330:003
Semester: Fall 2025
Project: Optics Retail Company (Database Design and Implementation)
Instructor: Abhishek Santra

Introduction:

This document outlines how our team planned, distributed, and executed all tasks across the four phases of the Database Project.
We have clearly described:

- Division of responsibilities
- Time allocation
- Contributions by each member
- Collaboration methods
- Final workflow used for completing the project

Our approach ensured equal contribution, on-time completion, and high-quality deliverables.

Project Workflow & Collaboration Strategy:

Tools Used

- Microsoft Word– collaborative writing
- WhatsApp – communication
- Pen and Paper – EER diagram drafting
- Oracle (Omega) – implementation
- GitHub private repo – version control for .sql files* (might upload in future)

Collaborative Style

- Every major task was jointly discussed before being divided.

- Each team member completed their assigned portion, and the other member reviewed it.
- Weekly review meetings ensured alignment and constant improvement.
- All final submissions were reviewed and approved jointly.

Phase-wise Task Breakdown & Time Management

Phase 1 — Problem Description & Requirement Analysis:

Total Time Spent: 10 hours* (estimate)
Goal: Create a detailed business description under:

1. General Problem Description
2. Data to be Captured
3. Business Goals / Functional Requirements

Task Distribution:

Task	Assigned To	Time Spent	Description
Selecting domain & business	Both	1 hr	Brainstormed, evaluated options, finalized the business concept.
Drafting General Problem Description	Rutuja	2 hrs	Wrote detailed business overview from owner's perspective.
Identifying Data to be Captured	Devarsh	3 hrs	Listed entities, interactions, data attributes, constraints.
Writing 10 Functional Requirements	Both	2 hrs	Jointly wrote business-level analytical goals.
Final Review & Refinement	Both	2 hrs	Ensured completeness, consistency, instructor guidelines.

Contribution Summary:

- Rutuja: Problem description, language refinement, consistency.
- Devarsh: Data identification, requirement structuring, validation.

Outcome: A complete, clear, instructor-ready Phase 1 document

Note: It also covers Phase 1 Revised too.

Phase 2 — EER Diagram Development

Total Time Spent: ~12 hours* (estimate)
Goal: Create an EER diagram using only allowed tools (hand-drawn/PowerPoint).

Task Distribution

Task	Assigned To	Time Spent	Description
Identifying entities & attributes	Devarsh	3 hrs	Extracted all entities + attributes from Phase 1.
Designing relationships & cardinalities	Rutuja	3 hrs	Structured relationships, min/max constraints.
Creating EER Draft	Both	2 hrs	Drew diagram together using allowed notation.
Adding composite / multivalued / weak entities	Both	1 hr	Ensured instructor requirements were met.
Internal Review	Both	1 hr	Verified keys & constraints.
Final EER Diagram Cleanup	Devarsh	2 hrs	Formatting, clarity, final layout.

Contribution Summary

- Rutuja: Diagram presentation, correctness of notations.
- Devarsh: Entity/relationship logic, attribute classification, formatting.

Outcome: A complete EER with all required elements (5+ entities, composite attributes, weak entity, subset, correct cardinalities).

Note: It also covers recommend changes noted by TA

Phase 3 — Relational Mapping & Normalization

Total Time Spent: 15 hours* (estimate)
Goal: Convert EER into relational schema with:

- PKs and FKs
- Candidate keys

- Functional Dependencies
- BCNF normalization

Task Distribution

Task	Assigned To	Time Spent	Description
Step-by-step relation conversion	Devarsh	4 hrs	Converted entities/relationships following class rules.
Identifying Primary & Foreign Keys	Rutuja	2 hrs	Mapped all linking and identifying relations.
Listing Candidate Keys	Both	2 hrs	Worked jointly using business logic.
Writing Functional Dependencies	Both	3 hrs	Derived complete FD set for all relations.
BCNF Normalization	Devarsh	2 hrs	Simplified relations while preserving dependencies.
Final Review & Mapping Document	Rutuja	2 hrs	Structured final report for submission.

Contribution Summary

- Devarsh: Technical mapping, BCNF reasoning, schema architecture.
- Rutuja: Documentation, key/FD validation, structure refinement.

Outcome: A fully normalized relational schema ready for SQL implementation.

Note: It also covers recommend changes noted by TA

Phase 4 — SQL Implementation & Query Demonstration

Total Time Spent: 20 hours* (estimate)
Goal: Write & test all SQL scripts:

1. projectDBcreate.sql

2. projectDBinsert.sql
3. projectDBupdate.sql
4. projectDBdrop.sql
5. projectDBqueries.sql

Task Distribution

Task	Assigned To	Time Spent	Description
Writing CREATE TABLE (DDL)	Devarsh	4 hrs	Implemented schema, PKs, FKs, constraints.
Writing INSERT script	Rutuja	4 hrs	Created meaningful 40–50 rows/table ensuring FK consistency.
Update/Delete operations	Both	2 hrs	Designed updates affecting final queries.
Writing DROP script	Devarsh	1 hr	Ordered dropping sequence.
Writing 7 Advanced Queries	Both	5 hrs	GROUP BY, HAVING, OVER, ROLLUP/CUBE, DIVISION, JOIN.
Testing queries on Omega	Both	4 hrs	Fixed errors, validated outputs before/after updates.
Final Packaging of All Files	Rutuja	2 hrs	Structured folder submission.

Contribution Summary

- Devarsh: Core SQL logic, DDL, testing outputs, debugging.
- Rutuja: Data creation, query presentation, comments, formatting.

Outcome: Fully working database system with professional-level SQL scripts.

Note: It also covers recommend changes noted by TA

Overall Contribution Breakdown

Effort Distribution

Team Member	Estimated Total Hours	Contribution %
Devarsh	32–35 hours	50%
Rutuja	32–35 hours	50%

Major Strengths Used

- Devarsh: Database logic, schema design, formatting
- Rutuja: Documentation, data consistency, diagram presentation, SQL correctness

Quality Assurance

- Every file was peer-reviewed by the other member.
- Both members ran all SQL scripts individually on Omega to guarantee reproducibility.

Final Remarks

The team operated with equal effort, strong communication, and well-planned task management.
Division of tasks leveraged each member's strengths while allowing both participants to understand every part of the project equally.

We both actively contributed to all phases, ensuring:

- Accuracy
- Completeness
- Clarity
- Functional correctness
- Proper format as required by the instructor

This document serves as a complete reflection of how the project was successfully executed from start to finish.