

# Database Project Proposal

## Project Title:

### Import/Export Management System Database

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#### Group Members

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#### Project Overview

This project focuses on developing a comprehensive **database management system** for handling and streamlining **import/export** operations within a business environment. The system will efficiently **store, manage, and retrieve** crucial information related to shipments, goods, suppliers, customers, logistics, and documentation.

By organizing complex processes involved in international trade, the database will help:

- Improve **data accuracy**
  - Enable **faster access** to critical information
  - Ensure **compliance** with trade regulations
  - Generate **insightful reports** for decision-making
- Overall, this system will enhance **operational efficiency** and support the strategic goals of any import/export-based business.
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## Project Objectives

The key goals of this project are:

1. **Design a relational database schema** tailored to import/export data management.
2. **Track incoming (import) and outgoing (export) shipments** accurately.
3. Store detailed information about traded goods, including:
  - Descriptions
  - Quantities
  - Values
  - Harmonized System (HS) codes
4. Maintain records of:
  - Suppliers
  - Customers
  - Logistics providers
5. Manage and associate relevant **trade documents**, such as:
  - Invoices
  - Packing lists
  - Bills of lading
  - Customs declarations
6. Track shipment status and critical dates (e.g., dispatch, arrival, customs clearance), and calculate associated costs.
7. Generate reports on:
  - Trade volume
  - Shipment history
  - Inventory movement

- Basic compliance metrics
8. Develop a **user-friendly interface** (CLI or GUI) for data input, retrieval, and reporting.
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## Tools and Technologies to Be Used

Category	Tools/Technologies
DBMS	MySQL / SQL Server
Database Design Tool	MySQL Workbench / Draw.io
Query Language	SQL (Structured Query Language)
Interface (Optional)	HTML/CSS
Version Control	GitHub

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## Methodology / Implementation Plan

We will follow a structured development approach, based on either the **Waterfall** or **Agile** model, depending on the final project scope. The proposed phases are:

1. **Requirements Gathering**
  - Analyse and define functional and non-functional requirements.
2. **Database Design**
  - Create an **Entity-Relationship (E-R) diagram**.
  - Normalize tables to reduce redundancy.
  - Define entities, attributes, primary and foreign keys.
3. **Database Implementation**
  - Create and configure the database using the selected DBMS.
  - Implement necessary constraints and relationships via SQL.
4. **Interface & Data Management Module (If Applicable)**

- Design a module for CRUD (Create, Read, Update, Delete) operations.
- Implement input validation.
- Build a simple and intuitive user interface.

## 5. Querying and Reporting

- Write SQL queries for data analysis and reporting.
- Include basic trade analytics (e.g., monthly import/export volume).

## 6. Testing

- Perform unit, integration, and system testing.
- Ensure that all components work smoothly and meet the defined requirements.

## 7. Documentation

- Document the database schema and relationships.
- Provide a user manual and technical guide.

## 8. Deployment (Optional)

- Deploy the system in a test or production environment.

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## Diagram Example

*A simple process flow diagram or E-R sketch will be included here in the final report.*

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## Expected Outcome

By the end of this project, we aim to deliver a **fully functional, reliable, and well-documented** database system that:

- Manages all core data related to import and export activities.
- Enables efficient data entry, retrieval, and reporting.

- Serves as a practical demonstration of our skills in:
    - **Database design**
    - **SQL scripting**
    - **Interface development**
  - Lays the foundation for scalable enhancements such as:
    - Real-time dashboard integration
    - trade analytics (in future expansions)
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