**System Requirement Specification (SRS)**

**1. Introduction**

* **Purpose:** The Harbor Tracking System (HTS) is designed to manage and monitor imports and exports at the harbor. It tracks shipments, maintains records in a database, and provides real-time information to authorized personnel.
* **Scope:** The HTS will be implemented in the harbor's operational areas, ensuring seamless tracking of all goods entering and leaving the harbor. It will include modules for tracking shipments, database management, and reporting.
* **Audience:** This document is intended for developers, system architects, project managers, and stakeholders involved in the project.

**2. System Overview**

* **System Functions:**
  + Track and manage import/export shipments.
  + Store shipment data in a centralized database.
  + Generate reports on shipment status, history, and analytics.
  + Provide user access controls based on roles (e.g., admin, operator, manager).
* **System Interfaces:**
  + **User Interface (UI):** Web-based interface for interacting with the system.
  + **Database Interface:** Interface to store and retrieve data from the database.
  + **External Interfaces:** API integration with customs and logistics systems.

**3. Functional Requirements**

* **User Authentication:**
  + Users must log in using a username and password.
  + Role-based access control to ensure appropriate data access.
* **Shipment Tracking:**
  + Ability to add, update, and delete shipment records.
  + Real-time tracking of shipments entering and leaving the harbor.
* **Database Management:**
  + Automatic storage of shipment details in the database.
  + Regular backups of the database.
* **Reporting:**
  + Generate reports on shipment activities.
  + Export reports in various formats (PDF, Excel).
* **Notifications:**
  + Email notifications for critical events (e.g., shipment delays).
  + System alerts for important updates.

**4. Non-Functional Requirements**

* **Performance:**
  + The system should handle up to 1,000 concurrent users without performance degradation.
* **Security:**
  + Data encryption for sensitive information.
  + Secure login and password management.
* **Usability:**
  + Intuitive and user-friendly interface.
  + Training documentation and tutorials.
* **Scalability:**
  + The system should be scalable to handle future growth in harbor activities.
* **Reliability:**
  + System uptime of 99.9% with minimal downtime.
* **Compliance:**
  + Adherence to industry standards and regulations for data security.

**5. System Architecture**

* **Client-Server Architecture:** The system will be based on a client-server architecture with a web interface and a backend server managing the database and business logic.
* **Database Design:** Relational database with tables for shipments, users, roles, and logs.
* **Technology Stack:**
  + Frontend: HTML, CSS, JavaScript
  + Backend: Python/Java, REST APIs
  + Database: MySQL/PostgreSQL

**6. System Implementation**

* **Development Environment:** Details of tools, IDEs, and frameworks used.
* **Testing:** Outline of testing strategies, including unit tests, integration tests, and user acceptance tests.
* **Deployment:** Plan for system deployment, including hardware and software requirements.