# Uganda Railway Transport System Project.

## Overview

The Uganda Railway Transport System is essential for connecting various regions within Uganda and facilitating trade with neighboring countries. This project aims to analyze and design a more efficient railway system that enhances passenger and freight services.

## Key Components of the Uganda Railway System

1. **Stations**: Key locations for passenger boarding and freight handling.
2. **Rolling Stock**: Locomotives, passenger cars, and freight wagons.
3. **Track Infrastructure**: Rail tracks, signaling systems, and maintenance facilities.
4. **Operations Management**: Scheduling, ticketing, and service maintenance.
5. **Safety Systems**: Protocols and systems to ensure the safety of operations.

## Functional Requirements

1. **Passenger Services**:
    - Ticket booking
    - Customer support
    - Timetable information
2. **Freight Services**:
    - Cargo booking and tracking
    - Delivery scheduling
    - Billing and invoicing
3. **Maintenance Management**:
    - Scheduling regular inspections
    - Reporting and tracking maintenance issues
4. **Safety Management**:
    - Incident reporting
    - Safety audits and compliance checks

## Sequence Diagrams

### 1. Passenger Ticket Booking Process

```
Participant: Passenger
Participant: Ticketing System
Participant: Payment Gateway

Passenger -> Ticketing System: Request Ticket
Ticketing System -> Passenger: Show Available Options
```

```
Passenger -> Ticketing System: Select Train and Date
Ticketing System -> Payment Gateway: Process Payment
Payment Gateway -> Ticketing System: Confirm Payment
Ticketing System -> Passenger: Issue Ticket Confirmation
```

### 2. Freight Booking Process

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```
Participant: Shipper
Participant: Freight System
Participant: Payment Gateway

Shipper -> Freight System: Request Freight Booking
Freight System -> Shipper: Provide Freight Options
Shipper -> Freight System: Confirm Freight Details
Freight System -> Payment Gateway: Process Payment
Payment Gateway -> Freight System: Confirm Payment
Freight System -> Shipper: Send Booking Confirmation
```

### 3. Maintenance Management Workflow

```
Participant: Maintenance Team
Participant: Operations System
Participant: Maintenance Management System

Maintenance Team -> Operations System: Report Equipment Issue
Operations System -> Maintenance Management System: Create Maintenance Task
Maintenance Management System -> Maintenance Team: Assign Task
Maintenance Team -> Maintenance Management System: Update Task Status
Maintenance Management System -> Operations System: Close Maintenance Task
```

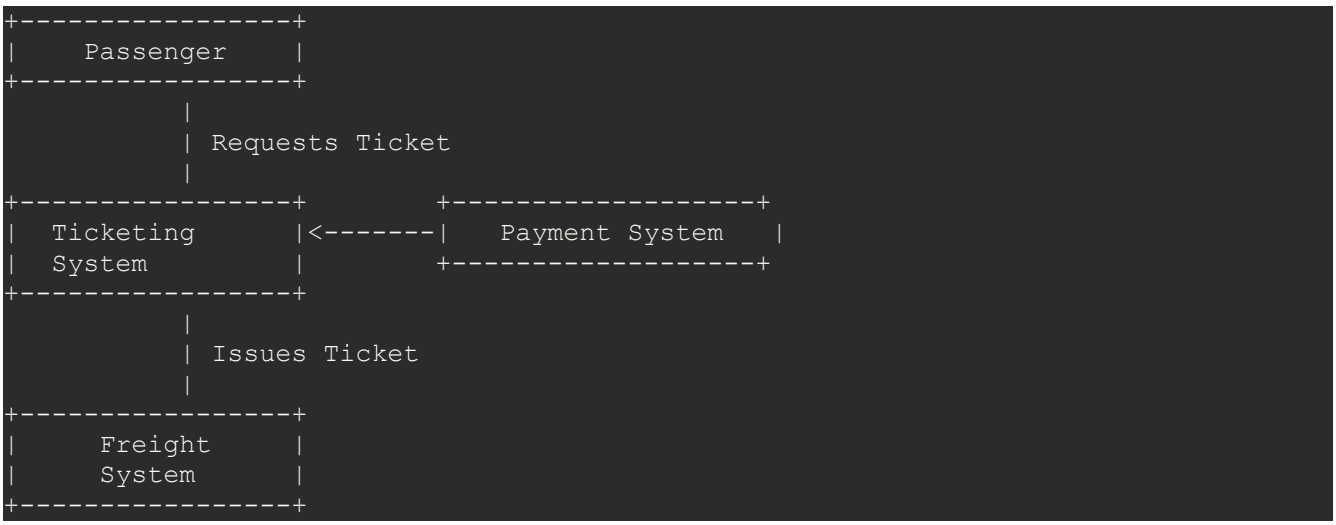
### 4. Safety Management Process

```
Participant: Safety Officer
Participant: Safety Management System
Participant: Operations System

Safety Officer -> Safety Management System: Report Safety Incident
Safety Management System -> Operations System: Notify of Incident
Operations System -> Safety Officer: Request Further Information
Safety Management System -> Safety Officer: Document Incident
```

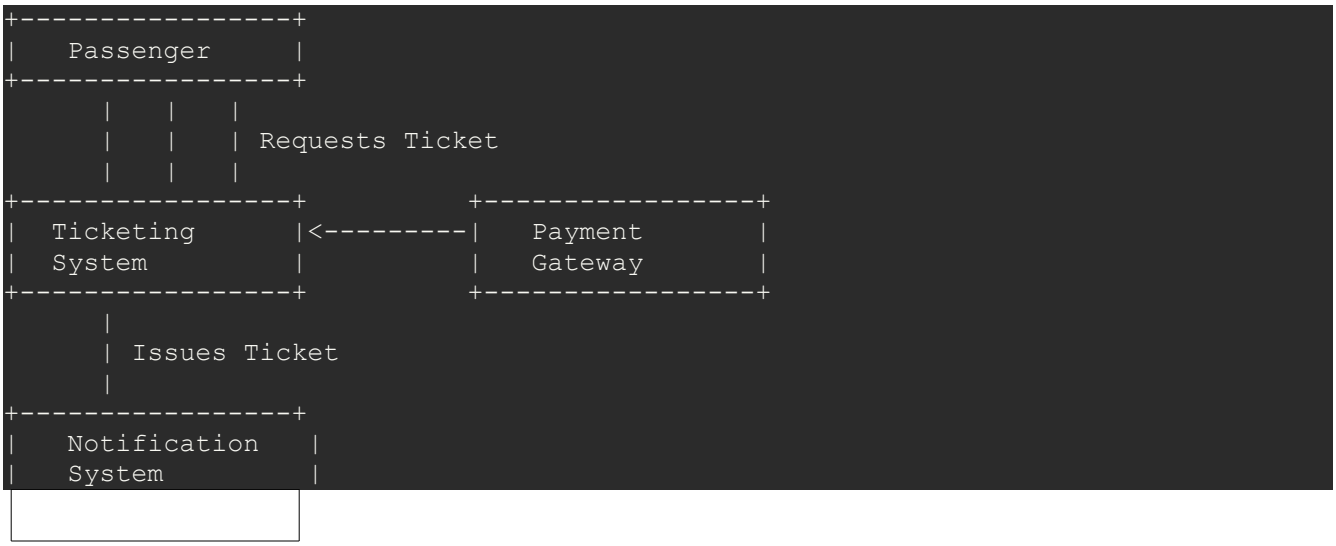
# Functional Components Diagrams

### 1. Context Diagram




## 2. Data Flow Diagram (DFD)

### Level 1: Passenger Services



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