User Requirement Specifications for a Public Transportation System

1. General Requirements

- The system must allow users to view available **routes, buses, and stops**.
- The system must store details of **drivers, trips, tickets, and schedules**.
- The system must maintain records of **boarding and destination stops** for each ticket.

---

2. Functional Requirements

- A user should be able to **search for buses** by route, stop, or time.
- The system should **generate tickets** with unique ticket IDs.
- The system must allow **drivers to be assigned to buses** and **buses to routes**.
- Users should be able to **view trip schedules** (departure, arrival, assigned driver, etc.).
- The system must **calculate fares** based on source and destination stops.
- The system must keep track of **seat availability**.
- The system should allow **rescheduling/cancellation of trips or tickets**.

---

3. Non-Functional Requirements

- The system should be **user-friendly and easy to navigate**.
- Response time for search queries (bus schedules, routes) should be **< 2 seconds**.
- The system must be **secure** (ticket IDs unique, drivers authenticated).
- Data storage should be **scalable** for thousands of buses, trips, and tickets.

---

4. Constraints

- The system should follow standard **database normalization rules**.
- The system must run on standard hardware (e.g., college lab computers, cloud-hosted DB).
- The system should be accessible on both **desktop and mobile devices**.