

Transport Company Computerization (TCC) Software

Functional and Non-functional Requirements

Submitted By:

Santosh Prasad Yadav(122CS0968)

Rajamahendrarapur Manju Preethi(122CS0568)

Venkata Ramireddy Avula(122CS0328)

Functional Requirements

1. Truck Management

- Maintain records of all trucks owned by the company, including registration numbers, capacities, and locations.
- Update the current location and status (available, idle, en route) of trucks in real-time.
- Assign trucks automatically when the volume of consignments for a destination reaches 500 cubic meters.

2. Consignment Management

- Record details of consignments, including sender and receiver information, destination, volume, and charges.
- Compute transport charges based on volume and destination address.
- Generate and print bills for consignments.

3. Branch Office Operations

- Track consignments received and dispatched at each branch office.
- Record truck arrival and departure times at branch offices.
- Allow branch offices to mark trucks as fully loaded and ready for dispatch.

4. Report Generation

- Generate reports for truck usage over a specific period.
- Display the status of trucks (available, idle, en route) at any time.
- Provide details of consignments being dispatched with truck information.

5. Query Management

- Allow the manager to query the status of any consignment.
- Display the volume of consignments handled for any destination.
- Calculate and display revenue generated for specific destinations.

6. Statistics and Analytics

- Calculate and display the average waiting period for consignments.
- Calculate and display the average idle time of trucks at branch offices.
- Provide statistics to assist in future planning (e.g., need for new trucks).

7. Notification and Alerts

- Notify branch managers when a truck is fully loaded and ready for dispatch.
- Alert the manager if the average waiting period for consignments exceeds a predefined threshold.

8. Printing and Documentation

- Print consignment details, including consignment number, volume, sender, receiver, and destination for dispatch with the truck.
- Maintain a log of all consignments and their details for future reference.

Non-Functional Requirements

1. Performance

- The system should process and respond to queries in under 2 seconds.
- Automatic truck assignment should occur within 5 seconds of reaching the 500 cubic meter threshold.

2. Scalability

- The system should support operations for an increasing number of branch offices, trucks, and consignments without performance degradation

3. Availability

- Ensure 99.9% system uptime to support 24/7 operations.

4. Usability

- The system should have an intuitive user interface for managers and branch staff.
- Provide role-based access to ensure that users only see functions relevant to their responsibilities.

5. Security

- Use secure authentication methods for user login.
- Encrypt sensitive data, such as customer details and revenue statistics.

6. Data Integrity

- Ensure data consistency across all branch offices and the head office.
- Prevent duplication of consignment or truck records.

7. Maintainability

- The system should be modular, allowing easy updates or addition of features.
- Provide detailed documentation for developers to maintain the system.

8. Backup and Recovery

- Automatic daily backups of all data.
- Recovery processes should ensure that data is restored within 30 minutes of a failure.

9. Compliance

- Adhere to local laws and regulations related to transportation and data privacy.

10. Localization

- Support multiple languages, especially for regions with different native languages.