Functional Requirements:

1. **UTD-verified accounts:** The system shall allow users to register and sign in using a UTD email address and verify ownership via duo push before enabling ride features.

2. **Offer & request rides:** The system shall let a user create either a ride offer (driver already en route to campus) or a ride request, each with origin, pickup window, destination (e.g., campus building/Parking lot), seat count, and optional recurring schedule.

3. **Match & notify:** Given a request or offer, the system shall compute candidates matches within a configurable radius and time window and shall push notifications to both sides; users shall be able to accept/decline a proposed match.

4. **In-app chat:** After a tentative match, the system shall provide an in-app chat thread for pickup coordination until the ride is marked complete or cancelled.

5. **Ride state & history:** The system shall support states {Proposed, Accepted, En-route, Completed, Cancelled} and maintain a ride history visible to the participants.

6. **Reputation & reporting:** After each completed ride, the system shall allow both parties to submit a 1-5 star rating and optional comments, and shall provide "block" and "report" actions that flag the account for moderation.

7. **Cost note:** The system shall allow passengers to record an agreed price note per ride, visible to the two participants in the ride thread.

Non-Functional Requirements:

Product Requirements
- ● Usability Requirements
  - The app shall allow first-time users to post a ride request or offer within 5 minutes of registration.
  - The user interface shall be intuitive, requiring no more than 7 taps to create or accept a ride.
  - The system shall meet WCAG 2.1 AA accessibility standards for contrast and text scaling.
- ● Efficiency Requirements
  - ○ Performance Requirements
    - Ride-match results shall be displayed within 2 seconds.
    - Chat messages shall be delivered within 1 second of sending.
    - Push notifications for matches and updates shall appear within 5 seconds.
  - ○ Space Requirements
    - The app's download size shall not exceed 80 MB.
    - The app's installed size shall not exceed 150 MB.
- ● Dependability Requirements
  - The system shall maintain 99.5% uptime each month.
  - Backups shall occur every 24 hours with an RPO ≤ 24h and RTO ≤ 4h.
  - User ride history loss shall not exceed 0.01% of stored records.
- ● Security Requirements
  - All network communication shall use TLS 1.2+ encryption.
  - Passwords shall be stored using salted hashing (bcrypt/scrypt).
  - After 5 failed login attempts in 15 minutes, an account shall be temporarily locked.
  - Only authorized roles shall access personally identifiable information (PII); all access shall be logged.

Organizational Requirements
- ● Environmental Requirements
  - Core functions shall operate under network speeds as low as 512 kbps.
  - Supported platforms include Android and IOS.
  - The app shall gracefully recover from temporary connection loss by resending queued requests.
- ● Operational Requirements
  - An admin dashboard shall enable moderators to view reports, suspend users, and manage abuse cases.
  - System health monitoring shall alert maintainers if downtime exceeds 5 minutes.
  - Logs of user actions and moderation activity shall be retained for ≥ 90 days.

- Development Requirements
  - Source code shall follow consistent style and naming conventions.
  - Automated tests shall cover ≥ 70% of critical modules.
  - Each build shall pass security linting and static analysis before deployment.

External Requirements
- Regulatory Requirements
  - The app shall include a privacy policy compliant with Texas and U.S data-protection laws.
  - Only users aged 18 or older shall be eligible to register.
  - If online payments are implemented, processing shall occur through a PCI-DSS-compliant provider.
- Ethical Requirements
  - Ride-matching shall not use protected personal attributes such as gender or ethnicity.
  - A code of conduct shall be shown and accepted upon first login.
  - The app shall provide "Report" and "Block" functions for inappropriate behavior.
- Legislative Requirements
  - Accounting Requirements
    - If fare notes or payments are used, the system shall record the amount, date, and ID.
    - Monthly summaries shall be available to users if digital payments are added.
  - Safety/Security Requirements
    - The app shall include an SOS button for immediate contact with 911 or campus police.
    - A Share Trip feature shall let users send live location to a trusted contact.
    - If a passenger is not marked "picked up" after a defined window, the system shall prompt for confirmation.
    - All drivers shall be UTD-verified and show name, rating, and vehicle information.