LyncWyze MVP0 – Product Functional Requirements Document (FRD)

1. Executive Summary

LyncWyze is a parent-powered carpooling platform designed to help families organize safe and convenient shared rides for their children's activities and schools. The MVP0 release focuses on foundational authentication, household setup, carpool creation and joining, and manual scheduling. The platform empowers parents to form carpools within trusted circles, manage ride responsibilities, and communicate effectively through in-app notifications.

This FRD consolidates requirements from all five sprint specifications and defines the system behavior, actors, user flows, data interactions, and acceptance criteria required for the MVP0 release. It serves as a single reference document for product, design, and engineering teams.

---

2. System Overview

2.1 Objective

Enable verified parents to create and manage carpools for children's activities within a secure, privacy-first app experience.

2.2 Core Modules (Mapped to Sprints)

Sprint	Module	Description
1	Authentication & Onboarding	Signup, login, OTP verification, password reset, session persistence
2	Profile & Vehicle Management	Parent, spouse, kids, activities, vehicle info, emergency contacts
3	Carpool Creation & Management	Create carpools, invite members, manage details
4	Outsider Join Request	Discover carpools, request to join, parent matching
5	Scheduling	Manual assignment of drivers, unassign flow, and notifications (Scope Change – Triggers Scope Change and Calendar integration with new flow)

2.3 Actors

- **Parent (Registered User)** – Can create or join carpools, manage profile and schedules.
- **Spouse/Partner** – Linked under the same household with shared kids and access.
- **Admin (Carpool Owner)** – Can assign rides, manage membership, and permissions.
- **Support/Admin (System)** – Manages audits, escalations, and security.
- **Anonymous/Guest User** – Can view marketing content and initiate signup.

---

3. Functional Requirements

3.1 Authentication & Onboarding

Purpose: Establish secure user registration and access control.

Key Features

- Login and Signup with Email or Google.
- OTP Verification for Email/Phone.
- Password Reset via link or OTP.
- Session persistence and token management.

User Stories & Flows

- **App Launch & Animation** – Display animated logo (WFA: Animated Splash). Skip on warm start.
- **Landing Page (Login/Signup)** – Choose Login, Signup, or Forgot Password (WFB: Landing Page).
- **Forgot Password Flow** – Secure reset link/OTP flow (WFC: Forgot Password).
- **Signup via Email/Google** – Two registration paths with verification (WFD: Signup Landing).
- **OTP Verification** – For email (WFE: Verify Email) and phone (WFF: Verify Phone).
- **Profile Details, T&C and Promotional Membership** – Collect address, household info, and terms acceptance along with Promotional Membership (WFG: Profile Details).
- **Create Credentials** – Create username and password (WFH: Create Username & Password).

Acceptance Criteria Highlights

- Animation duration capped; respects “Reduce Motion”.
- Consistent landing flow; Forgot Password accessible.
- OTP limited to 3 attempts with lockout.
- Session auto-login if token valid.

- Passwords follow strength rules (e.g., min length, complexity).
- All actions audited.

3.2 Profile & Vehicle Management

Purpose: Capture essential parent, household, child, and vehicle data for later carpooling flows.

Key Features

- Parent and Spouse profile creation.
- Terms and Conditions acceptance with version tracking.
- Kid profiles and linked activities.
- Vehicle registration (make/model/seats).
- Emergency contact configuration.

User Flows

- **Profile Creation** – Parent or Spouse completes profile; address auto-filled for spouse.
- **Invite Spouse** – Send secure invite link/code.
- **Add Kids** – Create kid profiles and validate age.
- **Add Activities** – Define recurring or one-time activity schedules (Provide Activity Datetimes screen).
- **Notification Settings** – Configure alerts at the activity level.
- **Add Vehicle** – Specify car details and seat count.
- **Add Emergency Contacts** – Define trusted contacts per child.

Acceptance Criteria Highlights

- T&C required and logged with timestamp.
- Household linkage requires valid access code.
- Activities generate discrete instances for schedules.
- Invite and access codes time-bound and auditable.
- Vehicle and emergency info editable only by owner.

3.3 Carpool Creation & Management

Purpose: Allow parents to create new carpools, configure details, and manage membership.

Key Features

- Carpool creation wizard (name, kids, activities, availability, ride preferences).
- Invite parents (existing or new) via email, SMS, or in-app.

- Accept/Reject carpool invitations.
- Manage carpools (edit, delete, promote admin).

User Flows & Screens

- **Carpool Choice Selection** – Create, Manage, or Search Carpools (Carpool Choice screen).
- **Create Carpool Wizard** – Name → Select Kids → Select Activity → Set Availability → Invite (Create Carpool screens).
- **Invite Parents** – Send invites to existing network or new users.
- **Accept/Reject Invitations** – View details, compatibility notes, and confirm (Invitation List, View Carpool Details).
- **Join Carpool Flow** – Select kids and confirm availability preferences (Join Carpool screen).
- **Manage Carpools** – Edit, Delete, or Promote Admins (Manage Carpools screens).

Acceptance Criteria Highlights

- Activities filtered per kid; common schedules for multi-kid carpools.
- Ride preferences captured per leg (A→B, B→A).
- Invites deduplicated and expirable.
- Admin-only actions (delete, grant admin) enforced.
- All membership actions logged.

3.4 Outsider Join Request & Parent Match

Purpose: Enable discovery and joining of existing carpools or matching with potential parents (For registered user only).

Use Case 1 – Join an Existing Carpool

- **Search Carpool Screen** – Parent searches for carpools by activity.
- **Result Listing (Masked View)** – Show summarized details (distance, kid age/gender, available seats).
- **Request to Join** – Parent sends one active request per kid/activity.
- **Admin Approval Flow** – Carpool admins accept/reject; notifications sent.

Global Constraints

- One active join/match request per kid/activity.
- PII masked before acceptance.
- All state transitions logged.

Acceptance Criteria Highlights

- Distance and schedule matching enforced.
- Search limited (3–5 results configurable).

- Requests expire (3–5 days configurable) with automated reminders.
- Accepted requests trigger new carpool membership & Schedule Assignments.
- Notifications via in-app, email, and SMS.

3.5 Carpool Scheduling & Assignment

There is major scope change trigger – requires now calendar integration and new screens & flow

Purpose: Allow Carpool admins to manually assign drivers for activity instances.

Key Features

- Manual assignment for Drop-off and Pickup legs.
- Repeat assignment rules (e.g., every Monday).
- Unassign ride within cutoff (≥4 hrs before start).
- Alerts for unassigned future instances.

User Flows & Screens

- **Schedule View** – Calendar of activity instances (Manage Carpool → Schedule).
- **Assign Driver Modal** – Admin selects driver from eligible parents.
- **Repeat Assignment Config** – Create rules by weekday.
- **Unassign Popup** – Allow assigned driver to unassign self.
- **Alerts Screen** – Highlight unassigned upcoming rides.

Acceptance Criteria Highlights

- Preference filter applied per leg.
- Repeat assignments respect date bounds; no overwrite without consent.
- Self-assignment handles concurrency safely.
- Unassign disabled inside cutoff window.
- Alerts deduplicated and rate-limited.

3.6 Ride Experience

Purpose: Deliver structured user experience before, during, and after rides.

Before the Ride

- Automated notifications: 24h, 8h, 1h before (configurable).
- Dynamic content based on driver assignment.
- Quick actions: Assign Driver or Change of Plan.
- Final 45-minute reminder if no driver assigned.

Acceptance Criteria: Configurable intervals, state-based content, actionable notifications.

During the Ride

- Driver broadcasts ride progress using predefined templates:
  - Starting from home
  - Reached activity
  - Picked up from activity
  - Dropped off
- Reminders prompt driver if no updates sent.

Acceptance Criteria: Real-time delivery to all parents, delivery logs per event.

After the Ride

- Completion notification sent to all members.
- Auto-clears in 24 hours and recorded in carpool history.

Screens: Lock Screen Reminder, Ride Broadcast Panel, Notification Bell.

3.7 Notifications Framework

Purpose: Standardize multi-channel communication across the app.

Notification Channels

Channel	Primary Use
Text (SMS)	OTPs, urgent alerts
Email	Onboarding, invites, summaries
In-App	Ride updates, reminders, broadcasts

Delivery Mechanisms: Lock screen alerts, Notification Center (Bell icon), Email/SMS templates.

Notification Matrix (Sample):

Type	SMS	Email	In-App	Example Content
Verify Email	✅	✅	❌	“Verify your email. Enter code XXXX.”
Profile Created	❌	✅	❌	“Welcome to the LyncWyze family!”
Activity Reminder	❌	❌	✅	“Gymnastics 6–7 PM. Driver assigned: [Name].”
Ride Update	❌	❌	✅	“Kids picked up from activity.”

Acceptance Criteria:

- Delivery time <5s for in-app, <30s for SMS/Email.
- Deduplication per user per instance.
- Retry on delivery failure.

- Deep links to contextual screens.

4. Non-Functional Requirements

Category	Requirement
Performance	P95 load times < 500ms for key pages; API < 400ms.
Security	JWT with refresh tokens, Argon2id/bcrypt password hashing, CSRF protection, OTP lockouts.
Scalability	Handle 100 logins/min, 200 OTP verifications/min.
Usability	Accessible design, clear CTAs, respect OS motion settings.
Reliability	Audit logs for all critical actions, retried notifications.
Privacy	PII masking until acceptance; limited data sharing per role.

5. Data Model & API Overview

Key Entities - **User** (id, name, email, phone, role, household_id) - **Kid** (id, name, age, gender, parent_id) - **Activity** (id, name, provider, start_date, end_date, recurrence) - **Carpool** (id, name, owner_id, activity_id, capacity) - **Invitation** (id, carpool_id, inviter_id, invitee_contact, status) - **JoinRequest** (id, kid_id, activity_id, type, status, created_at, ttl) - **Assignment** (id, instance_id, leg, assignee_id)

Illustrative API Endpoints (Sprint 5) - `GET /carpools/{id}/schedule?from&to` - `POST /carpools/{id}/assignments` - `DELETE /assignments/{id}` - `GET /carpools/{id}/unassigned?window=48h`

6. Acceptance Criteria Summary (Traceability)

Module	Key AC Highlights
Authentication	OTP attempts limited, secure session skip, strong password policy.
Profile	T&C acceptance required; household linkage via secure code.
Vehicle Mgmt	Seat count mandatory; editable by owner only.

Module	Key AC Highlights
Carpool Creation	Unique name per user, preference capture per leg, invite TTL.
Join Requests	Distance and schedule filters applied, masked data preacceptance.
Scheduling	Repeat rule support, cutoff-based unassign, alerts for unassigned instances.

7. Appendices

7.1 Notifications Summary

- In-app + Email for all major events.
- SMS for key transitions (accept/reject, reminders).
- Reminder schedules:
  - Join Request: Day 2, 3, 5.
  - Match Request: Day 2, 3.
  - Scheduling Alerts: 24–48 hrs before.

7.2 Auditing Events

Event	Attributes Logged
Login/Logout	user_id, timestamp, session_id
OTP Verify	user_id, channel, success/failure
Profile Update	user_id, field, before/after
Carpool Creation	carpool_id, owner_id, timestamp
Invite Actions	inviter_id, invitee, carpool_id, status
Scheduling	instance_id, leg, action, actor_id