Part A: User Stories & On-Chain Requirements Document

User Segments & Prioritized Users for PoC

Primary Users:

1. **Salary Earners** – Lock savings, earn APY, redeem as store credit.
2. **Store Vendors** – Accept store credit, fulfill orders, withdraw earnings.
3. **Families** – Redeem goods on behalf of user, track benefits.
4. **Dexzikon Admin Team** – Manage system, users, vendors, and smart contract logic.
5. **Agricultural / Bank Partners** – Enable real-world reinvestment and APY logic.

Decision Rationale:

- Focused on functional ecosystem loops: savings → yield → redemption.
- Excluded pensioners/investors for now due to PoC scope.
- Prioritized actors who test real flows and impact visibility.

Refined Core Functions by User Segment

Salary Earners

- Lock savings on-chain with defined APY.
- View and redeem projected APY as store credit.
- Track redemptions and royalties from reinvestments.
- Authorize family wallets for shared access.

Store Vendors

- Accept store credit as payment.
- List and manage inventory.
- Withdraw earnings in SOL/stablecoins.
- Complete onboarding and verification via admin.

Families

- Use authorized store credit to redeem food or goods.
- Track deliveries or pickup via vendor network.
- Monitor welfare improvements.
- Connect wallet and request access via primary user.

Dexzikon Admin

- Approve vendors and manage wallet roles.
- Oversee smart contract activity.
- Resolve disputes and manage savings/credit logic.
- Adjust APY simulation or system parameters.

Agricultural / Bank Partners

- Receive platform funds for yield generation.
- Return royalties/profit into Dexzikon pools.
- Provide APY/yield data for on-chain reference.
- Participate in audits and reports.

Key Technical Requirements for PoC

1. **On-Chain Savings & APY Logic**
    - Lock user savings using a Solana program.
    - Simulate or calculate APY and convert to store credit.
    - Allow claim after lock duration.
2. **Store Credit & Redemption**
    - Internal credit ledger (non-transferable).
    - Redemption handler for vendor payments.
    - Vendor payout in SOL/stablecoin post-fulfillment.
3. **Wallet & Role Permissions**
    - Phantom/compatible wallet support.
    - Roles: User, Vendor, Admin.
    - Family wallet delegation and validation.
4. **Admin Controls (Manual UI)**
    - Vendor approval tools.
    - System status monitor.
    - Manual APY simulations and override tools.
5. **Mock Backend + APY Feed**
    - Simulated APY via API or backend data.
    - Vendor inventory system and order management.
    - Simple redemption and credit tracking.

Part B: Process Appendix

AI-Powered Development Workflow

- **User Brainstorming**: Initial personas included institutions and pensioners. Refined to 5 high-value actors for MVP viability.
- **AI Suggestion Integration**: Used AI-recommended flows and segmentation to finalize priority users.
- **Manual Curation**:
    - Split overlapping stories for granularity (e.g., vault creation vs. locking).
    - Removed redundant user stories.
    - De-jargonized actions for clarity.
    - Tracked every change via Refinement Log (see Part C).
- **Decision-Making Summary**:
    - Kept salary earners and vendors for MVP value chain.
    - Added families to show impact.
    - Retained partners (agro/bank) as backend enablers.

Part C: User Stories

Salary Earners (Savers)

1. Connect wallet to Dexzikon.
2. Deposit savings into smart contract.
3. Choose APY lock duration.
4. View projected APY and credit value.
5. Use store credit to purchase essentials.

6. View redemption history.
7. Track royalties from reinvestments.

Store Vendors

1. Apply for verification.
2. Get verified by admin.
3. Set item prices and manage inventory.
4. Receive store credit from users.
5. Withdraw SOL/stablecoins after fulfillment.

Families

1. Connect wallet.
2. Get authorized by main user.
3. Redeem goods using shared credit.
4. Track delivery or pickup.
5. View savings impact on welfare.

Admin

1. Approve savings deposits.
2. Verify new vendors.
3. Monitor smart contract activity.
4. Manage wallet roles.
5. Handle disputes.

Agricultural / Bank Partners

1. Receive pooled funds.
2. Deploy into yield-generating activity.
3. Report back APY data.
4. Share profits into Dexzikon.
5. Provide audit/reporting data.

Refinement Log (Sample)

Before	After	Rationale
“User locks savings and gets APY”	“User deposits savings” + “User selects APY duration”	Split for atomicity
“Vendor gets onboarded and sets up shop”	Split into application, verification, inventory listing	Role clarity
“Family accesses food and monitors benefits”	Split into redeem, track delivery, monitor impact	Increased granularity
“Admin handles platform integrity”	Split into monitor, permissions, dispute resolution	De-jargon
Duplicate APY viewing story	Merged into one concise action	Removed redundancy

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Part D: On-Chain Requirements by User Story

1. User Registration

User Story
A new user connects their wallet to create an on-chain identity.

On-Chain Requirements

- Generate a PDA linked to the wallet.
- Store wallet address and registration timestamp.
- Initialize user state.

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2. Create and Lock Token Vault

User Story
User locks savings into a vault with a defined duration.

On-Chain Requirements

- Create a vault account linked to the user.
- Accept SPL token transfer.
- Store token mint, amount, start time, unlock time.
- Mark vault as “locked.”

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3. Claim APY as Goods

User Story
User claims APY in tokenized goods after lock period ends.

On-Chain Requirements

- Check unlock eligibility via Clock sysvar.
- Calculate APY based on parameters.
- Transfer SPL/NFT goods token to user.
- Update vault to “claimed” or “closed.”

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4. Family Member Redeems on Behalf

User Story
Authorized family wallet redeems user's APY.

On-Chain Requirements

- Link authorized guardian wallet.
- Validate access rights.
- Transfer goods token after unlock time.

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5. Admin Monitors and Manages Platform

User Story
Admin oversees system status, partners, and vault activity.

On-Chain Requirements

- Admin PDA with elevated permissions.
- Functions to pause/unpause vaults.
- Add/remove partners.
- Query vault stats and platform metadata.