Solana One-Click Payment Solution
Project Name: Payclip
Date: Nov 6, 2024
User Story ID: PC-001

1. User Persona
Name: Michael
Role: Freelance Designer
Goal: Easily receive USDC payments from international clients without complex crypto onboarding.

2. User Story
I'm Michael, a freelance designer. I want to accept USDC payments. I don't want to require my clients to create a crypto wallet or understand blockchain technology. I want to generate a simple payment link that my clients can use to pay me in USDC.

3. Acceptance Criteria
Functionality:
 - Create payment links by entering the USDC amount
 - Support both wallet-based and wallet-less payments via Tiplink
 - Automatic conversion of local currency amounts to USDC
 - Real-time payment status updates
 - Payment confirmation notifications

Payment Link Attributes:
 - Unique, shareable URL for each payment
 - Pre-filled payment amount
 - Embedded payment instructions
 - Payment expiration timer (24 hours)
 - Transaction status tracking

User Interaction:
 - One-click link generation for recipients
 - Simple payment flow for non-crypto users
 - Multiple sharing options (email, messaging, social)
 - Payment confirmation page
 - Transaction history view

Security:
 - Secure link generation
 - One-time password
 - Payment amount verification
 - Transaction signature validation
 - Rate limiting for link generation
 - Tiplink security integration

4. Priority

High: Core payment functionality for initial MVP release

5. Technical Notes (for Developers)
Dependencies:
 - Solana Web3.js integration
 - SPL Token implementation
 - Tiplink SDK integration
 - PostgreSQL for transaction tracking
 - Express.js backend setup
 - Transaction history view

Considerations:
 - Implement proper error handling for failed transactions
 - Consider network fees in payment calculations
 - Cache payment link data for quick access
 - Implement webhook system for payment notifications
 - Consider scalability with database indexing
 - Plan for transaction retry mechanism
 - Implement proper logging for debugging