■ Solana & Rust Developer Roadmap (3 Months)

This roadmap is designed for a React Native developer with 1 year of experience who wants to transition into Solana blockchain and Rust development. It is divided into 3 months, with each week focusing on targeted skills and projects. By the end of this roadmap, you'll have hands-on experience building and deploying Solana programs, integrating them with Web3, and connecting them to a React Native frontend.

Month 1 – Foundations

■ Week 1 – Blockchain Basics
- Read Bitcoin whitepaper.
- Read Solana whitepaper (focus on architecture and runtime).
- Understand how blockchains store and validate data.
- Learn hashing, encryption, and public/private key cryptography.
- Practice generating and using keypairs with Node.js crypto libraries.

■ Week 2 – Solana Basics
- Understand ECDSA & ED25519 cryptographic curves.
- Create a Solana wallet using Phantom or Solflare.
- Request devnet SOL via Solana faucet.
- Learn ownership & authorities in Solana accounts.

■ Week 3 – Rust Basics Part 1
- Install Rust & Cargo.
- Learn Rust syntax: data types, variables, loops, functions, structs, enums.
- Create small CLI projects to reinforce learning.

■ Week 4 – Rust Basics Part 2
- Learn pattern matching.
- Understand package management: solana-program, solana-sdk, borsh.
- Learn mutability, memory management, and ownership concepts.
- Practice referencing and borrowing in Rust.
- Create a Rust CLI app to sign and verify messages.

Month 2 – Solana Development

■ Week 5 – Solana Accounts
- Learn the Solana accounts model: data accounts, PDAs, program accounts, program data accounts.
- Understand program signing and determinism in PDAs.

■ Week 6 – Transactions & Instructions
- Understand transaction formats and instruction structures.
- Learn why Solana is fast: parallelization and runtime execution.
- Write a script to send transactions on devnet.

■ Week 7 – RPCs & Wallets
- Learn to interact with Solana using JSON RPC API.
- Use web3.js to connect React Native apps to Solana.
- Integrate a wallet adapter.
- Create a DApp that fetches wallet balance and sends SOL.

■ Week 8 – Serialization & Contracts

- Learn Borsh for serializing and deserializing data.
- Parse account data manually and with IDLs.
- Interact with simple on-chain programs.

Month 3 – Smart Contracts & Advanced Topics

■ Week 9 – Smart Contract Basics
- Understand Solana's program data model.
- Write native Solana contracts in Rust: simple counter, store/retrieve data.

■ Week 10 – Real Contracts
- Develop staking and escrow contracts.
- Rewrite the contracts using the Anchor framework.

■ Week 11 – Web2 + Web3 Integration
- Learn about multisigs, MPC, and TSS.
- Use Telegram APIs to interact with blockchain data.
- Index blockchain data using Geyser plugins.

■ Week 12 – Final Project & Deployment
- Build a full-stack blockchain project (e.g., Meme token DApp, NFT marketplace, or DeFi AMM simulation).
- Deploy smart contracts to Solana devnet/testnet.
- Integrate with a React Native frontend.

■ By following this roadmap, you'll progress from a React Native developer to a Solana smart contract engineer capable of building decentralized applications end-to-end. The journey will involve deep dives into Rust, Solana's architecture, and Web3 integrations, setting you up for advanced blockchain development roles.