Advanced features

Learn how to build AI on Sui and interact with smart contracts, simple onboard experience with ZK login and Sponsored Transaction

Agenda

1. How zkLogin Works
2. Sponsored Transactions - Gas Fee Management
3. Sui Oracles - Bringing Off-Chain Data On-Chain
4. Cross-Chain Bridges on Sui
5. Building Autonomous AI Agents on Sui
6. Practical Exercises

How zkLogin Works

Log into Sui dApps with familiar web credentials and privacy via zero-knowledge proofs.

User Login

Authenticate with Google or Facebook credentials

Privacy Preservation

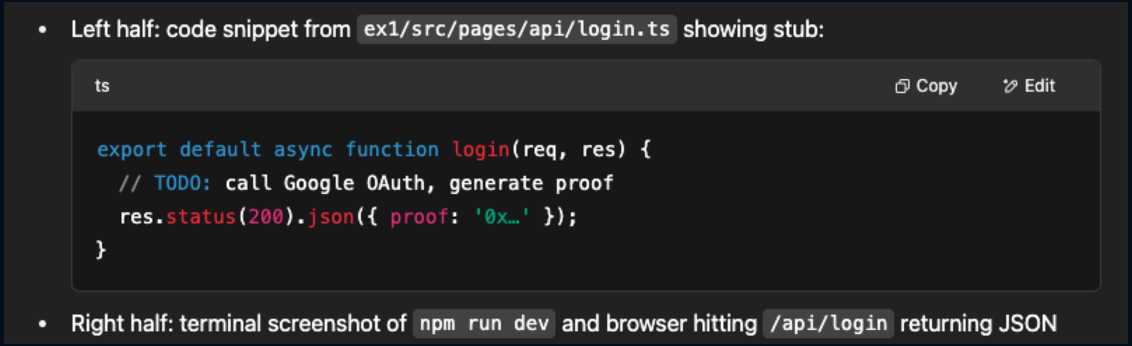
Verify identity without revealing personal data

Proof Generation

Create zkProofs using JWT and salt for account security

https://docs.sui.io/concepts/cryptography/zklogin

Exercise — zkLogin Integration



- Left half: code snippet from `ex1/src/pages/api/login.ts` showing stub:

```ts
export default async function login(req, res) {
  // TODO: call Google OAuth, generate proof
  res.status(200).json({ proof: '0x…' });
}
```

- Right half: terminal screenshot of `npm run dev` and browser hitting `/api/login` returning JSON

Your task: complete the login.ts handler. Use @googleapis/oauth2 to authenticate and @sui/sui.js's generateZkProof helper.

Example: https://docs.sui.io/guides/developer/cryptography/zklogin-integration/zklogin-example

Sponsored Transactions - Gas Fee Management

✓ **Gas Sponsorship Roles**

User, Gas Station, Sponsor manage fees seamlessly

✓ **Service Example**

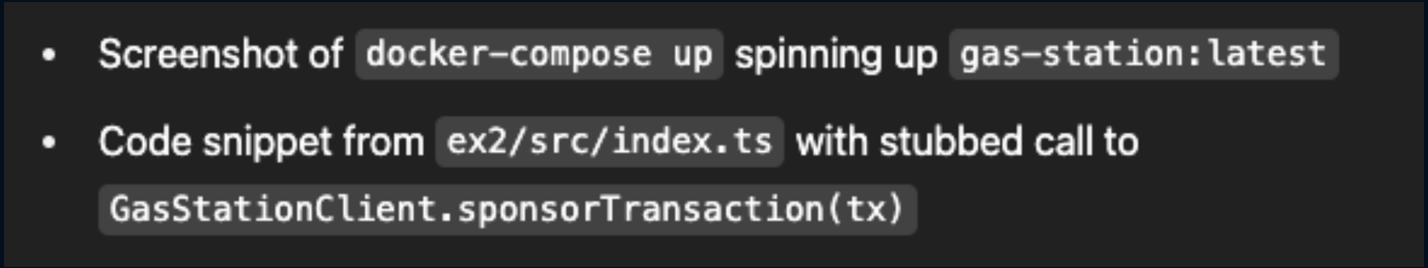
Shinami's Gas Station simplifies sponsoring gas payments

✓ **Use Case**

Gaming dApps sponsor early transactions to boost users

(https://blog.sui.io/shinami-gas-station-tutorial/)

Exercise — Sponsor Your First Tx



- Screenshot of `docker-compose up` spinning up `gas-station:latest`
- Code snippet from `ex2/src/index.ts` with stubbed call to `GasStationClient.sponsorTransaction(tx)`

Sui Oracles - Bringing Off-Chain Data On-Chain

Available Oracles

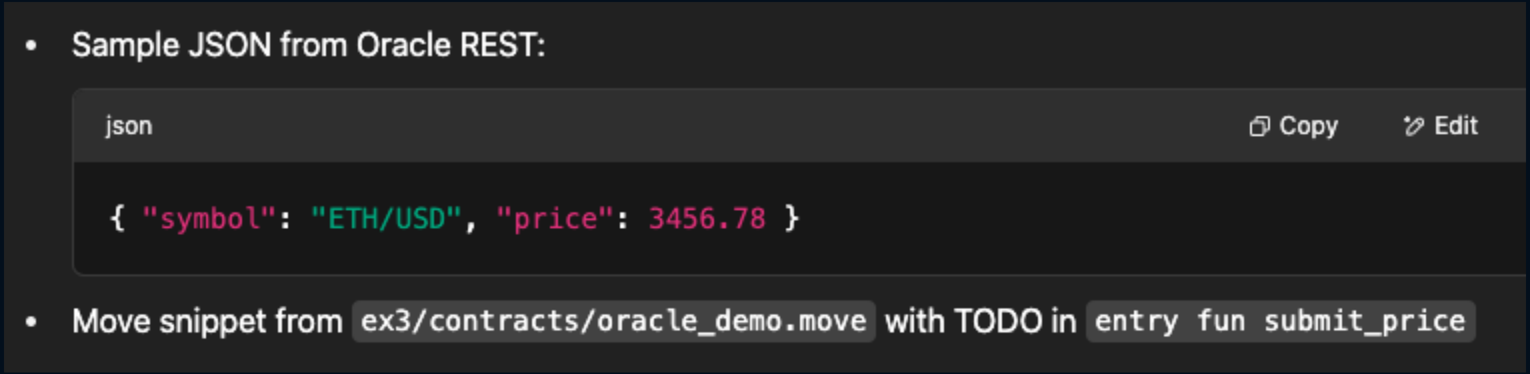
- Chainlink
- Band protocol
- Mysten Labs' simple and meta oracles

Developers Tools

Guides for building oracles with Sui's high throughput

https://docs.sui.io/guides/developer/app-examples/weather-oracle#initialize-the-project
https://github.com/pentagonxyz/move-oracles

Exercise — On-Chain Price Feed



- Sample JSON from Oracle REST:

```json
{ "symbol": "ETH/USD", "price": 3456.78 }
```

- Move snippet from `ex3/contracts/oracle_demo.move` with TODO in `entry fun submit_price`

Requirements: make post APi http://localhost:8080/price?symbol=ETH/USD, parse the JSON in your Node script, then call your Move oracle contract’s submit_price function

Cross-Chain Bridges on Sui - interoperability

Sui Bridge (Native Bridge)

- Supported Assets: ETH, WETH, USDT, WBTC, LBTC
- Mechanism: Lock-and-mint model

https://bridge.sui.io/

Other bridge

https://wormhole.com/docs/tutorials/messaging/sui-connect/

Circle's CCTP (for USDC)

Building with AI Agents on Sui

Agent Logic

Defined in Move smart contracts for on-chain actions

Oracles & Automation

Connect data feeds; sponsor transactions for automation

External AI Models

Integrate off-chain AI for decision-making

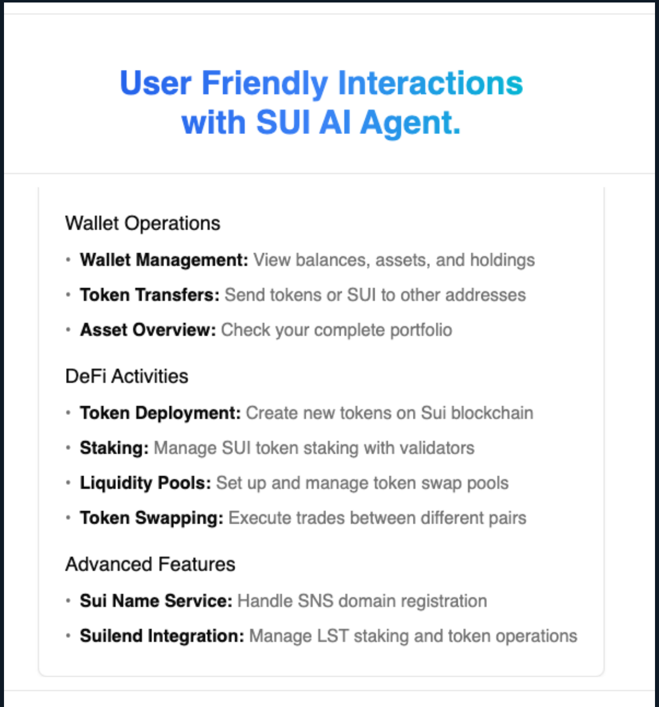
Security

Use Move capabilities and access controls

AI Agent Use Case: Nimbus AI Agent Kit

1. This kit support to build AI agent on Sui
2. Support to get wallet balance
3. Support to interact with multiple Sui defi protocol

https://agent.getnimbus.io/



User Friendly Interactions with SUI AI Agent.

Wallet Operations

- **Wallet Management:** View balances, assets, and holdings
- **Token Transfers:** Send tokens or SUI to other addresses
- **Asset Overview:** Check your complete portfolio

DeFi Activities

- **Token Deployment:** Create new tokens on Sui blockchain
- **Staking:** Manage SUI token staking with validators
- **Liquidity Pools:** Set up and manage token swap pools
- **Token Swapping:** Execute trades between different pairs

Advanced Features

- **Sui Name Service:** Handle SNS domain registration
- **Suilend Integration:** Manage LST staking and token operations

Practical Exercises

Building Simple AI Agent to track wallet balance

Sample AI agent KIT: https://docs.getnimbus.io/sui-ai-agent/introduction

SDK: https://www.npmjs.com/package/@flowx-finance/sdk

Thank You.