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Week 1 of 6

Intro to DeFi

Task

Trace a real SOL → USDC route on Jupiter, then read a swap on Orb.

Blog post

My introduction to Decentralized Finance on Solana.

Today

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What DeFi is

2

How we got
here

3

The Solana
map

4

Why Solana



Trace a real
swap

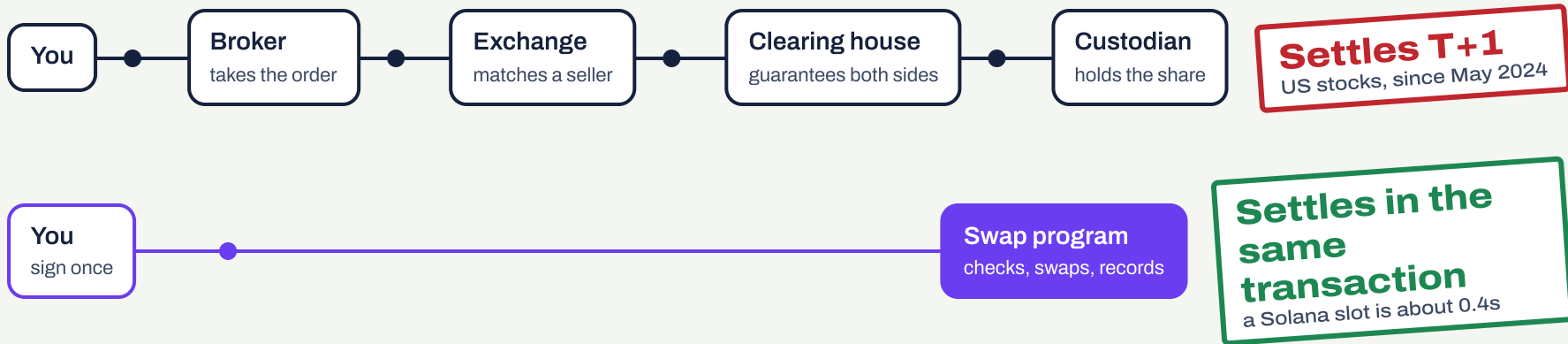
What DeFi is

Start with the system you already know.

What does a bank actually do for you?

	In a bank	On chain
Holds your money	Your account balance	Your wallet. Only your key moves it.
Matches savers and borrowers	Loan officers, credit checks	A lending program and a shared pool
Moves and settles payments	Clearing, days	The chain itself, under a second
Checks who you are	KYC at the counter	Usually nobody
Takes the hit when things go wrong	Deposit insurance, chargebacks	Usually you

Buying a share vs swapping a token



DeFi in one line

Financial services written
as open programs anyone
can call.

Non-custodial

You keep your keys. The program never needs your permission to exist, and you never need its.

Permissionless

No account to open. A wallet is enough.

Composable

Programs call each other like building blocks.

Is it actually decentralised?

Tick what's true for a protocol. "DeFi" on the label proves nothing.

- ☒ Users hold their own keys (non-custodial)
- ☒ Code is open source and verified on chain
- ☐ No one can upgrade the program (upgrade authority burned)
- ☐ Admin keys cannot pause or freeze funds
- ☒ Price data comes from more than one source
- ☐ Anyone can build their own front end for it



CeFi vs DeFi

	CeFi (bank, Binance)	DeFi (Kamino, Orca)
Who holds the money	The company	You, or a program
To get started	ID check, approval	A wallet
Opening hours	Business days	Always on
Can you see the books?	Audits, sometimes	Every transaction is public
If you make a mistake	Call support, maybe reverse	Final
If it gets hacked	Company and regulator step in	Depends on the team, often nobody
Rules enforced by	Law and contracts	Code, plus law around it

You deposit 100 USDC into a DeFi lending program. Where is it now?

- A** In the protocol company's bank account
- B** In an account controlled by the program's code
- C** Still in your wallet, just locked
- D** With whoever borrowed it, directly

How we got here

Seven stops, fifteen years.

From Bitcoin to Solana DeFi



2008

Bitcoin paper

Money that moves without a bank.



2015

Ethereum

The ledger can run programs.



2017

MakerDAO · DAI

A dollar token backed by crypto collateral.



2018

Uniswap · Compound

Swaps and loans with no company in the middle.



2020

DeFi Summer

Token rewards pull billions in. Solana mainnet beta goes live.



2022

The collapse

Terra/UST in May, FTX in November. SOL falls hard.



2023+

Solana DeFi rebuilds

Jupiter, Jito, Kamino. Stablecoins on Solana hit \$17.3B (25 Sep 2026).

2022: two collapses, two different lessons

May 2022

Terra / UST

A stablecoin held up by an algorithm, not reserves.
Confidence broke, the peg broke.

DeFi design failure

November 2022

FTX

An exchange used customer deposits for its own bets. It
couldn't pay withdrawals.

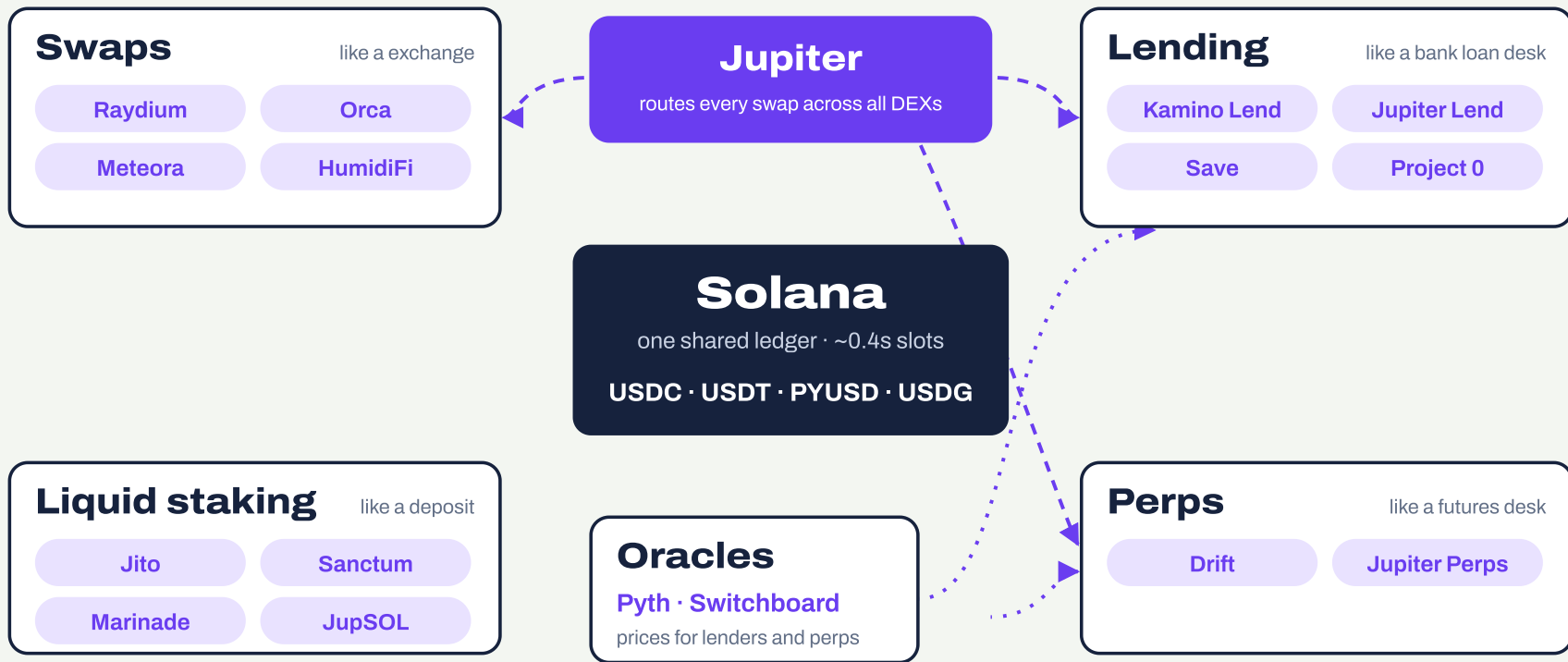
CeFi trust failure



The Solana map

Who does what, today.

Solana DeFi, by job



Sort them

Click a protocol, then the job it does. Call out answers as a class.

Raydium

Jupiter

Kamino Lend

Pyth

Orca

Drift

Jito

Save

Meteora

Switchboard

Marinade

Project 0

Sanctum

HumidiFi

Swap (DEX)

like a stock exchange

Aggregator

like a smart order router

Lending

like a bank loan desk

Perps

like a futures exchange

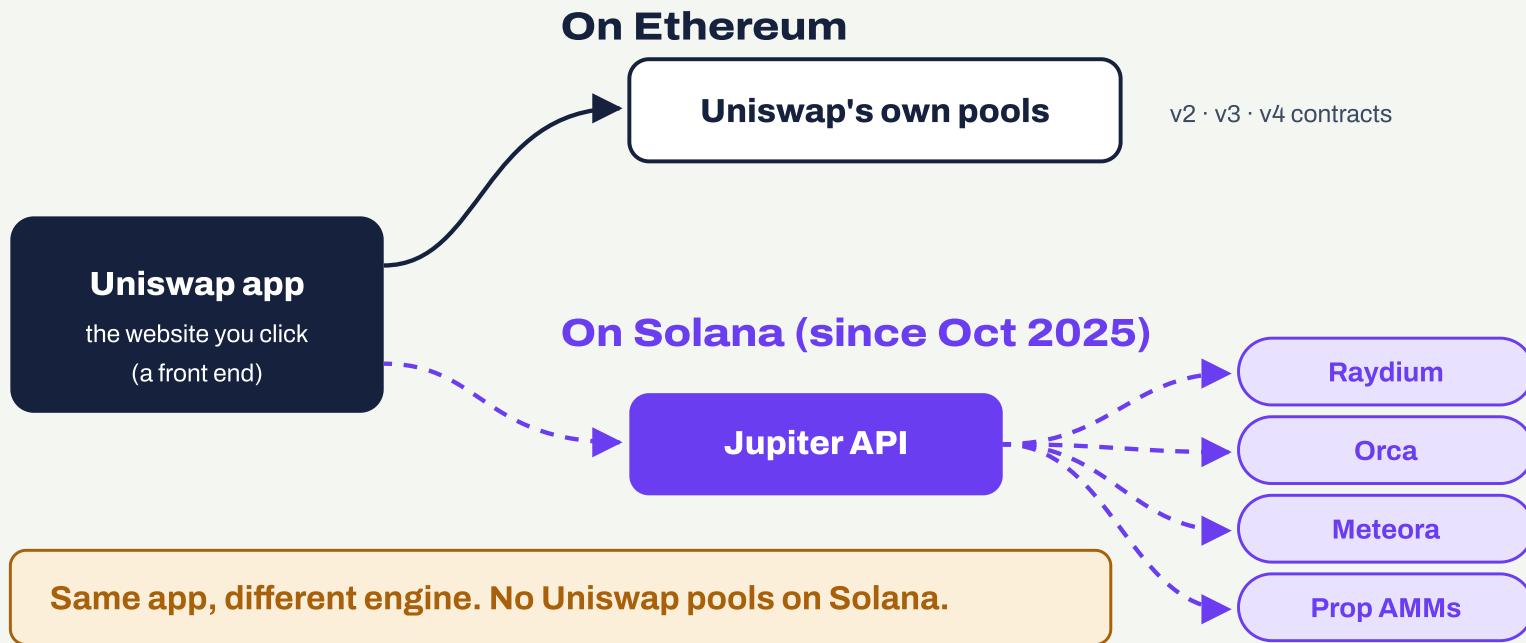
Liquid staking

like a interest-bearing deposit

Oracle

like a Bloomberg terminal

"Uniswap on Solana"?





Why Solana

What makes it suited to trading.

Three numbers

~0.4s

per slot. A new block of transactions roughly every 400 milliseconds.

0.0000005

SOL base fee per signature. A fraction of a cent.

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shared state. Every app sees the same ledger, no bridging between layers.

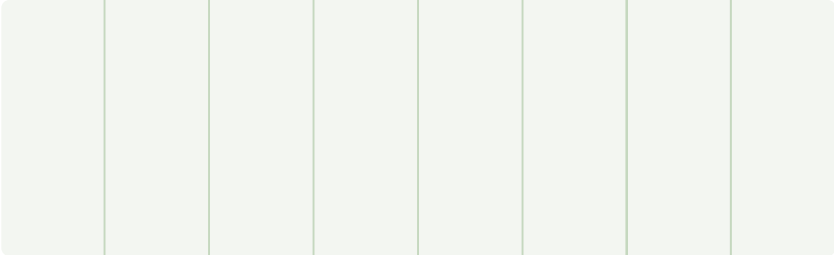
Running transactions side by side

One at a time

0 / 8 steps

Solana: in parallel

0 / 3 steps



Run 8 transactions

- 1 Ada pays Bola
- 5 Femi stakes

- 2 Chi swaps SOL/USDC
- 6 Gbenga pays Halima

- 3 Dayo mints a token
- 7 Ife swaps SOL/USDC

- 4 Ese swaps SOL/USDC
- 8 Jide lends on Kamino

Why that matters for DeFi

Cheap, fast updates

Market makers can re-quote prices many times a second. That's how [on-chain order books](#) and [prop AMMs](#) work.

One place for liquidity

Every pool lives on the same ledger, so [Jupiter](#) can split one swap across all of them in one transaction.

The honest costs

Solana has had full outages (about 17 hours in September 2021, about 5 hours in February 2024). Running a validator needs expensive hardware.

Why can Solana run two unrelated transactions at the same time?

- A** Validators are faster computers
- B** Each transaction lists the accounts it will touch up front
- C** Solana skips checking signatures
- D** Transactions are sent to different chains



This week's task

Trace a real swap.

What Jupiter does with your swap



Swap size



10 SOL

Illustrative split. Real routes change every few seconds.

The task

Users

1. Open **jup.ag**. No funds needed.
2. Ask for a quote: **SOL → USDC**.
3. Open the route. Which DEXs does it touch?
4. On **Orb**, find any real swap. Press **Explain with AI**.
5. Compare the explanation with the raw instructions.

Builders

Everything on the left, plus:

1. Get a free API key at **portal.jup.ag**.
2. Call `GET https://api.jup.ag/swap/v2/order` with **no taker**. That returns a quote only, nothing to sign.
3. Print the route.

Old tutorials using `quote-api.jup.ag/v6` will break: it is being shut down. Use `api.jup.ag` with a free key.

Builders: the quote in ten lines

```
1 // 2. Print the whole response first, then pick out the route
2 const SOL = 'So1111111111111111111111111111111111112'
3 const USDC = 'EPjFWdd5AufqSSqeM2qN1xzybapC8G4wEGGkZwyTDt1v'
4 const url = `https://api.jup.ag/swap/v2/order?inputMint=${SOL}&outputMint=${USDC}&amount=1000000000`
5
6 const res = await fetch(url, { headers: { 'x-api-key': process.env.JUP_API_KEY! } })
7 const order = await res.json()
8 for (const leg of order.routePlan ?? []) {
9   console.log(leg.swapInfo?.label, `${leg.percent}%`)
10 }
```

Check field names against the live response. API shapes change; print the full JSON first.

Blog post

"My introduction to
Decentralized Finance on
Solana."

Include **one route you traced** and **one question you still have**.



Teacher prep

For the mentor. Skip in class.

You, before class

- Open the **DefiLlama Solana page**. Click into the top 10 protocols and sort them: DEX, aggregator, lending, perps, liquid staking, oracle. Write the date next to every TVL figure.
- Learn the one-liner: **one global state, parallel execution, ~400ms slots and tiny fees** make on-chain order books and fast-quoting market makers practical.
- Read the **Solana core docs on the account model**. Week 2 depends on it.
- Do the task yourself on a fresh browser. Screenshot every snag.

Words from week 1

DeFi	Financial services run by open programs on a public chain.
Non-custodial	You hold the keys; nobody else can move your funds.
Composable	Programs can call each other inside one transaction.
Aggregator	Splits your swap across many DEXs for the best price.
Oracle	Brings outside prices onto the chain.
Slot	Solana's ~400ms window for a leader to produce a block.

CeFi	Crypto services run by a company that holds your funds.
Permissionless	Anyone with a wallet can use it. No sign-up.
DEX	An exchange that runs as a program.
Liquid staking	Staked SOL as a token you can still use.
TVL	Total value locked: assets deposited in a protocol.
Upgrade authority	The key that can change a program's code.