Solana Twitter

Raghavendra N. Saralaya
(https://github.com/numoonchld)

Project Use-case

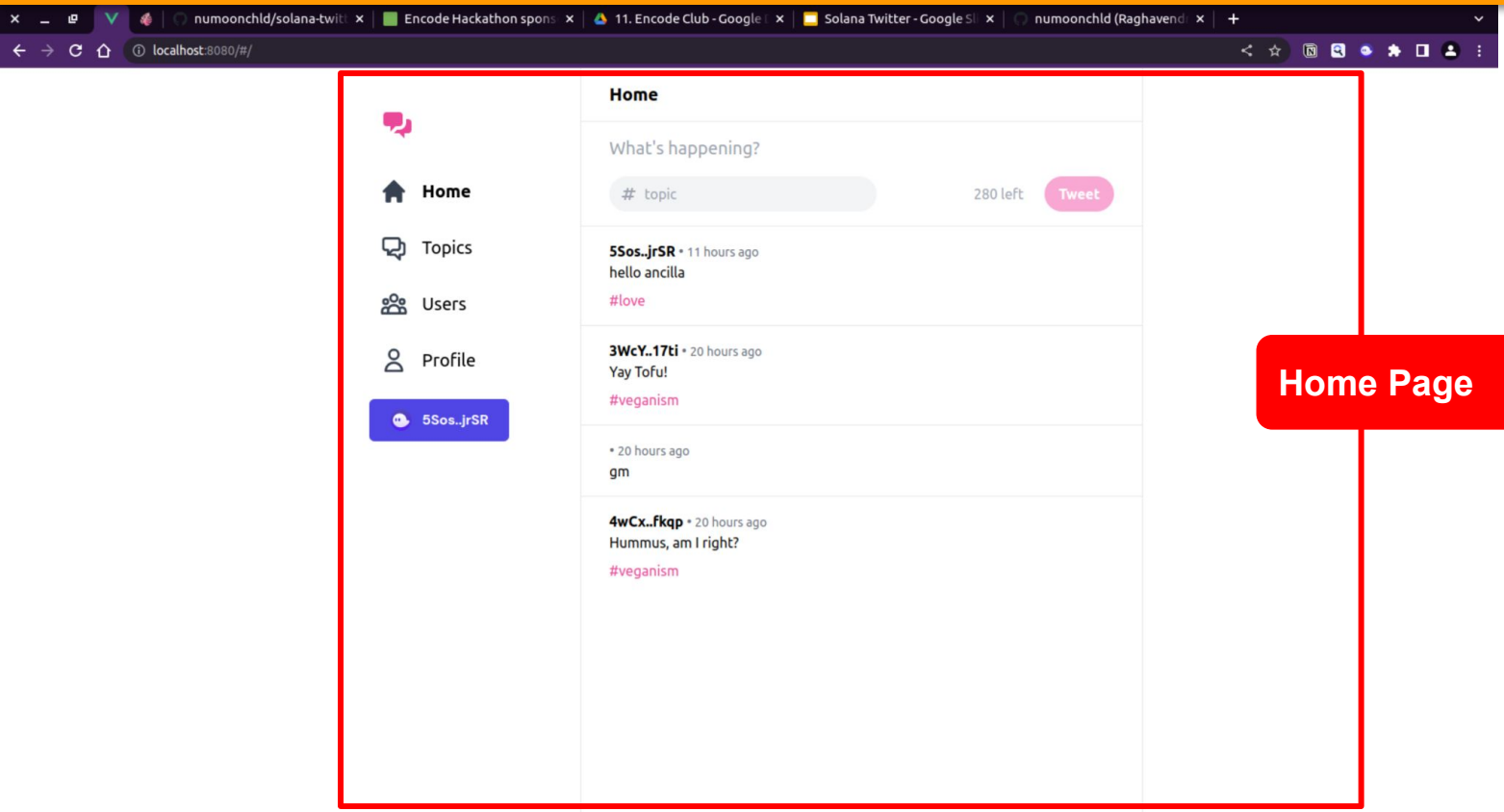
- Micro-blogging social platform
- “Twitter”-like functionality

Technical Details - Components

VUE FRAMEWORK
(front-end UI logic)

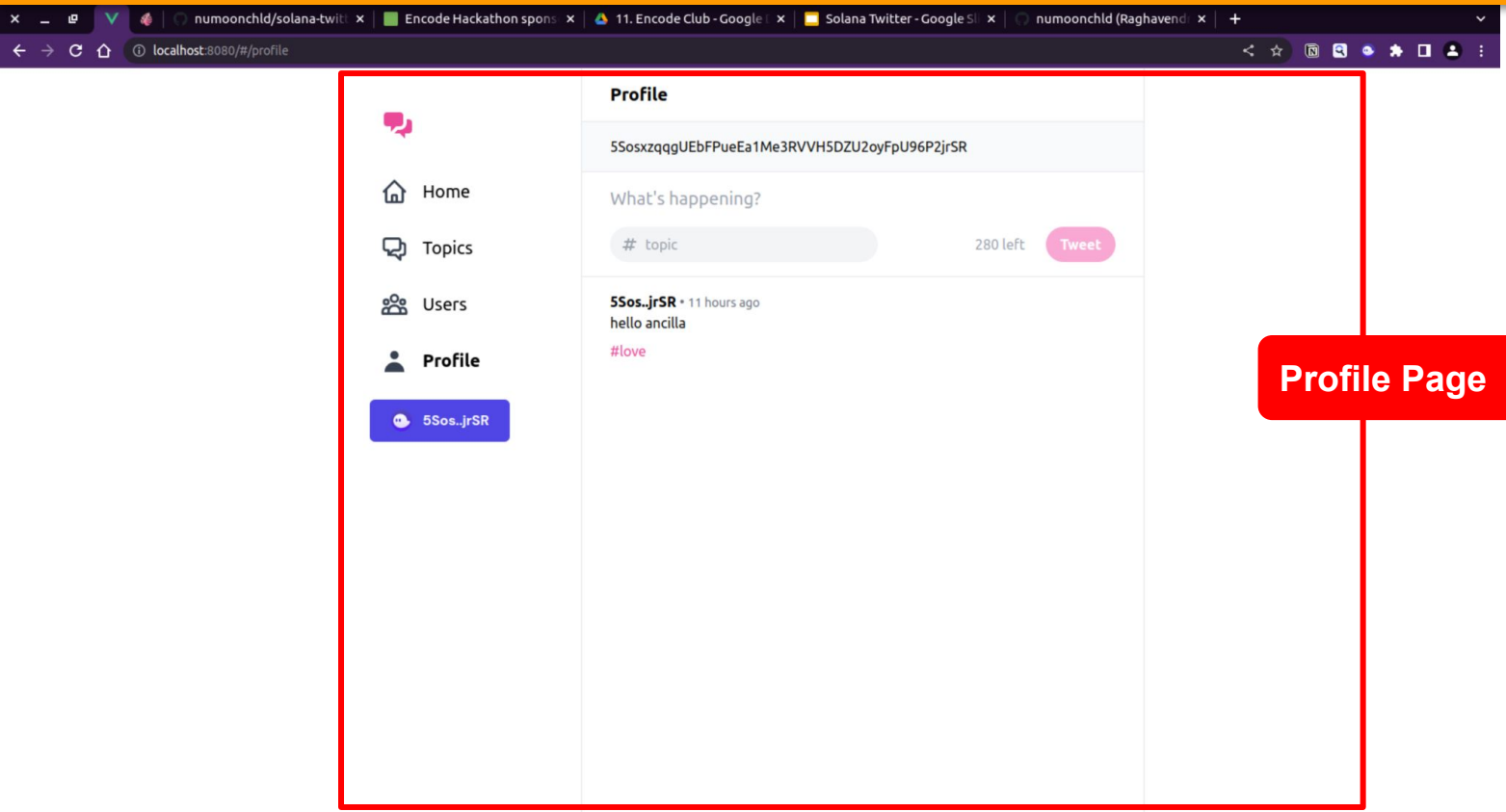
ANCHOR FRAMEWORK
(twitter data and state logic)

VUE FRAMEWORK
(front-end UI logic)



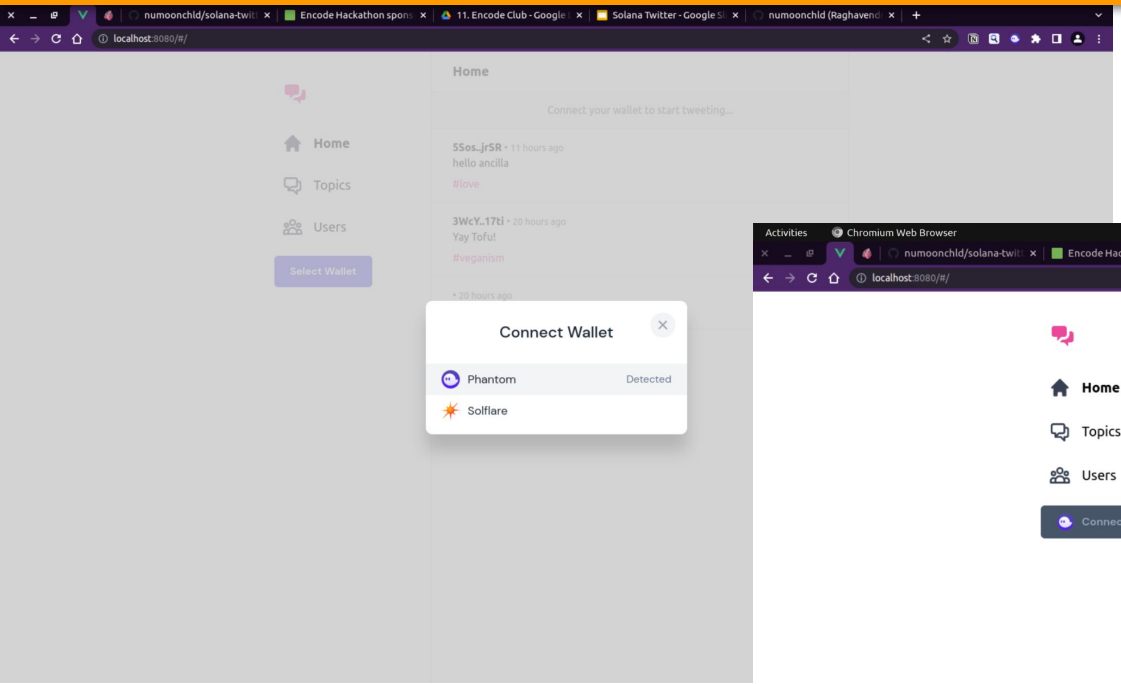
Home Page

VUE FRAMEWORK
(front-end UI logic)

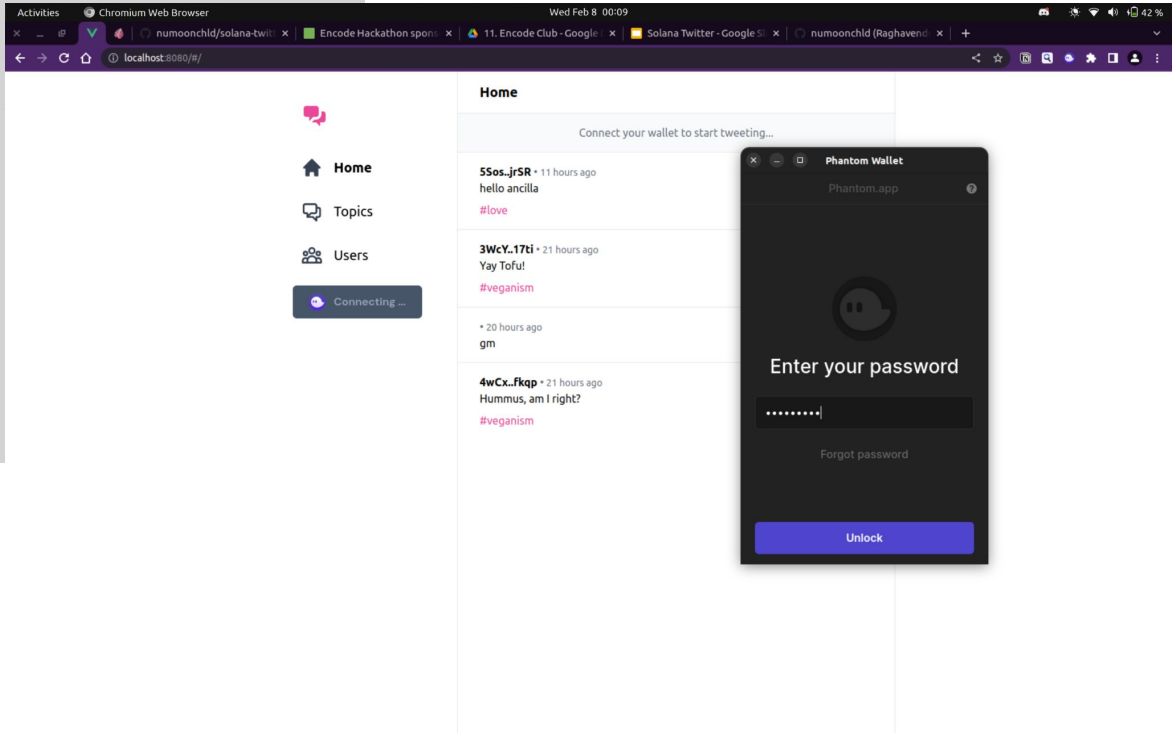


Profile Page

VUE FRAMEWORK
(front-end UI logic)



Solana Wallet Adapter



VUE FRAMEWORK
(front-end UI logic)

Activities | Chromium Web Browser | Wed Feb 8 00:14 | 47 %

numoonchld/solana-twit | Encode Hackathon spons | 11. Encode Club - Google | Solana Twitter - Google Sl | numoonchld (Raghaven

localhost:8080/#/

Home

Topics

Users

Profile

5Sos..jrSR

Home

hello encode club solana hackathon!

learning

244 left

Tweet

5Sos..jrSR • 11 hours ago
hello ancilla
#love

3WcY..17ti • 21 hours ago
Yay Tofu!
#veganism

• 21 hours ago
gm

4wCx..fkqp • 21 hours ago
Hummus, am I right?
#veganism

Phantom Wallet

Wallet 1

Approve Transaction

localhost:8080

Estimated Changes

Unable to simulate. Make sure you trust this website since approving can lead to loss of funds.

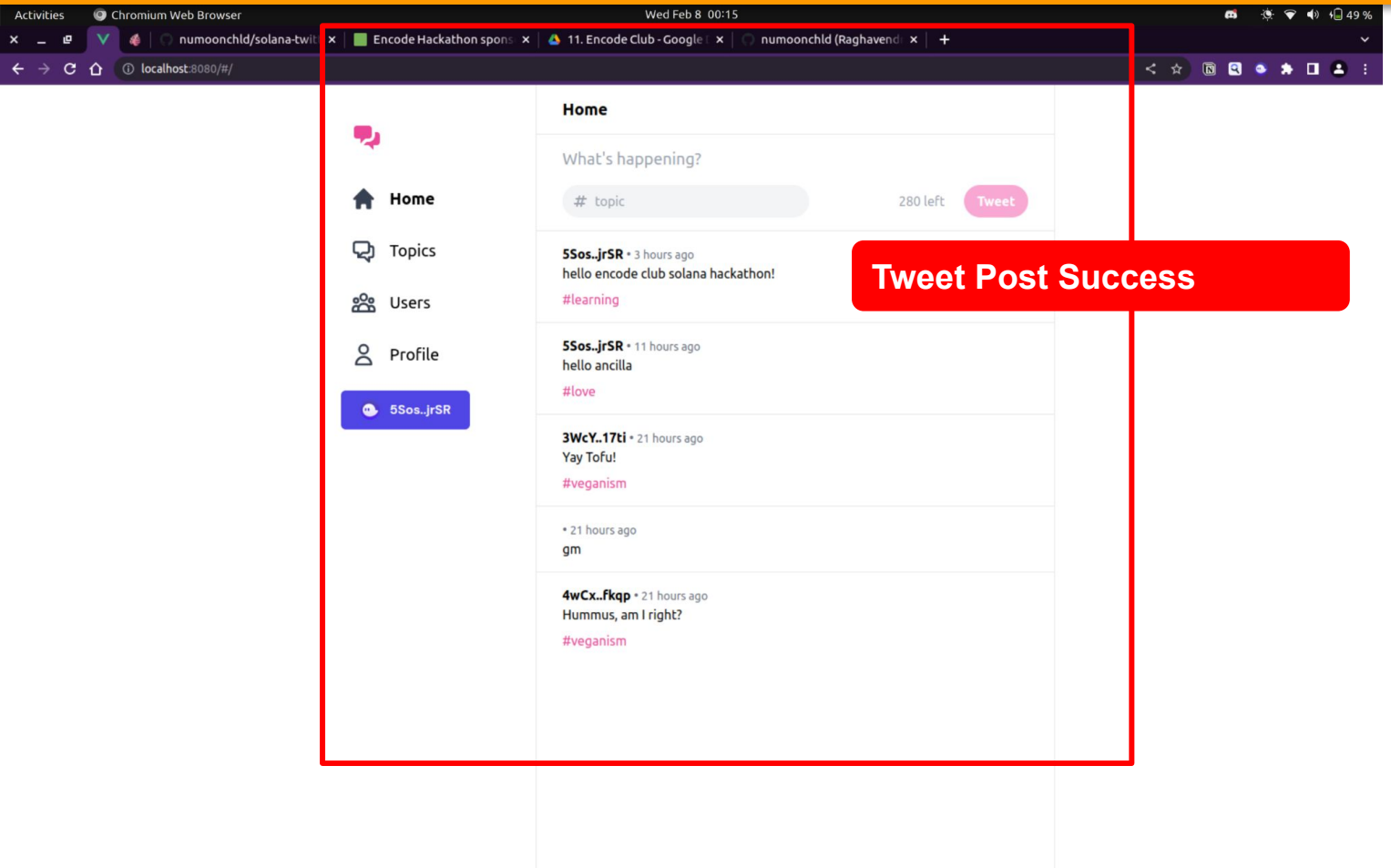
Network Fee < 0.00001 SOL

View advanced transaction details

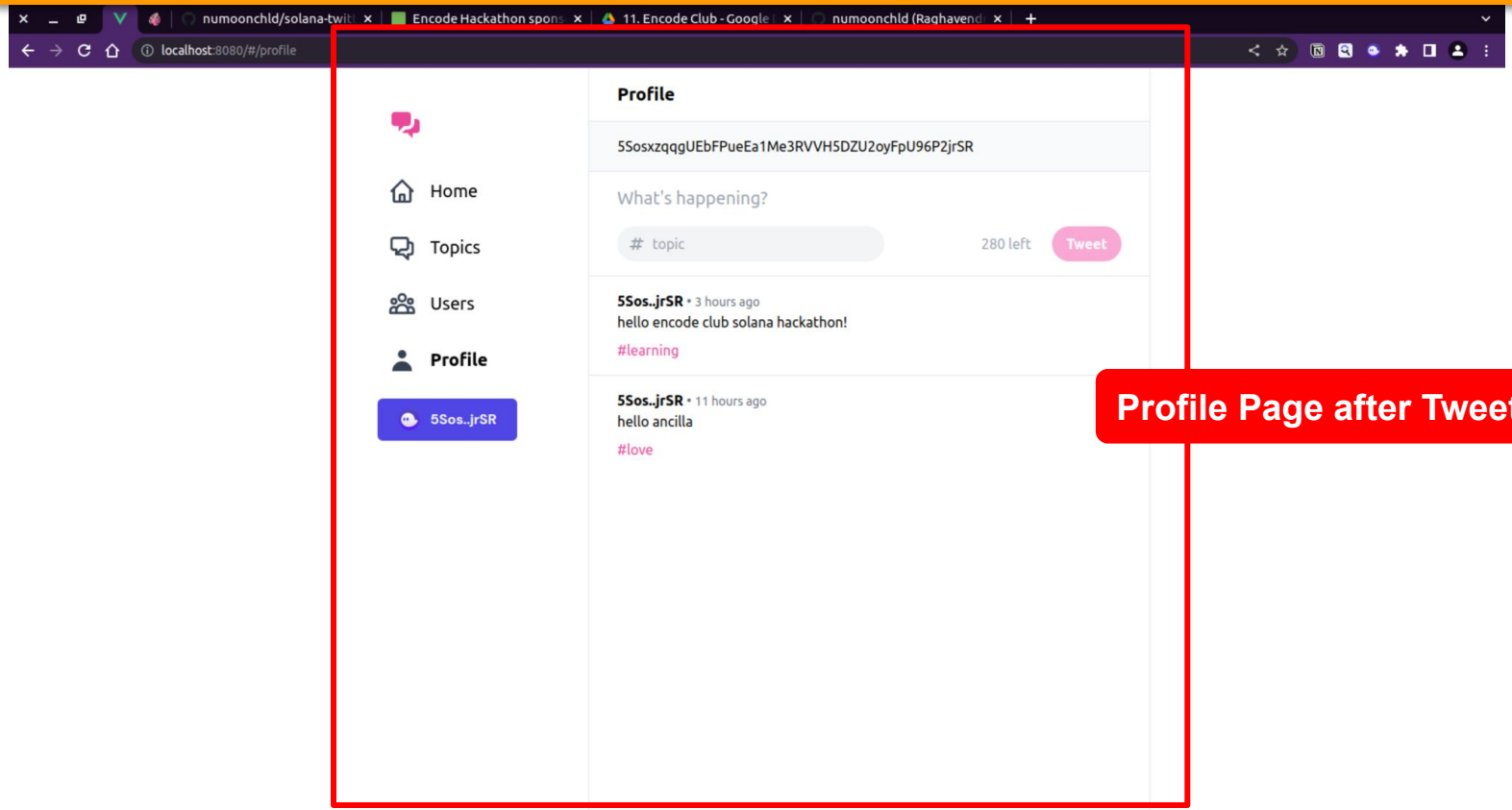
Cancel | Approve

Tweet Transaction Scene

VUE FRAMEWORK
(front-end UI logic)



VUE FRAMEWORK
(front-end UI logic)



Profile Page after Tweet Post

ANCHOR FRAMEWORK
(twitter data and state logic)

EXPLORER

OPEN EDITORS

GROUP 1

lib.rs programs/solana-twitter/src

GROUP 2

Anchor.toml

SOLANA-TWITTER-BACKEND

- .anchor
- .yarn
- app
- migrations
- node_modules
- programs / solana-twitter
  - src
    - lib.rs
  - Cargo.toml
  - Xargo.toml
- target
- test-ledger
- tests
  - solana-twitter.ts
- .gitignore
- .prettierignore
- .yarnrc.yml
- Anchor.toml
- Cargo.lock

lib.rs

programs > solana-twitter > src > lib.rs > ...

```rust
▶ Run Tests | Debug
use anchor_lang::prelude::*;
use anchor_lang::solana_program::system_program;

▶ Run Test | Debug
declare_id!("A4MVGRP4ycfRTe8kHuD6bB6vfEG2vu984V9KGzKqMDHo");

#[program]
pub mod solana_twitter {…

#[derive(Accounts)]
4 implementations
pub struct SendTweet<'info> {…

// 1. Define the structure of the Tweet account.
#[account]
pub struct Tweet {…

// 2. Add some useful constants for sizing propeties.…
const MAX_CONTENT_LENGTH: usize = 280 * 4; // 280 chars max.

// 3. Add a constant on the Tweet account that provides its total size.
impl Tweet {…

#[error_code]
pub enum ErrorCode {…
```

ANCHOR FRAMEWORK
(twitter data and state logic)

EXPLORER

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lib.rs programs/solana-twitter/src

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Anchor.toml

SOLANA-TWITTER-BACKEND

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- .prettierignore
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- Anchor.toml
- Cargo.lock
- Cargo.toml
- package-lock.json
- package.json
- tsconfig.json
- yarn.lock

lib.rs

programs > solana-twitter > src > lib.rs > ...

```rust
▶ Run Tests | Debug
use anchor_lang::prelude::*;
use anchor_lang::solana_program::system_program;

▶ Run Test | Debug
declare_id!("A4MVGRP4ycfRTe8kHuD6bB6vfEG2vu984V9KGzKqMDHo");

#[program]
pub mod solana_twitter {
    // use anchor_lang::solana_program::entrypoint_deprecated::ProgramResult;
    use anchor_lang::Result;

    use super::*;

    pub fn send_tweet(ctx: Context<SendTweet>, topic: String, content: String) -> Result<()> {
        let tweet: &mut Account<Tweet> = &mut ctx.accounts.tweet;
        let author: &Signer = &ctx.accounts.author;
        let clock: Clock = Clock::get().unwrap();

        if topic.chars().count() > 50 {
            // Return a error...
            return Err(error!(ErrorCode::TopicTooLong));
        }

        if content.chars().count() > 280 {
            // Return a error...
            return Err(error!(ErrorCode::ContentTooLong));
        }

        // require!(topic.chars().count() > 50, ErrorCode::TopicTooLong);
        // require!(content.chars().count() > 280, ErrorCode::ContentTooLong);

        tweet.author = *author.key;
        tweet.timestamp = clock.unix_timestamp;
        tweet.topic = topic;
        tweet.content = content;

        Ok(())
    } fn send_tweet
} mod solana_twitter
```

ANCHOR FRAMEWORK
(twitter data and state logic)

EXPLORER

OPEN EDITORS

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lib.rs programs/solana-twitter/src

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Anchor.toml

SOLANA-TWITTER-BACKEND

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lib.rs

programs > solana-twitter > src > lib.rs > ...

```rust
▶ Run Tests | Debug
use anchor_lang::prelude::*;
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▶ Run Test | Debug
declare_id!("A4MVGRP4ycfRTe8kHuD6bB6vfEG2vu984V9KGzKqMDHo");

#[program]
pub mod solana_twitter {…

#[derive(Accounts)]
4 implementations
pub struct SendTweet<'info> {…

// 1. Define the structure of the Tweet account.
#[account]
pub struct Tweet {
    pub author: Pubkey,
    pub timestamp: i64,
    pub topic: String,
    pub content: String,
}

// 2. Add some useful constants for sizing propeties.…
const MAX_CONTENT_LENGTH: usize = 280 * 4; // 280 chars max.

// 3. Add a constant on the Tweet account that provides its total size.
impl Tweet {
    const LEN: usize = DISCRIMINATOR_LENGTH
        + PUBLIC_KEY_LENGTH // Author.
        + TIMESTAMP_LENGTH // Timestamp.
        + STRING_LENGTH_PREFIX + MAX_TOPIC_LENGTH // Topic.
        + STRING_LENGTH_PREFIX + MAX_CONTENT_LENGTH; // Content.
}

#[error_code]
pub enum ErrorCode {…
```
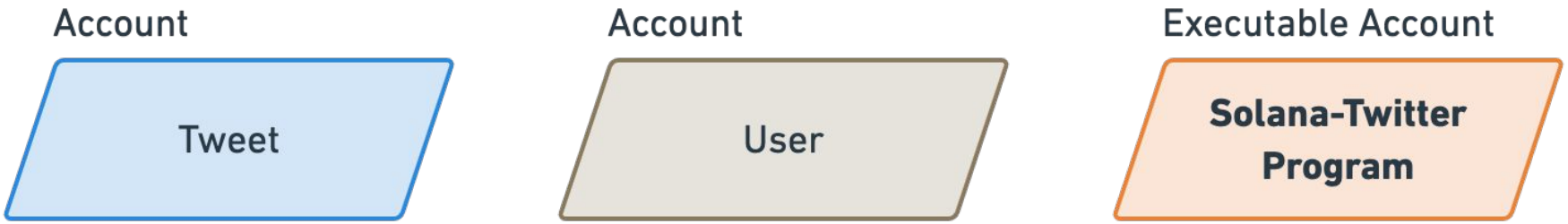
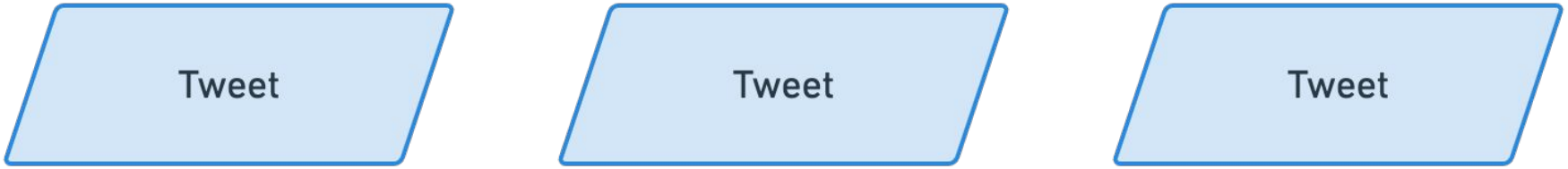
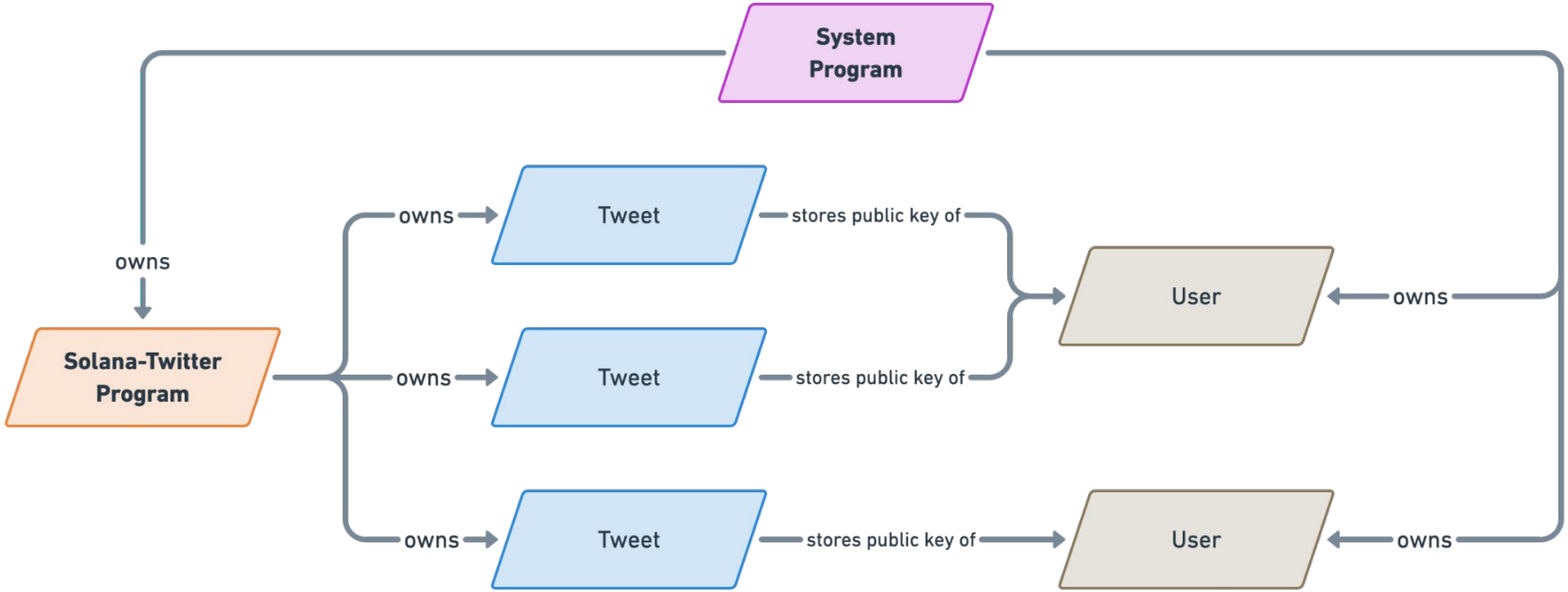
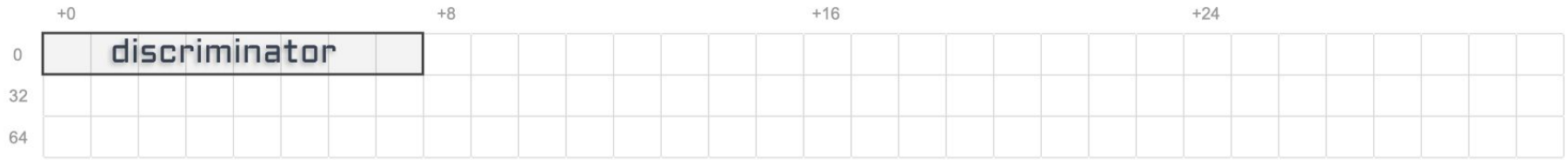

Schematics

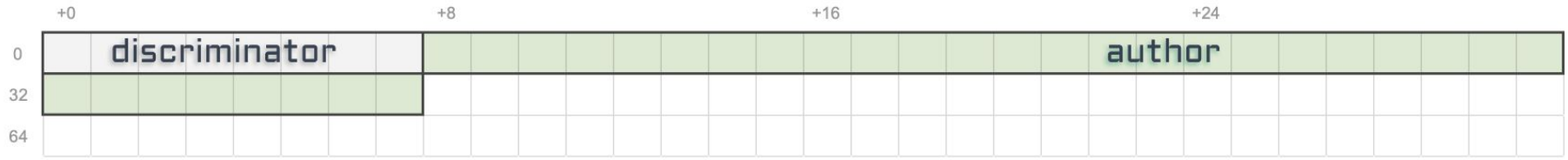

Account
Tweet
Account
User
Executable Account
Solana-Twitter Program

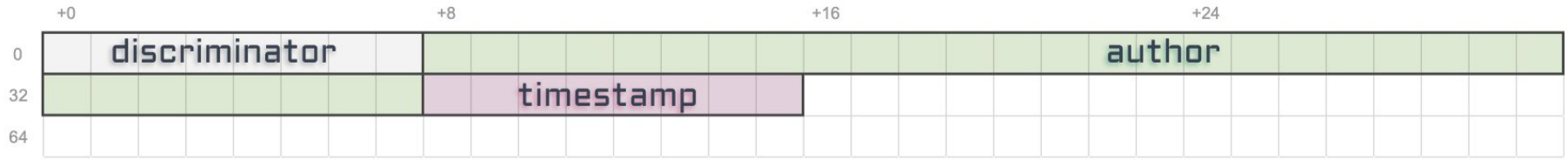
Multiple tweet accounts — no limit




System Program
owns
Solana-Twitter Program
owns
Tweet
stores public key of
owns
Tweet
stores public key of
owns
Tweet
stores public key of
User
owns
User
owns


+0
+8
+16
+24
0
32
64
discriminator


+0
+8
+16
+24
0
32
64
discriminator
author


+0
+8
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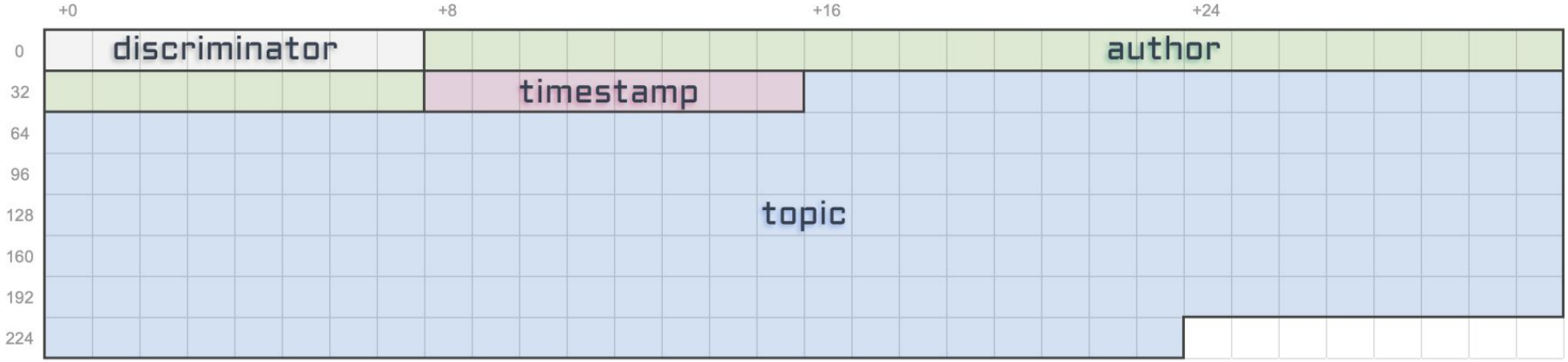
discriminator
author
timestamp


+0
+8
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0
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64
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128
160
192
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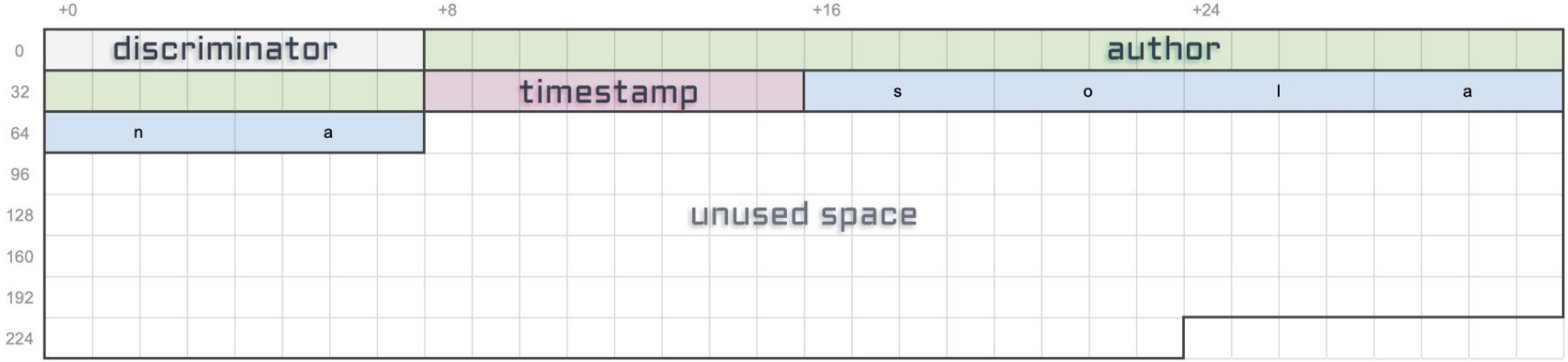
discriminator
author
timestamp
topic


+0
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discriminator
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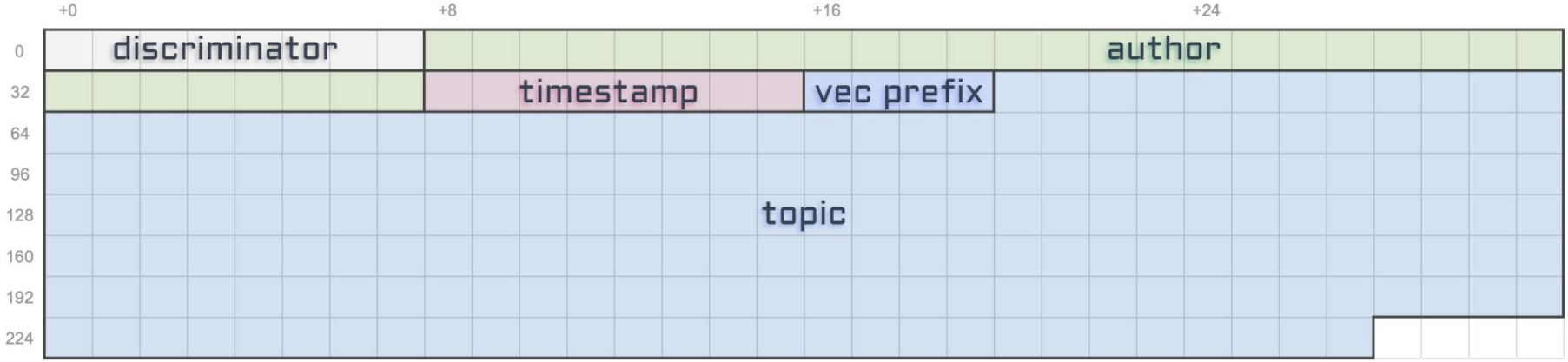
unused space


+0
+8
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+24
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64
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192
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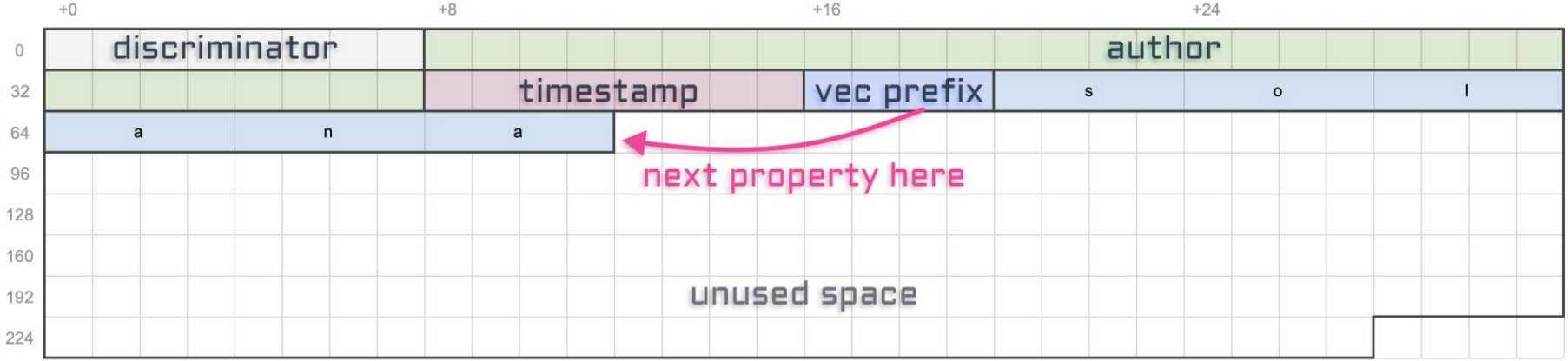
discriminator
author
timestamp
vec prefix
topic


+0
+8
+16
+24
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64
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128
160
192
224
discriminator
author
timestamp
vec prefix
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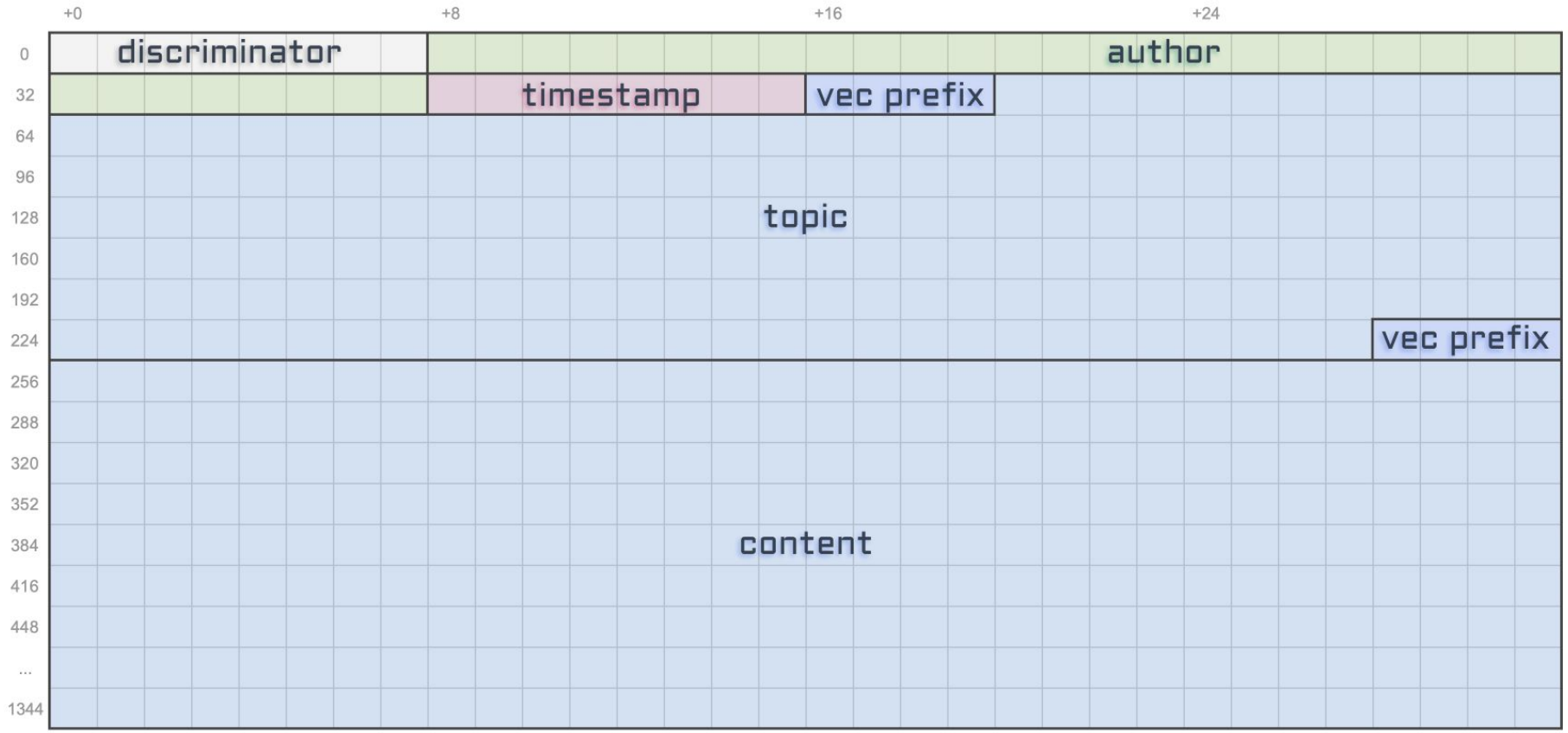
a
next property here
unused space


+0
+8
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+24
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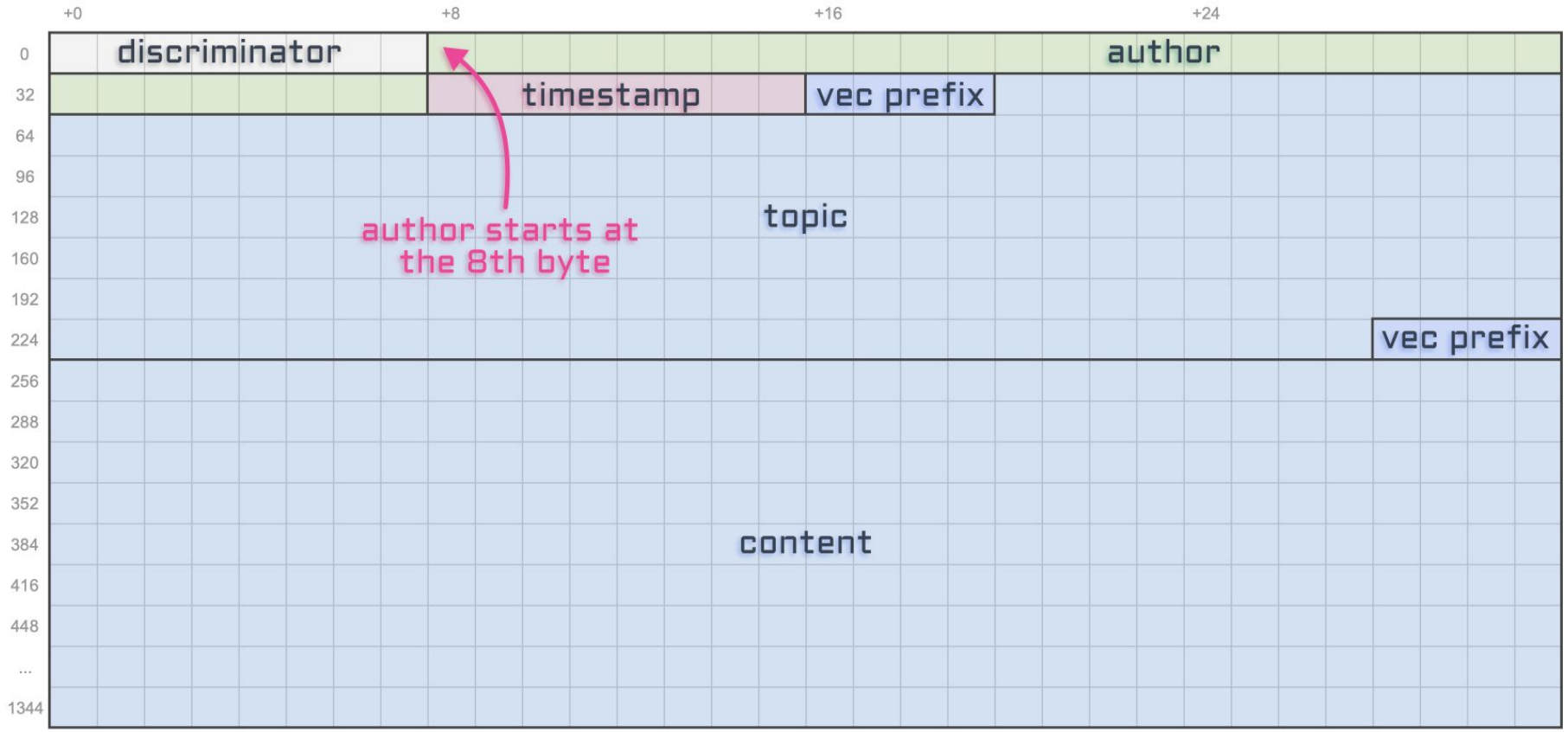
64
96
128
160
192
224
256
288
320
352
384
416
448
...
1344
discriminator
author
timestamp
vec prefix
topic
vec prefix
content


+0
+8
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64
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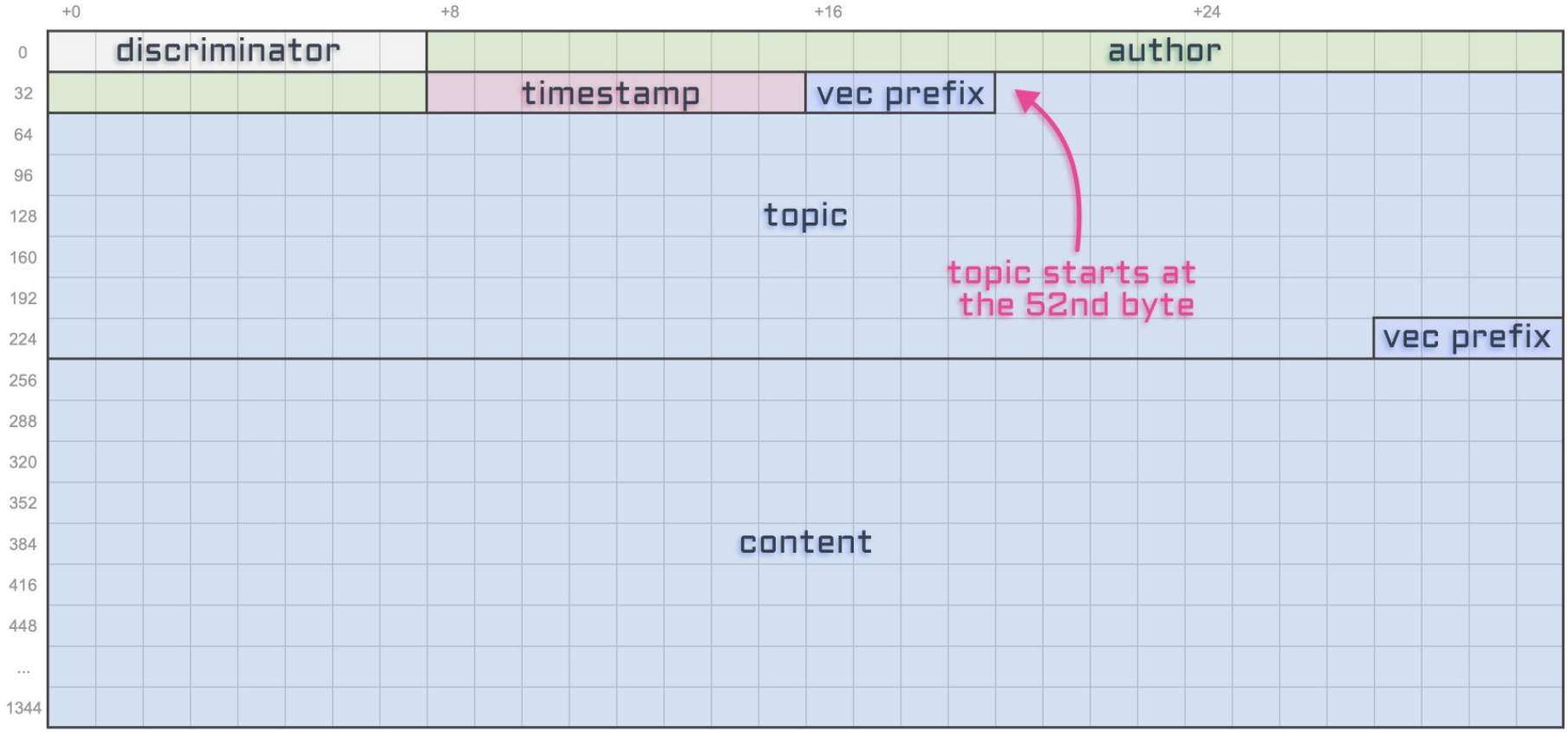
128
160
192
224
256
288
320
352
384
416
448
...
1344
discriminator
author
timestamp
vec prefix
topic
vec prefix
content
author starts at
the 8th byte


+0
+8
+16
+24
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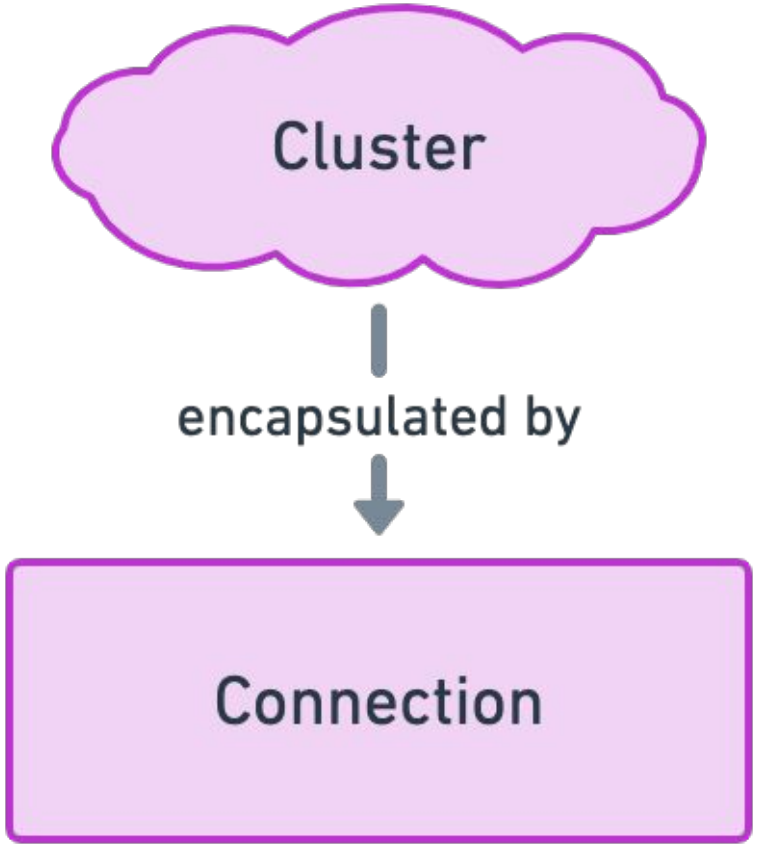
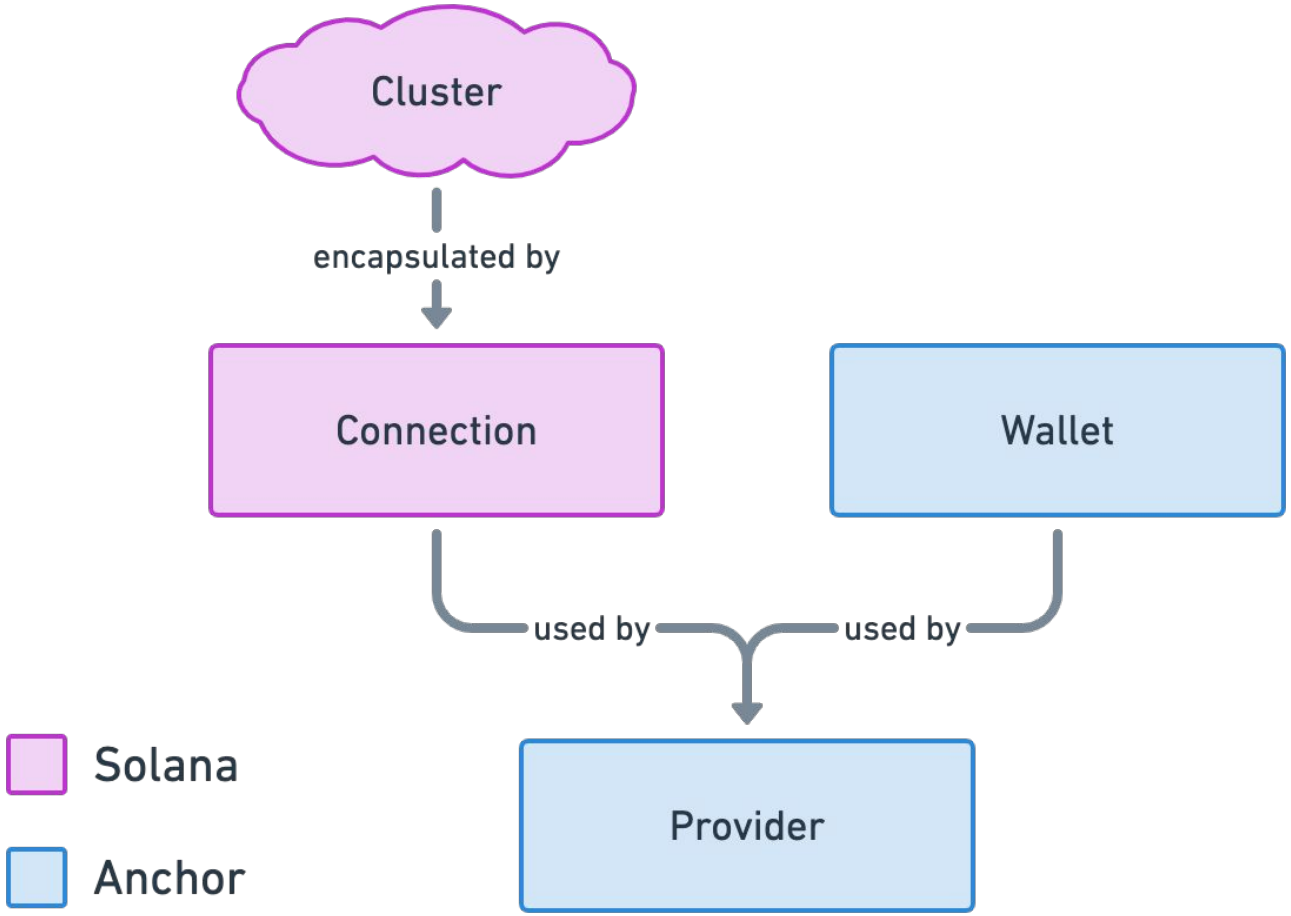
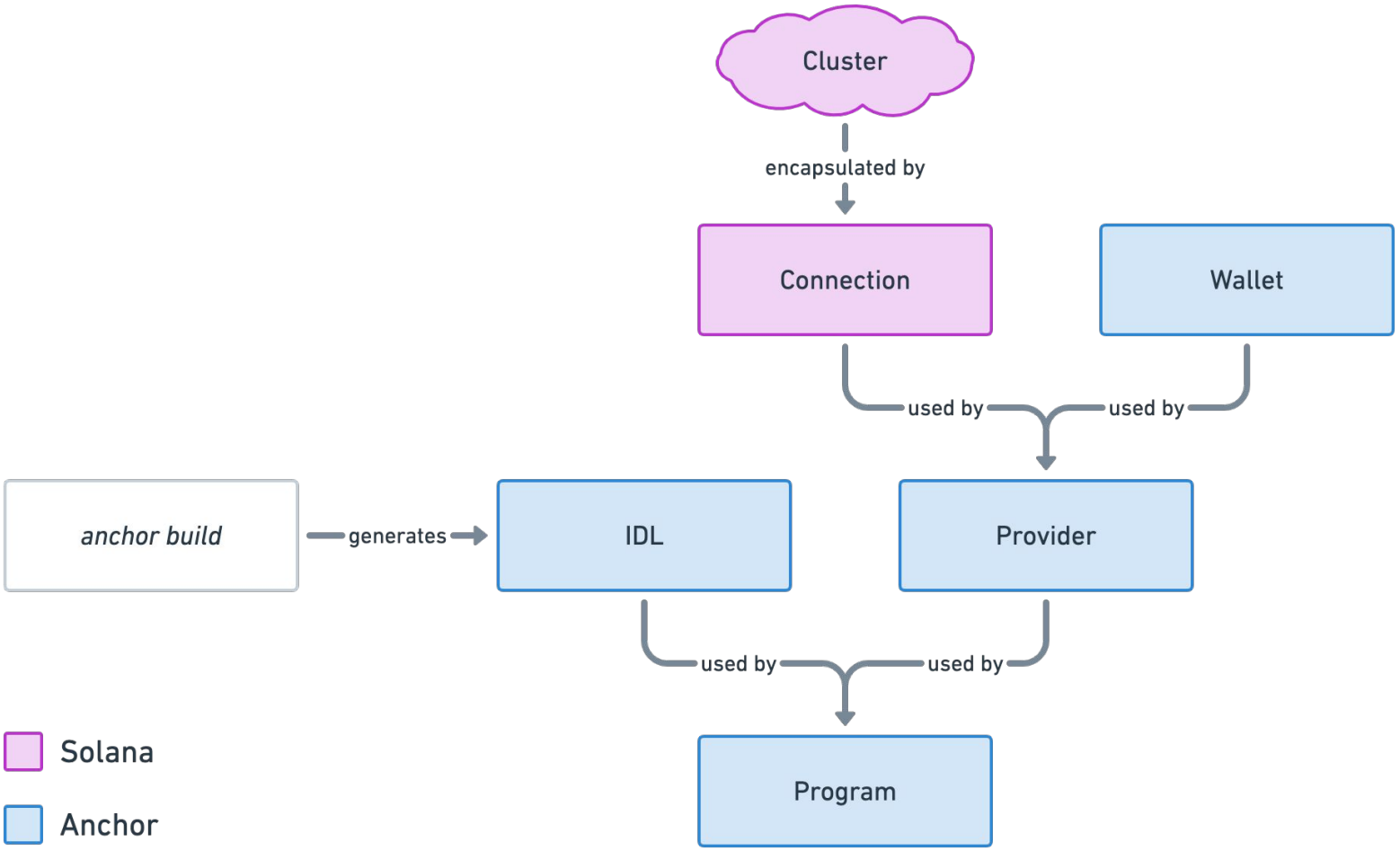
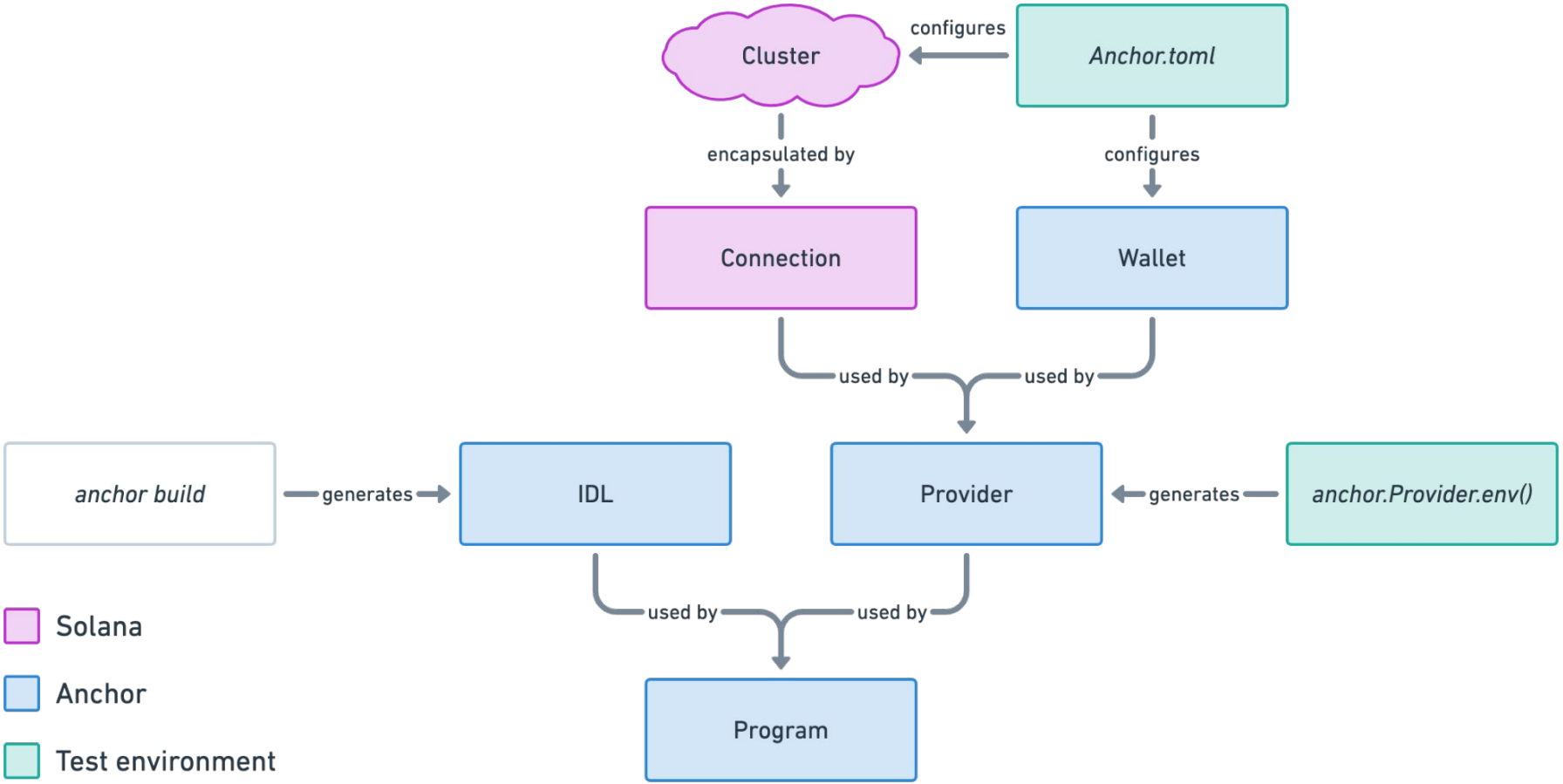
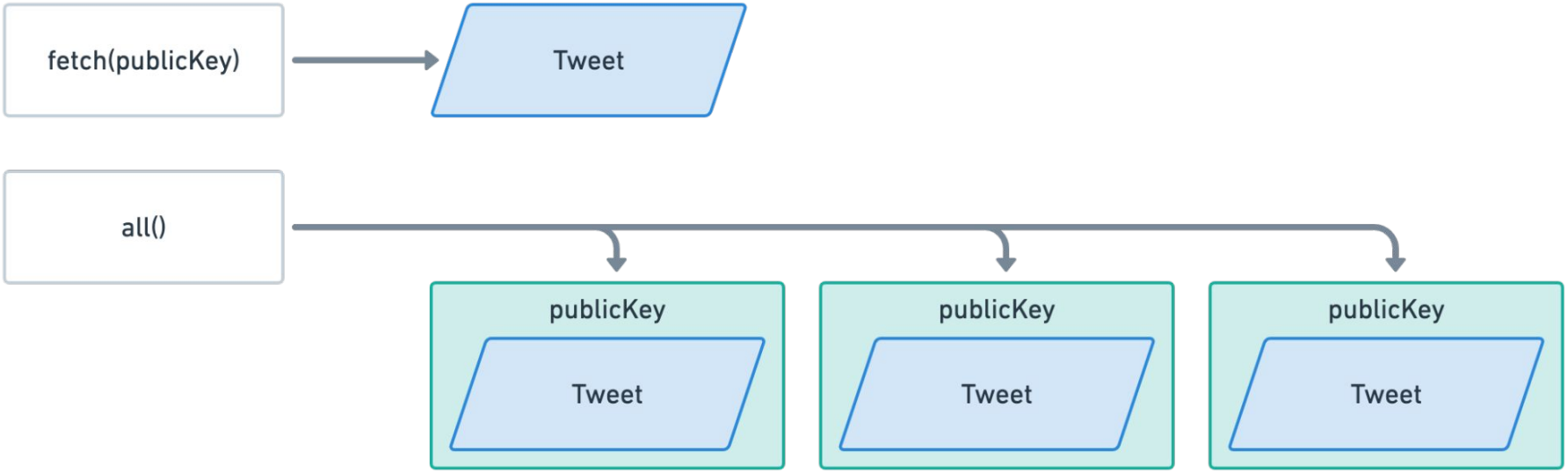
32
64
96
128
160
192
224
256
288
320
352
384
416
448
...
1344
discriminator
author
timestamp
vec prefix
topic
topic starts at
the 52nd byte
vec prefix
content

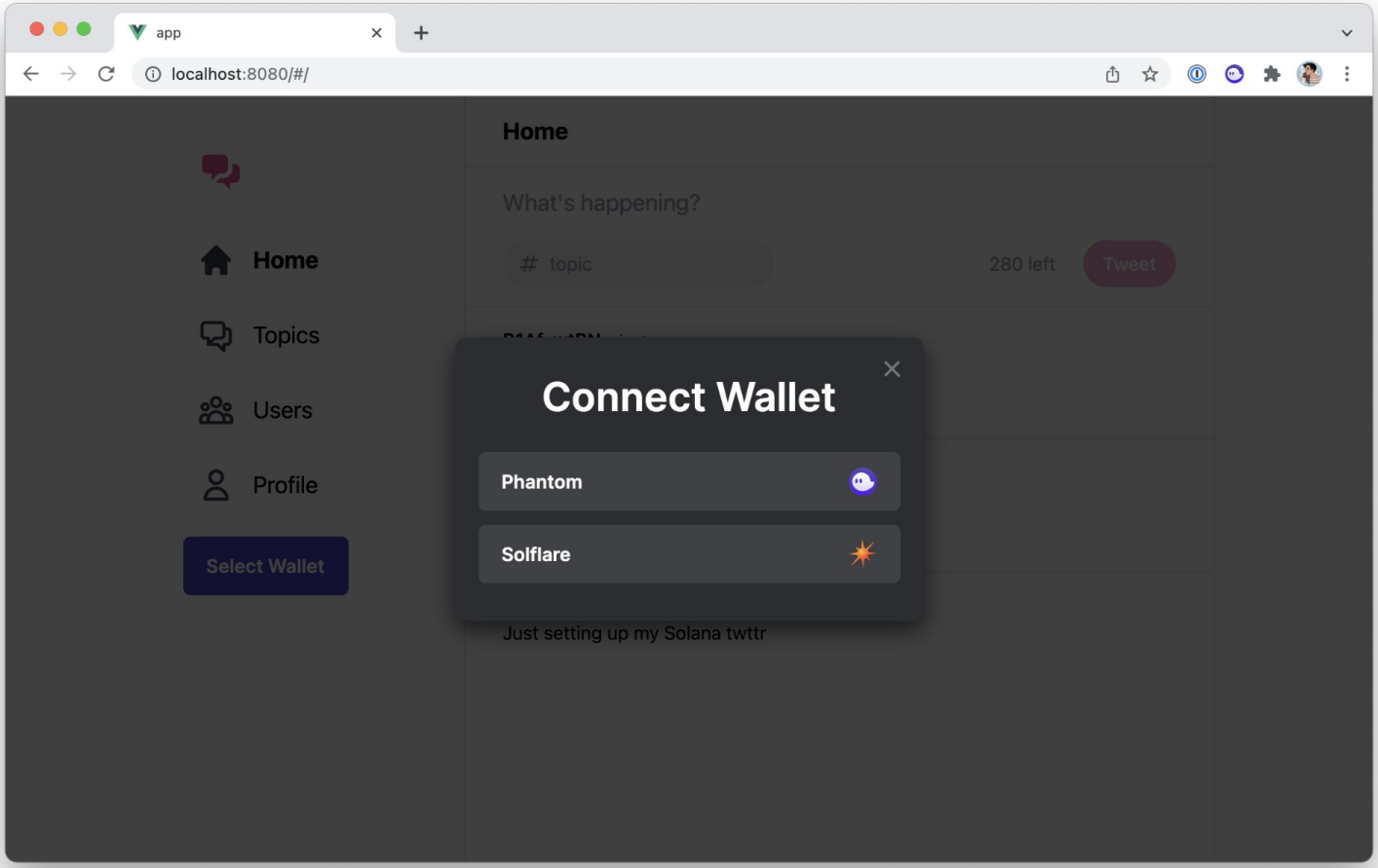

Cluster
encapsulated by
Connection


Cluster
encapsulated by
Connection
Wallet
used by
used by
Provider
Solana
Anchor


Cluster
encapsulated by
Connection
Wallet
used by
used by
anchor build
generates
IDL
Provider
used by
used by
Program
Solana
Anchor


Cluster
configures
Anchor.toml
encapsulated by
configures
Connection
Wallet
used by
used by
anchor build
generates
IDL
Provider
generates
anchor.Provider.env()
used by
used by
Program
Solana
Anchor
Test environment


fetch(publicKey)
Tweet
all()
publicKey
Tweet
publicKey
Tweet
publicKey
Tweet


app
localhost:8080/#/
Home
Topics
Users
Profile
Select Wallet
Home
What's happening?
topic
280 left
Tweet
Connect Wallet
Phantom
Solflare
Just setting up my Solana twttr

app

localhost:8080/#/

Home

Topics

Users

Profile

B1Af..wtRN

Copy address

Connect a different wallet

Disconnect

Home

What's happening?

topic

280 left

Tweet

B1Af..wtRN • just now

gm

#solana

BnE7..NRGF • 2 hours ago

Octohook.com is awesome!

#no-code

B1Af..wtRN • 2 days ago

Just setting up my Solana twttr

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localhost:8080/#/

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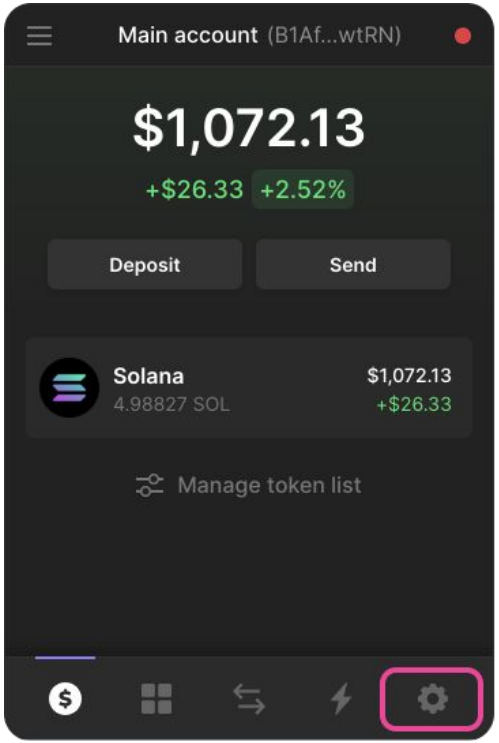
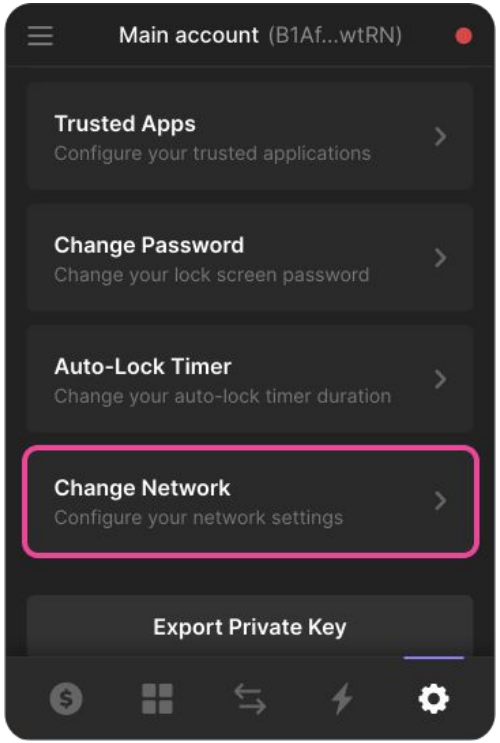
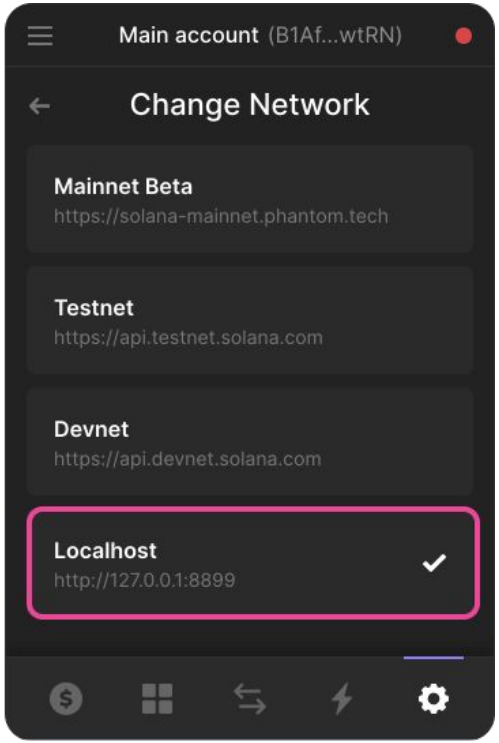

Main account (B1Af...wtRN)
$1,072.13
+$26.33 +2.52%
Deposit
Send
Solana
4.98827 SOL
$1,072.13
+$26.33
Manage token list


Main account (B1Af...wtRN)
Trusted Apps
Configure your trusted applications
Change Password
Change your lock screen password
Auto-Lock Timer
Change your auto-lock timer duration
Change Network
Configure your network settings
Export Private Key


Main account (B1Af...wtRN)
Change Network
Mainnet Beta
https://solana-mainnet.phantom.tech
Testnet
https://api.testnet.solana.com
Devnet
https://api.devnet.solana.com
Localhost
http://127.0.0.1:8899

pass by reference

cup =

fillCup(

)

*pass by **value***

cup =

fillCup(

)

www.penjee.com

app

localhost:8080/#/

Home

Topics

Users

Select Wallet

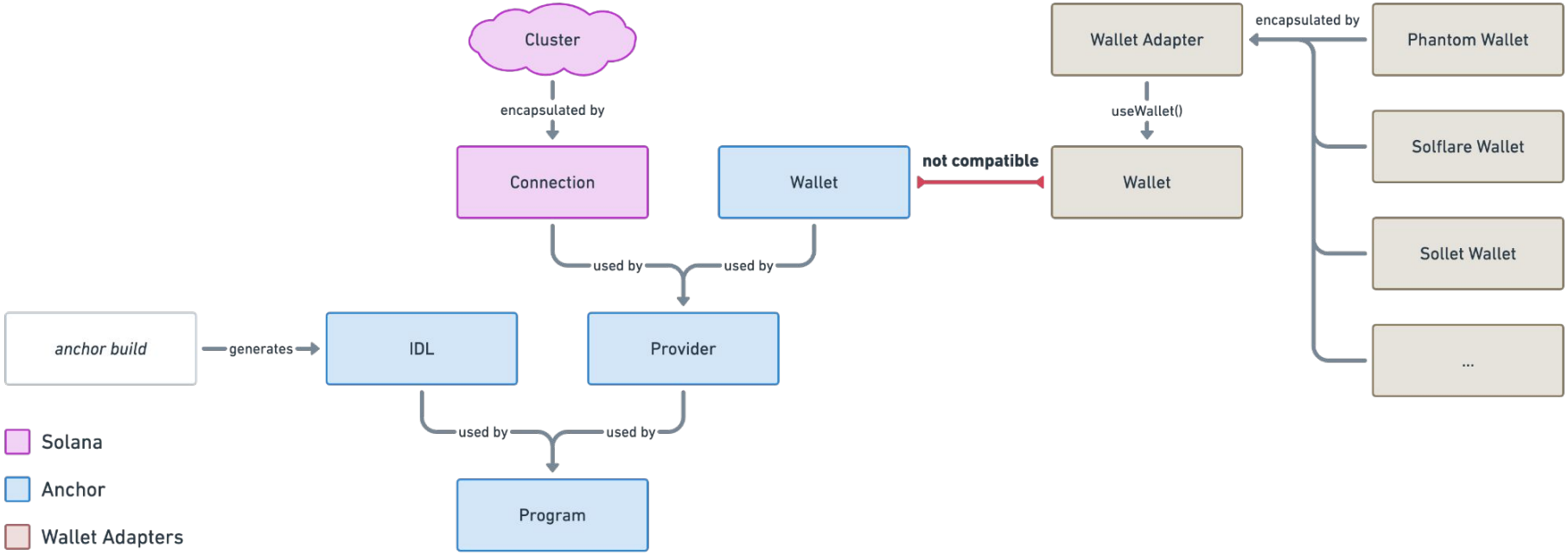
Home

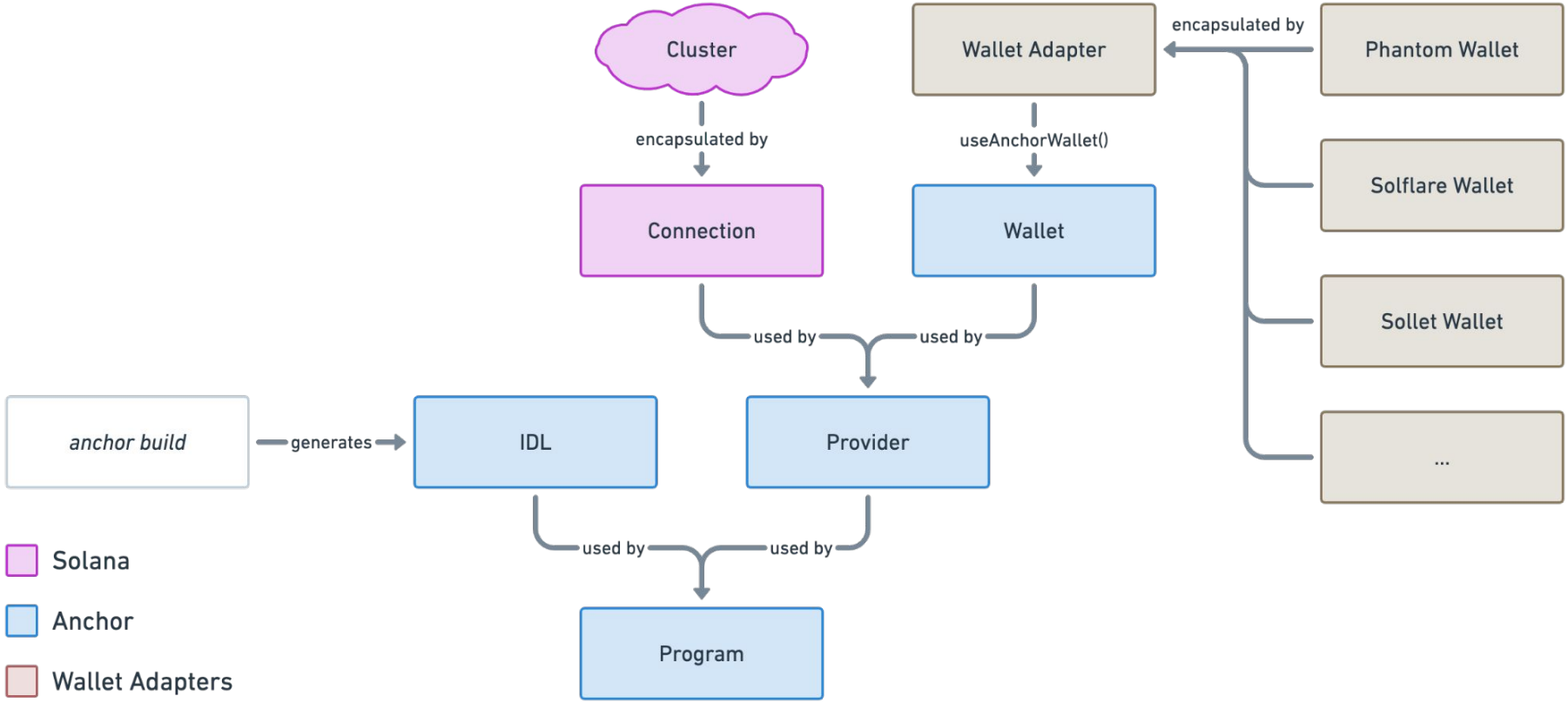
Connect your wallet to start tweeting...

B1Af..wtRN • just now
gm
#solana

BnE7..NRGF • 2 hours ago
Octohook.com is awesome!
#no-code

B1Af..wtRN • 2 days ago
Just setting up my Solana twttr


Cluster
encapsulated by
Connection
Wallet
not compatible
Wallet Adapter
useWallet()
Wallet
encapsulated by
Phantom Wallet
Solflare Wallet
Sollet Wallet
...
used by
used by
anchor build
generates
IDL
Provider
used by
used by
Program
Solana
Anchor
Wallet Adapters


Cluster
encapsulated by
Connection
Wallet Adapter
useAnchorWallet()
Wallet
encapsulated by
Phantom Wallet
Solflare Wallet
Sollet Wallet
...
used by
used by
anchor build
generates
IDL
Provider
used by
used by
Program
Solana
Anchor
Wallet Adapters

pass by reference

cup =

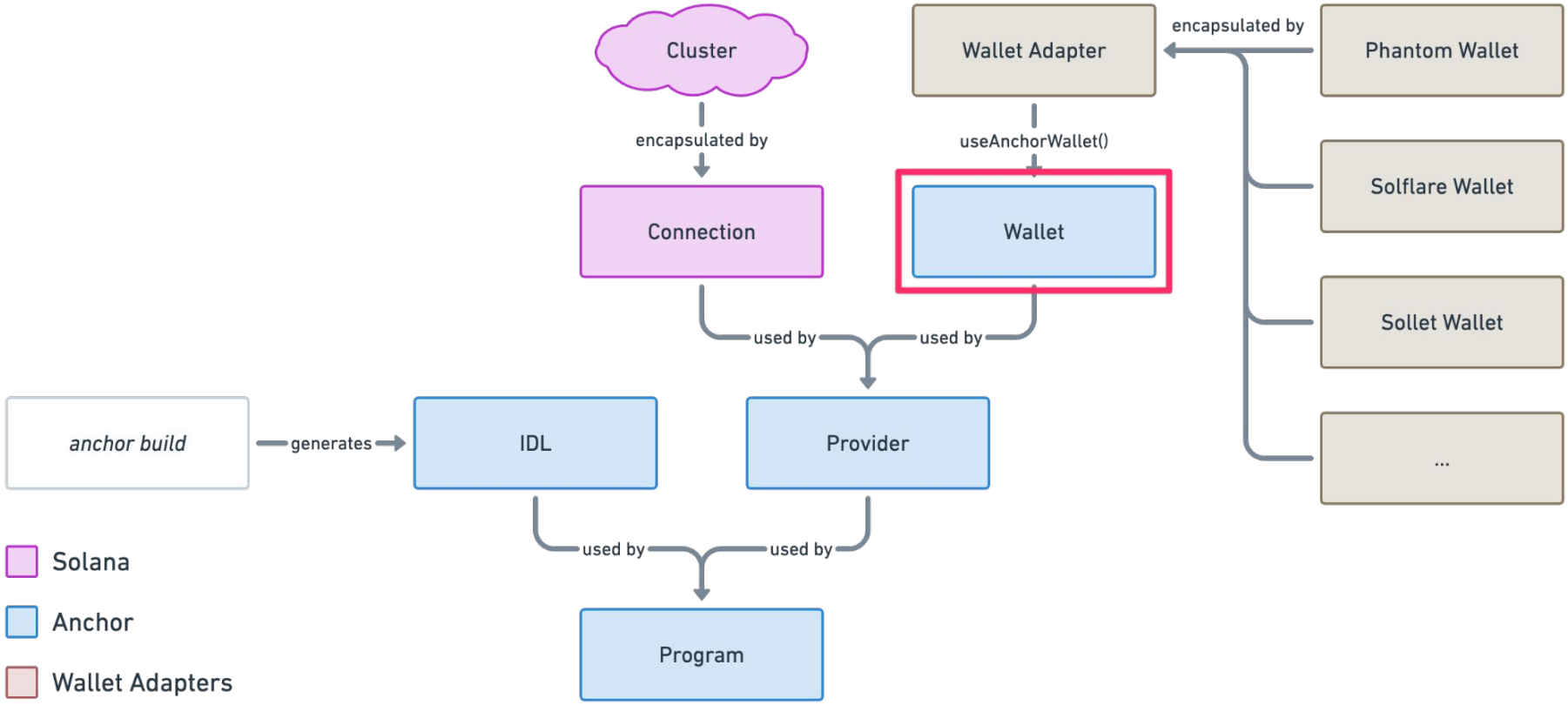
fillCup( )

*pass by **value***

cup =

fillCup( )

www.penjee.com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app

localhost:8080/#/

Home

What's happening?

topic

280 left

Tweet

B1Af..wtRN

Console Elements Network Sources Vue Performance Memory

Preserve log Disable cache No throttling

Filter Invert Hide data URLs

All Fetch/XHR JS CSS Img Media Font Doc WS Wasm Manifest Other Has blocked cookies Blocked Requests

3rd-party requests

10 ms 20 ms 30 ms 40 ms 50 ms 60 ms 70 ms 80 ms 90 ms 100 ms 110

Name

127.0.0.1

Headers Payload Preview Response Initiator


```
{jsonrpc: "2.0", result: [{account: {data: [,…], execut
  id: "b7760cb2-7dc9-4fef-a645-4c8fd55f0694"
  jsonrpc: "2.0"
  result: [{account: {data: [,…], executable: false, lar
    0: {account: {data: [,…], executable: false, lampor
    1: {account: {data: [,…], executable: false, lampor
    2: {account: {data: [,…], executable: false, lampor
```


Tweets are fetched but not displayed properly

1 / 11 requests 6.4 kB / 578 kB transferred 6.2 kB / 18.6

app

localhost:8080/#/

Home

What's happening?

topic

280 left

Tweet

EUpo..6vTG • 2 hours ago
Yay Tofu!
#veganism

9PS2..4gZU • 2 hours ago
Hummus, am I right?
#veganism

9PS2..4gZU • 2 hours ago
gm

B1Af..wtRN

Console Elements Network Sources Vue Performance Memory

top ▾ Filter Default levels ▾ 1 Issue: 1

fetch-tweets.js?0fed:5

```
▼(3) [Tweet, Tweet, Tweet]
  ▼0: Tweet
    ▶author: PublicKey {_bn: BN}
     content: "Yay Tofu!"
    ▶publicKey: PublicKey {_bn: BN}
     timestamp: "1638446346"
     topic: "veganism"
     author_display: "EUpo..6vTG"
     created_ago: "2 hours ago"
     created_at: "Dec 2, 2021 11:59 AM"
     key: "5UgYmEJb2m4T2aYEYKkFjLxpSbojjNqdMvg4DYWw2yPJ"
    ▶[[Prototype]]: Object
  ▼1: Tweet
    ▶author: PublicKey {_bn: BN}
     content: "Hummus, am I right?"
    ▶publicKey: PublicKey {_bn: BN}
     timestamp: "1638446344"
     topic: "veganism"
     author_display: "9PS2..4gZU"
     created_ago: "2 hours ago"
     created_at: "Dec 2, 2021 11:59 AM"
     key: "9Dypcf4oC2zoUrFssykpRngkUdyLYWL1ag3JJ5YZMY11"
    ▶[[Prototype]]: Object
  ▼2: Tweet
    ▶author: PublicKey {_bn: BN}
     content: "gm"
    ▶publicKey: PublicKey {_bn: BN}
     timestamp: "1638446344"
     topic: ""
     author_display: "9PS2..4gZU"
     created_ago: "2 hours ago"
     created_at: "Dec 2, 2021 11:59 AM"
     key: "F2GFSezfR1VMwDcNS9geowFSrBKpi8FWTCPyKtaLvanW"
    ▶[[Prototype]]: Object
   length: 3
  ▶[[Prototype]]: Array(0)
>
```

app

localhost:8080/#/tweet/5UgYmEJb2m4T2aYEYKkFjLxpSbojjNqdMvg4DYWw2yPJ

Home

Topics

Users

Profile

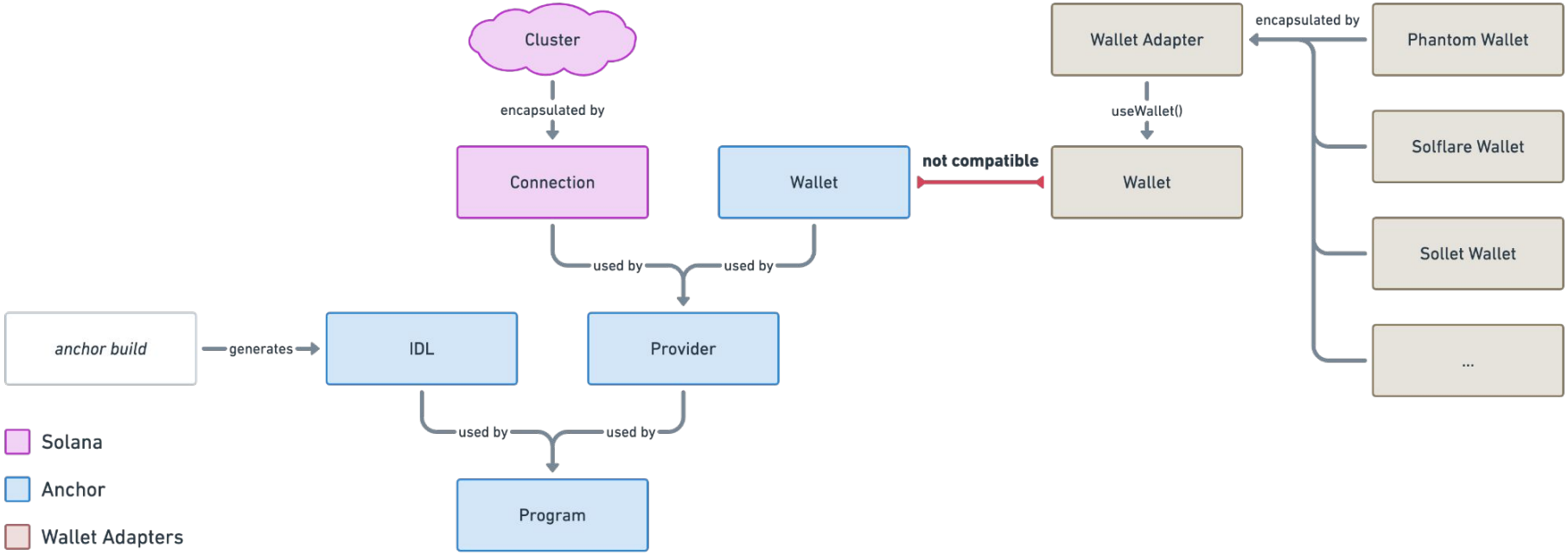
B1Af..wtRN

Tweet

EUpo..6vTG • 3 hours ago

Yay Tofu!

#veganism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