

An abstract composition on a dark gray background. It features several diagonal lines: a white line in the upper left, a light gray line in the lower left, and a bright pink line in the lower right. The word 'Substrate' is written in a bold, orange, sans-serif font, positioned between the white and light gray lines. The word 'River' is written in the same font and color, positioned between the light gray and pink lines.

Substrate

River

The background is dark gray with several diagonal lines in white, light gray, and pink. The lines are of varying lengths and angles, creating a dynamic, geometric pattern.

Interaction-002

Transferring a Kitty

<https://substrate.dev/substrate-collectables-workshop/#/3/transferring-a-kitty>



转移要更新的存储内容

1- 更新Kitty的owner

KittyOwner get(owner_of): map T::Hash => Option<T::AccountId>;

2- 改变每个用户拥有Kitty的数量

OwnedKittiesCount get(owned_kitty_count): map T::AccountId => u64;

3- 改变拥有的kitty的index

OwnedKittiesIndex: map T::Hash => u64;

4- 改变kitty拥有者的map

OwnedKittiesArray get(kitty_of_owner_by_index): map (T::AccountId, u64) => T::Hash;



Swap and Pop 交换和弹出

```
let new_owned_kitty_count_from = owned_kitty_count_from.checked_sub(1)
    .ok_or("underflow subing a new kitty from the AccountId")?;
```

```
let kitty_index = <OwnedKittiesIndex<T>>::get(kitty_id);
```

```
if kitty_index != new_owned_kitty_count_from {
    let last_kitty_id = <OwnedKittiesArray<T>>::get((from.clone(),
new_owned_kitty_count_from));
    <OwnedKittiesArray<T>>::insert((from.clone(), kitty_index), last_kitty_id);
    <OwnedKittiesIndex<T>>::insert(last_kitty_id, kitty_index);
}
```

A中有2只Kitty，转移第一只Kitty给B

kitty_index => 0

new_owned_kitty_count_from => 1

last_kitty_id => A001

A,0 => A001

A001 => 0

A =>	index =>	kitty_id
------	----------	----------

2	0	A000
---	---	------

	1	A0001
--	---	-------

A =>	index =>	kitty_id
------	----------	----------

1	0	A0001
---	---	-------



Swap and Pop 交换和弹出

A => B		index_A => index_B		kitty_id_A => kitty_id_B	
2	3	0	0	A000	B000
		1	1	A001	B001
			2		B002

转移A的第一只Kitty给B

A => B		index_A => index_B		kitty_id_A => kitty_id_B	
1	4	0	0	A001	B000
			1		B001
			2		B002
			3		A000




You Turn!

- transfer()
- transfer_from()
- 测试



总结：

- 4个存储的更新
- Swap and Pop
- KittyOwner get(owner_of): map T::Hash => Option<T::AccountId>;
- OwnedKittiesArray get(kitty_of_owner_by_index): map (T::AccountId, u64) => T::Hash;
- OwnedKittiesCount get(owned_kitty_count): map T::AccountId => u64;
- OwnedKittiesIndex: map T::Hash => u64;



视频:

转移前

Alice

- 0 **0xd5f41938f073631353c8e9c6aefc16ea7bbe25de08f322eba86028a7c39b428e**
- 1 0x847641f6994bf5592bffd2309220dd44988aa052173f2cc84ee6400b379e4176

Bob

- 0 0x831126a19e78084aad9ec5b2acf2fdd5841558001b516951b0a5d0348c6630d4
- 1 0x5b5054ac9049bddd126952eb2f766e5ee60242a130b109cb9da9007b872cdb2a

转移后

Alice

- 0 **0x847641f6994bf5592bffd2309220dd44988aa052173f2cc84ee6400b379e4176**

Bob

- 0 0x831126a19e78084aad9ec5b2acf2fdd5841558001b516951b0a5d0348c6630d4
- 1 0x5b5054ac9049bddd126952eb2f766e5ee60242a130b109cb9da9007b872cdb2a
- 2 **0xd5f41938f073631353c8e9c6aefc16ea7bbe25de08f322eba86028a7c39b428e**



Substrate

River

Thanks