

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



Interaction-004

Breeding a Kitty

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



Kitty定义

```
pub struct Kitty<Hash, Balance> {  
    id: Hash,  
    dna: Hash,  
    price: Balance,  
    gen: u64,  
}
```



DNA

在我们的UI中，我们将使用kitty DNA生成我们的kitty图像。在我们的运行时中，DNA是一个256位的Hash，在我们的代码中表示为一个字节数组，在我们即将到来的UI中表示为一个十六进制字符串。

这意味着有32个元素，每个元素可以是0 - 255之间的值。我们将使用这些元素来确定我们的小猫有哪些特征。例如，字节数组的第一个索引可以确定我们的kitty的颜色(从256色范围);下一个元素可以代表眼睛的形状，等等...

Attribute: Color Eyes Hair Collar Accessory

DNA: [233] [15] [166] [113] [67] ...



Breed

当我们繁育两只小猫时，我们希望它们的后代与父母的基因有一些结合。我们要做的是在游戏中随机选择一个父母，把他们的属性给孩子kitty。

Kitty1 DNA:	[212]	[163]	[106]	[250]	[251]	[0]	[75]...
Child DNA:	[212]	[163]	[69]	[195]	[223]	[0]	[201]
Kitty2 DNA:	[233]	[49]	[69]	[195]	[223]	[133]	[201]...

```
let mut final_dna = kitty_1.dna;
for (i, (dna_2_element, r)) in kitty_2.dna.as_ref().iter().zip(random_hash.as_ref().iter()).enumerate() {
    if r % 2 == 0 {
        final_dna.as_mut()[i] = *dna_2_element;
    }
}
```



Gen

```
cmp::max(kitty_1.gen, kitty_2.gen) + 1
```



You Turn!

- breed_kitty()
- 0xd61c88a6813bd658d5cf86f338f543fa7dad1ad55e1d48fe5490708a00c3aed4
- 0x7f8378b632fbcafce052c0b4f2d97af1a683b04c29e28e81dbff05e247fb5432
- 0x05e050ffa53d16a4c19df35767293e6eb05513d906d75bdca802bacd36144889
- {"id":"0x05e050ffa53d16a4c19df35767293e6eb05513d906d75bdca802bacd36144889","dna":"0xd68378a6813bcafcd5cf86f338f57af1a6ad1ad5291d4881dbff058a47fb54d4","price":0,"gen":1}



总结

- DNA
- breed_kitty
- 待完善，只有操作者是小猫的拥有者才能进行繁殖的操作，需要添加判断。
Kitty1 Kitty2的所有者是同一个人

The image features a dark gray background with several diagonal lines. A white line starts from the left edge and extends towards the top right. A second white line is parallel to the first, starting further to the right and also extending towards the top right. A gray line starts from the bottom left and extends towards the top right. A red line starts from the bottom left, below the gray line, and extends towards the top right, crossing the gray line. The text 'Substrate' is written in a bold, orange, sans-serif font, positioned between the two white lines.

Substrate

River

Thanks