作业：

完成transfer

```
pub fn transfer(origin, to: T::AccountId, kitty_id: T::KittyIndex) {
        let sender = ensure_signed(origin)?;
        let node = <OwnedKitties<T>>::read(&sender, Some(kitty_id));
        let bool = !(node.prev == None);;
        ensure!(bool, "You do not own this kitty");

        <OwnedKitties<T>>::append(&to, kitty_id);
        <OwnedKitties<T>>::remove(&sender, kitty_id);
}
```

完成insert_owned_kitty

```
fn insert_owned_kitty(owner: &T::AccountId, kitty_id: T::KittyIndex) {
        // 作业：调用 OwnedKitties::append 完成实现
        <OwnedKitties<T>>::append(&owner, kitty_id);
}
```

设计加密猫模块V4：交易所：1.给自己的小猫设定价钱 2.购买小猫

```
定价
1.验证user
2.验证需要定价的猫是否存在
3.验证这只猫是否是用户的
4.修改链上猫的价格

*/
fn set_price(origin, kitty_id: T::Hash, new_price: T::Balance) -> Result {
    1.验证user
    let sender = ensure_signed(origin)?;
    2.验证需要定价的猫是否存在
    ensure!(<Kitties<T>>::exists(kitty_id), "This cat does not exist");

    3.验证这只猫是否是用户的
    let owner = Self::owner_of(kitty_id).ok_or("No owner for this kitty")?;
    ensure!(owner == sender, "You do not own this cat");

    4.修改链上猫的价格
    let mut kitty = Self::kitty(kitty_id);
    kitty.price = new_price;

    <Kitties<T>>::insert(kitty_id, kitty);

    Ok(())
```

```
}
```

买猫

```
1.验证user
2.验证要买的猫是否存在
3.验证猫的所有权，不能是自己的
4.验证猫有价
5.转账
6.transfer
*/
fn buy_kitty(origin, kitty_id: T::Hash, max_price: T::Balance) -> Result {
    1.验证user
    let sender = ensure_signed(origin)?;

    2.验证要买的猫是否存在
    ensure!(<Kitties<T>>::exists(kitty_id), "This cat does not exist");

    3.验证猫的所有权，不能是自己的
    let owner = Self::owner_of(kitty_id).ok_or("No owner for this kitty")?;
    ensure!(owner != sender, "You can't buy your own cat");

    let mut kitty = Self::kitty(kitty_id);

    4.验证猫有价
    let kitty_price = kitty.price;
    ensure!(!kitty_price.is_zero(), "The cat you want to buy is not for
sale");

    5.转账
    //<balances::Module<T>>::make_transfer(&sender, &owner, kitty_price)?;

    6.transfer
    Self::transfer_from(owner.clone(), sender.clone(), kitty_id);

    Ok(())
}
```

额外作业

利用polkadot.js开发一个命令行软件：创建小猫