

Pet Shop Etherium Blockchain DApp

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4th Feb 2021





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Introduction



PUBLISHED JAN 25, 2021, 5:00 AM SGT

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Would you pay more than \$12,000 for a dog? Some Singaporeans can - and will.

And demand for these costly canines shows no signs of abating, despite prices for many breeds ballooning since last year.

Checks by The Straits Times found that a golden retriever can cost up to \$12,800, compared with about \$5,000 last January.

Microchipped Pets Can Be Registered on Blockchain

Asia Blockchain Review

© JANUARY 12, 2020

THIS PROJECT extends PetLab to cater for DApp Pet Shop as pets in SG are expensive and tracked by unique ID , benefits:

- Assignment is to produce a transactional DApp, with smart contract using solidity patterns.
- This project extends petlab by storing pets on the blockchain and keeps ownership information like License. It allows purchase of pets via ETH for cats, dogs, birds. It also uses solidity patters to store, match, buy pets.
- Quick, secure access to pet information post sales and for future resales or adoption and medical. Benefit to pet shop, pet owners, pet breeders via API access.

Extensions & Features

Pet Shop Smart Contract features:

- **Unlimited pets** using dynamic storage.
- **3 types of pets**, cat, dogs, birds.
- **Quick, secure** access via solidity-patterns.
- **Mange pet inventory** (instock, available, sold).
- Matching petshop and blockchain using pet license.
- **Purchase of pets via ETH**.
- Can provide access to **Pet License ID**.
- Can provide **immutable access to pet purchase history and details via PUBLIC API**.

There are 4 solidity patterns used in Pet Shop :

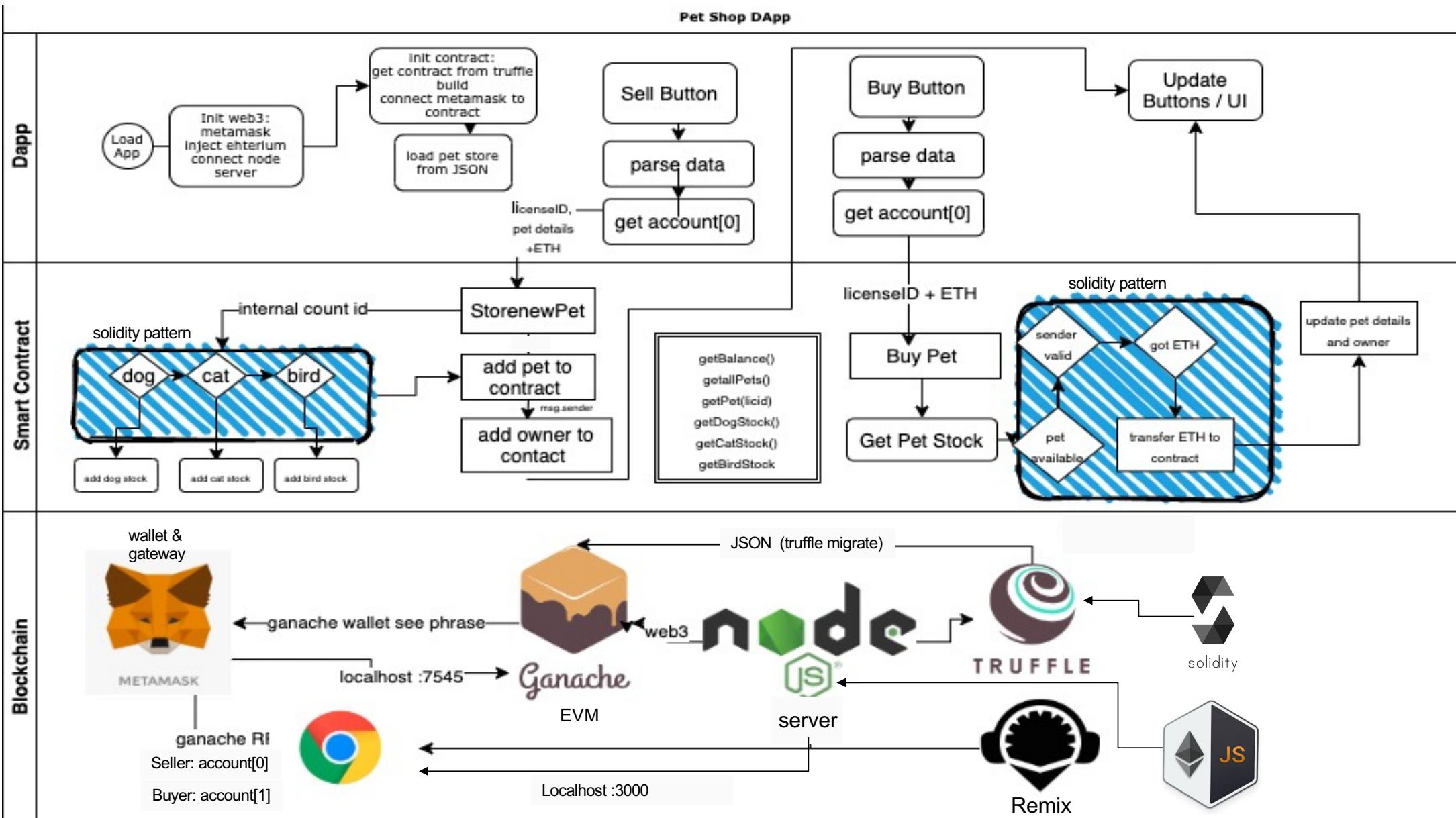
<https://fravoll.github.io/solidity-patterns>

1. String Equality Comparison + Memory Array Build: Check for the equality of two strings and retrieve data to minimize average gas consumption. **Used in functions storenewPet, buyPet and getPets.**

2. Guard Check Initial: Ensure that the behaviour of a smart contract and its input parameters are as expected. **Validating user inputs when buying pets so ETH used in buyPet**

3. Guard Check before sending ETH (v2): Guard against re-entrancy by making all state changes before calling other contracts using re-entrancy guard modifier





DEMO OR SCREENSHOTS

Screen shots from REMIX AND GANACHE



DEPLOY & RUN TRANSACTIONS

ENVIRONMENT
JavaScript VM

ACCOUNT `0x5B3...eddC4 (96.9999999)`

GAS LIMIT
3000000000

VALUE
0 ether

CONTRACT
PShop - browser/Pshop.sol

Deploy

Publish to IPFS

DEPLOY & RUN TRANSACTIONS

Deployed Contracts

PSHOP AT 0X5E1...4EFF5 (MEMORY)

buyPet

`_id: "1001"`

fallback

receive

storeNewPet

`"1002","cutie","ginger","persian"`

petCount

0: uint256: 2

getallPets

0: tuple(uint256,uint256,string,string,string,string,uint256,address)[]: 1,1001,poochie,brown,poodle,available,dog,1,0x5B38Da6a701c568545dCfcB03FcB875f56beddC4,2,1002,cutie,ginger,persian,available,cat,1,0x5B38Da6a701c568545dCfcB03FcB875f56beddC4

getBalance

0: uint256: 99999999999999999999999999999999

getBirdPet

getCatPet

0: tuple(uint256,uint256,string,string,string,string,uint256,address)[]: 2,1002,cutie,ginger,persian,available,cat,1,0x5B38Da6a701c568545dCfcB03FcB875f56beddC4

getDogPet

getPets 1001

0: tuple(uint256,uint256,string,string,string,string,uint256,address): 1,1001,poochie,brown,poodle,available,dog,1,0x5B38Da6a701c568545dCfcB03FcB875f56beddC4

ADDRESS

0x99Ca8e569B46cdDd4114a75Bb17885BAa3fF960c

BALANCE

89.89 ETH

ADDRESS

0xa882199d731391C9131Ab0Aa29c65c995AE54EA3

BALANCE

98.00 ETH

 BACK

TX 0xb7d0073a3dac567b1acd570299cff83568d0a02169b2d6e9c6705f3809f4b868

SENDER ADDRESS Seller and old owner

0x99Ca8e569B46cdDd4114a75Bb17885BAa3fF960c

TO CONTRACT ADDRESSE

0xdd5e2c172F42708bE7871124227aB37FE8CaB126

CONTACT CAN

VALUE

0.00 ETH 464394

VALUE	GAS USED	GAS PRICE	GAS LIMIT	MINED IN BLOCK
0.00 ETH	464394	20000000000	696591	9

TX DATA

CONTRACT

CONTRACT

PShop

ADDRESS

0xd5e2c172F42708bE7871124227aB37EE8CaB126

~~FUNCTION~~

```
storeNewPet(ic: uint256, nam: string, col: string, bree: string, stat: string, cat: string, price: uint256)
```

INPUTS

1003, Champion, red, Parrot, available, bird, 2

```
{ 8 items [ ]  
  receiver : address "0x00000000000000000000000000000000"  
  petCount : uint 3  
  petStock : [ . . . ] 3 items [ ] 1 dog  
  dogStock : [ . . . ] 1 item [ ] 1 cat  
  catStock : [ . . . ] 1 item [ ] 1 bird  
  birdStock : [ ] 1 item [ ]  
    0 : { 3 items [ ]  
      name : string "pet"  
      type : string "pet"  
      members : { 9 items [ ]  
        petID : uint 3  
        licenseID : uint 451  
        name : string "Champion"  
        colour : string "red" [ ]  
        breed : string "Parrot"  
        status : string "available"  
        category : string "bird"  
        price : uint 2  
        owner : address '0x99Ca8e569B46c'  
      }  
    }
```




THANK YOU