

# 2022嵌入式实践课——智能合约

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伍成恩 191250154

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## 贡献度使用模块——利益分配合约

### 前言

本次代码采用solidity语言编写，使用[remix](#)在线编译器进行编译，并通过remix内置的Remix VM环境部署，最后部署Goerli以太坊测试网络上

### 数据结构

所有使用数据结构参考了往届的代码，并放在了 `./contract/dataType.sol` 文件中

### 功能实现

正式合约的文件名为 `./contract/Trade.sol`，其中包含了本次实现的利益分配的功能。

### 项目初始化

为了能够测试利益分配功能是否能够成功运行，在合约部署时会进行项目的初始化，在初始化阶段改合约会创建一个全新的代码项目，并且其项目id为0，我们设置了该项目内的关键变量，如每一个贡献度的价格和每一个贡献度能够兑换的代码行数。

### 通过购买来加入项目并且获得贡献度

为了能够测试不同的情况下利益分配是准确，在这里我简要的写了一个加入项目并且购买贡献度的方法

### 购买软件

该方法是用来触发利益分配方法的

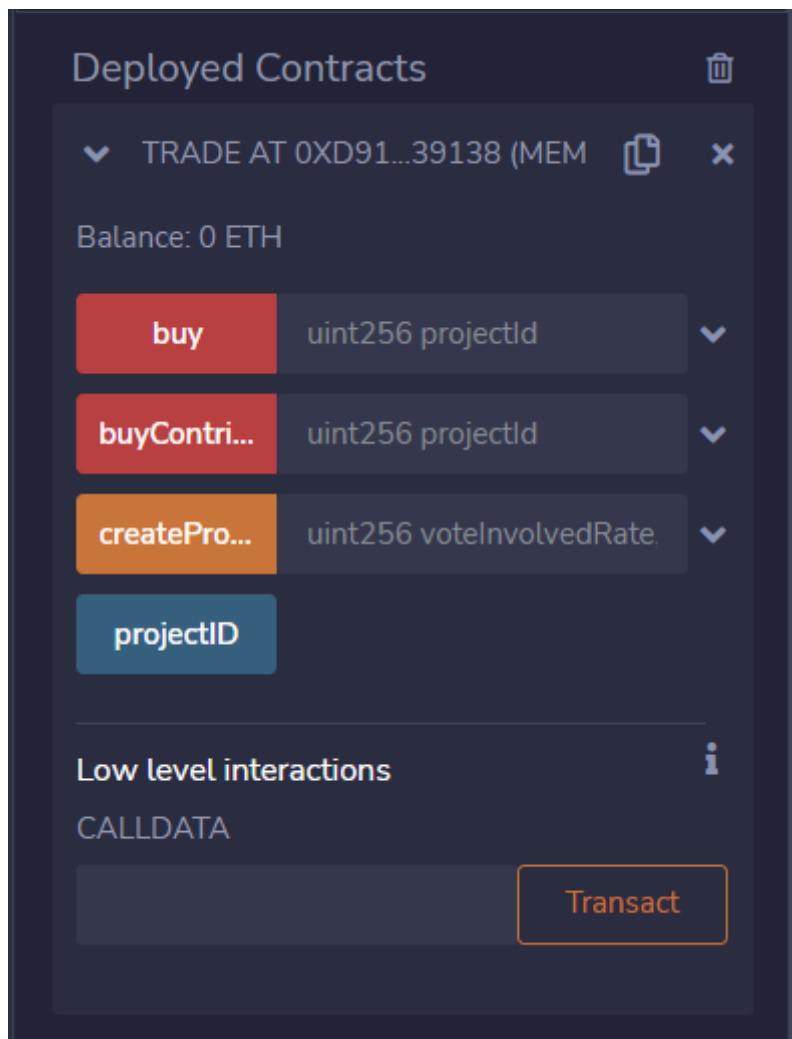
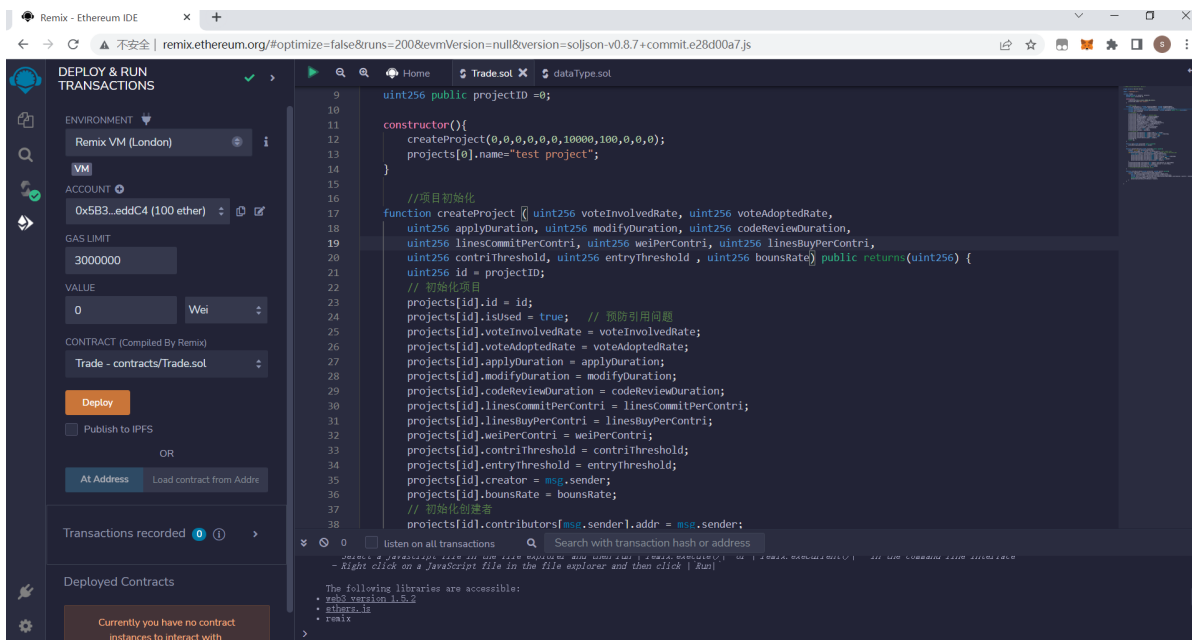
### 利益分配 \*

通过计算每个人贡献度的占比来分配本次收益的80%收入，该方法涉及到以太的转发，请谨慎调用

### 部署

#### 本地测试

通过remix自带的Remix VM即可非常快速的部署



部署在测试网络——Gorlie测试网络

通过remix的Injected Provider - Metamask 来部署到测试网络上

Remix - Ethereum IDE

remix.ethereum.org/#optimize=false&runs=200&evmVersion=null&version=soljson-v0.8.7+commit.e28d00a7.js

DEPLOY & RUN TRANSACTIONS

ENVIRONMENT: Injected Provider - Metamask

ACCOUNT: 0x767...b4788 (0.2999684)

GAS LIMIT: 3000000

VALUE: 0 Wei

CONTRACT (Compiled By Remix): Trade - contracts/Trade.sol

Deploy

Transactions recorded: 1

Deployed Contracts: Currently you have no contract

```
uint256 public projectId = 0;

constructor(){
    createProject(0,0,0,0,0,0,10000,100,0,0,0);
    projects[0].name="test project";
}

//项目初始化
function createProject ( uint256 voteInvolvedRate, uint256 voteAdoptedRate,
uint256 applyDuration, uint256 modifyDuration, uint256 codeReviewDuration,
uint256 linesCommitPerContri, uint256 weiPerContri, uint256 linesBuyPerContri,
uint256 contriThreshold, uint256 entryThreshold, uint256 bounsRate) public returns(uint256 id) {
    // 初始化项目
    projects[id].id = id;
    projects[id].isUsed = true; // 预防引用问题
    projects[id].voteInvolvedRate = voteInvolvedRate;
    projects[id].voteAdoptedRate = voteAdoptedRate;
    projects[id].applyDuration = applyDuration;
    projects[id].modifyDuration = modifyDuration;
    projects[id].codeReviewDuration = codeReviewDuration;
    projects[id].linesCommitPerContri = linesCommitPerContri;
    projects[id].linesBuyPerContri = linesBuyPerContri;
    projects[id].weiPerContri = weiPerContri;
    projects[id].contriThreshold = contriThreshold;
    projects[id].entryThreshold = entryThreshold;
    projects[id].creator = msg.sender;
    projects[id].bounsRate = bounsRate;
    // 初始化创建者
    projects[id].contributors[msg.sender].addr = msg.sender;
    projects[id].contributors[msg.sender].value = 1;
}
```

MetaMask Notification

Account 1

New gas experience

We've updated how gas fee estimation and customization works.

Turn on enhanced gas fee UI in Settings

详情 数据

估计燃料费用 0.025304 GoerliETH

推荐站点 最高收费: 0.04812104 GoerliETH

总额 0.02530401

金额 + 燃料费 最大金额: 0.04812104 GoerliETH

拒绝 确认

Remix - Ethereum IDE

Goerli Transaction Hash (Txh):

goerli.etherscan.io/bx/0xcc6822dab0a917a6af7d96d72a9ce0ca87b986ac5f9598e2881e8e9e9fdd122a

Etherscan

Goerli Testnet Network

All Filters Search by Address / Txn Hash / Block / Token / Ens

Home Blockchain Tokens Misc Goerli

Transaction Details

Overview State

[ This is a Goerli Testnet transaction only ]

Transaction Hash: 0xcc6822dab0a917a6af7d96d72a9ce0ca87b986ac5f9598e2881e8e9e9fdd122a

Status: Success

Block: 7908359 2 Block Confirmations

Timestamp: 52 secs ago (Nov-07-2022 12:57:00 PM +UTC)

From: 0x76729b859158f858e808c5ba840a7ad492eb4788

To: [Contract 0x5f544b4e2f9a032a877f234f99f115af6f4e353d Created]

Value: 0 Ether (\$0.00)

Transaction Fee: 0.02268117385623035 Ether (\$0.00)

Gas Price: 0.000000019465760645 Ether (19.465760645 Gwei)

goerli.etherscan.io/address/0x5f544b4e2f9a032a877f234f99f115af6f4e353d

Etherscan

Goerli Testnet Network

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Contract 0x5f544b4e2f9a032a877f234f99f115af6f4e353d

Contract Overview

Balance: 0.0102 Ether

More Info

My Name Tag: Not Available

Contract Creator: 0x76729b859158f858e8... at bn 0xcc6822dab0a917a6af...

Transactions Internal Txns ERC20 Token Txns Contract Events

Latest 3 from a total of 3 transactions

Txn Hash	Method	Block	Age	From	To	Value	Txn Fee
0xd1101f1154fec854f649...	Buy	7908377	1 min ago	0x76729b859158f858e8...	0x5f544b4e2f9a032a877...	0.01 Ether	0.00255138
0x10a131767426171598...	Buy	7908372	2 mins ago	0x76729b859158f858e8...	0x5f544b4e2f9a032a877...	0.0001 Ether	0.00076248
0xcc6822dab0a917a6af...	Contract Creation	7908359	5 mins ago	0x76729b859158f858e8...		0 Ether	0.02268117

[ Download CSV Export ]

A contract address hosts a smart contract, which is a set of code stored on the blockchain that runs when predetermined conditions are met. Learn more about addresses in our Knowledge Base.

