

07-第七节 读取链上数据

实验目的

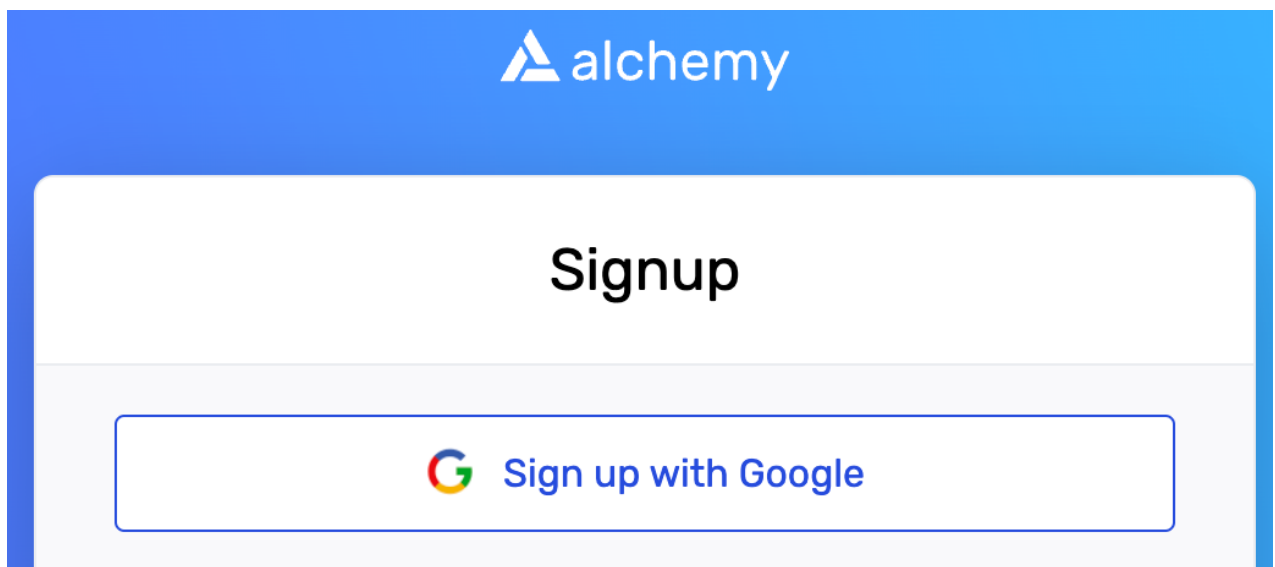
- 掌握链上数据的获取与分析方式;

实验环境

- Node.js, 版本v14及以上
- Alchemy - the web3 development platform
- Ethereum (ETH) Blockchain Explorer (etherscan.io)
- Documentation (ethers.io)
- USDT合约地址:
0xdAC17F958D2ee523a2206206994597C13D831ec7

实验内容

1. 注册alchemy账户



or

FIRST NAME

Peili

LAST NAME

Liang

EMAIL

liangpeili@foxmail.com

PASSWORD

.....



I am human



hCaptcha

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Sign up

2. 选择免费计划

Choose your plan.


Free

\$0
The most powerful free tier in blockchain.

Growth

\$49/mo
Ultimate scalability and enhanced methods.

Enterprise


Volume pricing, enterprise support & SLAs, on-prem options.

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3. 找到相应的key和Ethereum的配置，作为代码里RPC的配置

1 INTEGRATE WITH ALCHEMY

 [Getting started guide](#)

API KEY

r0psWB88gF4sgJAxbzQcJqPMDwl8f3XQ

 [Copy](#)

HTTPS

https://eth-mainnet.g.alchemy.com/v2/r0psWB88gF4sgJAxbzQcJ...

 [Copy](#)

WEBSOCKETS

wss://eth-mainnet.g.alchemy.com/v2/r0psWB88gF4sgJAxbzQcJq...

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CLI

JAVASCRIPT

PYTHON

GO

HTTPS EXAMPLE

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4. 在本地安装node.js

```
[>] node -v  
v16.15.1
```

5. 在本地新建目录，并使用 `npm init` 进行初始化；

```
> npm init
This utility will walk you through creating a package.json file.
It only covers the most common items, and tries to guess sensible defaults.

See `npm help init` for definitive documentation on these fields
and exactly what they do.

Use `npm install <pkg>` afterwards to install a package and
save it as a dependency in the package.json file.

Press ^C at any time to quit.
package name: (course07)
version: (1.0.0)
description:
entry point: (index.js)
test command:
git repository:
keywords:
author:
license: (ISC)
About to write to /Users/liangpeili/Projects/cbi/DApp-and-Smart-Contract-F
{
  "name": "course07",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "author": "",
  "license": "ISC"
}

Is this OK? (yes) yes
```

6. 安装ethers.js

```
npm install --save ethers
```

```
> npm install --save ethers

added 45 packages, and audited 46 packages in 9s

31 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

7. 新建文件 `main.js`

在程序里实现以下功能：

- 查询最新区块高度
- 查询gasPrice
- 根据区块高度查询区块的miner;
- 查询USDT合约的symbol
- 查询USDT合约的decimals
- 查询USDT合约的totalSupply
- 查询USDT合约最新一百个区块的Transfer事件;

```
> node main.js
block number 16052798
gas price 9032270773
block miner 0xDAFEA492D9c6733ae3d56b7Ed1ADB60692c98Bc5
decimals 6
total supply 32297366521996886
symbol USDT
event length 1234
```

加分项：

- 统计USDT的所有持币账户，分成address/amount 两个属性生成一个JSON文件。并且和区块链浏览器数据做对比，账户余额是否正确。

实验报告内容

提交源代码，并回答：

1. 除了alchemy之外，你还知道哪些RPC Provider? **Ethereum Nodes**
2. Provider的作用是什么？
3. ABI 的内容是啥？如何在程序里使用？

在实验报告开头中写明：姓名/学号/班级。

实验报告提交方式

实验报告完成后发送到邮箱 **cbireport@163.com**，标题为 **学号-班级-姓名-第七次实验报告**