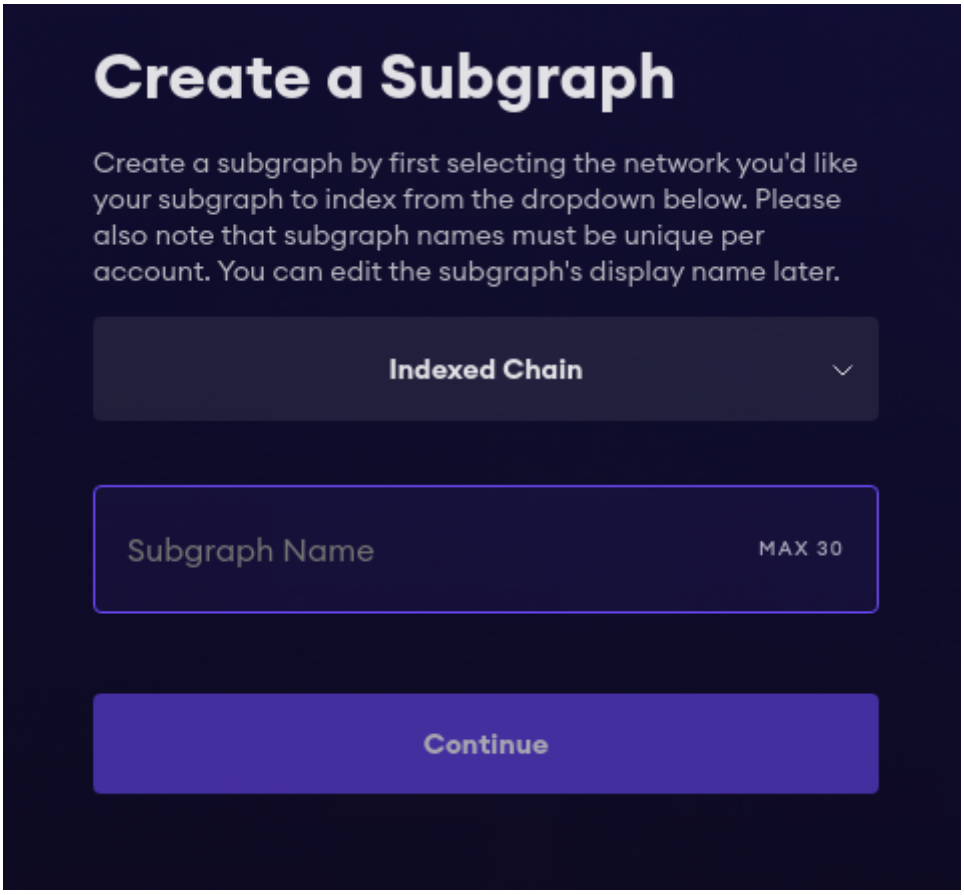
Homework 16

Using The Graph

You can use gitpod (https://gitpod.io/#https://github.com/ExtropyIO/Academy (https://gitpod.io/#https://github.com/ExtropyIO/Academy)) or work locally

1. Go to subgraph studio and connect your wallet
   You will need to sign the request in metamask

2. Then create a subgraph and give it a name <SUBGRAPHNAME>

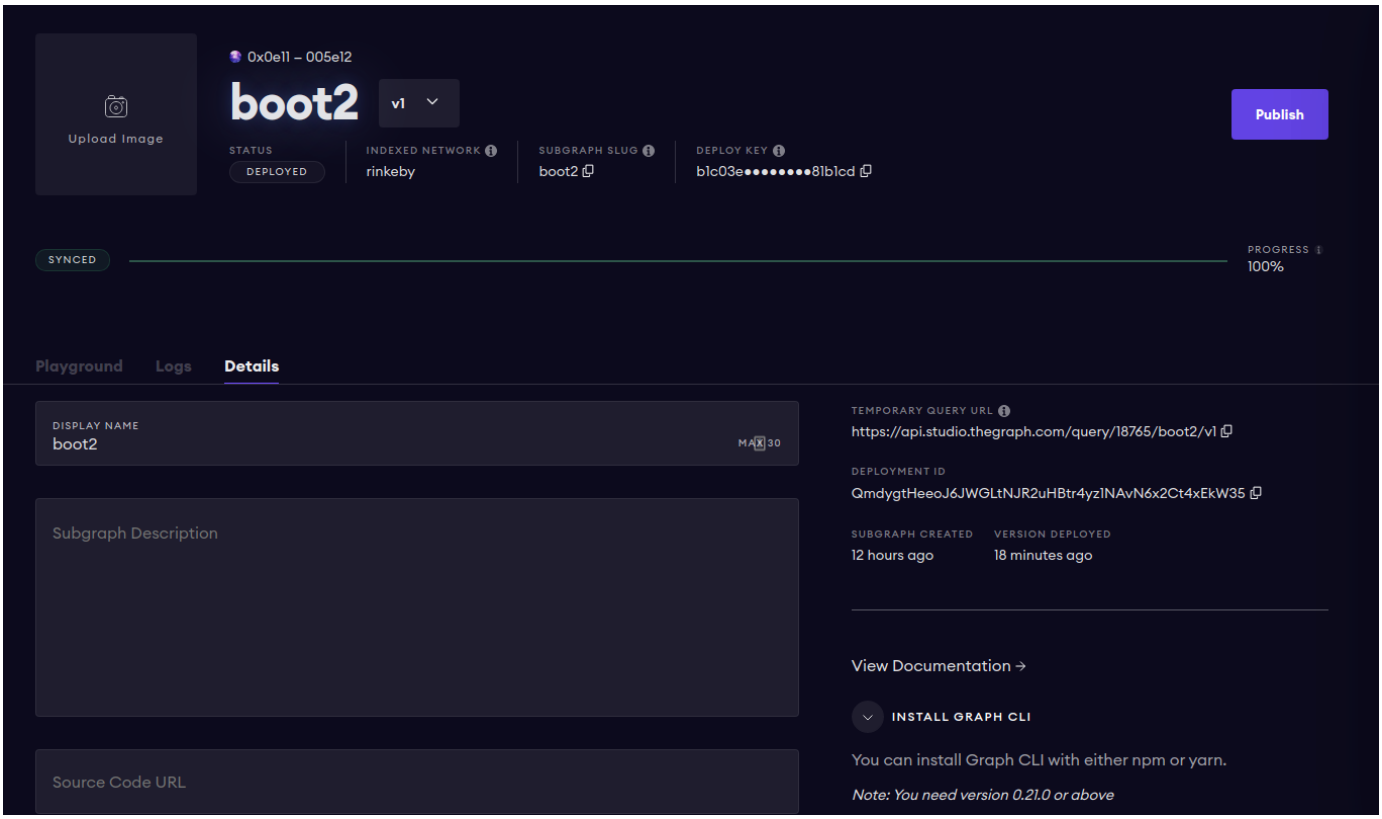


3. In the drop down chose Rinkeby or Kovan
   You should then have a deploy key in the main subgraph studio page
   You can follow the steps to use the graph-cli given on that page.
   In these steps you will be asked for the address of a contract,
   You can use the Lottery contract on Rinkeby - address
   0x90649B117656e54aB4F2592c1E83e7145Eae1290
   It should be able to pick up the abi from etherscan

4. The CLI commands are

```
npm install -g @graphprotocol/graph-cli
graph init --studio <SUBGRAPHNAME>
graph auth  --studio <AUTH KEY>
cd <SUBGRAPHNAME>
graph codegen && graph build
graph deploy --studio <SUBGRAPHNAME>
```

These are shown on the righ hand side of the details tab



You can publish it to the graph explorer if you have some GRT

You can use the Playground tab to try out queries on the data

To write further queries see the GraphQL Documentation (https://graphql.org/learn/queries/)
You will need to set up the schema in schema.graphql

5. Deploy a new contract (you can use VolcanoCoin) on Rinkeby or Kovan
6. Verify the contract on the relevant etherscan, e.g. rinkeby.etherscan.io (http://rinkeby.etherscan.io)
7. Create a subgraph for your contract

Chainlink

We will use the Kovan testnet
Get some testnet LINK from the faucet
https://faucets.chain.link/ (https://faucets.chain.link/)
Link token address is 0xa36085F69e2889c224210F603D836748e7dC0088

1. Create the test hardhat project and add the chainlink dependencies

```
https://github.com/smartcontractkit/chainlink-hardhat-box
cd chainlink-hardhat-box
yarn
```

2. Update the entries in the .env file

```
KOVAN_RPC_URL='www.infura.io/<YOUR INFURA KEY>'
PRIVATE_KEY=<YOUR PRIVATE KEY>
MAINNET_RPC_URL="https://eth-mainnet.alchemyapi.io/v2/your-api-key"
MUMBAI_RPC_URL='https://rpc-mumbai.maticvigil.com'
POLYGON_MAINNET_RPC_URL='https://rpc-mainnet.maticvigil.com'
```

3. Follow the instructions in the README file to

- Read a data feed
- Get a VRF derived random number