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jordansun@Jordans-MBP lesson10 % ls
README.md           hash_value.py      snakecoin-server-full-code.py  static
dico.png            info_node.py     snakecoin.py
jordansun@Jordans-MBP lesson10 % python3 hash_value.py
The hash for 1 is: 1
The hash for 1.0 is: 1
The hash for 3.14 is: 322818021289917443
The hash for Python is: 1198779707474695249
The hash for all the vowels is: -6736959995264428987
The hash for an object of person is: -192708674334438335
jordansun@Jordans-MBP lesson10 % python3 hash_value.py
The hash for 1 is: 1
The hash for 1.0 is: 1
The hash for 3.14 is: 322818021289917443
The hash for Python is: 3097995238013340165
The hash for all the vowels is: -655811076384987
The hash for an object of person is: -2689429299786725260
jordansun@Jordans-MBP lesson10 % python3 snakecoin.py
Block #1 has been added to the blockchain!
Hash: 14e1ba3400be4a83cbcd556743998f1fcacf4c7e63d7edfdcd6003df638efcd1a
Block #2 has been added to the blockchain!
Hash: ac54725f97a7b5cc18c68187e9ace9de037c53b332bb1d14228fddbbff06ea
Block #3 has been added to the blockchain!
Hash: bebfc28dfb86bd27abf3b880f260c8ab2f9210469ce00e2ae87f2e7fb27ffe0
Block #4 has been added to the blockchain!
Hash: a273fe56427d95d63821d09f27bc9c5ff94a78fa1b938836874420b85ac90216
Block #5 has been added to the blockchain!
Hash: 26e8d28ee5643c29632d13fd994a61e49cc0dde518c5e564b0ceb7f7a7b7
Block #6 has been added to the blockchain!
Hash: 28a6c75afde5f985e46a999c5f525e5d43e5174f91682f3e62e03191525c7d63
Block #7 has been added to the blockchain!
Hash: d4de186ff688432c6bfac859aa082f9897322561e91a4beb8387532250df49c33
Block #8 has been added to the blockchain!
Hash: c9a5516127fec8b8fb6f0262016b5686aa21e30efd775ad320d5940c4a626013
Block #9 has been added to the blockchain!
Hash: 8b5bcc78f185103db023c6465435a6b5202119fad2e7f74b7e811a73ba11a19
Block #10 has been added to the blockchain!
Hash: 011f3f9b25426ef64dd6d87e4d9473197a01e816db67f772bdcc5e0227ea4363
Block #11 has been added to the blockchain!
Hash: a5e12d42ec128c33d13cac505d3a6bcc4a67e8c87b70478fde1eb0c038d740d1
Block #12 has been added to the blockchain!
Hash: c220c562827e50d6921b5a4cd1df634891led53a471952d16301d1bec8c9ec9
```

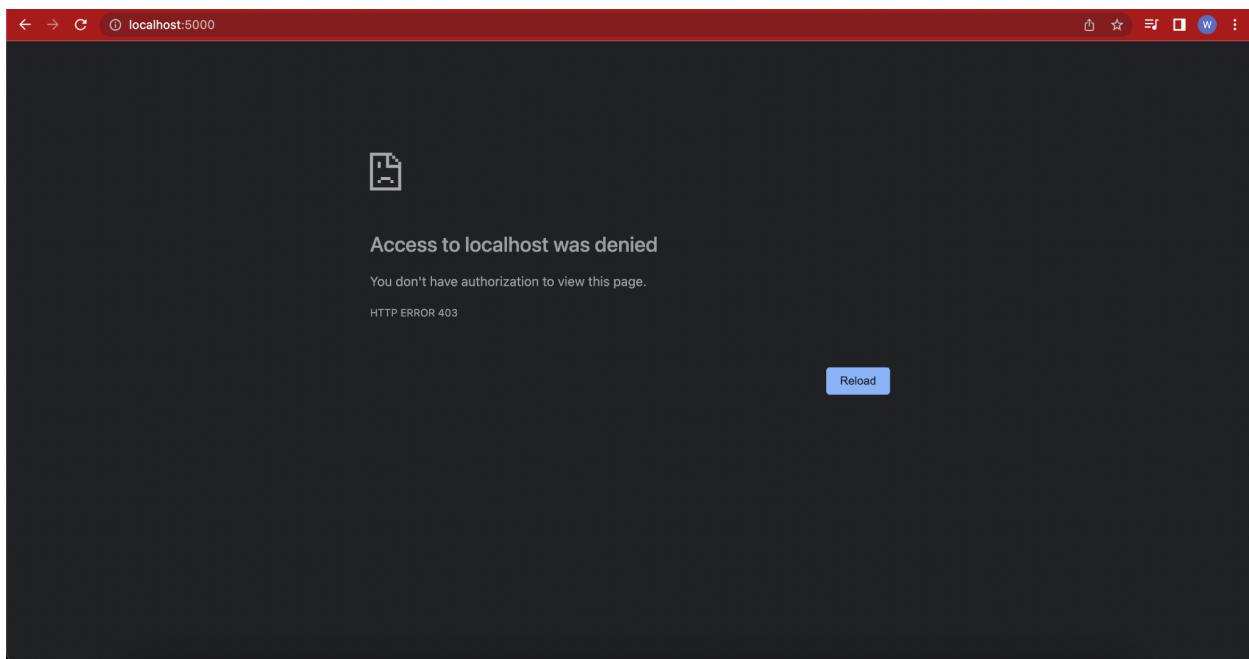
```
Hash: bebfc2f8dfb86bd27abf3b880f260c8ab2f8210469ce00e2ae87f2e7fb27ffe0
Block #4 has been added to the blockchain!
Hash: a273fe56427d95d63821d09f27bc9c5ff94a78fa1b938836874420b85ac90216
Block #5 has been added to the blockchain!
Hash: 26e8d28ee5643c29632d13fd994a61e49cc0dde518c5e564b0ceb7f7a7b7
Block #6 has been added to the blockchain!
Hash: 28a6c75afde5f985e46a999c5f525e5d43e5174f91682f3e62e03191525c7d63
Block #7 has been added to the blockchain!
Hash: d4de186ff688432c6bfac859aa082f9897322561e91a4beb8387532250df49c33
Block #8 has been added to the blockchain!
Hash: c9a5516127fec8b8fb6f0262016b5686aa21e30efd775ad320d5940c4a626013
Block #9 has been added to the blockchain!
Hash: 8b5bcc78f185103db023c6465435a6b5202119fad2e7f74b7e811a73ba11a19
Block #10 has been added to the blockchain!
Hash: 011f3f9b25426ef64dd6d87e4d9473197a01e816db67f772bdcc5e0227ea4363
Block #11 has been added to the blockchain!
Hash: a5e12d42ec128c33d13cac505d3a6bcc4a67e8c87b70478fde1eb0c038d740d1
Block #12 has been added to the blockchain!
Hash: c220c562827e50d6921b5a4cd1df634891led53a471952d16301d1bec8c9ec9
Block #13 has been added to the blockchain!
Hash: c79f800bcd54c5665f6ac5c47cdc69915ad80bd056d0c8d538bab802356124
Block #14 has been added to the blockchain!
Hash: ba16b41db93a7b6d2f24aecf742af6ccbd52916768a4bd59333195c110a01b
Block #15 has been added to the blockchain!
Hash: 28f6bf97e18f4314c2f8dc9bdf55cedd0218a26b0cd5d9fe1691abb6349229c
Block #16 has been added to the blockchain!
Hash: e66adee533def7bf52e45e5a68a8c873d39c5cd9b55d3916d1edb7c79d97aef282
Block #17 has been added to the blockchain!
Hash: abdc798747cf0b3d97b537cab26f59236350718fead052017cfabebf640ef72
Block #18 has been added to the blockchain!
Hash: 278bb0c5156b239829edc93408546049ad37345d1f54a1b989f20541cc9efa9e7
Block #19 has been added to the blockchain!
Hash: c4ebbe8acf4293237efbd9f2a1aa9654db9e02af580bbddaa8a7351414d467fd
Block #20 has been added to the blockchain!
Hash: 0e5873fe052958d12378a497eb26f12a764b487879ddaa16d65aa7e6d437b0
```

jordansun@Jordans-MBP lesson10 %

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jordansun@Jordans-MBP lesson10 % python3 snakecoin-server-full-code.py
Traceback (most recent call last):
  File "/Users/jordansun/Desktop/github/iot/lesson10/snakecoin-server-full-code.py", line 4, in <module>
    from flask import Flask
ModuleNotFoundError: No module named 'flask'
jordansun@Jordans-MBP lesson10 % pip3 install flask
DEPRECATION: Configuring installation scheme with distutils config files is deprecated and will no longer work in the near future. If you are using a Homebrew or Linuxbrew Python, please see discussion at https://github.com/Homebrew/homebrew-core/issues/76621
Collecting flask
  Downloading Flask-2.1.1-py3-none-any.whl (95 kB)
[...]
Collecting Werkzeug>=2.0
  Downloading Werkzeug-2.1.1-py3-none-any.whl (224 kB)
[...]
Collecting importlib-metadata>=3.6.0
  Downloading importlib_metadata-4.11.3-py3-none-any.whl (18 kB)
Collecting click>=8.0
  Downloading click-8.1.2-py3-none-any.whl (96 kB)
[...]
Collecting itsdangerous>=2.0
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting Jinja2>=3.0
  Downloading Jinja2-3.1.1-py3-none-any.whl (132 kB)
[...]
Collecting zipp>=3.8
  Downloading zipp-3.8.0-py3-none-any.whl (6.4 kB)
Collecting MarkupSafe>=2.0
  Downloading MarkupSafe-2.1.1-cp39-cp39-macosx_10_9_universal2.whl (17 kB)
Installing collected packages: zipp, MarkupSafe, Werkzeug, Jinja2, itsdangerous, importlib-metadata, click, flask
DEPRECATION: Configuring installation scheme with distutils config files is deprecated and will no longer work in the near future. If you are using a Homebrew or Linuxbrew Python, please see discussion at https://github.com/Homebrew/homebrew-core/issues/76621
DEPRECATION: Configuring installation scheme with distutils config files is deprecated and will no longer work in the near future. If you are using a Homebrew or Linuxbrew Python, please see discussion at https://github.com/Homebrew/homebrew-core/issues/76622
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DEPRECATION: Configuring installation scheme with distutils config files is deprecated and will no longer work in the near future. If you are using a Homebrew or Linuxbrew Python, please see discussion at https://github.com/Homebrew/homebrew-core/issues/76621
Successfully installed Jinja2-3.1.1 MarkupSafe-2.1.1 Werkzeug-2.1.1 click-8.1.2 flask-2.1.1 importlib-metadata-4.11.3 itsdangerous-2.1.2 zipp-3.8.0
WARNING: You are using pip version 21.3.1; however, version 22.0.4 is available.
You should consider upgrading via the 'pip install --upgrade pip' command.
jordansun@Jordans-MBP lesson10 %
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```
Successfully Installed Jinja2-3.1.1 MarkupSafe-2.1.1 Werkzeug-2.1.1 click-8.1.2 flask-2.1.1 importlib-metadata-4.11.3 itsdangerous-2.1.2 zipp-3.8.0
WARNING: You are using pip version 21.3.1; however, version 22.0.4 is available.
You should consider upgrading via the '/opt/homebrew/opt/python@3.9/bin/python3.9 -m pip install --upgrade pip' command.
jordansun@Jordans-MBP lesson10 % python3 snakecoin-server-full-code.py
* Serving Flask app 'snakecoin-server-full-code' (lazy loading)
* Environment: production
WARNING: This is a development server. Do not use it in a production deployment.
* Debug mode: off
* Running on http://127.0.0.1:5000 (Press CTRL+C to quit)
```

```
Last login: Wed Apr 28 15:48:16 on ttys008
jordansun@Jordans-MBP ~ % curl "localhost:5000/txion" \
-H "Content-Type: application/json" \
-d '{"from": "akjflw", "to": "fjlaikdj", "amount": 3}'
jordansun@Jordans-MBP ~ % curl localhost:5000/mine
jordansun@Jordans-MBP ~ %
```



```
jordansunJordans-MBP lesson10 % git clone https://github.com/satwikkansal/python_blockchain_app.git
Cloning into 'python_blockchain_app'...
remote: Enumerating objects: 146, done.
remote: Counting objects: 100% (146/146), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 146 (delta 0), reused 1 (delta 0), pack-reused 143
Receiving objects: 100% (146/146), 223.96 KiB | 2.62 MiB/s, done.
Resolving deltas: 100% (67/67), done.
jordansunJordans-MBP lesson10 % cd python_blockchain_app
jordansunJordans-MBP python blockchain_app % ls
CONTRIBUTING.md          README.md        app                  node_server.py      requirements.txt    run_app.py       screenshots
jordansunJordans-MBP python blockchain_app %
```

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# Uncomment this line if you want to specify the port number in the code  
app.run(debug=True, port=8000)
```

```
jordansun@Jordans-MBP: lesson19 % git clone https://github.com/satwikkansal/python_blockchain_app.git
Cloning into 'python_blockchain_app'...
remote: Enumerating objects: 146, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 146 objects, reused 1 (delta 0), pack-reused 143
Resolving deltas: 100% (140/146), done.
Resolving deltas: 100% (67/67), done.
jordansun@Jordans-MBP: lesson19 % cd python_blockchain_app
jordansun@Jordans-MBP: python_blockchain_app % ls
CONTRIBUTING.md           README.md          app                 node_server.py      requirements.txt    run_app.py        screenshots
jordansun@Jordans-MBP: python_blockchain_app % vim node_server.py
jordansun@Jordans-MBP: python_blockchain_app % vim node_server.py
jordansun@Jordans-MBP: python_blockchain_app % vim node_server.py
jordansun@Jordans-MBP: python_blockchain_app % python3 node_server.py
 * Serving Flask app 'node_server' (lazy loading)
 * Environment: production
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
 * Debug mode: on
 * Running on http://127.0.0.1:8000 (Press CTRL+C to quit)
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 867-014-332
```

```
Last login: Wed Apr 20 15:45:35 on ttys001
[jordansun]Jordans-MBP ~ % vncserver
zsh: command not found: vncserver
[jordansun]Jordans-MBP ~ % cd Desktop/github/iot/lesson10
[jordansun]Jordans-MBP lesson10 % cd python_blockchain_app
[jordansun]Jordans-MBP python Blockchain_app % python3 run_app.py
* Serving Flask app 'app' (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: on
* Running on http://127.0.0.1:5000 (Press CTRL+C to quit)
* Restarting with stat
* Debugger is active!
* Debugger PIN: 667-014-332
```

```
jordansun@Jordans-MBP:~/lesson10% python3 iri_node_info.py
{'latestMilestone': TransactionHash(b'NIWMMHwBXGCZXJIEMENVIZYKMNQJDVMUZA斋AIIGC9V9IJFXXPWWYUUNJUHXJGYYPSFHVGFPJCTZX8999'), 'latestSolidSubtangleMilestone': TransactionHash(b'NIWMMHwBXGCZXJIEMENVIZYKMNQJDVMUZA斋AIIGC9V9IJFXXPWWYUUNJUHXJGYYPSFHVGFPJCTZX8999'), 'appName': 'HORNET', 'appVersion': '0.5.6', 'coordinatorAddress': 'GY1SMBVRKSCEXTUPBwTiHRCZiKIRPOYAAYKMNTPzSCSDNADDWAEUNHKUERZCTVAYJCNFXGTNUH90GTW', 'durationInMicroseconds': 1, 'isRemotePOW': 'WereAddressesSpentFrom', 'isSynced': True, 'lastSnapshotToMilestoneIndex': 3544835, 'latestMilestoneIndex': 3544923, 'latestSolidSubtangleMilestoneIndex': 3544923, 'milestoneStartIndex': 3209121, 'neighbors': 3, 'time': 1650485248000, 'tips': 9, 'transactionsToRequest': 8}
jordansun@Jordans-MBP:~/lesson10%
```