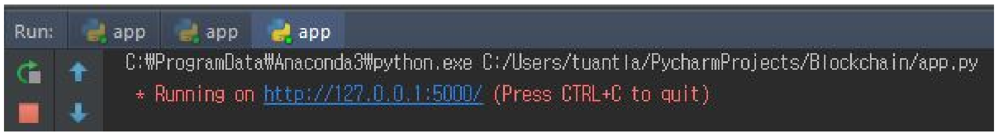
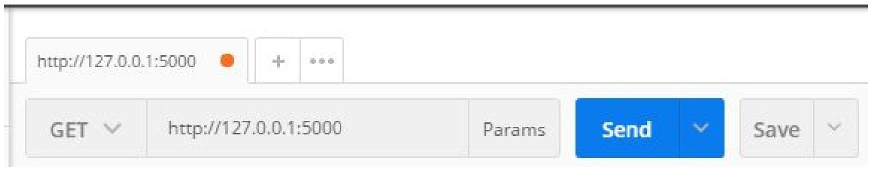
I. At node http://127.0.0.1:5000

1. Run in node http://127.0.0.1:5000

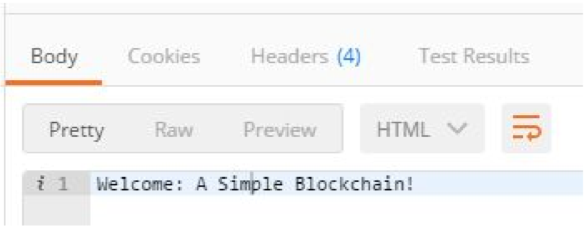


```
C:\ProgramData\Anaconda3\python.exe C:/Users/tuantla/PycharmProjects/Blockchain/app.py
 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

2. In Postman. Go to http://127.0.0.1:5000

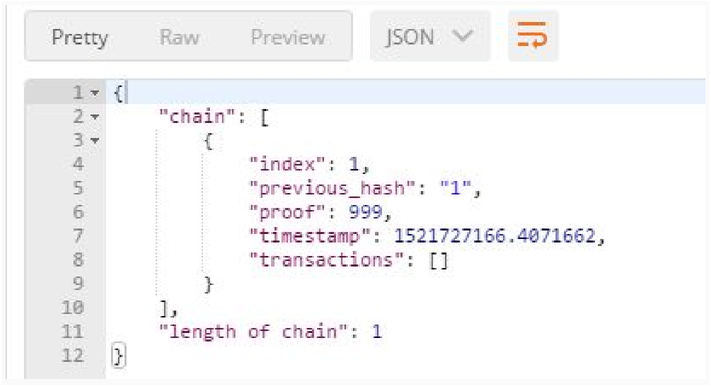


→ Output



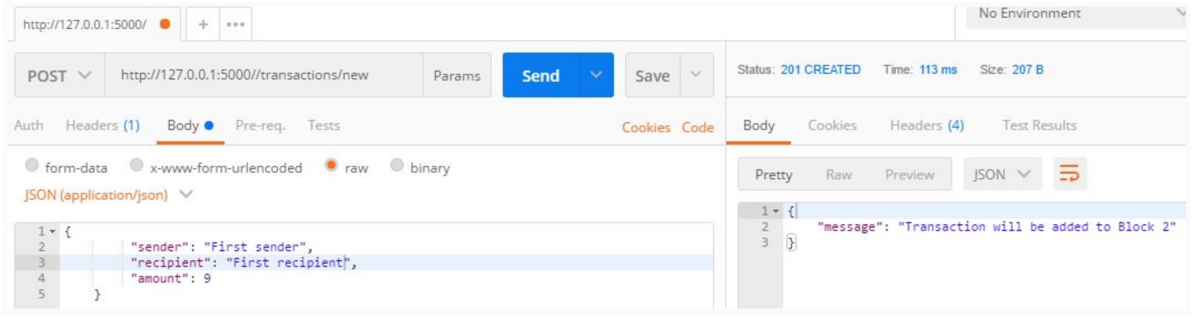
```
Welcome: A Simple Blockchain!
```

3. Chain at first time. Postman GET method: http://127.0.0.1:5000/chain



```
{
    "chain": [
        {
            "index": 1,
            "previous_hash": "1",
            "proof": 999,
            "timestamp": 1521727166.4071662,
            "transactions": []
        }
    ],
    "length of chain": 1
}
```

4. Make a new transaction for the next block. http://127.0.0.1:5000//transactions/new

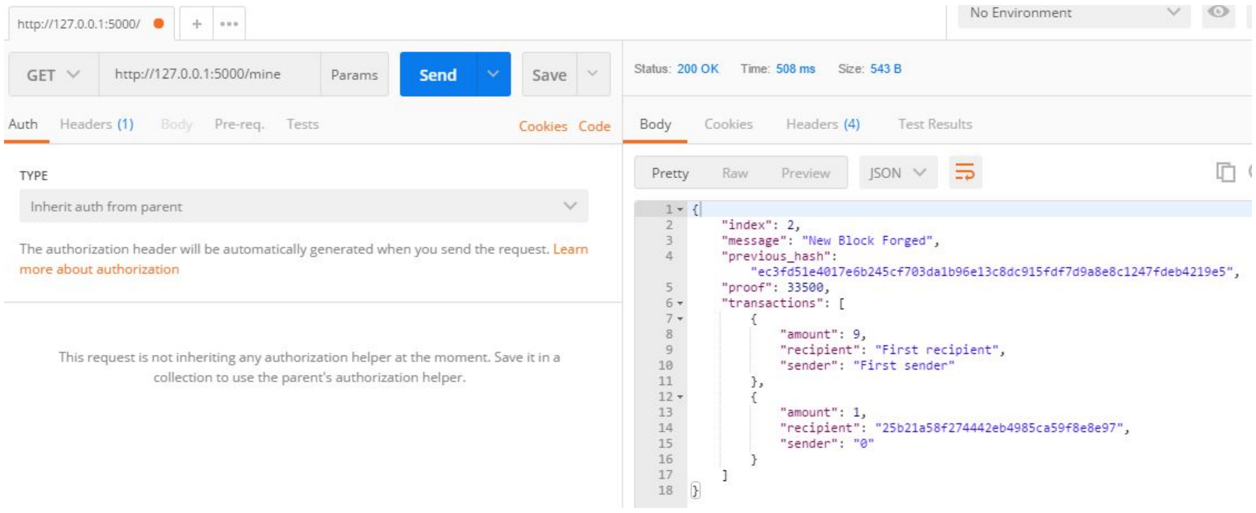


```
{
        "sender": "First sender",
        "recipient": "First recipient",
        "amount": 9
    }
```

Status: 201 CREATED   Time: 113 ms   Size: 207 B

```
{
    "message": "Transaction will be added to Block 2"
}
```

5. Mining at http://127.0.0.1:5000/mine



GET http://127.0.0.1:5000/mine

Status: 200 OK Time: 508 ms Size: 543 B

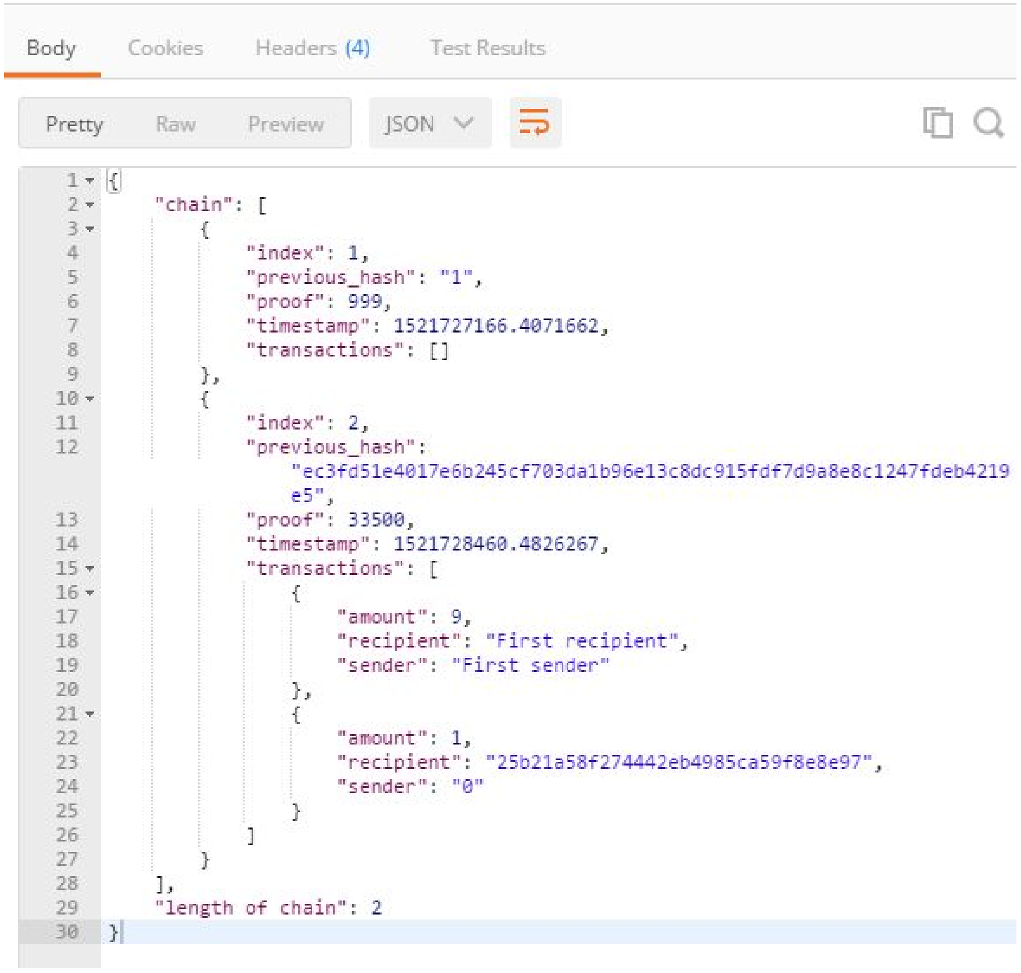
TYPE: Inherit auth from parent

The authorization header will be automatically generated when you send the request. Learn more about authorization

This request is not inheriting any authorization helper at the moment. Save it in a collection to use the parent's authorization helper.

```
{
    "index": 2,
    "message": "New Block Forged",
    "previous_hash":
        "ec3fd51e4017e6b245cf703da1b96e13c8dc915fdf7d9a8e8c1247fdeb4219e5",
    "proof": 33500,
    "transactions": [
        {
            "amount": 9,
            "recipient": "First recipient",
            "sender": "First sender"
        },
        {
            "amount": 1,
            "recipient": "25b21a58f274442eb4985ca59f8e8e97",
            "sender": "0"
        }
    ]
}
```

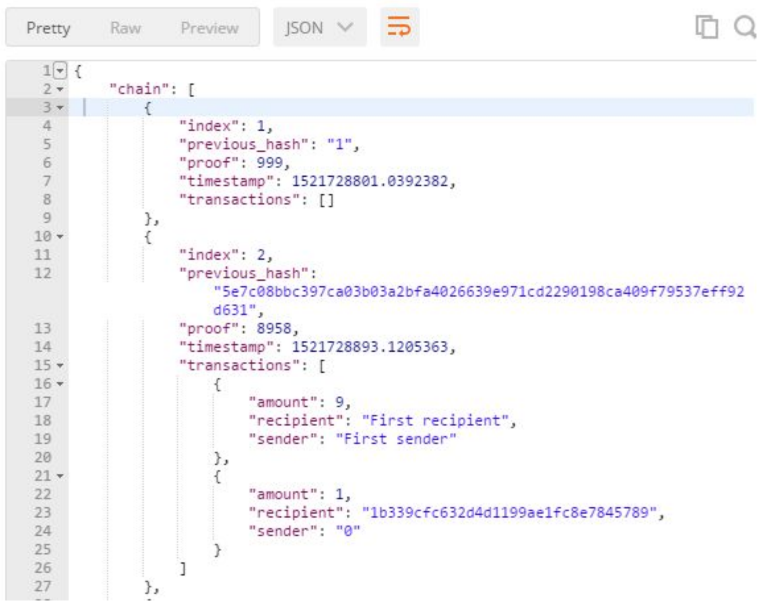
6. Chain after mining



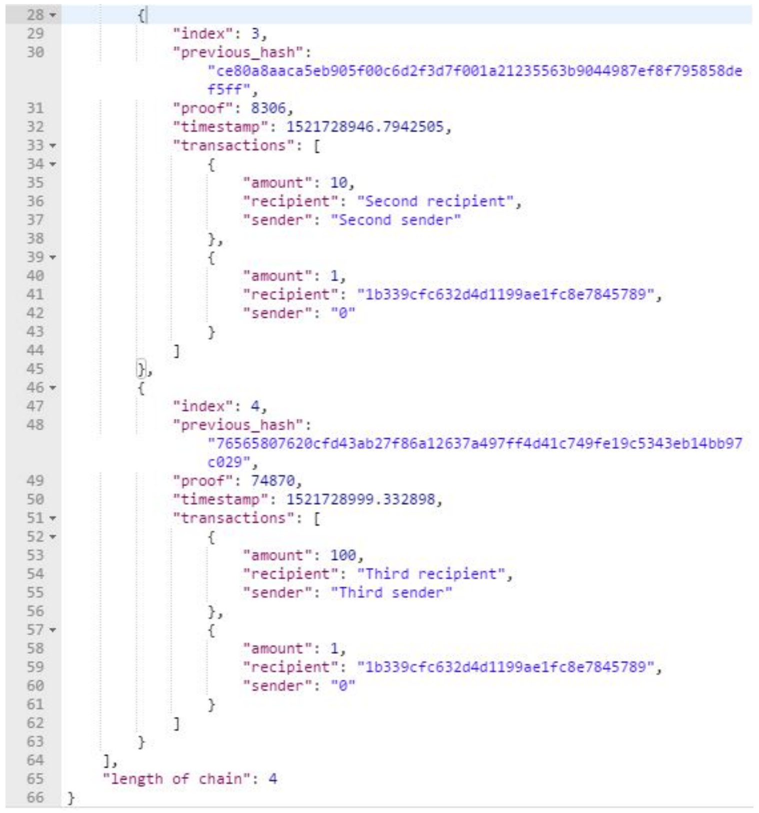
```
{
    "chain": [
        {
            "index": 1,
            "previous_hash": "1",
            "proof": 999,
            "timestamp": 1521727166.4071662,
            "transactions": []
        },
        {
            "index": 2,
            "previous_hash":
                "ec3fd51e4017e6b245cf703da1b96e13c8dc915fdf7d9a8e8c1247fdeb4219
                e5",
            "proof": 33500,
            "timestamp": 1521728460.4826267,
            "transactions": [
                {
                    "amount": 9,
                    "recipient": "First recipient",
                    "sender": "First sender"
                },
                {
                    "amount": 1,
                    "recipient": "25b21a58f274442eb4985ca59f8e8e97",
                    "sender": "0"
                }
            ]
        }
    ],
    "length of chain": 2
}
```

II. At node http://127.0.0.1:5001

7. Do a similar ways as above to make a chain with 4 blocks as below.



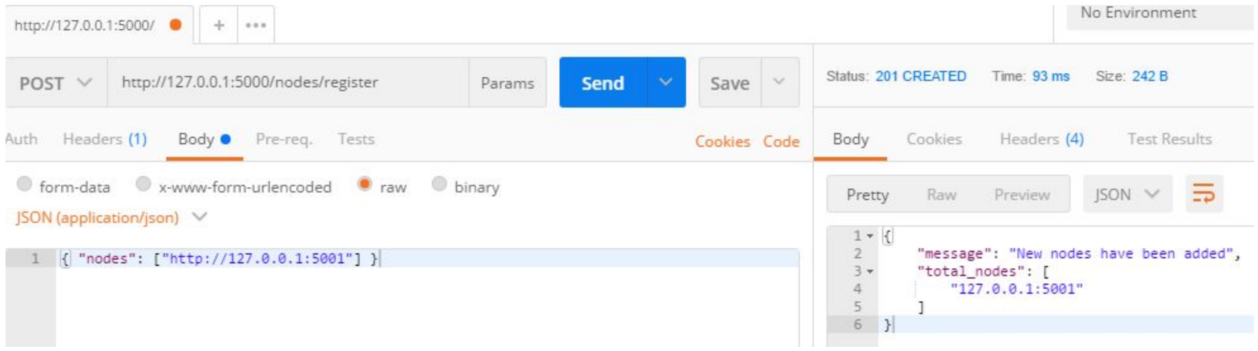
```
{
    "chain": [
        {
            "index": 1,
            "previous_hash": "1",
            "proof": 999,
            "timestamp": 1521728801.0392382,
            "transactions": []
        },
        {
            "index": 2,
            "previous_hash":
                "5e7c08bbc397ca03b03a2bfa4026639e971cd2290198ca409f79537eff92
                d631",
            "proof": 8958,
            "timestamp": 1521728893.1205363,
            "transactions": [
                {
                    "amount": 9,
                    "recipient": "First recipient",
                    "sender": "First sender"
                },
                {
                    "amount": 1,
                    "recipient": "1b339cfc632d4d1199ae1fc8e7845789",
                    "sender": "0"
                }
            ]
        },
```



```
        {
            "index": 3,
            "previous_hash":
                "ce80a8aaca5eb905f00c6d2f3d7f001a21235563b9044987ef8f795858de
                f5ff",
            "proof": 8306,
            "timestamp": 1521728946.7942505,
            "transactions": [
                {
                    "amount": 10,
                    "recipient": "Second recipient",
                    "sender": "Second sender"
                },
                {
                    "amount": 1,
                    "recipient": "1b339cfc632d4d1199ae1fc8e7845789",
                    "sender": "0"
                }
            ]
        },
        {
            "index": 4,
            "previous_hash":
                "76565807620cfd43ab27f86a12637a497ff4d41c749fe19c5343eb14bb97
                c029",
            "proof": 74870,
            "timestamp": 1521728999.332898,
            "transactions": [
                {
                    "amount": 100,
                    "recipient": "Third recipient",
                    "sender": "Third sender"
                },
                {
                    "amount": 1,
                    "recipient": "1b339cfc632d4d1199ae1fc8e7845789",
                    "sender": "0"
                }
            ]
        }
    ],
    "length of chain": 4
}
```

III. Register node

8. Register new node



POST http://127.0.0.1:5000/nodes/register

Body: raw, JSON (application/json)

```
{ "nodes": ["http://127.0.0.1:5001"] }
```

Status: 201 CREATED Time: 93 ms Size: 242 B

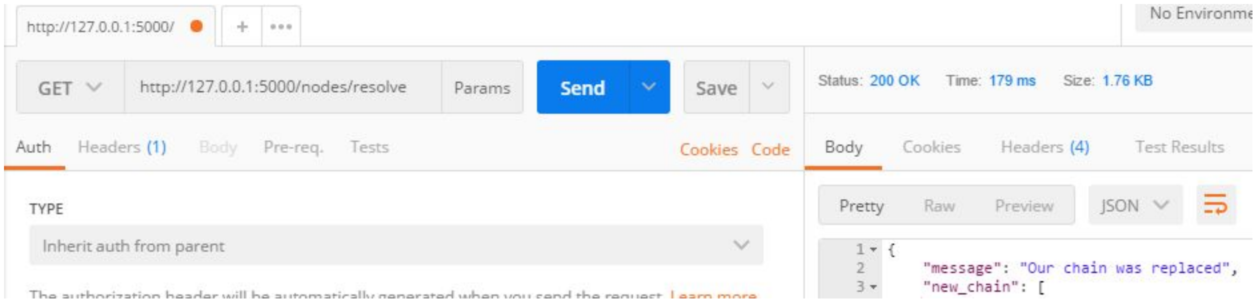
Body (JSON):

```
{
    "message": "New nodes have been added",
    "total_nodes": [
        "127.0.0.1:5001"
    ]
}
```

IV. Consensus

9. Make a consensus

Since node http://127.0.0.1:5000 has a shorter chain, it will update the chain from node http://127.0.0.1:5001



GET http://127.0.0.1:5000/nodes/resolve

TYPE: Inherit auth from parent

The authorization header will be automatically generated when you send the request. Learn more

Status: 200 OK Time: 179 ms Size: 1.76 KB

Body (JSON):

```
{
    "message": "Our chain was replaced",
    "new_chain": [
```

………………

………………

……………...

Below is content of the chain of node http://127.0.0.1:5001 (not shown again). Refer to 7.