ARIZONA STATE UNIVERSITY

**CSE 434, SLN 70569 – Computer Networks – Fall 2021**

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**Socket Programming Project Milestone**

09/26/2021

1. Message Format

Register (successful) - {

'res': SUCCESS,

'type': register,

'data': None

}

Register (unsuccessful) - {

'res': FAILURE,

'type': error,

'data': None

}

Deregister (successful) - {

'res': SUCCESS,

'type': deregister,

'data': None

}

Deregister (unsuccessful) - {

'res': FAILURE,

'type': error,

'data': None

}

setup-dht (successful) - {

'res': SUCCESS,

'type': DHT,

'data': [(‘username’, ‘ip’, ‘port’, ‘port’, ‘port’),(…)]

}

Setup-dht (unsuccessful) - {

'res': FAILURE,

'type': error,

'data': None

}

Dht-complete (successful) - {

'res': SUCCESS,

'type': dht-setup,

'data': None

}

Dht-complete (unsuccessful) - {

'res': FAILURE,

'type': error,

'data': None

}

Query-dht (successful) - {

'res': SUCCESS,

'type': query-response,

'data': (‘username’, ‘ip’, ‘port’, ‘port’, ‘port’)

}

Query-dht (unsuccessful) - {

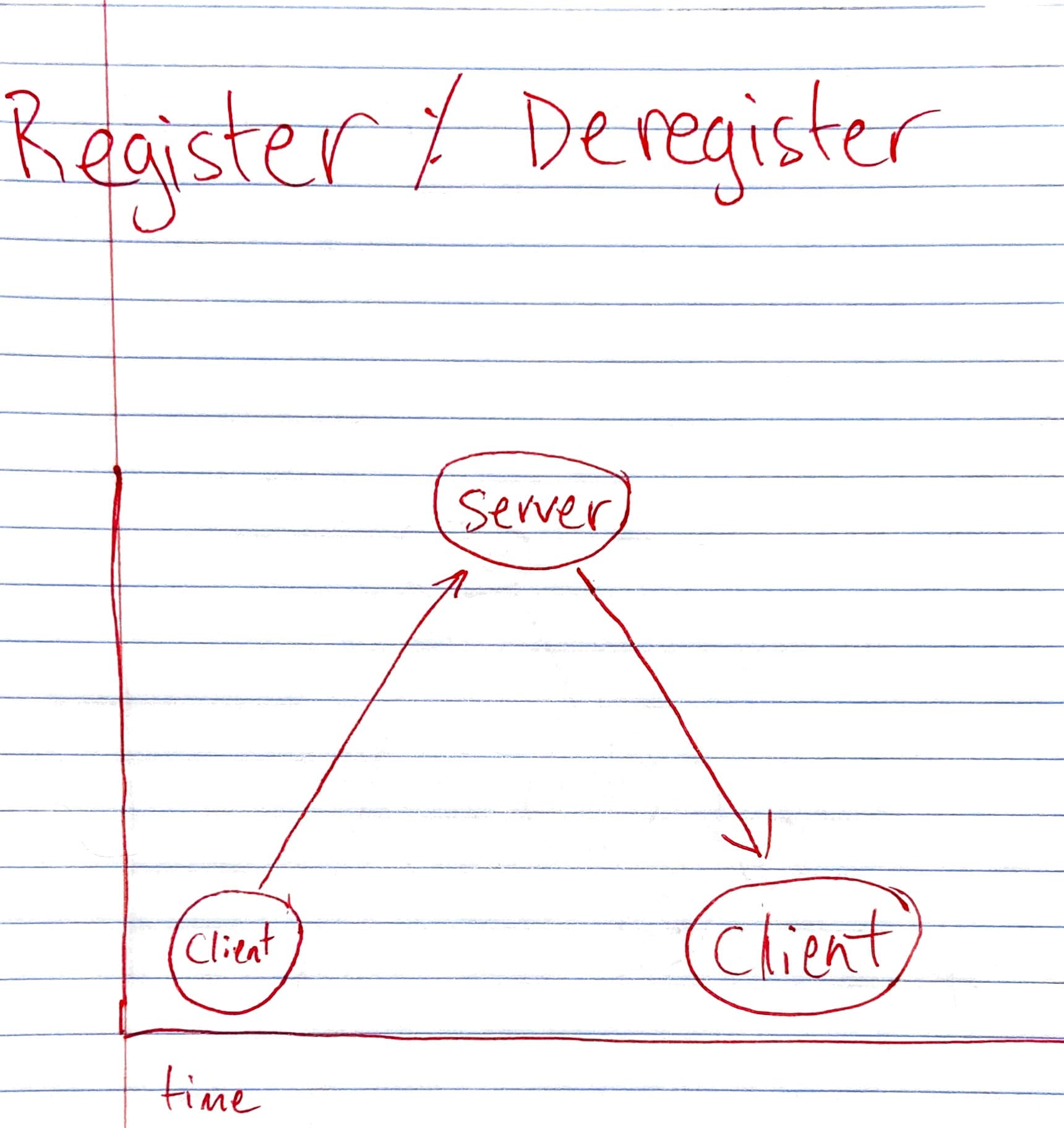
'res': FAILURE,

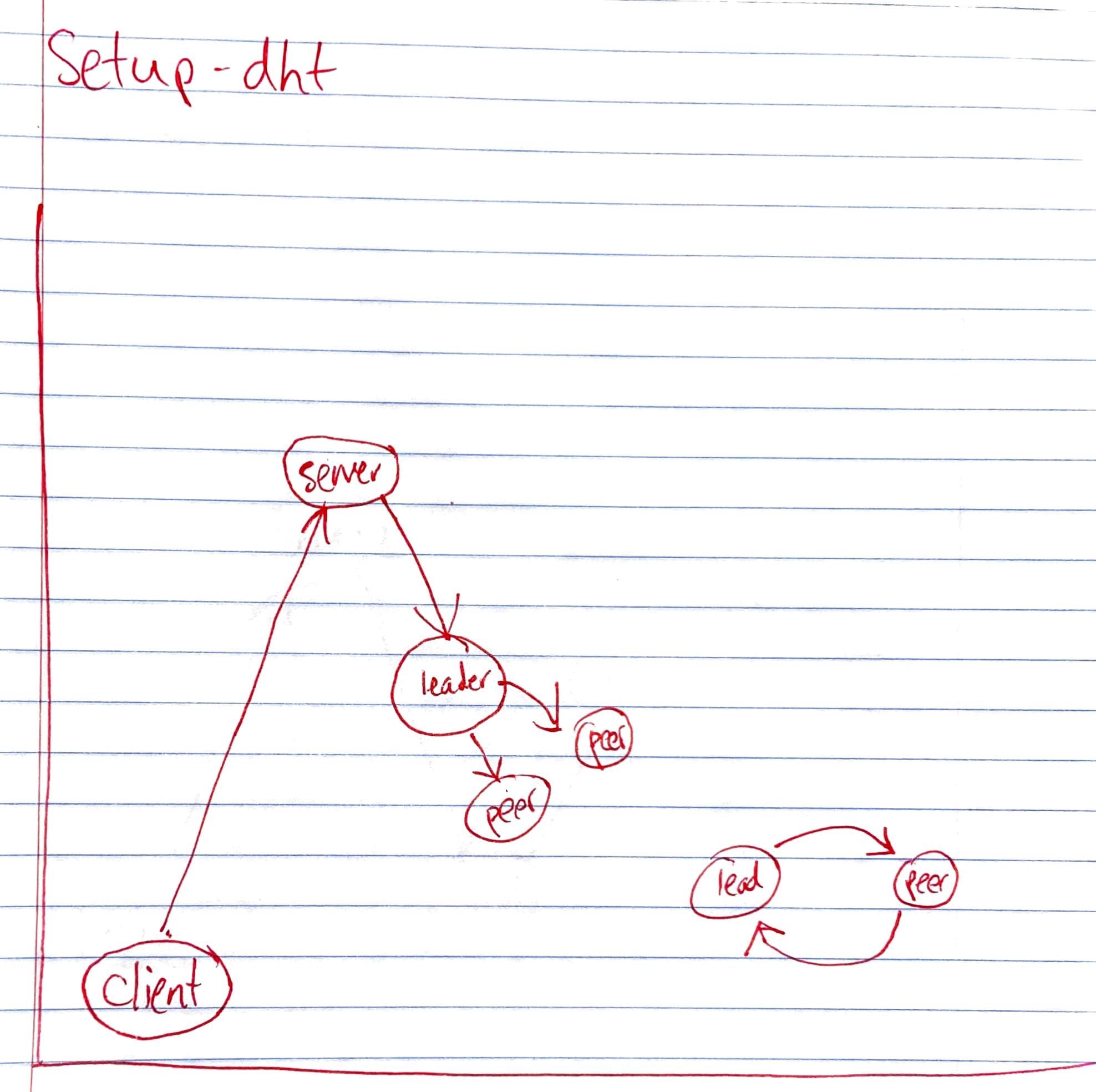
'type': error,

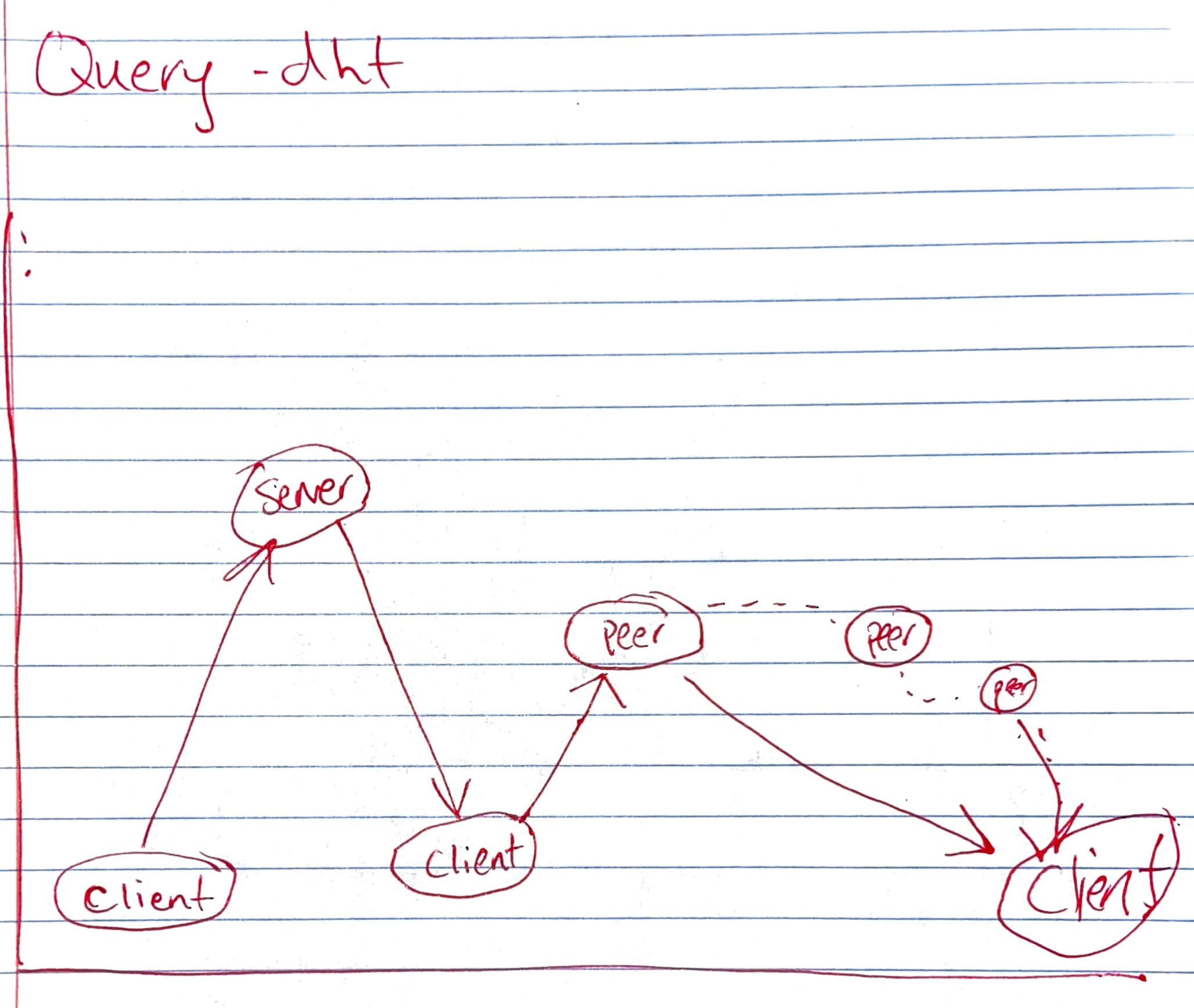
'data': None

}

1. Time-space diagrams







1. Data structures and algorithms used

Server side:

1. User object – Python Class object

I am going to try to use more classes as I go on this project. For the milestone I was more focused on functionality but hope to be able to get the code prettier for the final due date.

1. Users – Dictionary

Python dictionaries are very handy for key – value pairs

1. DHT – List of dictionaries

I prefer dictionaries to any other thing besides Class objects in Python. If it were easier to send class objects in the packets I would probably use those over dictionaries.

1. Three\_tuples – tuple of dictionaries

Again – I prefer using Python dictionaries over lists. To me it makes it much easier to visualize the data I am using and easier to debug.

Client side:

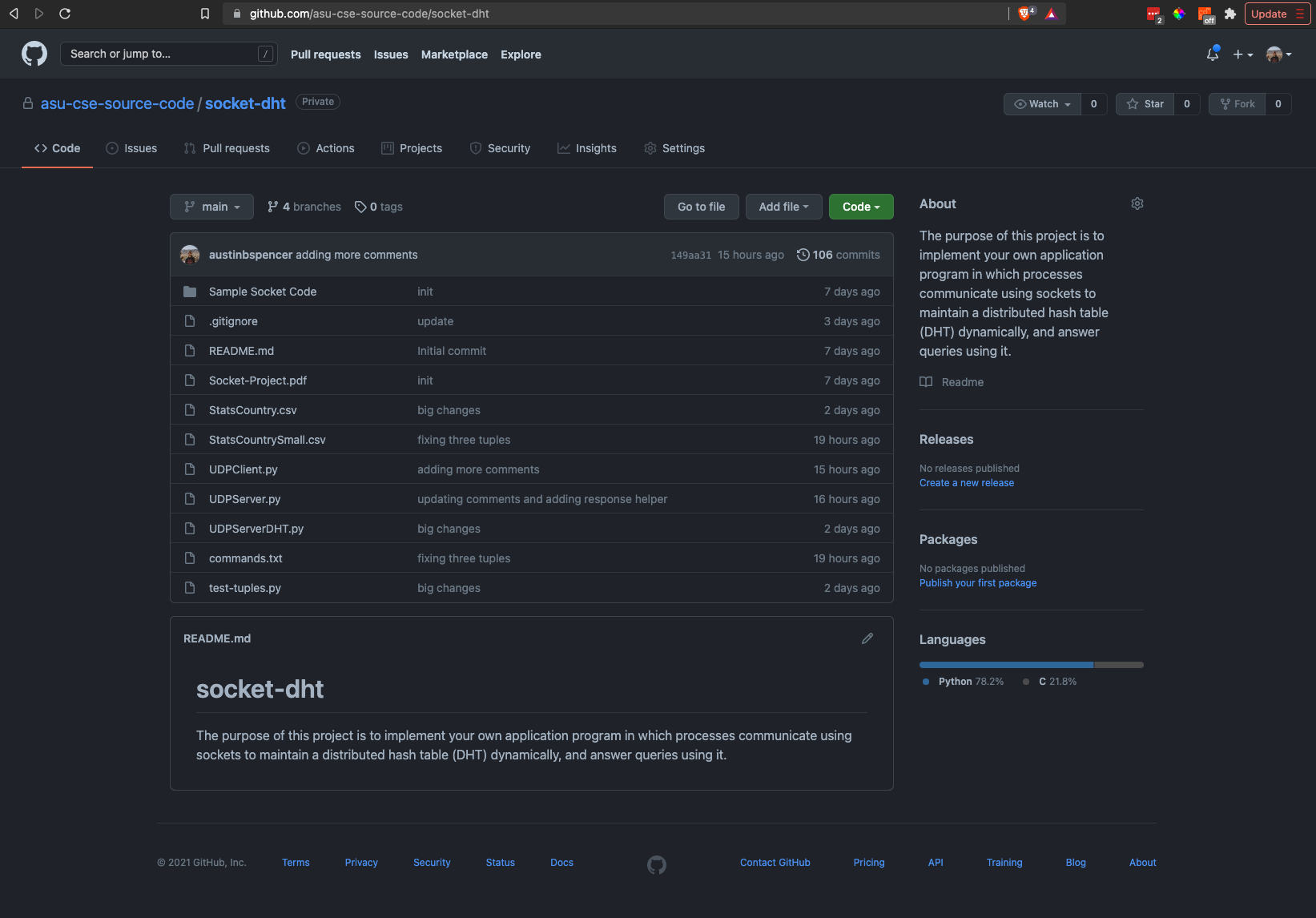
1. Client object – Python Class object

This is a big object that holds everything the client needs to persist. Tried to make the client code simpler by doing this.

1. Local hash table – List of lists of dictionaries

This is where the records are stored on each peer in the client program. It is a list of lists of dictionaries. I think the dictionary is key so that you don’t lose what each value means in the record.

1. Snapshot showing commits in GitHub



1. [Video link](https://youtu.be/mQmHpEOkSCw)

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