

Format for the things we developed below!

(Program/Topology Developed) - XX/XX/XXXX - Name, ID Number

Description of what was developed

(Initial Commit) - Sep 25, 2023 - Ashley Haynes @03022439

First commit in which the project repository name was changed to "# CSCI-449-Project-1"

(Created Automate.py file) - Sep 28, 2023 - Ashley Haynes @03022439

Created the automate.py file to run the code to produce the IP addresses

(Rewriting Traceroute Code) - Oct. 4th, 2023 - Amir Bredy @02966864

Originally pasted the syllabus pseudocode into the automate.py file, but revised it to run the traceroute to various IP addresses.

(Pushing imports for project) - Oct. 4th, 2023 - Amir Bredy @02966864

Included libraries and imports needed for the project (import socket, import sys, import ipaddress, etc)

(Update automate.py) - Oct. 4th, 2023 - Ashley Haynes @03022439

Updated automate.py so that we could retrieve the URL information and data associated with it.

(Update automate.py) - October 4th, 2023 - Ashley Haynes @03022439

Gathering the IP address and other data (again)

(Update automate.py) - October 4th, 2023 - Ashley Haynes @03022439

Included KeyError code in the case that the IP address you're trying to reach is private. Cleaned up some code in the trace function and finally returning the ip address, longitude and latitude, and city that is found.

(Update automate.py) - October 4th, 2023 - Ashley Haynes @03022439

Renamed the second function found on line 27 from getMyLoc() to getLocation()

(Create test.py) - October 4th, 2023 - Ashley Haynes @03022439

Created the sample inputs for the ip address, long, lat, and city for our test case

(Update test.py) - October 4th, 2023 - Ashley Haynes @03022439

Retrieved the desired result from our test cases (Making sure that the result corresponds to the expected result we have)

(Update automate.py) - October 14th, 2023 - Ashley Haynes @03022439

Created a getFinalLocation function to return the destination IP we want as an output. This function should return the long, lat, and the city.

(Update automate.py) - October 14th, 2023 - Ashley Haynes @03022439

Retrieved the longitude, latitude, and city from the IP addresses

(Update automate.py) - October 14th, 2023 - Ashley Haynes @03022439

Included an error message and exiting the program and returned the IP address, longitude, latitude, and city

(Update README.md) - October 14th, 2023 - Ashley Haynes @03022439

Added a project description to ReadME

(Pushing IPList) - October 14th, 2023 - Amir Bredy @02966864

Pushing the IPList function (Get's Ip address list and returns a list of tuples of IP, longitude, latitude, and the city)

(Adding map initialization - May change later) - October 14th, 2023 - Amir Bredy @02966864

Incorporated the mapsInit function

(Fixing function names for readability) - October 14th, 2023 - Amir Bredy @02966864

Revised some of the function names for readability and clarity.

(adding requirements file) - October 14th, 2023 - Amir Bredy @02966864

Added a requirements.txt file for the requirements needed for the project

(Update automate.py) - October 14th, 2023 - Ashley Haynes @03022439

Set up an addingRoute function that takes the longitude and latitude path.

(Update automate.py) - October 14th, 2023 - Ashley Haynes @03022439

Included a scatter map and changed the "fig" function name to "figure" for readability purposes

(I don't think fig can be changed due to the lib) - October 14th, 2023 - Amir Bredy @02966864

Had to revert back to the old library name due to issues with our code

(Adding marking the location and a help func) - October 14th, 2023 - Amir Bredy @02966864

Marking the IP addresses on the map and created a help function

(Update automate.py) - October 14th, 2023 - Ashley Haynes @03022439

If you run the code and its specifications don't work, the print help function will be called. Created a hostname variable and a my location variable to retrieve information such as your ip address, longitude, latitude, and city name.

(Ip address and route to map, initialization next) - October 15th, 2023 - Amir Bredy @02966864

Getting the IP address of the target. Running the trace route then find the long and lat

(Update automate.py) - October 15th, 2023 - Ashley Haynes @03022439

Created the maps to visualize the traceroutes

(Update automate.py) - October 15th, 2023 - Ashley Haynes @03022439

Created the route using the route longitude and route latitude.

(Update automate.py) - October 15th, 2023 - Ashley Haynes @03022439

Added more code to create the route. printing the results from said route

(Update automate.py) - October 15th, 2023 - Ashley Haynes @03022439

Marked both the source and target IP

(Fixing Func names and bugs) - October 15th, 2023 - Amir Bredy @02966864

Fixed mapsInit(fig) to mapInitialization(fig) and addRoute to addRoute

(adding requirements file) - October 15th, 2023 - Amir Bredy @02966864

Incorporated requirements to the requirements.txt file

(bug fix) - October 16th, 2023 - Amir Bredy @02966864

Fixed routeLocList = getMyLocation(ipList) and changed it to routeLocList = getListLoc(ipList)

(bug fix) - October 16th, 2023 - Amir Bredy @02966864

Changed the traceroute variable contents to be traceroute =
subprocess.Popen(["tracert",hostname],stdout=subprocess.PIPE, stderr=subprocess.STDOUT)

(switching from plotlib to networkx & scapy) - October 17th, 2023 - Amir Bredy @02966864

Initially used theplotlib library to visualize our data. Eventually found that using NetworkX and Scapy were more efficient.

(Refactoring project after Li meeting 10/17) - October 17th, 2023 - Amir Bredy @02966864

Added a NetworkX file and Switched some code in automate.py (like the libraries) around after a virtual meeting with Dr. Li on 10/17

(Update NetworkX.py) - October 17th, 2023 - Ashley Haynes @03022439

Placed the NetworkX code from automate.py into a separate file (NetworkX.py)

(Update automate.py) - October 17th, 2023 - Ashley Haynes @03022439

Removed the Networkx code from the current file (automate.py) and placed it in the NetworkX.py file

(Update automate.py) - October 17th, 2023 - Ashley Haynes @03022439

Changed the file name in a comment on line 68 something (network_graph.py to NetworkX.py)

(Update automate.py) - October 17th, 2023 - Ashley Haynes @03022439

Iterating through the IP addresses and sending the packet to get a reply

(Update automate.py) - October 17th, 2023 - Ashley Haynes @03022439

Removed a few lines of repeated code

(Updates to test) - October 22th, 2023 - Amir Bredy @02966864

Updated the NetworkX.py file to test the topology graph

(trying to implement multithreading) - October 22th, 2023 - Amir Bredy @02966864

Imported the threading library

(Fixes) - October 22th, 2023 - Amir Bredy @02966864

Changes made to the custom_traceroute function in automate.py as well as a few lines of code containing threading

(Switching from TXT to JSON) - October 23th, 2023 - Amir Bredy

@02966864

Imported the JSON library

(Added pooling, 250k lines in json so far) - October 23th, 2023 - Amir Bredy

@02966864

Set the maximum number of IP addresses to process and Save the last processed IP address

(Bug fix for my code) - October 24th, 2023 - Amir Bredy @02966864

Removed create_topology_graph function and replaced it by creating an empty directed graph as well as a file for reading the traceroute results

(Bug fixes, the json format works now use automate) - October 24th, 2023 -

Amir Bredy @02966864

More bug fixes, json format needed to be fixed

(fixing the graphing function) - October 24th, 2023 - Amir Bredy @02966864

The empty directed graph wasn't opening the json file

(Changing the timeout to 1 to run faster.) - October 24th, 2023 - Amir Bredy

@02966864

Changed the timeout to 1 instead of the original number (5) to ensure efficiency and speed

(Fixing requirements file) - October 24th, 2023 - Amir Bredy @02966864

Changed the IP address and included scapy and json

(Traceroute Results from UGL) - October 24th, 2023 - Ashley Haynes

@03022439

Importing the Traceroute results I gathered from UGL

(Last Processed IP from UGL) - October 24th, 2023 - Ashley Haynes

@03022439

Importing the Last Processed IP I gathered from UGL

(Current hop initialized, bug fix) - October 24th, 2023 - Amir Bredy

@02966864

Changed line of code to " current_hop = None # To track the current hop "

(Tweaks to topology) - October 24th, 2023 - Amir Bredy @02966864

Removed a few lines of code in NetworkX.py file

(Topology fixes) - October 24th, 2023 - Amir Bredy @02966864

Expanded target_ips_set and filtered out IPs starting with "208"

(NetworkX Fix) - October 24th, 2023 - Amir Bredy @02966864

Removed a few lines of code in NetworkX.py file

(traceroute result for founders) - October 24th, 2023 - Kamryn Brown

@03035598

Importing the Traceroute results gathered from founders

(last processed ip address founders) - October 24th, 2023 - Kamryn Brown

@03035598

Importing the Last Processed IP gathered from founders

(Last Processed IP results from HSL) - October 25th, 2023 - Ashley Haynes

@03022439

Importing the Last Processed IP gathered from HSL

(Traceroute results from HSL) - October 25th, 2023 - Ashley Haynes

@03022439

Importing the Traceroute results gathered from HSL

(Traceroute and IP results from SOSW) - October 25th, 2023 - Courtney

Mahugu @03022011

Importing the Traceroute results gathered from School of Social Work

(Court IP from SOSW) - October 25th, 2023 - Courtney Mahugu @03022011

Importing the Traceroute results gathered from School of Social Work

(Merge branch 'main' of https://github.com/ashleyh12/CSCI-449-Project-1) - October 25th, 2023 - Courtney Mahugu @03022011

Merged the main branch

(Traceroute Results from Douglass) - October 25th, 2023 - Ashley Haynes

@03022439

Importing the Traceroute results gathered from Douglass

(Last Processed IP Ashley Douglass) - October 25th, 2023 - Ashley Haynes @03022439

Last Processed IP results gathered from Douglass

(NetworkX Code) - October 25th, 2023 - Amir Bredy @02966864

Changed values for nx.draw() command. Also changed the json file contents to the name ‘traceroute_results_AshleyUGL.json’ from ‘traceroute_results.json’

(Some results for TR) - October 25th, 2023 - Amir Bredy @02966864

Results from Traceroute

(Small networkx Tweak) - October 25th, 2023 - Amir Bredy @02966864

Incorporated a value for k found in the pos variable in the networkX.py file

(All Topology graphs committed) - October 25th, 2023 - Amir Bredy @02966864

All topology graphs were committed to the repository

(Making things neat, by moving into folders.) - October 25th, 2023 - Amir Bredy @02966864

Moved traceroute and IP files into folders for organization purposes

(fixing requirements) - October 25th, 2023 - Amir Bredy @02966864

Changed values within requirements

(last processed ip mackey building) - October 25th, 2023 - Kamryn Brown @03035598

Last Processed IP results gathered from Mackey Building

(Traceroute Results from Douglass) - October 25th, 2023 - Kamryn Brown @03035598

Importing the Traceroute results gathered from Mackey Building

(Fixing requirements again) - October 25th, 2023 - Amir Bredy @02966864

Changed values within requirements

(Moving files) - October 25th, 2023 - Amir Bredy @02966864

Moved raceroute_results KamrynMackey file to a folder

(traceroute result SOB) - October 25th, 2023 - Kamryn Brown @03035598

Importing the Traceroute results gathered from SOB (School of Business)

(traceroute result Blackburn) - October 25th, 2023 - Kamryn Brown @03035598

Importing the Traceroute results gathered from Blackburn

(Finishing topology) - October 25th, 2023 - Amir Bredy @02966864

Imported photos from the topology graph/visual

(create folder) - October 25th, 2023 - Kamryn Brown @03035598

creating folder for documentation

TOPOLOGY FRAGMENTS

Mackey Building

Discovered by: Kamryn Brown
@03035598

```
{"output": [
  {
    "target_ip": "138.238.0.0",
    "traceroute": [
      {
        "hop": 1,
        "ip": "10.3.96.1"
      },
      {
        "hop": 2,
        "ip": "10.199.4.9"
      },
      {
        "hop": 3,
        "ip": "10.199.3.1"
      },
      {
        "hop": 4,
        "ip": "66.44.94.195"
      },
      {
        "hop": 5,
        "ip": "138.238.3.33"
      },
      {
        "hop": 6,
        "ip": "138.238.3.13"
      }
    ]
  },
  {
    "target_ip": "10.5.108.205",
    "traceroute": [
      {
        "hop": 1,
        "ip": "10.3.96.1"
      },
      {
        "hop": 2,
        "ip": "10.199.4.9"
      },
      {
        "hop": 3,
        "ip": "10.199.3.1"
      },
      {
        "hop": 4,
        "ip": "66.44.94.195"
      }
    ]
  }
]
```

Blackburn Building

Discovered by: Kamryn Brown
@03035598

```
{"output": [
{
  "target_ip": "10.11.217.154",
  "traceroute": [
    {
      "hop": 1,
      "ip": "10.57.96.1"
    },
    {
      "hop": 2,
      "ip": "10.199.4.137"
    },
    {
      "hop": 3,
      "ip": "10.199.3.1"
    },
    {
      "hop": 4,
      "ip": "66.44.94.195"
    },
    {
      "hop": 5,
      "ip": "138.238.3.33"
    },
    {
      "hop": 6,
      "ip": "138.238.3.13"
    }
  ]
},
{
  "target_ip": "10.43.249.155",
  "traceroute": [
  
```

School of Business

Discovered by: Kamryn Brown
@03035598

```
{"output": [
  {
    "target_ip": "138.238.0.0",
    "traceroute": [
      {
        "hop": 1,
        "ip": "10.30.96.1"
      },
      {
        "hop": 2,
        "ip": "10.199.4.37"
      },
      {
        "hop": 3,
        "ip": "10.199.3.1"
      },
      {
        "hop": 4,
        "ip": "66.44.94.195"
      },
      {
        "hop": 5,
        "ip": "138.238.3.33"
      },
      {
        "hop": 6,
        "ip": "138.238.3.13"
      }
    ]
  },
  {
    "target_ip": "10.5.108.205",
    "traceroute": [
      {
        "hop": 1,
        "ip": "10.30.96.1"
      },
      {
        "hop": 2,
        "ip": "10.199.4.37"
      },
      {
        "hop": 3,
        "ip": "10.199.3.1"
      },
      {
        "hop": 4,
        "ip": "66.44.94.195"
      },
      {
        "hop": 5,
        "ip": "138.238.3.13"
      }
    ]
  }
]
```

Lewis K. Downing

Discovered by: Amir Bredy
@02966864

```
{"output": [
{
  "target_ip": "10.5.108.205",
  "traceroute": [
    {
      "hop": 1,
      "ip": "10.26.96.1"
    },
    {
      "hop": 2,
      "ip": "10.199.5.81"
    },
    {
      "hop": 3,
      "ip": "10.199.2.1"
    },
    {
      "hop": 4,
      "ip": "10.199.3.1"
    },
    {
      "hop": 5,
      "ip": "66.44.94.195"
    },
    {
      "hop": 6,
      "ip": "138.238.3.33"
    },
    {
      "hop": 7,
```

Founders Library

Discovered by: Kamryn Brown
@03035598

```
{"output": [
  {
    "target_ip": "138.238.0.0",
    "traceroute": [
      {
        "hop": 1,
        "ip": "10.61.96.1"
      },
      {
        "hop": 2,
        "ip": "10.199.4.141"
      },
      {
        "hop": 3,
        "ip": "10.199.3.1"
      },
      {
        "hop": 4,
        "ip": "66.44.94.195"
      },
      {
        "hop": 5,
        "ip": "138.238.3.33"
      },
      {
        "hop": 6,
        "ip": "138.238.3.13"
      }
    ]
  },
  {
    "target_ip": "10.11.217.154",
    "traceroute": [
      {
        "hop": 1,
        "ip": "10.61.96.1"
      },
      {
        "hop": 2,
        "ip": "10.199.4.141"
      },
      {
        "hop": 3,
        "ip": "10.199.3.1"
      },
      {
        "hop": 4,
        "ip": "66.44.94.195"
      },
      {
        "hop": 5,
        "ip": "10.11.217.154"
      }
    ]
  }
]
```

Health Science Library
Discovered by: Ashley Haynes
@03022439

```
{"output": [
{
  "target_ip": "138.238.0.0",
  "traceroute": [
    {
      "hop": 1,
      "ip": "10.44.96.1"
    },
    {
      "hop": 2,
      "ip": "10.199.4.109"
    },
    {
      "hop": 4,
      "ip": "10.199.3.1"
    },
    {
      "hop": 5,
      "ip": "66.44.94.195"
    },
    {
      "hop": 6,
      "ip": "138.238.3.33"
    }
  ]
},
```

Undergraduate Library
Discovered by: Ashley Haynes
@03022439

```
{"output": [
  {
    "target_ip": "10.4.35.216",
    "traceroute": [
      {
        "hop": 1,
        "ip": "10.41.96.1"
      },
      {
        "hop": 2,
        "ip": "10.199.4.229"
      },
      {
        "hop": 3,
        "ip": "10.199.3.1"
      },
      {
        "hop": 4,
        "ip": "66.44.94.195"
      },
      {
        "hop": 5,
        "ip": "138.238.3.33"
      },
      {
        "hop": 6,
        "ip": "138.238.3.13"
      }
    ]
  },
  {
    "target_ip": "138.238.0.0",
    "traceroute": [
      {
        "hop": 1,
        "ip": "10.41.96.1"
      },
      {
        "hop": 2,
        "ip": "10.199.4.229"
      },
      {
        "hop": 4,
        "ip": "66.44.94.195"
      },
      {
        "hop": 5,
        "ip": "138.238.3.33"
      }
    ]
  }
]
```

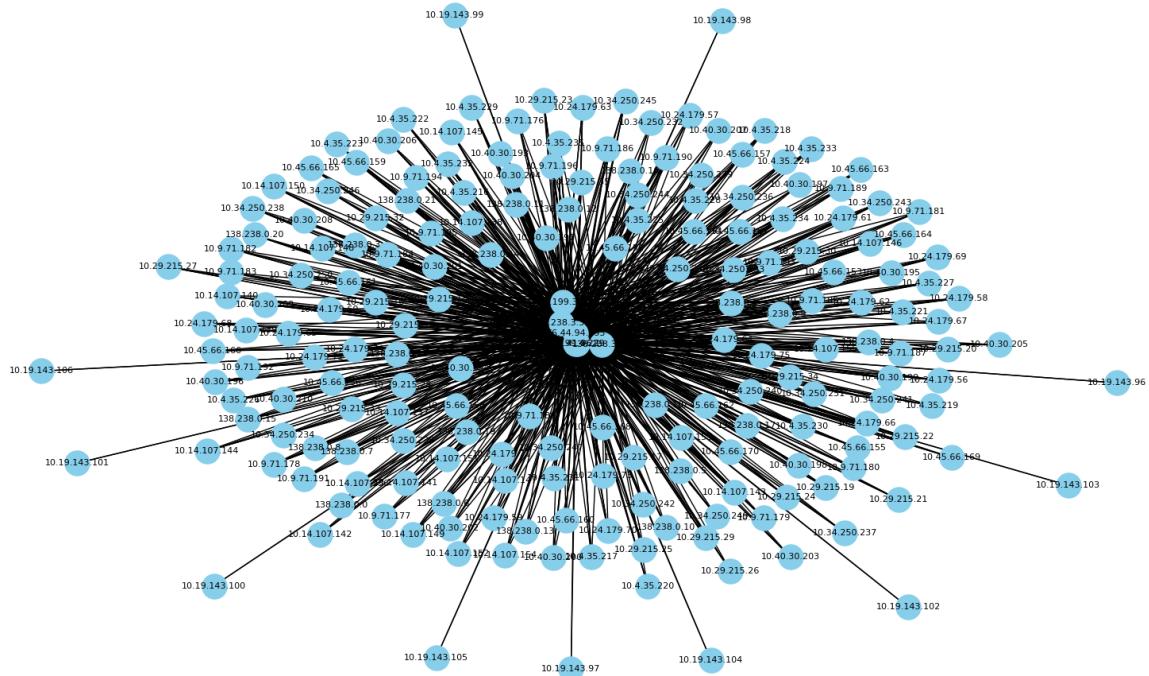
Undergraduate Library
Discovered by: Ashley Haynes
@03022439

```
{"output": [
  {
    "target_ip": "10.4.35.216",
    "traceroute": [
      {
        "hop": 1,
        "ip": "10.41.96.1"
      },
      {
        "hop": 2,
        "ip": "10.199.4.229"
      },
      {
        "hop": 3,
        "ip": "10.199.3.1"
      },
      {
        "hop": 4,
        "ip": "66.44.94.195"
      },
      {
        "hop": 5,
        "ip": "138.238.3.33"
      },
      {
        "hop": 6,
        "ip": "138.238.3.13"
      }
    ]
  },
  {
    "target_ip": "138.238.0.0",
    "traceroute": [
      {
        "hop": 1,
        "ip": "10.41.96.1"
      },
      {
        "hop": 2,
        "ip": "10.199.4.229"
      },
      {
        "hop": 4,
        "ip": "66.44.94.195"
      },
      {
        "hop": 5,
        "ip": "138.238.3.33"
      }
    ]
  }
]
```

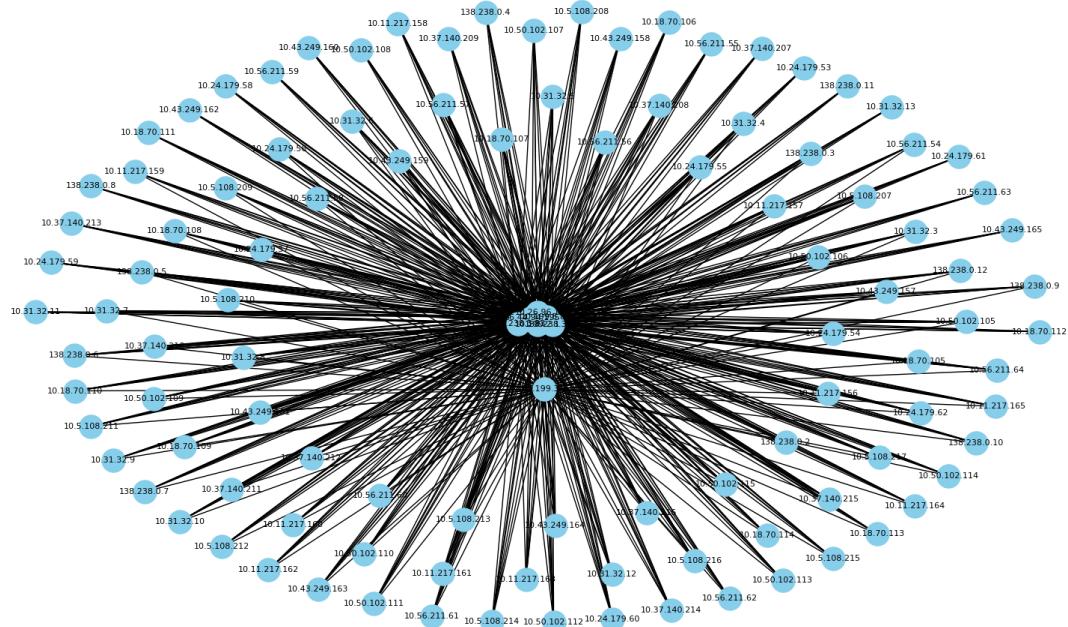
School of Social Work
Discovered by: Courtney Mahugu
@03022011

```
{"output": [
{
  "target_ip": "138.238.0.0",
  "traceroute": [
    {
      "hop": 1,
      "ip": "10.53.140.1"
    },
    {
      "hop": 5,
      "ip": "10.53.140.1"
    }
  ]
},
{
  "target_ip": "138.238.251.49",
  "traceroute": [
    {
      "hop": 3,
      "ip": "10.53.140.1"
    },
    {
      "hop": 6,
      "ip": "10.53.140.1"
    }
  ]
},
{
  "target_ip": "138.238.200.244",
  "traceroute": [
    {
      "hop": 8,
```

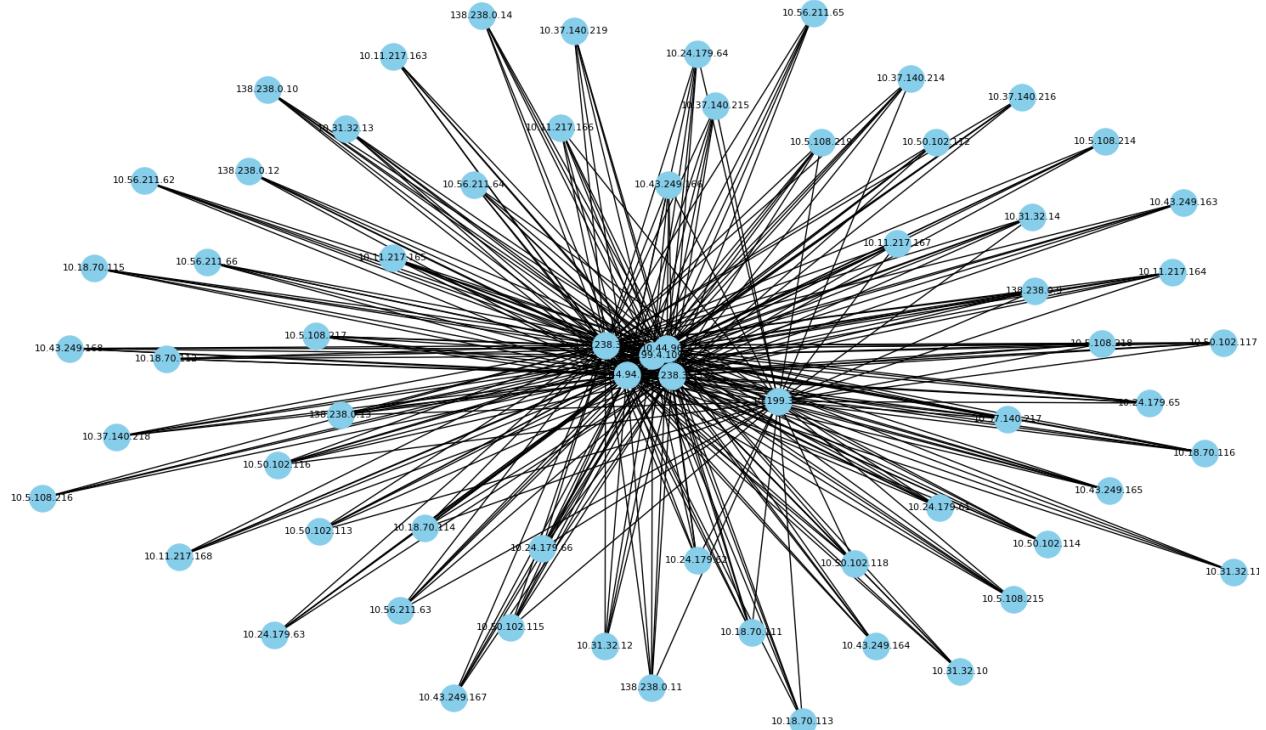
Ashley Haynes @03022439 UGL



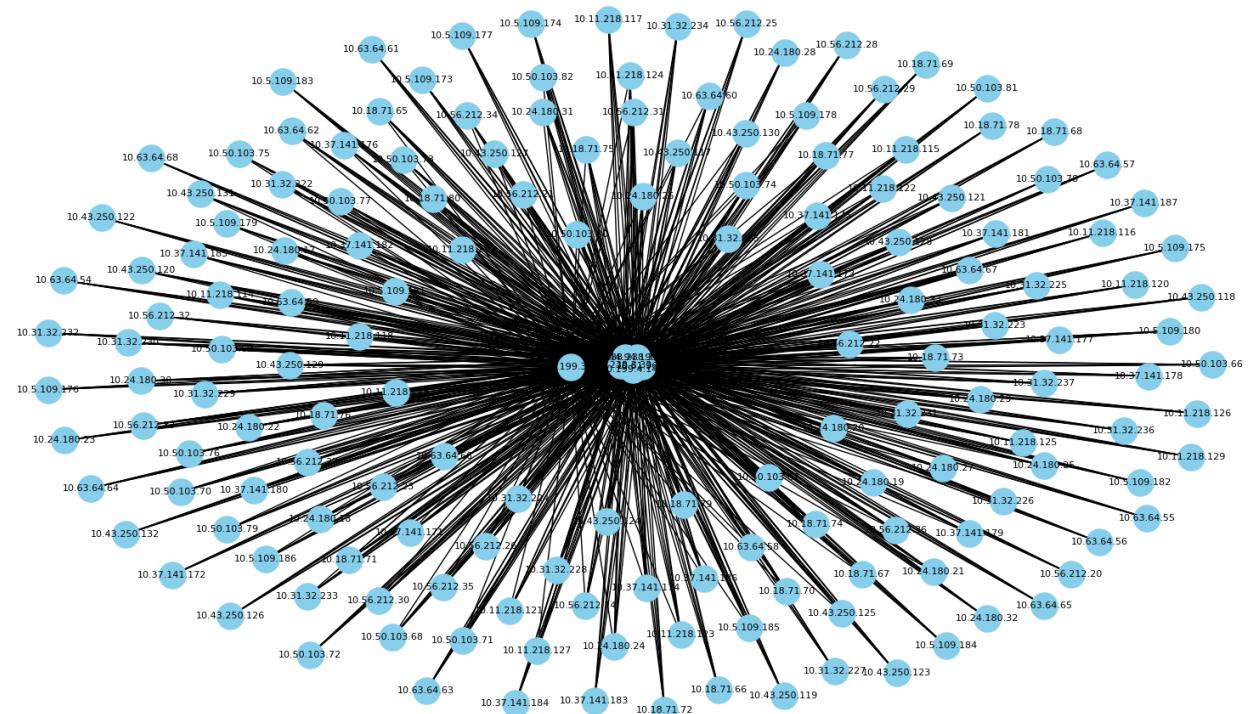
Courtney Mahugu @03022011 School of Social Work



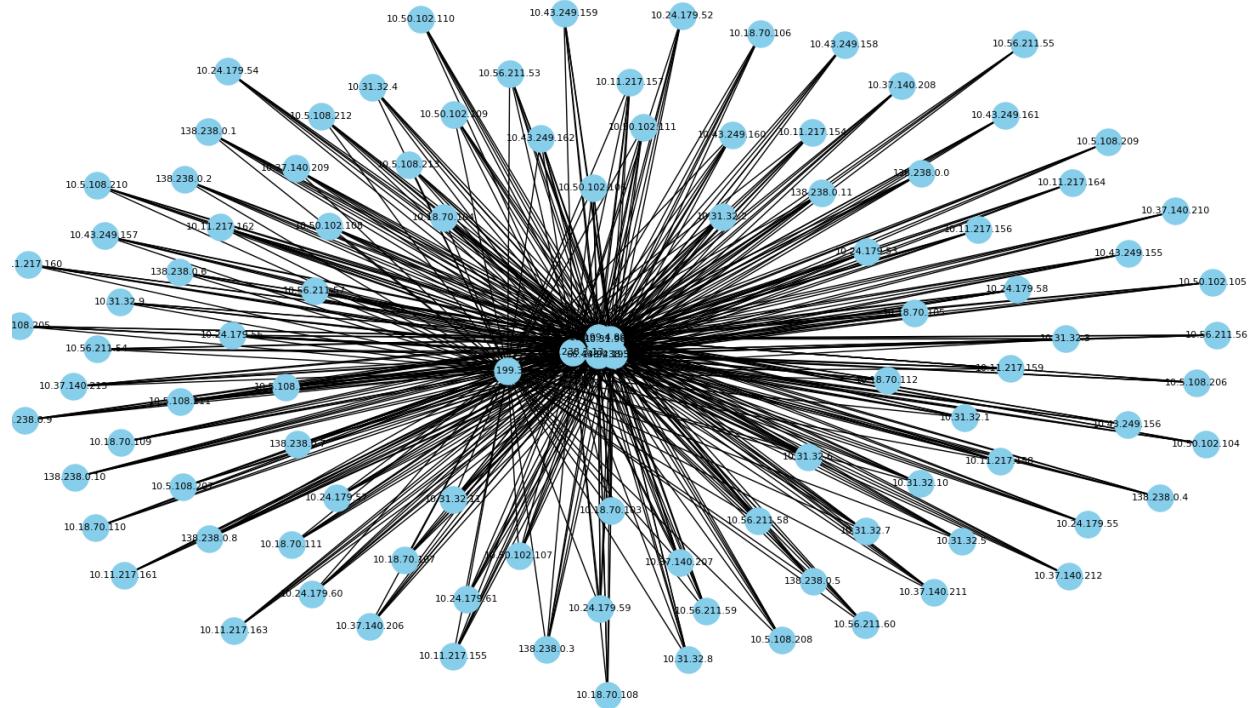
Ashley Haynes @03022439 Health Science Library



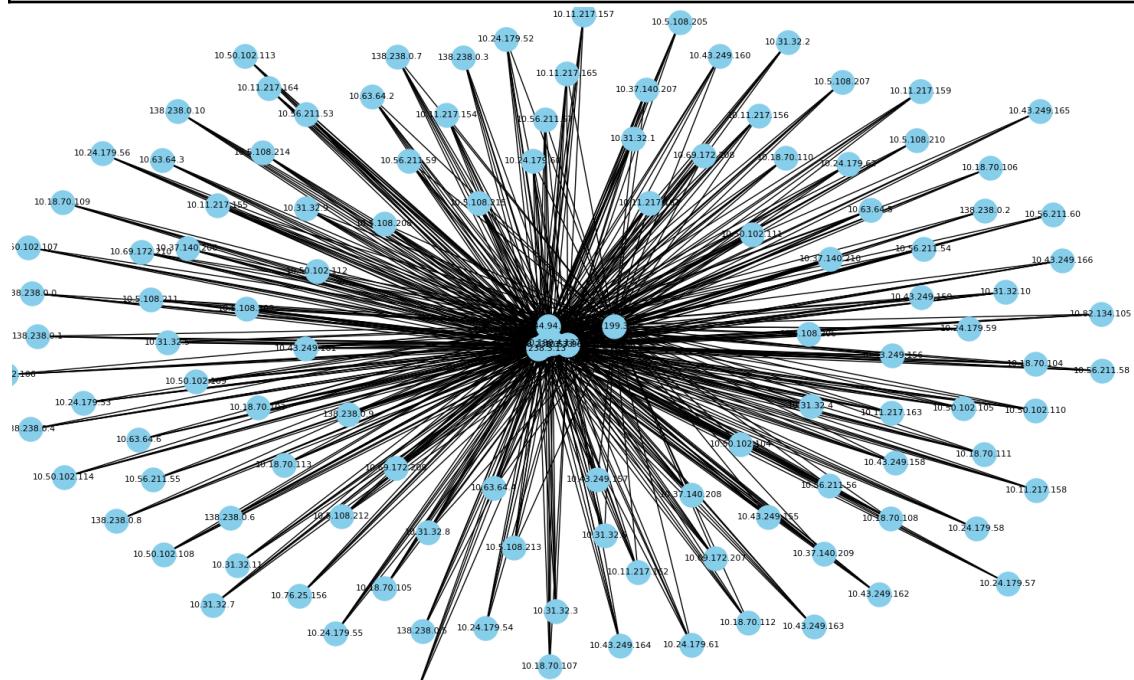
Kamryn Brown @03035598 Founders Library



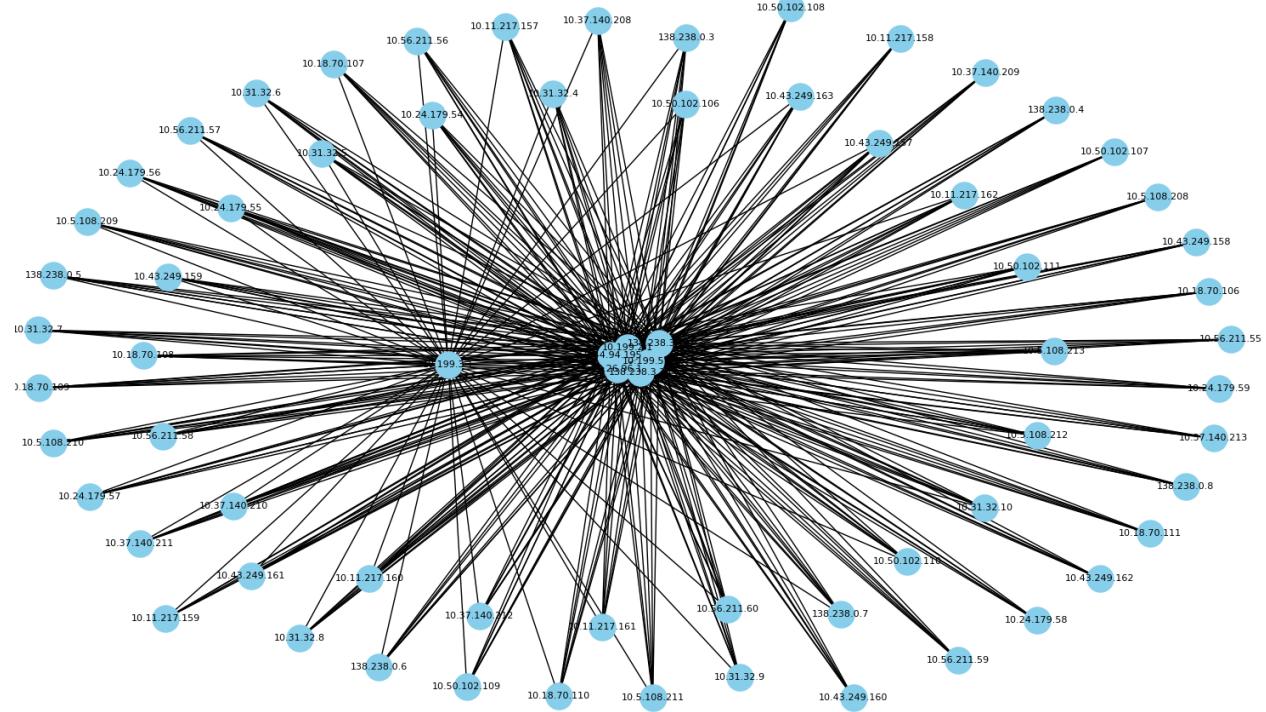
Ashley Haynes @03022439 Douglas Hall



Kamryn Brown @03035598 Blackburn



Amir Bredy @02966864 LKD



Kamryn Brown @03035598 SOB

