Report for Assignment3 CS765

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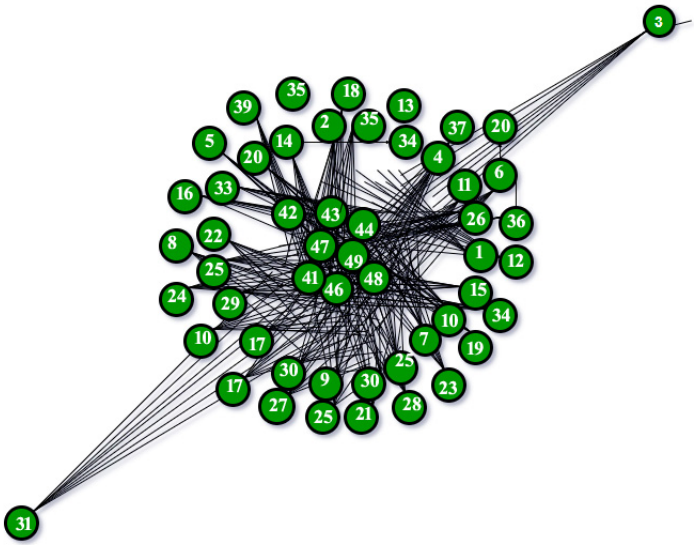
1 Overview

- Main logic behind initializing the accounts, finding shortest paths and checking the path was done in the python script client.py
- The sendAmount function in the payyment.sol file assumes that the client.py has done the neccesary checks and only calls the function between two nodes which are adjacent and with positive balance
- The client.py makes the graph using the networkX library of python and uses a bfs algorithm to find the shortest path. It then calls the checkpath function to check the feasibilty of the path.
- The graph is created using the barabasi albert algorithm with value of n as 100 and m as 10, where m decides the number of old nodes on average a new node is connected
- An extra function called balances was implemented in the payment.sol file to check balances of any node in the join account with any other node. It returns 0 if there is no account.

2 Success Plot

3 Observations

- By running the program many times, it is observed that initially the success is higher (around 0.8 - 0.85) and it drops down to less than 0.7 by the end.
- The structure of the graph is somewhat like this:



- This could be because initially all transactions will succeed but later it stabilizes to 0.6. If the experiment is continued for 20 more batches, it will probably stabilize around some value like 0.6.