

Blockchain Simulator

Instructions to run the simulator:

Compile the `main.cpp` file using `g++ main.cpp`.

```
./a.out <NumberOfNodes> <SimulationTime> <lambda for transaction> <lambda  
for block> <zeta> <alpha>
```

Directory Structure

The directory contains two folders `selfish` and `stubborn`. Each directory has the following files:

- `main.cpp`: Contains the main blockchain simulator code. Takes in the following arguments as stated above.
- `functions.h`: Contains the utility functions required for the simulation.
- `globalvariables.h`: Contains the the global variables that are initialised and updated by various other functions.
- `structures.h`: Contains the following user-defined structures: node, block, event, transaction and their constructors.
- `mg.sh`: A bash script used to make blockchain tree plots.

Simulation Output

1. `blockData.txt`: Information of the generated blocks
2. `BlockChain_*.txt`: Blockchain tree for each node, with other details
3. `initialCoins.txt`: Coins owned by each node at the start of simulation
4. `FinalCoins.txt`: Coins owned by each node at the end of simulation
5. `MPU.txt`: Contains the required ratios (MPU, effective alpha, etc.) for analysis