**Assignment -1**

Exploring Blockchain Through Bitcoin Networks

**Assignment Report**

**GROUP NO-1**

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**1-Different Steps to set up the network:**

1.We have set up a 4 node Bitcoin Core regtest network.

We have downloaded Bitcoin Core Code (0.12 version, not the master) from https://github.com/bitcoin/bitcoin .

2. We have setup a regtest network with 4 full nodes on 1 computers running bitcoind. We have assign three different port number,18222 for alice,18333 for bob,18444 for cory,18555 for dota.

3. Using bitcoin-cli do the following things:

a) Connect the systems for 4 nodes A, B, C and D. A will be connected

to B, B is connected to C, C is connected to D and D is connected to A.

b) Manually create the blocks.

c) We have Create accounts on the chain and transfer funds at every 30sec by bob to alice and bob to cory and bob to dota.

4.For each command to execute periodically we have created a separate python code.

**2.1-We have modifed in the code for c1**

In chainparams.cpp file we have change the parameters in class CRegTestParams we change three parameter.

1. consensus.nPowTargetTimespan = 5\*10;
2. 2 consensus.nPowTargetSpacing = 1\* 60;
3. consensus.fPowNoRetargeting = false;

**2.2-We have modifed in the code for c2**

In chainparams.cpp file we have change the parameters in class CRegTestParams we change three parameter

1. consensus.nPowTargetTimespan = 10\*60;
2. consensus.nPowTargetSpacing = 2\* 60;
3. consensus.fPowNoRetargeting = false;

**3-Result from the plots of C1 and C2**

1.As time increases difficulty increase and after some time difficulty increase such that it becomes difficult to generate blocks.

**4.1-Similarity in pattern we have noticed comparing C1 and C2 for both plot-a and plot-b**

1. In both the plot we number of generated blocks increases as time increase.

**4.2-Difference in pattern we have noticed comparing C1 and C2 for both plot-a and plot-b**

**1.**Block generation rate is more in C1 than C2 as time increase.