Daily Report File for the Semester Project

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First, I forked the repository of tendermint. The forked repository can be found in the link `https://github.com/FurkanKarakas/tendermint`. I followed the documentation on GitHub in order to install the binaries in my local machine. It involved setting up some environment variables such as `$GOPATH`.

Since the master branch is under development, I checked out to the latest version, which is currently 0.33.0. The current version of tendermint can be seen by the command:

```
tendermint version
```

We can run a single node tendermint at the moment but to run local test nets, we can utilize "docker". To start a 4 node test net, run:

```
make localnet-start
```

The nodes bind their Remote Procedure Call (RPC) servers to ports 26657, 26660, 26662, and 26664 on the host. Here is a good website, which explains what RPC is. From the tendermint documentation: *A REST interface for state queries, transaction generation and broadcasting.* The nodes of the network expose their P2P and RPC endpoints to the host machine on ports 26656-26657, 26659-26660, 26661-26662, and 26663-26664 respectively. We can verify these port numbers with the following command:

```
$ sudo netstat -tulpn | grep LISTEN
```

```
tcp      0    0 127.0.0.1:43635     0.0.0.0:*       LISTEN   3298/code
tcp      0    0 127.0.0.53:53       0.0.0.0:*       LISTEN   597/systemd-resolve
tcp      0    0 127.0.0.1:631       0.0.0.0:*       LISTEN   811/cupsd
tcp6     0    0 ::1:631             :::*            LISTEN   811/cupsd
tcp6     0    0 :::26656            :::*            LISTEN   10874/docker-proxy
tcp6     0    0 :::26657            :::*            LISTEN   10859/docker-proxy
tcp6     0    0 :::26659            :::*            LISTEN   11005/docker-proxy
tcp6     0    0 :::26660            :::*            LISTEN   10984/docker-proxy
tcp6     0    0 :::26661            :::*            LISTEN   10832/docker-proxy
tcp6     0    0 :::26662            :::*            LISTEN   10819/docker-proxy
tcp6     0    0 :::26663            :::*            LISTEN   10951/docker-proxy
tcp6     0    0 :::26664            :::*            LISTEN   10918/docker-proxy
```

Note that the program uses TCP in IPv6.

In the command line window, each node is printed with a distinct color. Executed states and committed blocks are printed in the command line window. With each commitment, the height is constantly increasing.

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After executing multiple nodes, a new folder `build` is created. In this folder, each node has a log file, which is called `tendermint.log`. These log files contain the commit and execute steps of the program, written with their corresponding timestamps.