Testing

Now that we have designed our blockchain, let's try it out. First let's make sure it builds and installs:

```
$ sudo make install
```

Then, let's make sure it runs. We'll just run it in the foreground to see the output on standard out:

```
$ learncoind -debug -printtoconsole -regtest
```

If there are no errors, then we can stop it (CTRL+c), then run it in the background with:

```
$ learncoind -debug -daemon
```

Premine

Let's import the private key for our genesis block premine transaction and see if we have a balance. Note genesis block transactions have a maturity time of 100 blocks, so we must mine 100 blocks as well. Let's convert the private key from chapter 3.2 to Wallet Import Format (WIF) to import to the Bitcoin Core wallet. Note it is an uncompressed WIF (thus `-u` flag) because it was an uncompressed public key:

```
$ wif fbb68775062cee2b71aa2c32b1c9b086dbe019aadf064612b908b21a9dbf7822 -n regtest -u
93VmqL45R93Cuh99XkqhPTzbTimbPnw1kYft5TQXPgKVDHSrXLR
$ learncoin-cli -regtest importprivkey 93VmqL45R93Cuh99XkqhPTzbTimbPnw1kYft5TQXPgKVDHSrXLR premine
$ learncoin-cli -regtest listlabels
[
  "premine"
]
$ learncoin-cli -regtest getbalance
0.00000000
$ learncoin-cli -regtest generate 100
[
  "..."
  ...
]
$ learncoin-cli -regtest getbalance
1000000.00000000
```

Transaction

Let's create another address that we can test sending coins to:

```
$ sha256 "Test address"
4708a48f4d2d2fc33bb37f6d299752a1e1c7487180a1d408704af2f1f38d2006
$ pubkey 4708a48f4d2d2fc33bb37f6d299752a1e1c7487180a1d408704af2f1f38d2006
02849f03f964198d83975c5a62ceadd80df01e4300c22031675f7803a347239d32
$ p2shp2wpkh 02849f03f964198d83975c5a62ceadd80df01e4300c22031675f7803a347239d32 -r
TXaTxa4eEfkaan7RtY3exF5Hj5BteAxDLK
$ learncoin-cli -regtest sendtoaddress TXaTxa4eEfkaan7RtY3exF5Hj5BteAxDLK 100000
...(txid)...
```

```
$ learncoin-cli -regtest getbalance
899999.99996260
```

You can see that it deducted the amount (plus a small transaction fee) for the transaction.