

## User's Manual

This is a short interactive usage tutorial on **bitcoin 1.0.0**. As input, the .txt files under the test-cases directory will be used.

First off, source code under src directory, needs to be compiled. Let's try the following

```
~/Git/Repos/C/bitcoin/src master ➤ make
gcc -g -Wall -c wallet.c
gcc -g -Wall -c tree.c
gcc -g -Wall -c hashTable.c
gcc -g -Wall -c list.c
gcc -g -Wall -c coin.c
gcc -g -Wall -c trans.c
gcc -g -Wall -c utils.c
gcc -g -Wall -o bitcoin bitcoin.c wallet.c tree.c hashTable.c coin.c list.c trans.c utils.c
```

Ok, so what now? Just type anything and see what happens.

```
>> hello bitcoin
hello: Command not found
Type 'help' to get a list of valid commands
```

Oh alright, let's try that 'help' command.

```
>> help
bitcoin, version 1.0.0
Type 'help' to see this list

command list
-----
requestTransaction senderWalletID receiverWalletID amount [date] [time]
requestTransactions senderID receiverID amount [date] [time];senderID2 receiverID2 amount_2 [date_2] [time_2]; ...;senderIDn receiverID_n amount_n [date_n] [time_n];
or
requestTransactions inputFile
findEarnings walletID [date1][time1][date2][time2]
findPayments walletID [date1][time1][date2][time2]
walletStatus walletID
bitCoinStatus bitCoinID
traceCoin bitCoinID
```

Sweet, now let's try some of these commands.

Starting off, let's make a simple transaction

```
>> requestTransaction richard johnsmith 30
requestTransaction(s): completed
322    richard johnsmith      30      20-06-2019      18:40
      show current state?(y/n): n
```

As you can see, after each successful transaction, one can request to take look at the current state of the application, so then, the wallet list and the content of both the hash tables(senders-receivers) will be displayed.

But what about a transaction on a certain point in time?

```
>> requestTransaction richard johnsmith 12 11-12-2015 12:20
requestTransaction(s): Error, 323 was rejected because the most recent transfer was at Thu Jun 20 19:40:42 2019
```

Oh no, it looks like each transaction should have a more recent timestamp from the very last one recorded. What if we wish for multiple transactions at once?

Let's try completing a series of those, separated by a semi-colon.

```
>> requestTransactions richard crystalsmith 120;johnsmith hackerman 23
strlen(file): 7
args: richard crystalsmith 120
requestTransaction(s): completed
326    richard crystalsmith    120    20-06-2019      18:44
requestTransaction(s): completed
327    johnsmith      hackerman    23    20-06-2019      18:44
```

Nice, but what if we want even more. Let's use a transactions file then.

```
>> requestTransactions ../test_cases/at-runtime/semi-colon-separated.txt
bitcoin: Getting transactions from ../test_cases/at-runtime/semi-colon-separated.txt ...
requestTransaction(s): completed
328    richard annie    30    20-06-2019    18:45
      show current state?(y/n): (y/n):
n
requestTransaction(s): Error, 329 was rejected because the most recent transfer was at Thu Jun 20 19:45:01 2019
requestTransaction(s): completed
330    annie    johnsmith    400    20-06-2019    18:45
      show current state?(y/n): (y/n):
n
requestTransaction(s): completed
331    richard annie    250    20-06-2019    18:45
      show current state?(y/n): (y/n):
n
requestTransaction(s): Error, sender kostas does not have a wallet
requestTransaction(s): Error, transaction 333 not feasible for sender imwatchingyou, balance is 766 but 900 is requested
requestTransaction(s): completed
334    annie    lookingforagoogusername 200    20-06-2019    18:45
      show current state?(y/n): (y/n):
n
requestTransaction(s): completed
335    norvaldach    johnsmith    123    20-06-2019    18:45
      show current state?(y/n): (y/n):
```

Now that our transaction history is pretty big, let's find out how much money a certain user has earned or paid, during a specific time range or in general.

```
>> findEarnings crystalsmith
326    richard crystalsmith    120    20-06-2019    18:44
324    richard crystalsmith    120    20-06-2019    18:43
262    imwatchingyou    crystalsmith    18    21-03-2017    11:32
23     richard crystalsmith    20    13-02-2018    12:32
>> findEarnings shirleyparkerlittlewallet
321    johnsmith    shirleyparkerlittlewallet    24    03-11-2018    08:56
249    lookingforagoogusername    shirleyparkerlittlewallet    30    30-06-2018    15:26

>> findPayments imwatchingyou
262    imwatchingyou    crystalsmith    18    21-03-2017    11:32
261    imwatchingyou    norvaldach    16    21-03-2017    11:27
>> findPayments imwatchingyou 21-03-2017 11:30 21-03-2017 11:32
findPayments: imwatchingyou payed 18$
```

As you might read in the description, the status and transaction history of each coin is recorded, to get that we need to use commands:

- bitCoinStatus and
- traceCoin

so let's take a look at how these work.

```
>> bitCoinStatus 740
status of coin 740
-----
Initial_Value: 200$
Unspent_Part: 166$
Involved in 3 transactions
>> traceCoin 740
Coin: 740
261    imwatchingyou    norvaldach    16    21-03-2017    11:27
335    norvaldach    johnsmith    123    20-06-2019    18:45
262    imwatchingyou    crystalsmith    18    21-03-2017    11:32
```

Finally, to exit, just type so...

```
>> exit
rm -f wallet.o tree.o hashTable.o list.o coin.o trans.o utils.o
```

Ok, that is it, hopefully, you found this manual helpful.