Command line args → main()

↓

Initialize simulator state and variables, generate peers, create random network, assign hash powers etc.

↓

Simulator.start()

↓

Initialize clock time to 0
Push initial txn and block gen events

↓

Start processing events from event queue

↓

Check for termination conditions: Current time > Simulation time
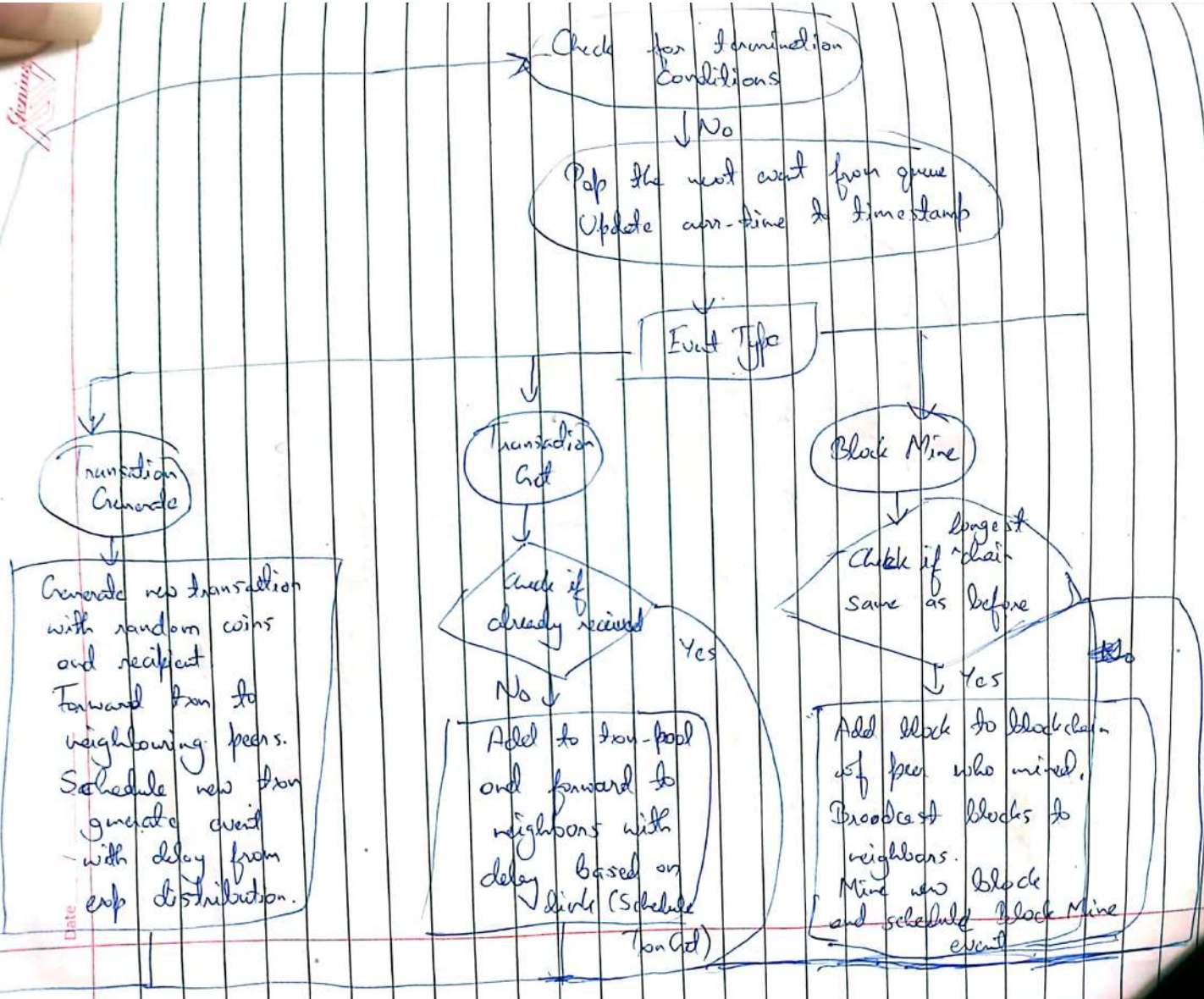or # blocks > max_blocks
or # txns > max_txns

→ Yes →

Process remaining events except those that generate new txn or block

↓

~~Outp~~ Dump statistics like arrival time, fraction of blocks in final chain, edges, blockchain info etc

Check for termination Conditions

↓ No

Pop the next event from queue
Update arr-time to timestamp

Event Type

Transaction Generate

Generate new transaction
with random coins
and recipient
Forward tran to
neighbouring peers.
Schedule new tran
- generate event
- with delay from
exp distribution.

Transaction Got

Check if
already received

Yes

No ↓

Add to tran-pool
and forward to
neighbors with
delay based on
link (Schedule
Tran Got)

Block Mine

Check if longest chain
same as before

↓ Yes   No

Add block to blockchain
of peer who mined.
Broadcast blocks to
neighbors.
Mine new block
and schedule Block Mine
event.

Event Type

Block Got

No → Check if already received → Yes

Check for termination conditions

No →

Check if valid

Yes →

Yes →

Forward block to neighbors if not already forwarded

Yes →

Parent block exists

No

Add block to buffer

Add block to blockchain.
Add blocks from buffer who become ready because of this block

Forward these blocks to peers if not already done so

Start mining on new Block head.
Schedule Block Mine event

Yes

longest New chain created

No