Building a layer-2 DAPP on top of Blockchain

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1 Insights and findings

In this section, we describe our findings based on the experiments. We executed 1000 sendAmount transactions for a given experiment eight times. The results of successful transactions were shown for a batch of 100 transactions, or 10 batches per experiment.

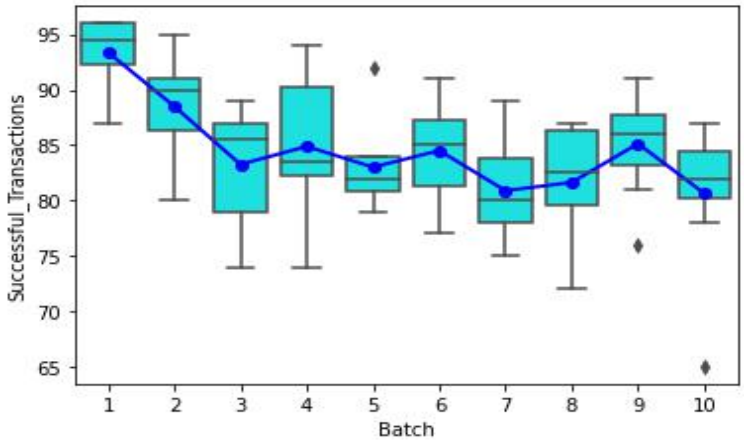

Figure 1: Successful transactions vs Batch

Figure 1 shows the box plot for the numbers of successful transactions for all ten batches in a given experiment across eight runs, with the blue line indicating the average of the given batches across eight runs.

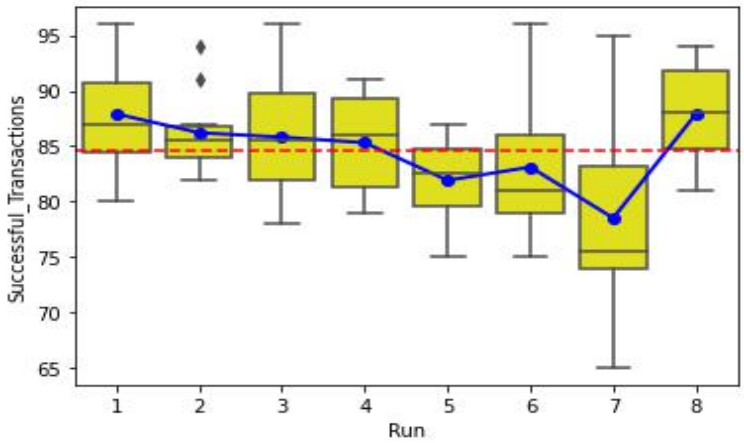

Figure 2: Successful transactions vs Run

Figure 2 shows the box plot for numbers of successful transactions across 8 runs, with the blue line indicating the average of a given run and the red dotted line indicating the overall average number of successful transactions across all 8 runs.

2 Documentation

- `registerUser(uint use_id, string memory user_name)`: function to create `user_id` with `user_name`
- `createAcc(uint user_id_1,uint user_id_2,uint balance1,uint balance2)`: create joint account between `user1` and `user2` with `balance1` for `user1` and `balance2` for `user2`
- `sendAmount(uint user_id_1,uint user_id_2)`: function to send `1 coin` from `user1` to `user2`
- `check_path(uint start,uint end)`: function to check if there is a path between `start` and `end` node
- `closeAccount(uint user_id_1, uint user_id_2)`: function to close account between `user1` and `user2`