

CS 765 - Home work 3

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Contents

0.1	Issues	2
0.1.1	News rating calculation	2
0.1.2	Sybil Attack	2
0.1.3	Method to evaluate or re-evaluate the trustworthiness of voters	2
0.1.4	Rational voters are to be incentivised	2
0.1.5	Uploading a news item	2
0.1.6	Bootstrapping	3
0.2	Observations	3
0.3	Graphs	4

0.1 Issues

0.1.1 News rating calculation

If there are N voters who voted for a news item, then the rating will be,

$$rating = \frac{\sum_{i=1}^N trustvalue_i * rating_i}{\sum_{i=1}^N trustvalue_i}$$

where $trustvalue_i$ is the trustvalue of the voter i .

$rating_i$ is the rating given by the voter i .

0.1.2 Sybil Attack

We avoided sybil attack by using deposits, voter should deposit some amount of money to vote. This deposit is used to penalize the voter if he votes for the wrong block. This deposit is returned to the voter if he votes for the correct block. This way we can avoid sybil attack.

0.1.3 Method to evaluate or re-evaluate the trustworthiness of voters

Each voter has a trustvalue initially set to 50, with a maximum of 100 and a minimum of 0. If a voter votes correctly for a news item his trust would be increased by $e^{-trustvalue/100}$ and if he votes incorrectly his trust would be decreased by $e^{-trustvalue/100}$. This way we can evaluate the trustworthiness of the voters.

0.1.4 Rational voters are to be incentivised

we will penalize the voter who vote incorrectly and reward the voter who vote correctly. By sharing the penalized amount among the voted who voted correctly equally we can incentivise the Rational voters.

As for the same type of news items like related to same subject(eg. politics), so the voters who voted correctly for previous politics news will have more trustvalue and their vote will be more valuable.

0.1.5 Uploading a news item

Each news will have a unique id so that voters can distinguish between them, each news has a category, and each voter has to make a deposit to add a news item. This deposit is used to penalize the voter if the news item is fake. This deposit is returned to the voter if the news item is not fake.

0.1.6 Bootstrapping

Initially every voter will have same trustvalue of 50. As the system progresses the trustvalue of the voters will be updated based on their voting history.

0.2 Observations

- The trustvalue of the honest and semi-honest voters will increase as they vote correctly for the news items, if no of malicious voters are less compared to the honest and semi-honest voters.
- If simulation keeps on running for a long time, honest will reach maximum trustvalue and malicious will reach minimum trustvalue.
- If the no of malicious voters are more compared to the honest and semi-honest voters, the trustvalue of the honest and semi-honest voters will decrease, as the malicious voters will vote incorrectly for the news items, and the Dapp will recognize the news as fake and the trustvalue of the honest and semi-honest voters will decrease, and the trustvalue of the malicious voters will increase.
- If both honest and semi-honest reach maximum or minimum trustvalue, then honest people reach maximum or minimum trustvalue before semi-honest people.
- If malicious voters are more both honest and semi-honest voters will reach minimum trustvalue, and the malicious voters will reach maximum trustvalue.

0.3 Graphs

