

Computational Social Choice (Voting rules: theory and implementation)

Assignment

Lecture delivered on: 10:30~12:00, October 31st, 2023

Assignment Deadline: 12:00, November 28th, 2023

Max Points: 10 points

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Theory:

1. What are the drawbacks of the Majority rule system? Give real-world examples.
2. Which voting system do you think is the most effective or best in your opinion?
3. Illustrate the steps required to calculate the Copeland scores of the example of slide 33. Draw the corresponding graph representation.
4. Which voting axioms are the most important in a democratic system?

Implementation:

1. Go to the GitHub repository of the COMPSOC SDK (<https://github.com/ravig/compsoc>).
2. Install the SDK. Refer to **README** for more information on the dependencies.
3. Run some examples using the command described in the usage section of the **README**. For instance, try different numbers of candidates and voters given the voting rules *Dowdall*, *Simpson*, *Copeland*, and *Borda* implemented in the **voting_rules** folder.
4. The example in [tests/simple_rule](#) contains a rule named *borda_alpha*. Run the example using the command line. Describe what the rule does.
5. Write your own rule and test it.
6. Write a one-page report where you explain and interpret the logic and results of your rule. Which axioms does your rule satisfy, and which axioms does it not satisfy?

Note that you need to submit your report alongside the code of your rule.

For any questions or requests, feel free to contact me at rafik.hadfi@i.kyoto-u.ac.jp.