Voting Game Day
CSCI 364   Fall 2021   Oberlin College
January 7, 2022

Welcome to the Voting Game Day in CSCI 364 (Artificial Intelligence)! Imagine that you are an AI agent representing your personal interests. We will be practicing with the different voting systems to determine what is the class's collective favorite flavor of frozen treat. The choices include:

1. Bourbon Brown Butter Pecan
2. Caramel Salt
3. Caramelized Honey + Cardamom
4. Casbah Cinnamon
5. Chocolate Cardamom Rose
6. Chocolate Raspberry Truffle
7. Clementine Sorbet
8. Cranberry Hibiscus Sorbet
9. Crema Catalana
10. Earl Grey
11. Firelands Mint
12. Ginger or MaryAnn Sorbet
13. Guiness Bailey's Ganache
14. Henrietta Bramble
15. Malted Strawberry
16. Maple Buttermilk
17. Mexican Vanilla Bean
18. Mr. Handsome (dark chocolate)
19. Ooey Gooey Buttercake
20. Passionfruit Sorbet
21. PB & J
22. Peach Moscato Sorbet
23. Pumpkin/Yam/Mascarpone
24. Raspberry Sorbet
25. Roasted Banana
26. Salt + 'Scotch
27. Speculoos
28. Storm Mountain Coffee
29. Strawberry Shortcake
30. Tiramisu
31. Vanilla Citrus Curd
32. Wabi Sabi

Voting will take place in five episodes, each using different voting systems. Your objectives are to (1) vote your group's preference(s) in each episode, (2) determine the flavor selected as the top choice across all groups' votes in each episode, and (3) answer a few additional questions about the overall preferences of the class. *Your votes must be consistent in each episode.*

For many of the episodes, we will use Google Forms to submit our votes electronically. <u>Only one group member</u> should vote for their entire group.

Your Group's Preference Ordering

Please use the table below to list your group's preference ordering for the 32 flavors of frozen treats, ranked from most favorite at the top to least favorite at the bottom.

Preference	Flavor
1 (most)	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32 (least)	

Episode 1: Plurality Voting

1) Which flavor did your group vote for?

2) Which flavor was selected by Plurality Voting (considering the votes of all groups)?

Episode 2: Approval Voting

1) Which flavor(s) did your group vote for?

2) Which flavor was selected by Approval Voting (considering the votes of all groups)?

Episode 3: Cumulative Voting

1) Which flavors did your group vote for, and how many votes did you cast for each flavor?

2) Which flavor was selected by Cumulative Voting (considering the votes of all groups)?

Episode 4: Borda Voting

1) Which flavor was selected by Borda Voting (considering the votes of all groups)?

2) What is the total ordering of all flavors as a result of Borda Voting? Include the counts of points earned by each flavor to support your results.

Episode 5: Plurality with Elimination Voting

1) Which flavor was selected by Plurality with Elimination Voting (considering the votes of all groups)?

2) Which flavors were eliminated in which rounds of re-voting? Note: if there were ties for the least number of votes, multiple flavors could be eliminated in the same round.

Round	Eliminated Flavor(s)	Flavors that Received the New Votes
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

Additional Questions

1) Based on the preferences submitted for Borda Voting in Episode 4, is there a flavor that satisfies the Condorcet Condition? If yes, name the flavor and show each comparison with the other flavors to support your claim (i.e., show how many people preferred the Condorcet Winner vs. the other 31 flavors).

2) If there was a Condorcet Winner, in which Episodes was the Condorcet Winner selected by the voting system?

3) How did your group decide on a preference ordering?

4) What did your group learn about Social Choice and Voting as a result of this Game Day?