

Math of Elections #1

Introduction

Example: Club Election

There are four candidates for president of a club: Candy (C), Emma (E), Lonnie (L), and Nguyen (N). The club needs to elect a president. The club has 37 voting members, and each member fills out a **preference ballot** listing the candidates in order of preference for president. Here are the ballots.

Ranking	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot
1st	C	E	C	L	E	C	L	C	L	L
2nd	E	N	E	E	N	E	E	E	E	N
3rd	L	L	L	N	L	L	N	L	N	E
4th	N	C	N	C	C	N	C	N	C	C
Ranking	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot
1st	N	N	C	L	E	C	N	C	C	C
2nd	L	L	E	E	N	E	L	E	E	E
3rd	E	E	L	N	L	L	E	L	L	L
4th	C	C	N	C	C	N	C	N	N	N
Ranking	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot
1st	E	L	N	C	L	L	N	C	C	N
2nd	N	E	L	E	E	E	L	E	E	L
3rd	L	N	E	L	N	N	E	L	L	E
4th	C	C	C	N	C	C	C	N	N	C
Ranking	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot			
1st	L	N	N	C	L	C	L			
2nd	E	L	L	E	E	E	E			
3rd	N	E	E	L	N	L	N			
4th	C	C	C	N	C	N	C			

Questions

1. Just looking at the 1st place votes, did any candidate win the **majority**?
2. Notice that many ballots are identical. What might be a way to better organize this data, so it is easier to analyze?
3. Describe two different ways to determine who should be elected president?