

Student Name: Gia Bach Nhu

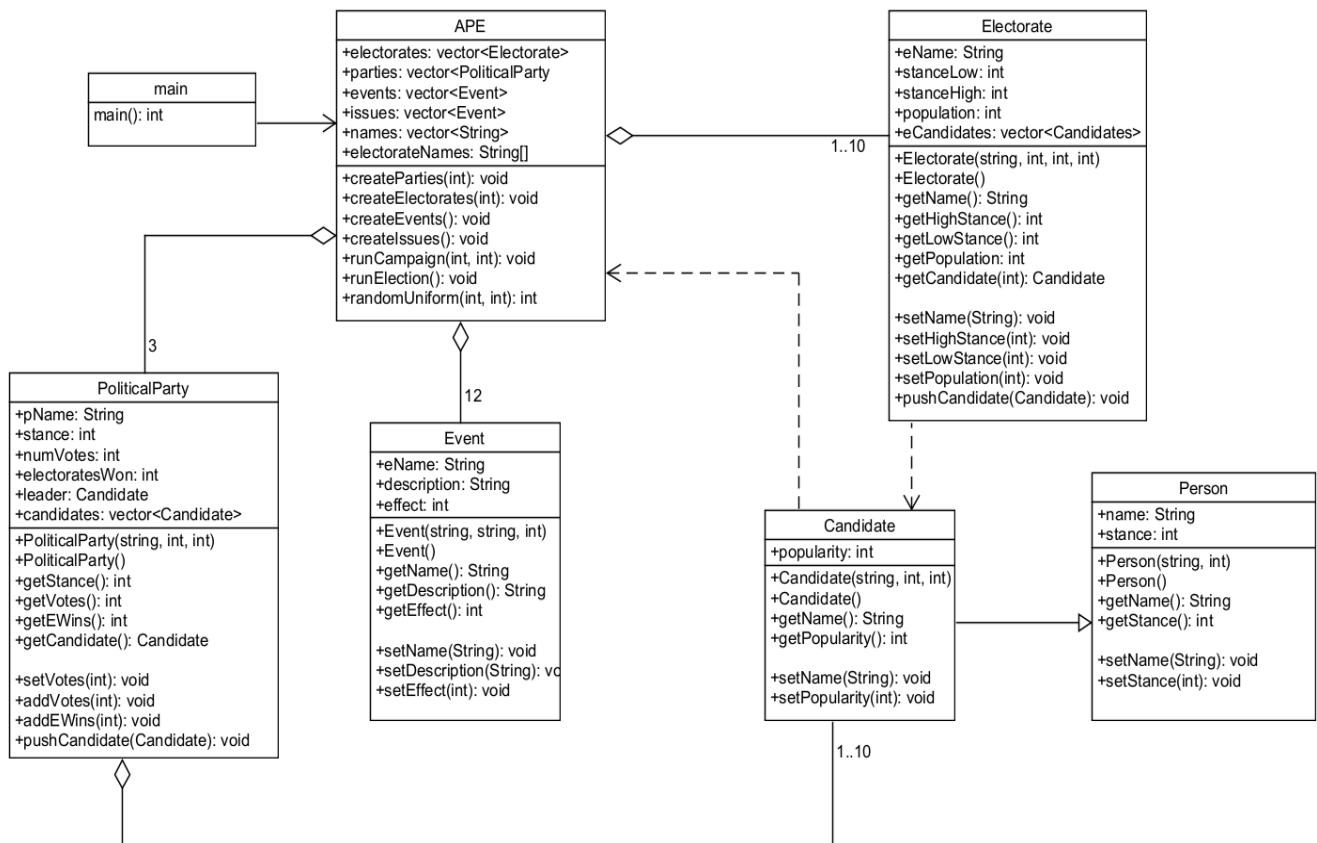
Student Number: 7547821

## CSCI251-Assignment 2

To compile the code: `g++ main.cpp -o Run APE.cpp PoliticalParty.cpp Person.cpp  
Candidate.cpp Electorate.cpp Event.cpp`

To run the code: `./Run 10 30`

1.



## 2. Issues:

- **Energon Shortage:** Imagine facing a severe depletion of Energon reserves, which leads to energy shortages across Cybertron. This issue significantly influences voters' decisions and can either boost or damage a party's popularity.
- **Interstellar Conflict:** Cybertronian factions are deeply involved in intense interstellar conflicts. It falls upon the leaders to seek peaceful solutions and safeguard our homeworld. This issue reflects the state of conflict on Cybertron and can profoundly impact voters' choices.
- **Cyber Intrusions:** Malevolent entities from other worlds launch cyber-attacks on vital systems, causing disruptions in networks and data. How leaders respond to these cyber intrusions becomes a critical issue in the campaign, affecting candidates' standings.
- **Energy Crisis:** Cybertron's energy resources are rapidly depleting, resulting in a critical energy crisis. Finding sustainable energy solutions becomes paramount for leaders. This issue focuses on the candidates' ability to address the energy crisis effectively.
- **Judicial Debates:** The debate centers on determining the appropriate punishment for heinous acts. Should the current justice system be retained, or should alternative methods for dealing with grave crimes be explored? This issue highlights candidates' positions on justice and law enforcement.

## 3. Political Parties:

In this simulation, there are three distinct political parties, each with its own set of policy stances on the aforementioned issues and a defined range of stances:

- **Autobot:** The Autobot party often adopts a moderate approach. They push for policies that balance the many demands of the Cybertronian populace. On a scale of 1 to 9, their position on problems ranges from 3 to 7.
- **Decepticon:** The Decepticon party favors taking immediate action and having a larger military presence. They have a tendency to take a more assertive stance on problems. Their opinion on a subject usually falls between 4 and 9.
- **Terrorcon:** The Terrorcon party adopts a more radical and confrontational stance on issues. They advocate for aggressive solutions and often prioritize military and security concerns. Their stance on issues falls within the range of 5 to 9.

## 4. Electoral Divisions:

In our simulation, we have various electoral divisions, each named after Cybertronian cities. These divisions exhibit unique characteristics, including varying population sizes and differing stances on the key issues. The distribution of stances within each division is randomly determined.

In this game, different areas are matched with candidates from each group, and how well these candidates do depends on how well they can make people in those areas like them. The candidates are chosen without any special order from a list of names. They are then

sent to represent their own political parties in certain areas. How much people like these candidates can go up or down during the game because of different things, like how people react to them and what happens during the game.

#### 5. Leaders and Their Teams:

Each group in the game has one person in charge, and we pick their name by chance from a list. These leaders are super important because if people like them and think they're good leaders, their group has a better chance of winning.

#### 6. Events:

Events serve as unpredictable occurrences within the simulation, introducing an element of uncertainty and dynamism into the campaign. Events can shake things up in the game, and they can be good or bad for the candidates, leaders, and parties. We sort these events into different groups like ones about candidates, leaders, or the big issues. Events can shake things up in the game, and they can be good or bad for the candidates, leaders, and parties. We sort these events into different groups like ones about candidates, leaders, or the big issues. These events can increase the candidate popularity or the opposite, and they can also make leaders more liked or less liked. They can even change how well a party is doing in the game.

For example, a "Debate" event might make Cybertron people like a candidate more, but a "Candidate Scandal" event could make them trust a candidate less. Similarly, a "Leadership Crisis" event might hurt how much people like a leader, while a "Peace Treaty" event could make people like a party more.

#### 7. Voting Score Calculation:

In this simulation, the determination of winners in each electoral division hinges on the calculation of voting scores. These scores reflect the level of support that each candidate receives from voters within their respective divisions. The voting score calculation process is rooted in the distribution of voter stances within each division.

In each electoral division, voters are grouped based on their views, whether they strongly support, moderately agree, or have more lenient stances on the issues. Candidates will compete each others to achieve the most votes in each group. The candidate with the most votes in each group will be the winner of that group.

The overall winner in an electoral division is the candidate who secures the most groups or voter categories. This method considers the varied opinions of the voters, ensuring that the candidate who appeals to the most voter groups wins in each division.

In the end, the simulation combines the results from all divisions to determine the ultimate election winner. If one party wins over half of the total divisions, they win outright. If no party achieves this majority, it leads to a tied parliament, indicating the need for more talks and decisions to form the government.