Data Model PolSim

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1. Entity Descriptions

1.1. Person

Naturally, we will need an entity to store information about each user. This entity will have the ability to join groups and vote on decisions in that group. Each person also requires a username that is unique.

Attributes:

- Username: unique title for referencing users
- Group: this is the group the person is in
- Can Vote: a boolean value whether this person has the right to vote
- Power: the amount of weight this one person's vote has in a decision

1.2. Group

This entity stores all the information of the hierarchical structure of the different governments. This entity is also self-referential, so that the groups can be nested inside themselves.

Attributes:

- Groupname: unique title for referencing groups
- Leader: person who created this group and also who breaks ties in voting
- Parent Group: the group this group is in
- Power: the amount of weight this one group's vote has in a decision

1.3. Vote

This records what every person votes on the decisions. It references the decision and the person who cast the vote, as well as whether the person agrees or disagrees to approving the decision.

Attributes:

- Person: the person casting this particular vote
- Group: the group casting this vote. Only one of these two can be set.

- Decision: the decision this person is deciding on

- Agreement: whether the person agrees to approve this decision.

1.4. Decision

Every decision that needs to be made, and has already been made, will be stored in this table. The outcome of this vote is gotten, by counting the number of unique and valid votes cast in favour of the decision.

Attributes:

- Title: a short description of the vote topic

- Creator: the person who initiated the decision

- Close Time: the time when voting is closed and the decision is either accepted or rejected.

- Voting: this is the reference to the group that will be affected by this change, and that get to vote on it's outcome.

- Create Date: the date that the decision was created on.

1.5. Action:

When a decision is approved it can perform any number of actions. An action is a group of SQL statements that get performed on the database. For example, if you want to change the leader of a group, that would be put in the database.

Attributes:

- Decision: the decision that will approve or deny that this action can pass

- Description: a short explaination of what this action will perform upon being approved.

- Exec Time: the time when this action is performed if it has been approved

1.6. Command:

Actions constitute groups of commands to be executed. You can't just create a group, you must also add all the potential members to the group as well. All those commands are performed in a single action, simply called "Create group".

Attributes:

- Action: the action that would perform this command
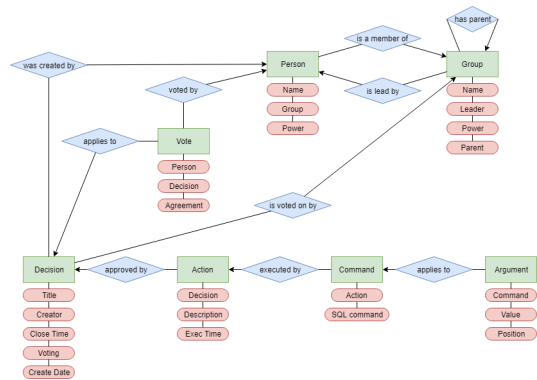- SQL Command: the SQL code to be executed with this command with its arguments substituted

1.7. Argument:

Commands can have varying numbers and types of arguments, so this table contains the value of all the arguments to be passed to an SQL command. Luckily all the commands we need to be able to apply to the databse have only integer arguments, so we don't need to store the data type.

Attributes:

- Command: the command that accepts this argument
- Value: the integer value to be passed
- Position: the order in which the arguments should be inserted into the commands

2. Entity Realtionship Model

3. Entity Realtionship Diagram