Homework 2   Write-up

2) Who missed the votes?

$\text{cartesian} \leftarrow (\sigma_{\text{Senator.id}=\text{voted.sen\_id, voted.vote}='A'} (\text{Senator} \times \text{Voted}))$

$_{\text{lastname, firstname}, \text{count (vote)}} G_{\text{sen\_id}} (\text{cartesian})$

3) "Who Missed the Votes" Strikes Back

$\text{cartesian} \leftarrow (\sigma_{\text{Senator.id}=\text{voted.sen\_id, voted.vote}='A'} (\text{Senator} \times \text{Voted}))$

$\text{grouped} \leftarrow (_{\text{count (vote)}} G_{\text{sen\_id}} (\text{cartesian}) \bowtie \text{senator})$

$\sigma_{(\text{lastname, firstname, coalesce (absences,0)})} (\text{grouped})$

4) Agreements and Disagreements

① $\text{votesCart} \leftarrow (\sigma_{\text{sen\_id}='S412'} (\text{voted}) \times \sigma_{\text{sen\_id}='S221'} (\text{voted}))$

$(\sigma_{\text{sen\_x.vote}=\text{sen\_y.vote, sen\_x.num}=\text{sen\_y.num, sen\_x.vote}!='A'} (\text{votesCart}))$

② $\text{votesCart} \leftarrow (\sigma_{\text{sen\_id}='S412'} (\text{voted}) \times \sigma_{\text{sen\_id}='S221'} (\text{voted}))$

$(\sigma_{\text{sen\_x.vote}!=\text{sen\_y.vote, sen\_x.num}=\text{sen\_y.num, sen\_x.vote}!='A'} (\text{votesCart}))$

③ $\text{votesCart} \leftarrow \sigma_{\text{sen\_id}='S412'} (\text{voted}) \times \text{voted})$

$\text{filtered} \leftarrow (\sigma_{\text{sen\_x.num}=\text{sen\_y.num, sen\_x.vote}!=\text{sen\_y.vote, sen\_x.vote}!='A'} (\text{votesCart}))$

$\sigma_{\text{sen\_y.id}=\text{senator.id}} (_{\text{count (sen\_x.vote)}} G_{\text{sen\_y.sen\_id}} (\text{filtered}) \times \text{senator})$

5) The Agreement Index

$\text{sen\_x} \leftarrow \pi_{\#} \sigma_{\text{sen\_id}='S355'} (\text{voted})$

$\text{sen\_y} \leftarrow \pi_{\#} \text{voted}$

$\text{total\_disagreement} \leftarrow _{\text{sen\_x.id, sen\_y.id}, \text{Count (vote)}} G_{\text{sen\_y.sen\_id}} (\sigma_{\substack{\text{sen\_x.num}=\text{sen\_y.num} \\ \text{sen\_x.vote}!=\text{sen\_y.num} \\ \text{sen\_x.vote}!='A' \\ \text{sen\_y.vote}!='A'}} (\text{sen\_x} \times \text{sen\_y}))$

$\text{disagreement\_table} \leftarrow \sigma_{\text{senator.lastname, senator.firstname, senator.party, number\_of\_disagreements}} (\text{total\_disagreements} \bowtie_{\text{sen\_y.id}=\text{senator.id}} \text{senator})$

$\text{total\_agreement} \leftarrow _{\text{sen\_x.id, sen\_y.id}, \text{Count (vote)}} G_{\text{sen\_y.sen\_id}} (\sigma_{\substack{\text{sen\_x.num}=\text{sen\_y.num} \\ \text{sen\_x.vote}=\text{sen\_y.num} \\ \text{sen\_x.vote}='A'}} (\text{sen\_x} \times \text{sen\_y}))$

$\text{agreement\_table} \leftarrow \sigma_{\text{senator.lastname, senator.firstname, senator.party, number\_of\_agreements}} (\text{total\_agreements} \bowtie_{\text{sen\_y.id}=\text{senator.id}} \text{senator})$

$\pi_{\substack{\text{sen\_y.lastname,} \\ \text{sen\_y.firstname,} \\ \text{party, number\_of\_disagreements,} \\ \text{number\_of\_agreements,} \\ \text{(number\_of\_agreements} - \text{number\_of\_disagreements)} / \\ \text{(number\_of\_agreements} + \text{number\_of\_disagreements)}}} \left(\text{disagreement\_table} \bowtie \text{agreement\_table} \right)$