

## Relational Algebra

**1. Use Case:** Register for an account in fears away

Relational algebra is not possible for this use case as there is no register operation.

**2. Use Case:** View alerts sent

$\Pi_{\text{name, twitter\_handle}}(\sigma_{\text{incident\_id is not null and twitter\_handle} = \text{"@smith"}}(\text{incident}))$

**3. Use Case:** View news

$\Pi_{\text{name, twitter\_handle}}(\sigma_{\text{news\_id is not null and twitter\_handle} = \text{"@smith"}}(\text{news}))$

**4. Use Case:** View the incidents happened on a particular date.

$\sigma_{\{\text{incident\_date} = \text{"2022/11/08"}\}}(\text{Incidents})$

**5. Use Case:** View the incidents happened during a particular time slot

$\sigma_{\{\text{incident\_time} = 16:00:00 \cap \text{incident\_duration} = 2\}}(\text{incidents})$

**6. Use Case:** View the incidents happened in a location

$\sigma_{(\text{Location.street} = \text{"dorchester"})}(\text{Incidents} \bowtie \text{Location}_{\text{Incident.location\_id}=\text{Location.location\_id}})$