Relational Algebra

BS19-02. Team 5
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Order countries by id asc, then show the 12th to 17th rows.

```
SELECT *
FROM country
ORDER BY country_id ASC
LIMIT 6 OFFSET 11;
```

$$\sigma_{country\_id >= 12 \ and \ country\_id <= 17} \ (country)$$

List all addresses in a city whose name starts with 'A'.

```
SELECT address
FROM address
         JOIN city ON address.city_id = city.city_id
WHERE city.city ~ 'A.+';
```

$$\pi_{address} \ ([address]^{\bowtie}{}_{address.city\_id = city.city\_id}[\sigma_{city.city \ ~ \ 'A.+'} \ (city)])$$

List all customers' first name, last name and the city they live in.

```
SELECT first_name, last_name, city
FROM (customer FULL JOIN address ON customer.address_id =
address.address_id) AS temp
         FULL JOIN city ON city.city_id = temp.city_id;
```

$$\pi_{first\_name, \ last\_name, \ city} \ ([customer]^{\bowtie}{}_{customer.address\_id = address.address\_id}(^{\bowtie}{}_{city.city\_id = temp.city\_id}[city])$$

Find all customers with at least one payment whose amount is greater than 11 dollars.

```
SELECT *
FROM payment, customer
WHERE amount > 11 and payment.customer_id = customer.customer_id;
```

$$\sigma_{customer.amount > 11 \ and \ payment.customer\_id = customer.customer\_id} \ (payment, \ customer)$$

Find all duplicated first names in the customer table.

```
SELECT first_name
FROM customer
GROUP BY first_name
HAVING COUNT(first_name) > 1
```

$$\pi_{first\_name}\sigma_{COUNT(first\_name)>1}(customer)$$