

# Relational Algebra

## BS19-02. Team 5

Danis Alukaev  
Denis Schegletov  
Roman Soldatov

**Order countries by id asc, then show the 12th to 17th rows.**

```
SELECT *  
FROM country  
ORDER BY country_id ASC  
LIMIT 6 OFFSET 11;  
 $\sigma_{country\_id \geq 12 \text{ and } country\_id \leq 17} (country)$ 
```

**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';  
 $\pi_{address} ([address] \bowtie_{address.city\_id = city.city\_id} [\sigma_{city.city \text{ starts with 'A'}}(city)])$ 
```

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

```
SELECT first_name, last_name, city  
FROM (customer INNER JOIN address ON customer.address_id =  
address.address_id) AS temp  
      INNER JOIN city ON city.city_id = temp.city_id;  
 $temp \leftarrow [customer] \bowtie_{customer.address\_id = address.address\_id} [address]$   
 $\pi_{first\_name, last\_name, city} ([temp] \bowtie_{city.city\_id = temp.city\_id} [city])$ 
```

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

```
SELECT customer.*, payment.amount  
FROM payment,  
      customer  
WHERE amount > 11  
      and payment.customer_id = customer.customer_id;  
 $\sigma_{customer.amount > 11 \text{ and } payment.customer\_id = customer.customer\_id} (payment, customer)$ 
```

**Find all duplicated first names in the customer table.**

```
SELECT first_name  
FROM customer  
GROUP BY first_name  
HAVING COUNT(first_name) > 1  
 $\pi_{first\_name} (\sigma_{COUNT(first\_name) > 1} (customer))$ 
```