Exercise Solution (1)

1) 모든 판매원(salesperson)의 이름을 보이시오.

Answer

$\Pi_{name}(\text{Salesperson})$

Expression Tree

Π_{name}

|

Salesperson

Tuple

(name)

↑

(name, age, salary)

2) 고객 '홍길동 ' 의 주문을 수주한 판매원의 이름을 보이시오.

Answer

$\Pi_{salesperson}(\sigma_{\text{custname= '홍길동'}}(\text{Order}))$

Expression Tree

$\Pi_{salesperson}$

|

$\sigma_{\text{custname= '홍길동'}}$

|

Order

Tuple

(salesperson)

↑

(number, custname, salesperson, amount)

* 단 custname = '홍길동' 튜플 만

↑

(number, custname, salesperson, amount)

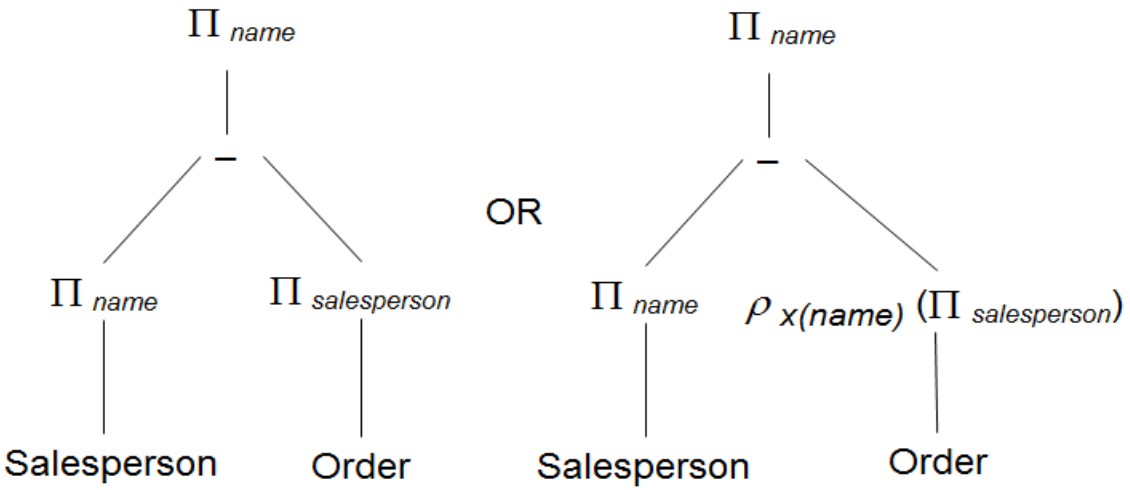
Exercise Solution (2)

3) 주문이 없는 판매원의 이름을 보이시오.

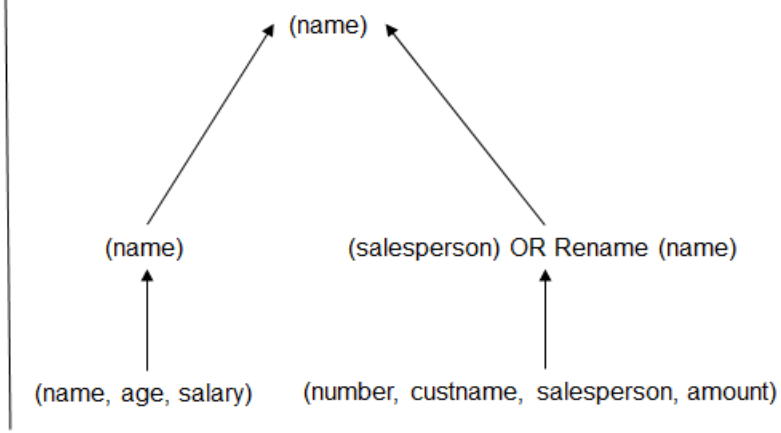
Answer

$$\Pi_{name}(\Pi_{name}(\text{Salesperson}) - \Pi_{salesperson}(\text{Order}))$$

Expression Tree



Tuple



- 차집합은 릴레이션 R과 S에서 동일한 arity(Attribute 개수)를 가져야함
- 또한 릴레이션 R과 S의 Attribute가 동일한 Domain을 다루는 값이어야 함

→ 즉 Attribute 이름은 같을 필요는 없음!!!

참고: SQL 문장

```
SELECT name FROM
    (SELECT name FROM salesperson MINUS SELECT salesperson FROM Order)
```

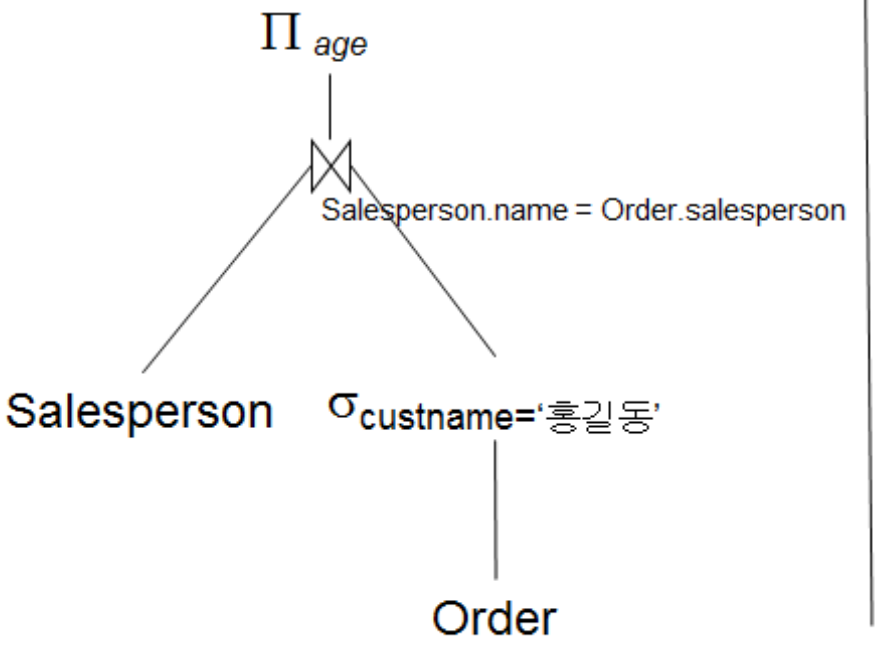
Exercise Solution (3)

4) 고객 '홍길동'의 주문을 수주한 판매원의 나이를 보이시오.

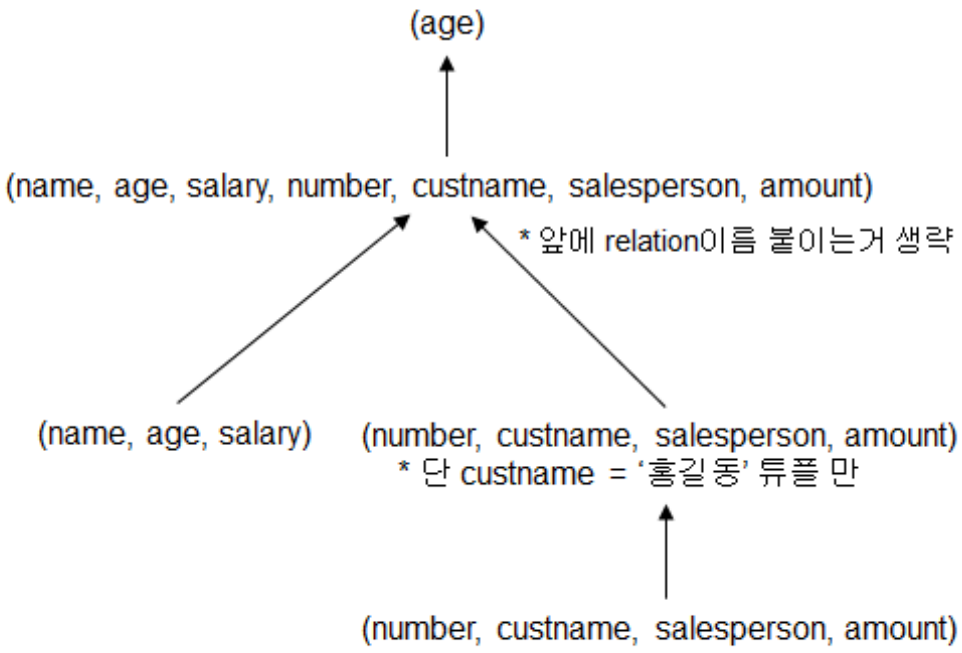
Answer

$$\Pi_{age}(\text{Salesperson} \bowtie_{Salesperson.name = Order.salesperson} (\sigma_{\text{custname='홍길동'}}(\text{Order})))$$

Expression Tree



Tuple



Exercise Solution (4)

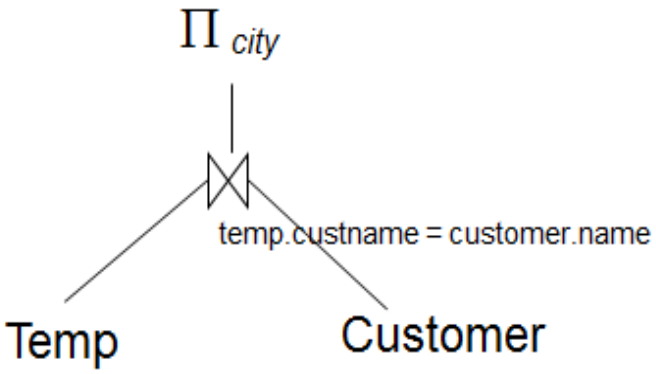
5) 나이가 25살인 판매원에게 주문한 고객의 city값을 보이시오.

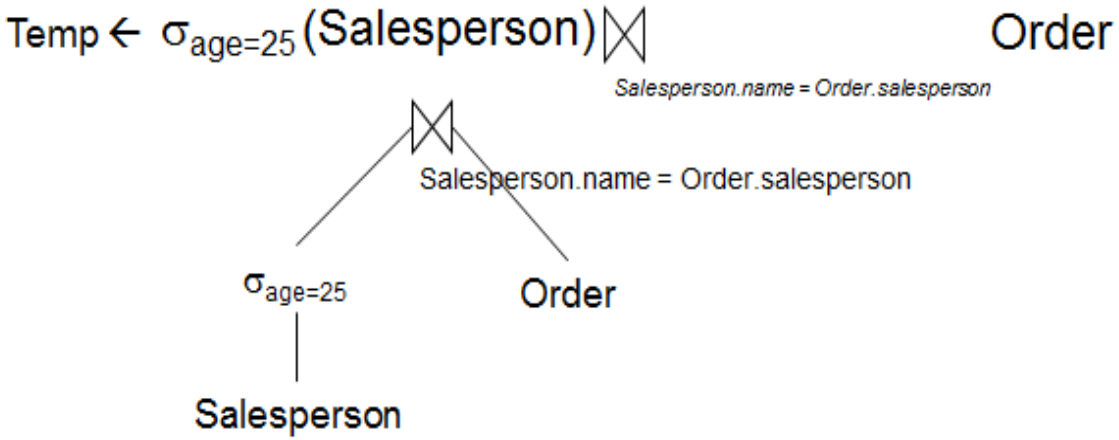
- Temp라는 Assignment Operation 사용

$$\Pi_{city}\ (\text{Customer} \bowtie_{customer.name\ =\ temp.custname} \text{Temp})$$

$$\text{Temp} \leftarrow \sigma_{age=25}\ (\text{Salesperson}) \bowtie_{Salesperson.name\ =\ Order.salesperson} \text{Order}$$

Expression Tree





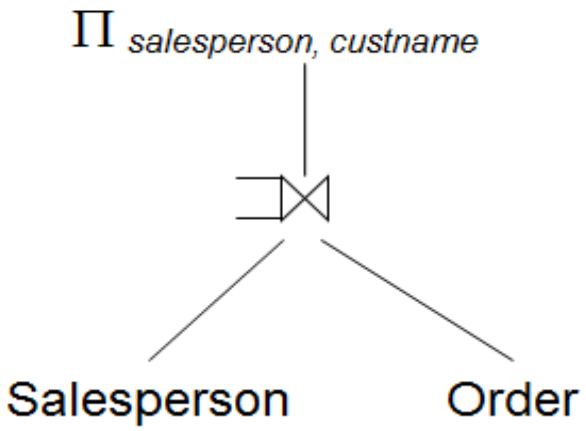
Exercise Solution (5)

6)판매원의 이름과 그 판매원에게 주문을 한 고객의 이름을 보이시오
(단 주문이 없는 판매원도 포함하여 구한다)

Answer

$$\Pi_{salesperson,\ custname}(\text{Salesperson} \bowtie \text{Order})$$

Expression Tree



Tuple