

# Exercise 1

Write the following query in TRC:

```
SELECT DISTINCT employee, director  
FROM Branch, Workfor  
WHERE name = branch_name
```

where there are relations:

*Branch(name, city, director, assets)*

*Workfor(branch\_name, employee)*

# Exercise 1

Write the following query in TRC:

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```

where there are relations:

*Branch(name, city, director, assets)*

*Workfor(branch\_name, employee)*

$\{P \mid \exists B \in \text{Branch} \exists W \in \text{Workfor} (B.\text{name} = W.\text{branch\_name} \wedge P.\text{employee} = W.\text{employee} \wedge P.\text{director} = B.\text{director}) \}$

## Exercise 2

Write the following query in TRC:

Find the title of the movies directed by “Coen” except those that were made in 1999.

where there is relation:

*Movies(title, director, year, rating)*

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Write the following query in TRC:

Find the title of the movies directed by “Coen” except those that were made in 1999.

where there is relation:

*Movies(title, director, year, rating)*

$\{P \mid \exists M \in \text{Movie} (M.\text{name} = \text{'Coen'} \wedge M.\text{year} \neq 1999 \wedge P.\text{title} = M.\text{title}) \}$

## Exercise 3

Write the meaning in English of the following query in TRC:

$$\{P \mid \exists F1 \in \text{Flights}, F2 \in \text{Flights}(F1.\text{source} = \text{'SIN'} \wedge F2.\text{destination} = \text{'BKK'} \wedge F1.\text{destination} = F2.\text{source} \wedge P.\text{source} = F2.\text{source}) \}$$

where there is relation:

*Flights(source, destination)*

## Exercise 3

Write the meaning in English of the following query in TRC:

$$\{P \mid \exists F1 \in \text{Flights}, F2 \in \text{Flights}(F1.\text{source} = \text{'SIN'} \wedge F2.\text{destination} = \text{'BKK'} \wedge F1.\text{destination} = F2.\text{source} \wedge P.\text{source} = F2.\text{source}) \}$$

where there is relation:

*Flights(source, destination)*

Find stopover of flights between Singapore and Bangkok with only one stop over.

## Exercise 5

Write the following query in DRC:

```
SELECT DISTINCT employee, director  
FROM Branch, Workfor  
WHERE name = branch_name
```

where there are relations:

*Branch(name, city, director, assets)*

*Workfor(branch\_name, employee)*

# Exercise 5

Write the following query in DRC:

```
SELECT DISTINCT employee, director  
FROM Branch, Workfor  
WHERE name = branch_name
```

where there are relations:

*Branch(name, city, director, assets)*

*Workfor(branch\_name, employee)*

$\{ \langle E, D \rangle \mid \exists N, C, A (\langle N, C, D, A \rangle \in \text{Branch} \wedge \langle N, E \rangle \in \text{Workfor}) \}$



# Exercise 6

Write the following query in DRC:

Find the title of the movies directed by “Coen” except those that were made in 1999.

where there is relation:

*Movies(title, director, year, rating)*

# Exercise 6

Write the following query in DRC:

Find the title of the movies directed by “Coen” except those that were made in 1999.

where there is relation:

*Movies(title, director, year, rating)*

$\{ \langle T \rangle \mid \exists D, Y, R (\langle T, D, Y, R \rangle \in \text{Movie} \wedge D = \text{'Coen'} \wedge Y \neq 1999) \}$

## Exercise 7

Write the meaning in English of the following query in DRC:

$$\{ \langle D1, D2 \rangle \mid \exists S1, S2, S3, D3 \ ( \langle S1, D1 \rangle \in \text{Flights}, \langle S2, D2 \rangle \in \text{Flights}, \langle S3, D3 \rangle \in \text{Flights} \ (S1 = \text{'AKL'} \wedge D3 = \text{'SIN'} \wedge D1 = S2 \wedge D2 = S3) \}$$

where there is relation:

*Flights(source, destination)*

# Exercise 7

Write the meaning in English of the following query in DRC:

$$\{ \langle D1, D2 \rangle \mid \exists S1, S2, S3, D3 \ ( \langle S1, D1 \rangle \in \text{Flights}, \langle S2, D2 \rangle \in \text{Flights}, \langle S3, D3 \rangle \in \text{Flights} \ (S1 = \text{'AKL'} \wedge D3 = \text{'SIN'} \wedge D1 = S2 \wedge D2 = S3) \}$$

where there is relation:

*Flights(source, destination)*

Find stopovers of flights between Auckland and Singapore with two stop overs.