

CMSC 23500: Introduction to Databases

Homework 4
Jaime Arana-Rochel
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East Beast

1.

$$\begin{aligned} OneHop &= \rho_{dst \rightarrow code} (\pi_{dst} (\sigma_{src = "XYZ"} flights)) \\ H_1 &= \pi_{name} (OneHop \bowtie airports) \end{aligned}$$

Answer: H_1

2.

$$\begin{aligned} OneHop &= \rho_{dst \rightarrow srcOne} (\pi_{dst} (\sigma_{src = "XYZ"} flights)) \\ TwoHop &= \rho_{dst \rightarrow code} (\pi_{dst} (\sigma_{src = srcOne} (OneHop \bowtie flights))) \\ H_2 &= \pi_{name} (TwoHop \bowtie airports) \end{aligned}$$

Answer: H_2

3.

$$\begin{aligned} OneHop &= \rho_{dst \rightarrow srcOne} (\pi_{dst} (\sigma_{src = "XYZ"} flights)) \\ TwoHop &= \rho_{dst \rightarrow srcTwo} (\pi_{dst} (\sigma_{src = srcOne} (OneHop \bowtie flights))) \\ ThreeHop &= \rho_{dst \rightarrow code} (\pi_{dst} (\sigma_{src = srcTwo} (TwoHop \bowtie flights))) \\ H_3 &= \pi_{name} (ThreeHop \bowtie airports) \end{aligned}$$

Answer: H_3

4.

Answer: $H_1 \cup H_2 \cup H_3$