

EAS 503

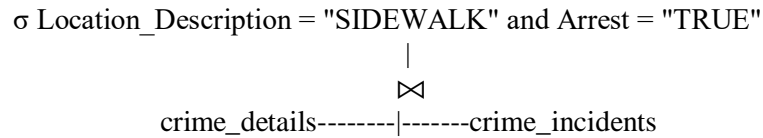
Homework 4

Problem 2:

Algebraic expression:

$\sigma_{\text{Location_Description} = \text{"SIDEWALK"} \text{ and } \text{Arrest} = \text{"TRUE"}} \text{crime_details} \bowtie \text{crime_incidents}$

Expression tree:



Problem 4:

Algebraic expression:

$\sigma_{\text{FBI_Code} = 26 \text{ AND } \text{DOMESTIC} = \text{'TRUE'}} \text{crime_incidents}$

Expression tree:

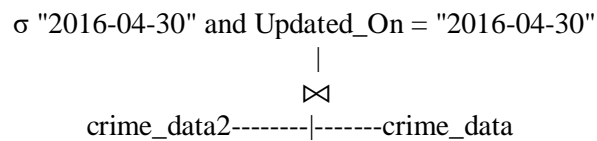


Problem 8:

Algebraic expression:

$\sigma_{\text{Date} = \text{"2016-04-30"} \text{ and } \text{Updated_On} = \text{"2016-04-30"}} \text{crime_details} \bowtie \text{crime_incidents}$

Expression tree:



Problem 9:

Algebraic expression:

$\sigma_{\text{Location_Description} = \text{'STREET'} \text{ and } \text{Arrest} = \text{'TRUE'} \text{ AND } \text{Domestic} = \text{'TRUE'}}$
 $\text{crime_details} \bowtie \text{crime_incidents}$

Expression tree:

$\sigma_{\text{Location_Description} = \text{'STREET'} \text{ and } \text{Arrest} = \text{'TRUE'} \text{ AND } \text{Domestic} = \text{'TRUE'}}$
 \downarrow
 \bowtie
 $\text{crime_details} \text{-----} | \text{-----} \text{crime_incidents}$

Problem 10:

Algebraic expression:

$(\text{crime_types} \bowtie (\text{crime_details} \bowtie \text{crime_incidents}))$
 $\sigma_{\text{District}=10 \text{ AND } \text{FBI_Code}=30 \text{ AND } \text{primary_type_id} = \text{'Telephone threats'}}$

Expression tree:

crime_types
 \downarrow
 \bowtie
 $\swarrow \quad \searrow$
 $\bowtie \quad \sigma_{\text{primary type id} = \text{'Telephone threats'}}$
 $\swarrow \quad \searrow$
 $\sigma_{\text{District}=10 \text{ AND } \text{FBI_Code}=30} \quad \text{crime_details} \quad \text{crime_types}$
 \downarrow
 crime_incidents