

## Assignment #3

Tuesday, November 4, 2025 6:54 PM

## Question # 1

1)

$$X = \sigma_{\text{Severity\_Level} = \text{"Critical"}} (\text{THREAT} * \text{INCIDENT} * \text{COUNTRY})$$

$$Y = \pi_{\text{Country\_Name}} (X)$$

2)

$$X = \text{RESPONSE\_TEAM} * \text{ACTION\_TAKEN} * \text{INCIDENT} * \text{THREAT}$$

$$Y = \pi_{\text{Threat\_Name}} (\sigma_{\text{Category} = \text{"Ransomware}} (X))$$

3)

$$X = \pi_{\text{Country\_ID}} (\text{RESPONSE\_TEAM} * \text{COUNTRY})$$

$$Y = \pi_{\text{Country\_ID}} (\text{COUNTRY}) - X$$

$$Z = \text{COUNTRY} * \emptyset$$

4)

$$X = \text{category} \in \text{Cont}(\text{Country\_ID}) (\text{INCIDENT} * \text{THREAT})$$

$$Y = \sigma_{\text{Cont} \geq 1} (P(\text{category}, \text{cont}) (m))$$

$$Z = \pi_{\text{Threat\_Name}} (Y)$$

5)

$$X = \sigma_{\text{Category} = \text{"AI Attack}} (\text{INCIDENT} * \text{THREAT} * \text{COUNTRY})$$

$$Y = \pi_{\text{Country\_Name}} (\sigma_{\text{Impact\_Score} > 80} (X))$$