Problem Set 2

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2.4.3

a) $Answer(class, contry) := \pi_{class,country}(\sigma_{bore \geq 16}(Classes))$

Answer of the query:

class	country
Iowa	16
North Carolina	16
Yamoto	18

f) $Ships'(ship, class, launched) := Ships$

$Answer(ship) := \pi_{ship}(Outcomes) \cup \pi_{ship}(Ships')$

Answer of the query:

ship
Arizona
Bismarck
California
Duke of York
Fuso
Hood
King George V
Kirishima
Prince of Wales
Rodney
Scharnhorst
South Dakota
Tennessee
Washington
West Virginia
Yamashiro
Haruna
Hiei
Iowa
Kongo
Missouri
Musashi
New Jersey
North Carolina
Ramillies
Renown
Repulse
Resolution
Revenge
Royal Oak
Royal Sovereign
Wisconsin

i) $Outcomes'(ship, battle, result, date) := Outcomes \bowtie \rho_{Battles(battle,date)}(Battles)$
$Outcomes''(ship, battle', result', date') := Outcomes'$
$Answer(ship) := \pi_{ship}\sigma_{result='damaged' date<date'}(Outcomes' \bowtie Outcomes'')$

Answer of the query:

(No result)

2.4.7

a) $[max(m, n), m + n]$

b) $[0, min(m, n)]$

c) $[0, m \times n]$

d) $[0, max(0, m - n)]$

2.5.1

a) $\sigma_{speed<2.00 \wedge price>500}(PC) = \emptyset$

e) $List(PcRam, PcPrice, LaptopRam, LaptopPrice) := \pi_{ram,price}(PC) \times \pi_{ram,price}(Laptop)$
$\sigma_{PcRam>LaptopRam \wedge PcPrice \leq LaptopPrice} = \emptyset$

UML Diagram