Kendall Ladrillono

Assignment 2

CS300-ON

Writing Queries using Relational Algebra

**Relations:**

**Sailors(sid: integer, sname: string, rating: integer, age: real)**

**Boats(bid: integer, bname: string, color: string)**

**Reserves(sid: integer, bid: integer, day: date)**

**(σ** **π** **⋈,** **⋃)**

1. List only the name and rating for all sailors.

**Π sname, rating (Sailors)**

1. List all sailor information for sailors with a rating > 8.

**σ rating > 8 (Sailors)**

1. List the boat id for boats all red boats.

**Π bid (σ color = ‘red’ (Boats))**

1. List the boat id for all red boats and all green boats.

**Π bid (σ color = ‘red’ AND color = ‘green’ (Boats))**

1. List the name of every sailor who is aged 16 or under.

**Π sname (σ age ≤ 16 (Sailors))**

1. List the name and rating for all sailors who have a rating of 7 and below.

**Π sname, rating (σ rating ≤ 7 (Sailors))**

1. Count the number of reservations for boat number 4.

**ρ (resCount) Ζ count Reserves (σ bid = ‘4’ (Reserves))**

1. Find the names of sailors who have reserved boat 103.

**Π sname (σ bid = ‘103’ (Reserves) ⋈ Sailors)**

1. Find the names of sailors who have reserved a red boat.

**Π sname (σ color = ‘red’ (Boats)(⋈ Reserves ⋈ Sailors))**

1. Find the colors of the boats reserved by Lubber.

**Π color (σ sname = ‘Lubber’ (Sailors) ⋈ Reserves ⋈ Boats)**

1. Find the names of sailors who have reserved a red and green boat.

**ρ (redCount) Ζ count sid (σ color = ‘red’ (Boats) ⋈ Reserves)**

**ρ (greenCount) Ζ count sid (σ color = ‘green’ (Boats) ⋈ Reserves)**

**Π sname ((redCount ∩ greenCount) ⋈ Sailors)**

1. Find the names of with age over 20 who have not reserved a red boat.

**Π sname (σ age > 20 (Sailors)) - Π sname (σ color = ‘red’ (Boats) Sailors ⋈ Reserves)**