Writing Queries using Relational Algebra

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 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’(Boats)) ⋃ (σ 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

count (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.

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

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

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