Danny Cannon

CS-300-ON

Assignment 2

Due November 5, 2023

Writing Queries using Relational Algebra

1. List only the name and rating for all Sailors.
   1. **π**sname, rating(S)
2. List all sailor information for sailors with a rating > 8).
   1. **σ**rating > 8(S)
3. List the boat id for boats all red boats.
   1. **π**bid(**σ**color = ‘red’(B))
4. List the boat id for all red boats and all green boats.
   1. **π**bid(**σ**color = ‘red’ **∨** color = ‘green’(B))
5. List the name of every sailor who is aged 16 or under.
   1. **π**sname(**σ**age ≤ 16(S))
6. List the name and rating for all sailors who have a rating of 7 and below.
   1. **π**sname, rating(**σ**rating ≤ 7(S))
7. Count the number of reservations for boat number 4.
   1. **ρ**R(myCount) **ζ**COUNT sid (σbid=4(R))
8. Find the names of sailors who have reserved boat 103.
   1. **π**sname(**σ**bid = 103(R) **⋈** S)
9. Find the names of sailors who have reserved a red boat.
   1. **π**sname(**σ**color = ‘red’(B) **⋈** R **⋈** S)
10. Find the colors of the boats reserved by Lubber.
    1. **Π**color(**σ**sname = ‘Lubber’(S) **⋈** R **⋈** B)
11. Find the names of sailors who have reserved a red and green boat.
    1. **π**sname(**σ**color = ‘red’(B) **⋈** R **⋈** S) **∩** **π**sname(**σ**color = ‘green’(B) **⋈** R **⋈** S)
12. Find the names of sailors with age over 20 who have not reserved a red boat.
    1. **π**sname(**σ**age > 20(S)) **-** **π**sname(**σ**color = ‘red’(B) **⋈** R **⋈** S)