

ICA : Sailors RA

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Sailors DB Schema

Boats (bid, bname, color)

Sailors (sid, sname, rating, age)

Reserves (sid, bid, day)

Sailors DB Tables

Boats		
bid	bname	color
101	Minnow	Blue
102	Voyager	Red
103	Marlin	Yellow
104	Happy	Red
105	Sinker	Green

Sailors			
sid	sname	rating	age
22	Yuppy	9	35.0
31	Lubber	8	55.5
44	Guppy	5	35.0
48	Ole Red	8	92.3
58	Rusty	10	40.0

Reserves		
sid	bid	day
22	101	5-Jun-03
22	104	15-Jun-03
44	102	5-Jun-03
48	105	14-Jun-03
58	103	7-Jun-03

- Find the names of sailors who have reserved boat 103.
 - $\pi_{(sname)}(\sigma_{(bid="103")}(Sailors \bowtie Reserves))$
- Find the colors of the boats reserved by Yuppy.
 - $\pi_{(color)}((\sigma_{(sname="Yuppy")}(Sailors \bowtie Boats \bowtie Reserves)))$
- Find the names of sailors who have reserved a red and a green boat.
 - $(\pi_{(color,sname)}((\sigma_{(color="Red" \vee color="Green")}(Boats) \bowtie Reserves) \bowtie Sailors)) \% \pi_{(color)}(\sigma_{(color='Red' \vee color='Green')}(Boats))$
- Find the names of the sailors who have reserved all the boats.
 - $(\pi_{(bid,sname)}(Boats \bowtie Sailors \bowtie Reserves)) \% \pi_{(bid)}(Boats)$
- Find the names of sailors who have reserved a red boat.
 - $\pi_{(sname)}((\sigma_{color='Red'}(Boats)) \bowtie Reserves \bowtie Sailors)$
- Find the names of the sailors who have reserved a red or green boat.
 - $\pi_{sname}((Sailors \bowtie \sigma_{color="Red" \vee color="Green"}(Boats \bowtie Reserves)))$
- Find the names of the sailors who have not reserved a boat.
 - $\pi_{(sname)}(Sailors) - \pi_{(sname)}(Reserves \bowtie Sailors)$
- Find the sid's of the sailors who have reserved a boat whose name begins with the letter 'M'.
(the boat's name, not the sailor's)
 - $\pi_{(sid)}((Sailors \bowtie \sigma_{(bname="M\%")}(Reserves \bowtie Boats)))$