Giving a database schema:

* Sailors(sid: *integer*, sname: *string*, rating: *integer*, age:*real*)
* Boats(bid:*integer* , bname: *string*, color: *string*)
* Reserves(sid: *integer*, bid: *integer* , day: *date* )

|  |  |  |  |
| --- | --- | --- | --- |
| ***Sid*** | ***Sname*** | ***Rating*** | ***Age*** |
| 22 | Dustin | 7 | 45.0 |
| 29 | Brutus | 1 | 33.0 |
| 31 | Lubber | 8 | 55.5 |
| 32 | Andy | 8 | 25.5 |
| 58 | Rusty | 10 | 35.0 |
| 64 | Horatio | 7 | 35.0 |
| 71 | Zorba | 10 | 16.0 |
| 74 | Horatio | 9 | 35.0 |
| 85 | Art | 3 | 25.5 |
| 95 | Bob | 3 | 63.5 |

|  |  |  |
| --- | --- | --- |
| ***Sid*** | ***Bid*** | ***Day*** |
| 22 | 101 | 10/10/08 |
| 22 | 102 | 10/10/08 |
| 22 | 103 | 10/08/08 |
| 22 | 104 | 10/07/08 |
| 31 | 102 | 11/10/08 |
| 31 | 103 | 11/06/08 |
| 31 | 104 | 11/12/08 |
| 64 | 101 | 9/05/08 |
| 64 | 102 | 9/08/08 |
| 74 | 103 | 9/08/08 |

|  |  |  |
| --- | --- | --- |
| ***Bid*** | ***Bname*** | ***Color*** |
| 101 | Interlake | Blue |
| 102 | Interlake | Red |
| 103 | Clipper | Green |
| 104 | Marine | Red |

**Sailors**

**Reserves**

**Boats**

**Using relational algebra expression to answer below queries**

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

πSname(σBid=103 (Sailors∞Reserves))

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

πSname (σColor=’Red’ (Boats)∞(Sailors∞Reserves))

1. Find the colors of boats reserved by Lubber.

πColor (σSname=’Lubber’ (Sailors)∞(Boats∞Reserves))

1. Find the names of sailors who have reserved at least one boat.

πSname (Sailors∞Reserves)

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

πSname (σColor=’Red’ or Color=’Green’ (Boats)∞(Sailors∞Reserves))

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

πSname(σColor=’Red’(Boats)∞(Sailors∞Reserves))πSname (σColor=’Green’(Boats)∞(Sailors∞Reserves))

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

πSid(σAge>20(Sailors)) -πSid(σColor=’Red’(Boats)∞Reserves)

1. Find the names of sailors who have reserved all boatsSailors ReservesBoats

πSname ((πSid,Bid (Reserves)÷πBid(Boats))∞Sailors)

1. Find the names of sailors who have reserved all boats called Interlake

πSname ((πSid, Bid(Reserves)÷πBid(σBname=’Interlake’(Boats))∞Sailors)

1. Find the names of sailors who have reserved at least two boats

πSname (σReserves.Sid=Reserves.Sid^Reserves.Bid≠Reserves2.Bid (Boats×PReserves2 (Reserves))∞Sailors)

Team :

|  |
| --- |
| Đỗ Anh Minh - SE183432 |
| Nguyễn Nhật Minh SE183492 |
| Cao Minh Hiếu SE183512 |
| Nguyễn Văn Nhật SE183539 |
| Nguyễn Xuân Hồng Phát SE183517 |
| Huỳnh Phúc Thiện SE183513 |
| Bùi Quang Đức SE194608 |
| Hoàng Nam Hưng SE180091 |