**Create the following tables and execute the queries given below**

**SAILORS**

|  |  |  |  |
| --- | --- | --- | --- |
| **sid** | **sname** | **rating** | **age** |
| 22 | Dustin | 7 | 45 |
| 29 | Brutas | 1 | 33 |
| 31 | Lubber | 8 | 55 |
| 32 | Andy | 8 | 25 |
| 58 | Rusty | 10 | 35 |
| 64 | Horatio | 7 | 35 |
| 71 | Zorba | 10 | 16 |
| 74 | Horatio | 9 | 35 |
| 85 | Art | 3 | 26 |
| 95 | Bob | 3 | 64 |

**BOATS**

|  |  |  |
| --- | --- | --- |
| **Bid** | **bname** | **color** |
| 101 | Interlake | Blue |
| 102 | Interlake | Red |
| 103 | Clipper | Green |
| 104 | Marine | Red |

**RESERVES**

|  |  |  |
| --- | --- | --- |
| **sid** | **bid** | **day** |
| 22 | 101 | 10/10/98 |
| 22 | 102 | 10/10/98 |
| 22 | 103 | 10/8/98 |
| 22 | 104 | 10/7/98 |
| 31 | 102 | 11/10/98 |
| 31 | 103 | 11/6/98 |
| 31 | 104 | 11/12/98 |
| 64 | 101 | 9/5/98 |
| 64 | 102 | 9/8/98 |
| 74 | 103 | 9/8/98 |

SQL> CREATE TABLE SAILORS(sid INT NOT NULL PRIMARY KEY,sname varchar(25),rating number(2),age number);

Table created.

SQL> INSERT INTO SAILORS VALUES(22,'Dustin',7,45);

1 row created.

SQL> INSERT INTO SAILORS VALUES(29,'Brutas',1,33);

1 row created.

SQL> INSERT INTO SAILORS VALUES(31,'Lubber',8,55);

1 row created.

SQL> INSERT INTO SAILORS VALUES(32,'Andy',8,25);

1 row created.

SQL> INSERT INTO SAILORS VALUES(58,'Rusty',10,35);

1 row created.

SQL> INSERT INTO SAILORS VALUES(64,'Horatio',7,35);

1 row created.

SQL> INSERT INTO SAILORS VALUES(71,'Zorba',10,16);

1 row created.

SQL> INSERT INTO SAILORS VALUES(74,'Horatio',9,35);

1 row created.

SQL> INSERT INTO SAILORS VALUES(85,'Art',3,26);

1 row created.

SQL> INSERT INTO SAILORS VALUES(95,'Bob',3,64);

1 row created.

SQL> SELECT \* FROM SAILORS;

SID SNAME RATING AGE

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22 Dustin 7 45

29 Brutas 1 33

31 Lubber 8 55

32 Andy 8 25

58 Rusty 10 35

64 Horatio 7 35

71 Zorba 10 16

74 Horatio 9 35

85 Art 3 26

95 Bob 3 64

10 rows selected.

SQL> CREATE TABLE BOATS(Bid INT NOT NULL PRIMARY KEY,bname varchar(25),color varchar(20));

Table created.

SQL> INSERT INTO BOATS VALUES(101,'Interlake','Blue');

1 row created.

SQL> INSERT INTO BOATS VALUES(102,'Interlake','Red');

1 row created.

SQL> INSERT INTO BOATS VALUES(103,'Clipper','Green');

1 row created.

SQL> INSERT INTO BOATS VALUES(104,'Marine','Red');

1 row created.

SQL> SELECT \* FROM BOATS;

BID BNAME COLOR

---------- ------------------------- --------------------

101 Interlake Blue

102 Interlake Red

103 Clipper Green

104 Marine Red

SQL> CREATE TABLE RESERVES(sid INT REFERENCES SAILORS(sid),bid INT REFERENCES BOATS(Bid),day DATE);

Table created.

SQL> INSERT INTO RESERVES VALUES(22,101,'10/oct/98');

1 row created.

SQL> INSERT INTO RESERVES VALUES(22,102,'10/oct/98');

1 row created.

SQL> INSERT INTO RESERVES VALUES(22,103,'10/aug/98');

1 row created.

SQL> INSERT INTO RESERVES VALUES(22,104,'10/jul/98');

1 row created.

SQL> INSERT INTO RESERVES VALUES(31,102,'11/oct/98');

1 row created.

SQL> INSERT INTO RESERVES VALUES(31,103,'11/jun/98');

1 row created.

SQL> INSERT INTO RESERVES VALUES(31,104,'11/dec/98');

1 row created.

SQL> INSERT INTO RESERVES VALUES(64,101,'09/may/98');

1 row created.

SQL> INSERT INTO RESERVES VALUES(64,102,'09/aug/98');

1 row created.

SQL> INSERT INTO RESERVES VALUES(74,103,'09/aug/98')

1 row created.

SQL> SELECT \* FROM RESERVES;

SID BID DAY

---------- ---------- ---------

22 101 10-OCT-98

22 102 10-OCT-98

22 103 10-AUG-98

22 104 10-JUL-98

31 102 11-OCT-98

31 103 11-JUN-98

31 104 11-DEC-98

64 101 09-MAY-98

64 102 09-AUG-98

74 103 09-AUG-98

10 rows selected.

**1. Find the names and ages of all sailors**

SQL> SELECT sname,age FROM SAILORS;

SNAME AGE

------------------------- ----------

Dustin 45

Brutas 33

Lubber 55

Andy 25

Rusty 35

Horatio 35

Zorba 16

Horatio 35

Art 26

Bob 64

10 rows selected.

**2. Find all information of sailors who have reserved boat number 101.**

SQL> SELECT \* FROM SAILORS S,RESERVES R WHERE S.sid=R.sid AND R.bid=101;

SID SNAME RATING AGE SID BID DAY

---------- ------------------------- ---------- ---------- ---------- -----------------------

22 Dustin 7 45 22 101 10-OCT-98

64 Horatio 7 35 64 101 09-MAY-98

**3.Find all sailors with rating above 7.**

SQL> SELECT \* FROM SAILORS WHERE rating>7;

SID SNAME RATING AGE

---------- ------------------------- ---------- ----------

31 Lubber 8 55

32 Andy 8 25

58 Rusty 10 35

71 Zorba 10 16

4 Horatio 9 35

**4. Find the names of sailors who have reserved boat no 103.**

SQL> SELECT S.sname FROM SAILORS S,RESERVES R WHERE S.sid=R.sid AND R.bid=103;

SNAME

-------------------------

Dustin

Lubber

Horatio

**5. Find the names of sailors who have reserved a red boat, and list in the order of age.**

SQL> select  distinct s.sname,s.age from SAILORS s,RESERVES r,BOATS b where s.sid=r.sid and r.Bid=b.Bid and b.color='Red'order by s.age;

SNAME                      AGE

------------------------- ----------

Horatio                           35

Dustin                            45

Lubber                          55

**6. Find the names of sailors who have reserved either a red or green boat.**

SQL> select distinct s.sname from sailors s,reserves r,boats b where s.sid=r.sid and r.bid=b.bid and (b.color='Red' or b.color='Green');

SNAME

-------------------------

Lubber

Dustin

Horatio

**7. Find the colors of boats reserved by “Lubber”.**

SQL> select distinct b.color from sailors s,reserves r,boats b where s.sid=r.sid and r.bid=b.bid and s.sname='Lubber';

COLOR

--------------------

Red

Green

**8. Find the names of sailors who have reserved both red and green boats.**

SQL> select s.sname from SAILORS s,BOATS b,RESERVES r where s.sid=r.sid and r.Bid=b.Bid and b.color='Red' intersect select s.sname from SAILORS s,BOATS b,RESERVES r WHERE s.sid=r.sid and r.Bid=b.Bid and b.color='Green';

SNAME

-------------------------

Dustin

Horatio

Lubber

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

SQL> SELECT DISTINCT s.sname FROM SAILORS s, RESERVES r WHERE s.sid = r.sid;

SNAME

-------------------------

Lubber

Dustin

Horatio

**10. Find the ids and names of sailors who have reserved two different boats on the same day.**

SQL> SELECT DISTINCT s.sid,s.sname FROM SAILORS s,RESERVES r1,RESERVES r2 WHERE s.sid=r1.sid AND s.sid=r2.sid AND r1.day=r2.day AND r1.Bid<>r2.Bid;

SID SNAME

---------- ------------------------

 22 Dustin

**11. Find the name and the age of the youngest sailor.**

SQL> select s.sname,s.age from sailors s where s.age<=all(select age from sailors);

SNAME AGE

------------------------- ----------

Zorba 16

**12. Find the names and ratings of a sailor whose rating is better than some sailor called Horatio.**

SQL> select s.sname,s.rating from sailors s where s.rating>any(select s2.rating from sailors s2 where s2.sname='Horatio');

SNAME RATING

------------------------- ----------

Rusty 10

Zorba 10

Horatio 9

Lubber 8

Andy 8

**13. Find the names of sailors who have reserved all boats.**

SQL> select s.sname from sailors s where NOT EXISTS ( select b.bid from boats b where NOT EXISTS ( select r.bid from reserves r where r.bid = b.bid and r.sid = s.sid ) );

SNAME

-------------------------

Dustin

**14. Count the number of different sailor names.**

SQL> select count(distinct s.sname)from sailors s;

COUNT(DISTINCTS.SNAME)

-------------------------------

9

**15. Calculate the average age of all sailors.**

SQL> SELECT AVG(s.age) FROM SAILORS S;

AVG(S.AGE)

----------

36.9

**16. Find the average age of sailors for each rating level.**

 SQL> select s.rating,avg(s.age)as avg\_age from SAILORS s group by s.rating;

  RATING    AVG\_AGE

------------------ ----------------

1         33

8         40

7         40

  3         45

10       25.5

9         35

6 rows selected.

**17. Find the average age of sailors for each rating level that has at least two sailors.**

SQL> select s.rating,avg(s.age)as avg\_age from SAILORS s group by s.rating having count(\*)>1;

  RATING    AVG\_AGE

------------------ ----------------

1         33

8         40

7         40

  3         45

10       25.5