EXPERIMENT – 8

SAILOR BOAT DATABASE
(DDL,DML,DQL,Subqurey,joins,set operations)

AIM:

- Create sailors, boats, and reserves.(foreign Key)
- Insert 5 values each table.
- Display all records.
- Find the name and ages of all sailors.
- Find all sailors with rating above 8.
- Find sailors name with rating above 7 & age above 25.
- Display all the name and colors of the boats.
- Find all the boats with red colors.
- Find the names of sailors who have reserved boat number 103.
- Find the sids of sailors who have reserved blue boat.
- Find the name of sailors who have reserved red boat.
- Find the color of boats reserved by some name (provide any name in table)
- Find the name of the sailors who have reserved at least one boat.
- Find the name of the sailors who have reserved two different boats.

- Find the names of the sailors who have reserved a red or a green boat. (union)
- Find the name of the sailors who have reserved both a red and a green boat.
- Find the name of the sailors who have reserved boat 103. (Nested query)
- Find the name of the sailors who have reserved red boat. (nq)
- Find the name of the sailors who have not reserved red boat. (nq)
- Find the name of the sailors who have reserved boat 103. (exists)
- Find sailors whose rating is better than some sailors called name.
- Find sailors whose rating is better than every sailor called name.
- Find the sailors with highest rating.
- Find the average age of all sailors.
- Find the average age of sailors with rating of 10.
- Count number of sailors.
- Count the number of different sailor ratings.
- Find the name and age of the oldest sailor.
- Find the name of the sailors who are older than oldest sailors with a rating of 10.
- Find the age of youngest sailor for each rating level.

- Find the age of the youngest sailor who is eligible to vote (I.e., is at least 18-year-old) for each rating level with at least two such sailors.
- For each red boat, find the number of reservations for the boat.
- Find all sailors name according to names.
- Find all sailors details according to rating.
- Find all sailors details according to rating (highest first) if rating is same then according to age (youngest first).

Components Used:

Instance: It **is** the collection of information stored **in a** database at a particular moment.

Entity: Object that is relevant to given system. Represented as rectangle.

Attribute: Trait of an entity, relationship or other attribute. Represented by oval.

Schemas:

```
CREATE SCHEMA Journey;
create table sailors(sid integer,sname varchar(20),rating integer,age integer,primary key(sid));
desc sailors;
create table boats(bid integer,bname varchar(20),color varchar(20),primary key(bid));
desc boats;
create table reverse(sid integer,bid integer,days varchar(20),foreign key(sid) references sailors(sid),foreign key(bid) references boats(bid));
desc reverse;
insert into sailors values(22,'Dustin',7,45);
insert into sailors values(29,'Brutus',1,33);
insert into sailors values(31,'Lubber',8,55.5);
insert into sailors values(32,'Andy',8,25.5);
insert into sailors values(58,'Rusty',10,35);
insert into sailors values(64,'Horatio',7,35);
insert into sailors values(71,'Zoriba',10,16);
insert into sailors values(74,'Horatio',9,35);
insert into sailors values(85,'Art',3,25.5);
insert into sailors values(95,'BOB',3,63.5);
select *from sailors;
insert into boats values(101,'Interlake','blue');
insert into boats values(102,'Interlake','red');
insert into boats values(103,'Clipper','green');
insert into boats values(104,'Marine','red');
```

```
22  insert into boats values(104,'Marine','red');
23  select *from boats;
24  insert into reverse values(22,103,'10/8/98');
25  insert into reverse values(22,104,'10/7/98');
26  insert into reverse values(31,102,'11/10/98');
27  insert into reverse values(31,103,'11/6/98');
28  insert into reverse values(31,104,'11/12/98');
29  insert into reverse values(64,101,'9/5/98');
30  insert into reverse values(64,102,'9/8/98');
31  insert into reverse values(74,103,'9/8/98');
32  select *from reverse;
33
34
35
36  SELECT sname, age FROM sailors;
37  SELECT sid FROM sailors WHERE rating>=8;
38  SELECT sid FROM sailors WHERE rating>=7 and age >= 25;
39  SELECT bname, color FROM boats;
40  SELECT S.*
41      FROM sailors S, reverse R
42      WHERE S.sid = R.sid AND R.bid = 103;
43  SELECT R.sid
```

```
SELECT sid FROM sailors WHERE rating>=8;
SELECT sid FROM sailors WHERE rating>=7 and age >= 25;
SELECT bname, color FROM boats;
SELECT S.*
FROM sailors S, reverse R
WHERE S.sid = R.sid AND R.bid = 103;
SELECT R.sid
FROM Boat B, Reserves R
WHERE B.bid = R.bid AND B.color = ‘Pink’;

SELECT S.sname
FROM sailors S, reverse R, boats B
WHERE S.sid = R.sid AND R.bid = B.bid AND
B.color = 'red';

SELECT B.color
FROM sailors S, reverse R, boats B
WHERE S.sid = R.sid AND R.bid = B.bid AND
S.sname = 'Lubber';

SELECT S.sname
FROM sailors S, reverse R
```

```
SELECT S.sname
FROM sailors S, reverse R
WHERE S.sid = R.sid;

(SELECT S.sid
FROM sailors S, boats B, reverse R
WHERE S.sid=R.sid AND R.bid=B.bid
AND B.color='red')
UNION
(SELECT S.sid
FROM sailors S, boats B, reverse R
WHERE S.sid=R.sid AND R.bid=B.bid
AND B.color='green');

SELECT S.sid
FROM sailors S, boats B, reverse R
WHERE S.sid=R.sid AND R.bid=B.bid
AND (B.color='red' OR B.color='green');

SELECT S.sid
FROM sailors S, boats B1, reverse R1,
```

```sql
SELECT S.sid
FROM sailors S, boats B1, reverse R1,
boats B2, reverse R2
WHERE S.sid=R1.sid AND R1.bid=B1.bid
AND S.sid=R2.sid AND R2.bid=B2.bid
AND (B1.color='red' AND B2.color='green');

SELECT S.sname
FROM sailors S, reverse R
WHERE S.sid=R.sid AND R.bid=103;

SELECT S.sname
FROM sailors S
WHERE s.sid IN (
SELECT S.sid
FROM sailors S, reverse R, boats B
WHERE S.sid=R.sid AND R.bid=B.bid
 AND B.color='red');
```

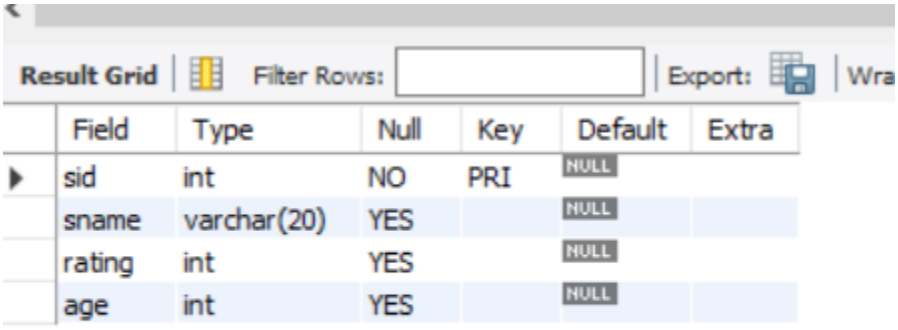
```sql
SELECT S.sname
FROM sailors S
WHERE s.sid IN (
SELECT S.sid
FROM sailors S, reverse R, boats B
WHERE S.sid=R.sid AND R.bid=B.bid
 AND B.color='red');

SELECT S.sname
FROM sailors S
WHERE S.sid NOT IN (SELECT R.sid
FROM reverse R
WHERE R.bid=103);

SELECT *
FROM sailors S
WHERE S.rating > ANY (SELECT S2.rating
FROM Sailors S2
WHERE S2.sname='Horatio');
```

```
14
15 •    SELECT *
16      FROM sailors S
17      WHERE S.rating > ALL (SELECT S2.rating
18      FROM Sailors S2
19      WHERE S2.sname='Horatio');
20
21
22 •    SELECT *
23      FROM sailors S
24      WHERE S.rating >= ALL (SELECT S2.rating
25      FROM sailors S2);
26
27 •    SELECT AVG (S.age)
28      FROM sailors S;
29
30 •    SELECT AVG (S.age)
31      FROM sailors S
32      WHERE S.rating = 10;
33
```

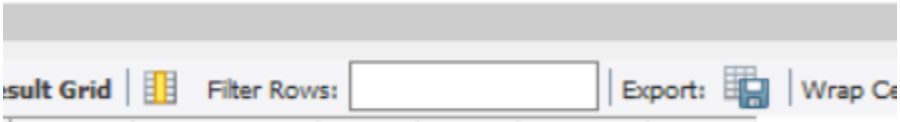
```
WHERE S.rating = 10;

SELECT COUNT(*)
FROM sailors S;

SELECT COUNT(DISTINCT S.rating)
FROM sailors S;


SELECT S.sname, S.age
FROM sailors S
WHERE S.age =
(SELECT MAX(S2.age)
FROM sailors S2);

SELECT S.sname
FROM sailors S
WHERE S.age > ( SELECT MAX(S2.age)
FROM sailors S2
WHERE S2.rating = 10);
```

```
SELECT S.rating, MIN(S.age) AS avg_age
FROM Sailors S
GROUP BY S.rating;
```

Outputs:



Field	Type	Null	Key	Default	Extra
sid	int	NO	PRI	NULL	
sname	varchar(20)	YES		NULL	
rating	int	YES		NULL	
age	int	YES		NULL	



Field	Type	Null	Key	Default	Extra
bid	int	NO	PRI	NULL	
bname	varchar(20)	YES		NULL	
color	varchar(20)	YES		NULL	

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
sid	int	YES	MUL	NULL	
bid	int	YES	MUL	NULL	
days	varchar(20)	YES		NULL	

Result 3

Output

Action Output

#	Time	Action

Result Grid | Filter Rows:

sid	sname	rating	age
22	Dustin	7	45
29	Brutus	1	33
31	Lubber	8	56
32	Andy	8	26
58	Rusty	10	35
64	Horatio	7	35
71	Zoriba	10	16
74	Horatio	9	35
85	Art	3	26
95	BOB	3	64
NULL	NULL	NULL	NULL

sailors 4

Output

Result Grid | Filter Rows:

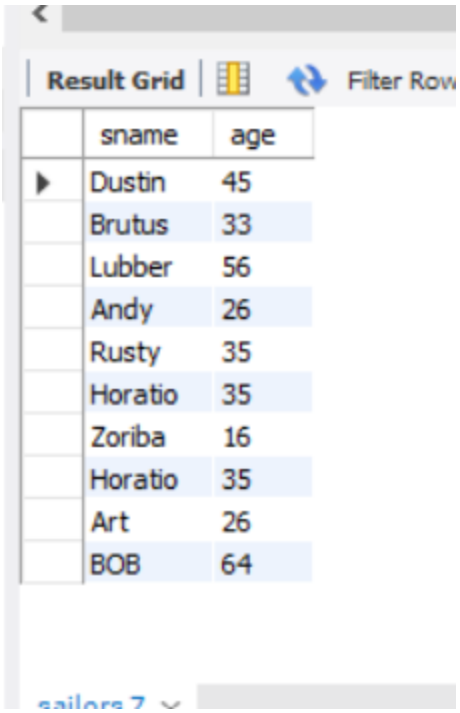
bid	bname	color
101	Interlake	blue
102	Interlake	red
103	Clipper	green
104	Marine	red
NULL	NULL	NULL

boats 5 ×

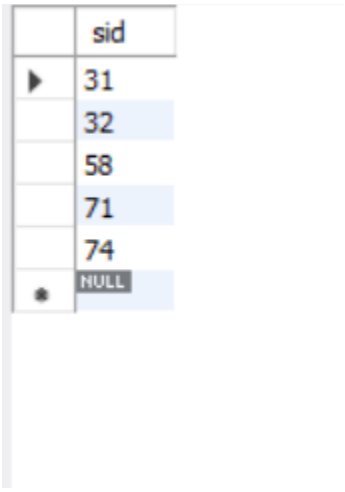
Result Grid | Filter Rows:

sid	bid	days
22	103	10/8/98
22	103	10/8/98
22	103	10/8/98
22	103	10/8/98
22	104	10/7/98
31	102	11/10/98
31	102	11/10/98
31	104	11/12/98
31	104	11/12/98
31	104	11/12/98
64	101	9/5/98
64	102	9/8/98
74	103	9/8/98

reverse 6 ×



sname	age
Dustin	45
Brutus	33
Lubber	56
Andy	26
Rusty	35
Horatio	35
Zoriba	16
Horatio	35
Art	26
BOB	64



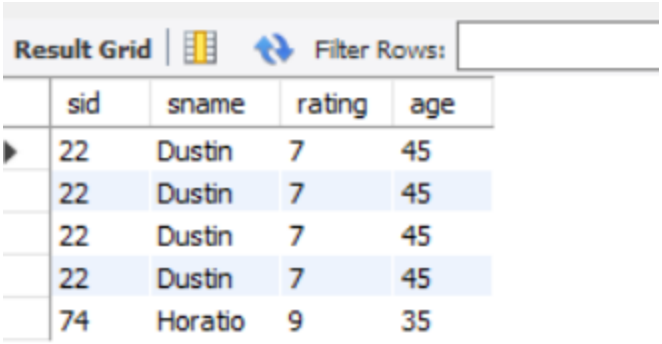
sid
31
32
58
71
74
NULL

Result Grid

sid
22
31
32
58
64
74
NULL

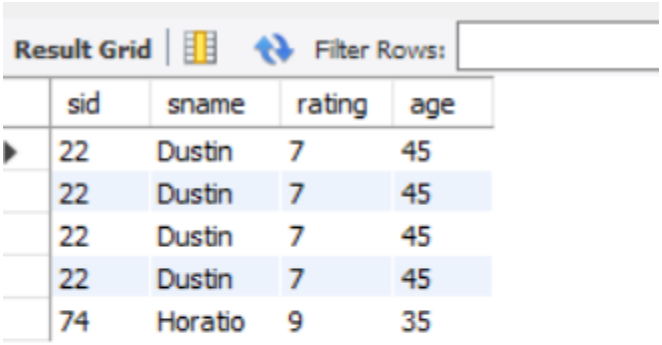
Result Grid | Filter Rows:

bname	color
Interlake	blue
Interlake	red
Clipper	green
Marine	red



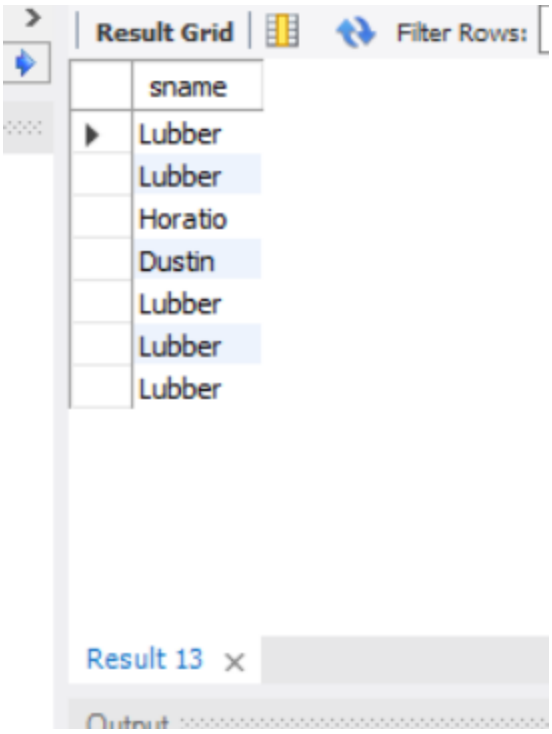
Result Grid | Filter Rows:

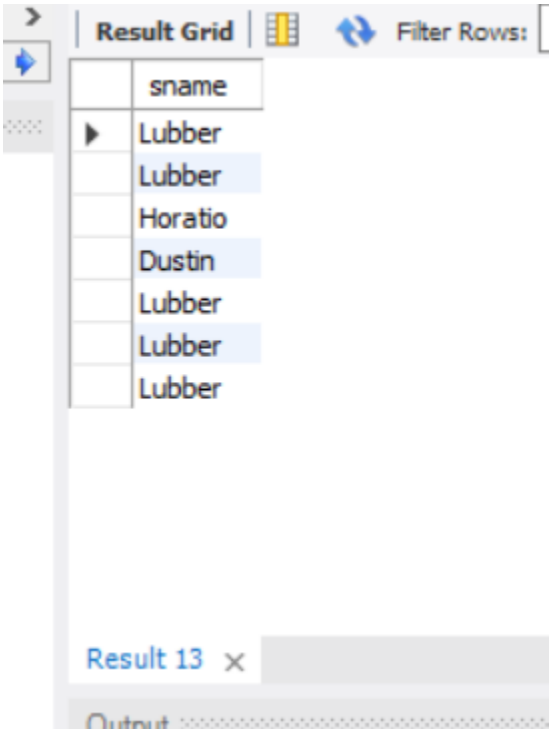
sid	sname	rating	age
22	Dustin	7	45
22	Dustin	7	45
22	Dustin	7	45
22	Dustin	7	45
74	Horatio	9	35



Result Grid | Filter Rows:

sid	sname	rating	age
22	Dustin	7	45
22	Dustin	7	45
22	Dustin	7	45
22	Dustin	7	45
74	Horatio	9	35


Result Grid
Filter Rows:
sname
Lubber
Lubber
Horatio
Dustin
Lubber
Lubber
Lubber
Result 13
Output


Result Grid
Filter Rows:
sname
Lubber
Lubber
Horatio
Dustin
Lubber
Lubber
Lubber
Result 13
Output

Result Grid

color
red
red
red
red
red

sname
Dustin
Dustin
Dustin
Dustin
Dustin
Lubber
Lubber
Lubber
Lubber
Lubber
Horatio
Horatio

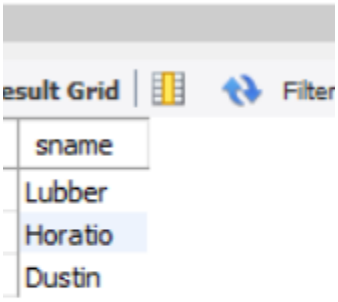
Result Grid

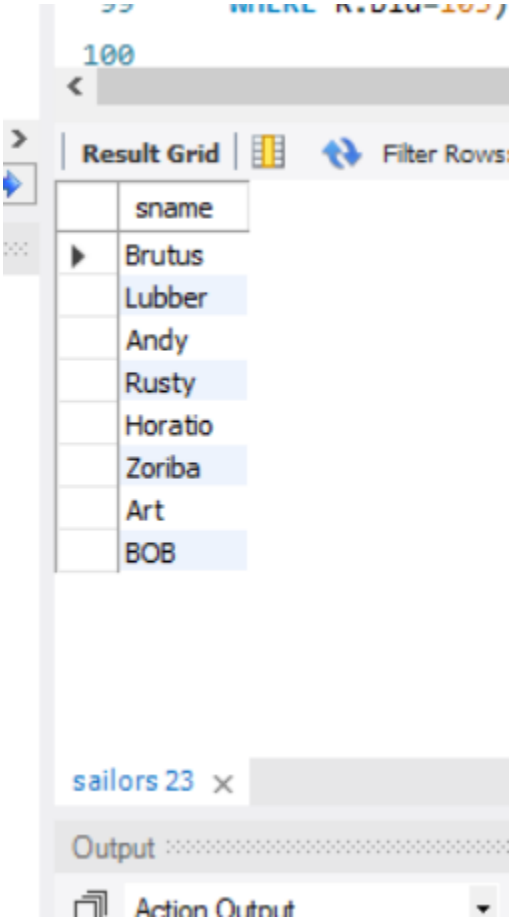
	sid
▶	31
	64
	22
	74

	sid
▶	22
	22
	22
	22

Result Grid

	sname
▶	Dustin
	Dustin
	Dustin
	Dustin
	Horatio


esult Grid
Filter
sname
Lubber
Horatio
Dustin


100
Result Grid
Filter Rows
sname
Brutus
Lubber
Andy
Rusty
Horatio
Zoriba
Art
BOB
sailors 23
Output
Action Output

sname
Lubber
Horatio
Dustin

sname
Brutus
Lubber
Andy
Rusty
Horatio
Zoriba
Art
BOB

sailors 25 ×

Output

Result Grid | Filter Rows:

sid	sname	rating	age
31	Lubber	8	56
32	Andy	8	26
58	Rusty	10	35
71	Zoriba	10	16
74	Horatio	9	35
NULL	NULL	NULL	NULL

Result Grid | Filter Rows: | Edit

sid	sname	rating	age
58	Rusty	10	35
71	Zoriba	10	16
NULL	NULL	NULL	NULL

Result Grid | Filter Rows:

sid	sname	rating	age
58	Rusty	10	35
71	Zoriba	10	16
NULL	NULL	NULL	NULL

Result Grid

AVG (S.age)
37.1000

Result Grid | Filter Rows:

AVG (S.age)
25.5000

Result Grid | Filter Ro

	COUNT(*)
▶	10

Result Grid | Filter Rows:

	COUNT(DISTINCT S.rating)
▶	6

Result Grid | Filter Rows:

	sname	age
▶	BOB	64

Result Grid

sname
Dustin
Lubber
BOB

Result Grid

rating	avg_age
7	35
1	33
8	26
10	16
9	35
3	26