Lab Assignment–3

1. Create the following tables and insert some tuples in these tables shown below. Where ***sid*** is the *primary key* for the ***Sailors*** table, ***bid*** is the primary key for the ***Boats*** table and ***sid*** and ***bid*** are the *foreign keys* for the ***Reserves*** table referencing to the ***Sailors*** and ***Boats*** table, respectively.

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

After inserting the records in these tables, the instances should look like as follows:

Sailors

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

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

Boats

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

CODE:

```
CREATE TABLE sailors(
   sid integer PRIMARY KEY,
   sname varchar2(20),
   rating integer,
   age real
);
DESC sailors;
CREATE TABLE boats(
   bid integer PRIMARY KEY,
   bname varchar2(20),
   color varchar2(20)
);
DESC boats;
CREATE TABLE reserves(
   sid integer,
   bid integer,
   day date,
   PRIMARY KEY (sid,bid),
   FOREIGN KEY (sid) REFERENCES sailors(sid),
```

```
   FOREIGN KEY (bid) REFERENCES boats(bid)
);
DESC reserves;
-- inserting to sailors
INSERT INTO sailors VALUES(1,'Dustbin',7,45.0);
INSERT INTO sailors VALUES(2,'Brutus',1,33.0);
INSERT INTO sailors VALUES(3,'Lubber',8,35.5);
INSERT INTO sailors VALUES(4,'Andy',9,40.0);
INSERT INTO sailors VALUES(5,'Rusty',2,35.5);
INSERT INTO sailors VALUES(6,'Horato',4,35.5);
INSERT INTO sailors VALUES(7,'Zobra',10,16.0);
INSERT INTO sailors VALUES(8,'Horatio',9,35.0);
INSERT INTO sailors VALUES(9,'Art',3,25.5);
INSERT INTO sailors VALUES(10,'BOB',3,63.5);
-- inserting into boats
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');
INSERT INTO reserves(sid,bid,day) VALUES((select sid from sailors where sid=1),(select bid from
boats where bid=101),'2023-feb-09');
select * from sailors;
select * from boats;
-- inserting into reserves
INSERT INTO reserves VALUES(1,102,'09-oct-2022');
INSERT INTO reserves VALUES(2,101,'09-oct-2022');
INSERT INTO reserves VALUES(3,103,'10-Aug-2022');
INSERT INTO reserves VALUES(4,104,'10-July-2022');
INSERT INTO reserves VALUES(5,101,'10-oct-2022');
INSERT INTO reserves VALUES(6,102,'11-June-2022');
INSERT INTO reserves VALUES(7,104,'1-June-2022');
INSERT INTO reserves VALUES(8,103,'11-Dec-2022');
INSERT INTO reserves VALUES(9,103,'09-May-2022');
INSERT INTO reserves VALUES(10,103,'09-May-2022');
select * from sailors;
select * from boats;
select * from reserves;
```

OUTPUT:

SID	SNAME	RATING	AGE
2	Brutus	1	33
3	Lubber	8	35.5
4	Andy	9	40
5	Rusty	2	35.5
6	Horato	4	35.5
7	Zobra	10	16
8	Horatio	9	35
9	Art	3	25.5
10	BOB	3	63.5
1	Dustbin	7	45

SID	BID	DAY
2	101	09-OCT-22
3	103	10-AUG-22
4	104	10-JUL-22
5	101	10-OCT-22
6	102	11-JUN-22
7	104	01-JUN-22
8	103	11-DEC-22
9	103	09-MAY-22
10	103	09-MAY-22
1	102	09-OCT-22

BID	BNAME	COLOR
101	Interlake	blue
102	Interlake	red
103	Clipper	green
104	Marine	red

Q2. Write SQL Commands for the following:

i) Show the names and ages of all sailors.

CODE:

```
select sname,age from sailors;
```

OUTPUT:

SNAME	AGE
Brutus	33
Lubber	35.5
Andy	40
Rusty	35.5
Horato	35.5
Zobra	16
Horatio	35
Art	25.5
BOB	63.5
Dustbin	45

ii) Show the details of the boats which are red and blue in color.

CODE:

```
select * from boats
where color in('red','blue');
```

OUTPUT:

BID	BNAME	COLOR
101	Interlake	blue
102	Interlake	red
104	Marine	red

iii) Find the oldest and youngest sailors' age.

CODE:

```
select min(age),max(age) from sailors;
```

OUTPUT:

MIN(AGE)	MAX(AGE)
16	63.5

iv) Find the ages of sailors whose name begins and ends with B and has at leastthree characters

CODE:

```
select age from sailors
where sname Like 'B_%B';
```

OUTPUT:

AGE
63.5

v) Show the average rating of the sailors.

CODE:

```
select avg(rating) from sailors;
```

OUTPUT:

AVG(RATING)
5.6

vi) Find all sailors with a rating above 7.

CODE:

```
select * from sailors
where rating>7;
```

OUTPUT:

SID	SNAME	RATING	AGE
3	Lubber	8	35.5
4	Andy	9	40
7	Zobra	10	16
8	Horatio	9	35

vii) Find the number of boats reserved by reserved by the sailor namedHoratio.

CODE:

```
select count(sid) from reserves
where sid=(select sid from sailors where sname='Horatio');
```

OUTPUT:

COUNT(SID)
1

viii) Find the colors of boats reserved by Lubber..

CODE:

```
select color from boats
where bid=(
   select bid from reserves
   where sid=(
   select sid from sailors
   where sname='Lubber'
));
```

OUTPUT:

COLOR
green

ix) Show the details of the sailors who have reserved the boat with bid 102.

CODE:

```
select * from reserves,sailors,boats
where reserves.sid=sailors.sid
and
reserves.bid=102
and
boats.bid=102;
```

OUTPUT:

SID	BID	DAY	SID	SNAME	RATING	AGE	BID	BNAME	COLOR
1	102	09-OCT-22	1	Dustbin	7	45	102	Interlake	red
6	102	11-JUN-22	6	Horato	4	35.5	102	Interlake	red

x) Find the sid of sailors who have reserved green boats.

CODE:

```
select * from reserves,sailors,boats
where reserves.sid=sailors.sid
and
boats.color='green'
and
reserves.bid=boats.bid;
```

OUTPUT:

SID	BID	DAY	SID	SNAME	RATING	AGE	BID	BNAME	COLOR
3	103	10-AUG-22	3	Lubber	8	35.5	103	Clipper	green
8	103	11-DEC-22	8	Horatio	9	35	103	Clipper	green
9	103	09-MAY-22	9	Art	3	25.5	103	Clipper	green
10	103	09-MAY-22	10	BOB	3	63.5	103	Clipper	green

xi) Find the names of sailors who have reserved boat number 103. .

CODE:

```
select sailors.sname from reserves,sailors,boats
where reserves.sid=sailors.sid
and
reserves.bid=103
and
boats.bid=103;
```

OUTPUT:

SNAME
Lubber
Horatio
Art
BOB

xii) Find the sids and names of sailors who have reserved a red boat.

CODE:

```
select sailors.sname,sailors.sid from reserves,sailors,boats
where reserves.sid=sailors.sid
and
boats.color='red'
and
reserves.bid=boats.bid;
```

OUTPUT:

SNAME	SID
Dustbin	1
Horato	6
Andy	4
Zobra	7

xiii) Find the names of the sailors who have reserved a green or a blue boat.

CODE:

```
select sailors.sname from reserves,sailors,boats
where reserves.sid=sailors.sid
and
boats.color='green'
or
boats.color='blue'
and
reserves.bid=boats.bid;
```

OUTPUT:

SNAME
Dustbin
Brutus
Lubber
Andy
Rusty
Horato
Zobra
Horatio
Art
BOB

xiv) Find the names of sailors who have reserved both a red and a green boat.

CODE:

```
select sailors.sname from reserves,sailors,boats
where reserves.sid=sailors.sid
and
boats.color='green'
and
boats.color='red'
and
reserves.bid=boats.bid;
```

OUTPUT:

no data found

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

CODE:

```
select sailors.sname from reserves,sailors
where reserves.sid=sailors.sid;
```

OUTPUT:

SID	BID	DAY
1	102	09-OCT-22
2	101	09-OCT-22
3	103	10-AUG-22
4	104	10-JUL-22
5	101	10-OCT-22
6	102	11-JUN-22
7	104	01-JUN-22
8	103	11-DEC-22
9	103	09-MAY-22
10	103	09-MAY-22