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DBMS Assignment No.: 3

Title: Write at least 10 SQL queries on the suitable database application using SQL DML statements: Insert, Select, Update, Delete with operators(Arithmetic Operators, Logical Operators, Comparison Operator, Special Operator), functions (Number function, Aggregate Function, Character Function, Conversion Function, Date Function)

Problem Statement:

A) Create tables in ORACLE using SQL DDL statements.

Sailor(sid:integer, sname string, rating:integer, age real)

Boat(bid:integer, bname string, color:string)

Reservestsid:integer, bid:integer, day date)

1. Insert following records in the above tables Sailors

```
CREATE TABLE Sailor(sid int PRIMARY KEY, sname VARCHAR (50) NOT NULL, rating int NOT NULL, age
REAL NOT NULL);
```

desc Sailor;

Object Type	TABLE	Object	SAILOR						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
<u>SAILOR</u>	<u>SID</u>	NUMBER	22	-	0	1	-	-	-
	<u>SNAME</u>	VARCHAR2	50	-	-	-	-	-	-
	<u>RATING</u>	NUMBER	22	-	0	-	-	-	-
	<u>AGE</u>	FLOAT	63	63	-	-	-	-	-
1 - 4									

[illegible]

```
INSERT INTO Boat (bid, bname, color) VALUES (101,'Interlake','blue');
```

```
INSERT INTO Boat (bid, bname, color) VALUES (102,'Interlake','red');
```

```
INSERT INTO Boat (bid, bname, color) VALUES (103,'Clipper','green');
```

```
INSERT INTO Boat (bid, bname, color) VALUES (104,'Marine','red');
```

```
select * from Boat;
```

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

```
CREATE TABLE Reserves(
```

```
sid int , bid int , day DATE,
```

```
PRIMARY KEY (sid,bid),
```

```
FOREIGN KEY (sid) REFERENCES Sailor (sid),
```

```
FOREIGN KEY (bid) REFERENCES Boat (bid));
```

```
desc Reserves;
```

Object Type **TABLE** Object **RESERVES**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
<u>RESERVES</u>	<u>SID</u>	NUMBER	22	-	0	1	-	-	-
	<u>BID</u>	NUMBER	22	-	0	2	-	-	-
	<u>DAY</u>	DATE	7	-	-	-	✓	-	-
1 - 3									

```
INSERT INTO Reserves (sid, bid, day) VALUES (22,101,'10-10-98');
```

```
INSERT INTO Reserves (sid, bid, day) VALUES (22,102,'10-10-98');
```

```
INSERT INTO Reserves (sid, bid, day) VALUES (22,103,'10-8-98');
```

```
INSERT INTO Reserves (sid, bid, day) VALUES (22,104,'10-7-98');
```

```
INSERT INTO Reserves (sid, bid, day) VALUES (31,102,'11-10-98');
```

```
INSERT INTO Reserves (sid, bid, day) VALUES (31,103,'11-6-98');
```

```
INSERT INTO Reserves (sid, bid, day) VALUES (31,104,'12-12-98');
```

```
INSERT INTO Reserves (sid, bid, day) VALUES (64,101,'9-5-98');
```

```
INSERT INTO Reserves (sid, bid, day) VALUES (64,102,'9-8-98');
```

```
INSERT INTO Reserves (sid, bid, day) VALUES (74,103,'9-8-98');
```

```
select * from Reserves;
```

SID	BID	DAY
22	101	10/10/0098
22	102	10/10/0098
22	103	10/08/0098
22	104	10/07/0098
31	102	11/10/0098
31	103	11/06/0098
31	104	12/12/0098
64	101	09/05/0098
64	102	09/08/0098
74	103	09/08/0098

```
SELECT sname, age FROM Sailor;
```

SNAME	AGE
Dustin	45
Brutus	33
Lubber	55
Andy	25
Rusty	35
Horatio	35
Zorba	16
Horatio	35
Art	25.5

```
SELECT * from Sailor WHERE rating > 7;
```

SID	SNAME	RATING	AGE
31	Lubber	12	55
32	Andy	11	25
58	Rusty	13	35
64	Horatio	10	35
71	Zorba	13	16
74	Horatio	12	35

UPDATE Sailor SET rating = rating*1.1 WHERE age < 40 ;

SID	SNAME	RATING	AGE
22	Dustin	7	45
29	Brutus	1	33
31	Lubber	12	55
32	Andy	13	25
58	Rusty	15	35
64	Horatio	12	35
71	Zorba	15	16
74	Horatio	14	35
85	Art	3	25.5

UPDATE Sailor SET rating = rating + 2 WHERE sid IN (SELECT sid FROM Reserves WHERE day = TO_DATE('12-12-98','MM-DD-YYYY'));

SID	SNAME	RATING	AGE
22	Dustin	7	45
29	Brutus	1	33
31	Lubber	14	55
32	Andy	13	25
58	Rusty	15	35
64	Horatio	12	35
71	Zorba	15	16
74	Horatio	14	35
85	Art	3	25.5

DELETE FROM Sailor WHERE rating < 10 AND age > 50 ;

SID	SNAME	RATING	AGE
22	Dustin	7	45
29	Brutus	1	33
31	Lubber	14	55
32	Andy	13	25
58	Rusty	15	35
64	Horatio	12	35
71	Zorba	15	16
74	Horatio	14	35
85	Art	3	25.5

UPDATE Sailor SET sname = NULL WHERE sid IN (SELECT sid FROM Reserves WHERE bid = 102);

B)

SELECT UPPER(s.sname) AS sailor_name

FROM Sailor s

JOIN Reserves r ON s.sid = r.sid

JOIN Boat b ON r.bid = b.bid

WHERE b.bname = 'Interlake';

SAILOR_NAME
DUSTIN
HORATIO
DUSTIN
LUBBER
HORATIO

```
SELECT rating
FROM Sailor
WHERE sname LIKE '%us%';
```

RATING
7
1
15

```
SELECT AVG(age) AS average_age
FROM Sailor
WHERE rating = 8;
```

AVERAGE_AGE
-

```
SELECT COUNT(*) AS sailor_count
FROM Sailor
WHERE rating > 5;
```

SAILOR_COUNT
7

```
SELECT ADD_MONTHS(day, 2) AS new_reservation_date
FROM Reserves
WHERE bid = 101 AND sid = 64;
```

NEW_RESERVATION_DATE
11/05/0098

```
SELECT DATE_ADD(day, INTERVAL 2 MONTH) AS new_reservation_date
FROM Reserves
WHERE bid = 101 AND sid = 64;
```

```
SELECT MONTHS_BETWEEN(SYSDATE, TO_DATE('12/02/2021', 'MM/DD/YYYY')) AS
months_difference
FROM dual;
```

MONTHS_DIFFERENCE
39.8263859020310633213859020310633213859

```
SELECT b.bname AS boat_name, TO_CHAR(r.day, 'Month') AS reservation_month
FROM Boat b
JOIN Reserves r ON b.bid = r.bid;
```

BOAT_NAME	RESERVATION_MONTH
Interlake	September
Interlake	October
Interlake	October
Interlake	November
Interlake	September
Clipper	November
Clipper	October
Clipper	September
Marine	December
Marine	October

SELECT SIGN(-10) AS sign_negative, SIGN(10) AS sign_positive, SIGN(0) AS sign_zero FROM dual;

SIGN_NEGATIVE	SIGN_POSITIVE	SIGN_ZERO
-1	1	0

SELECT sname, age, SQRT(age) AS square_root_age

FROM Sailor;

SNAME	AGE	SQUARE_ROOT_AGE
Dustin	45	6.70820393249936908922752100619382870632
Brutus	33	5.74456264653802865985061146821892931822
Lubber	55	7.41619848709566294871139744080071306098
Andy	25	5
Rusty	35	5.91607978309961604256732829156161704842
Horatio	35	5.91607978309961604256732829156161704842
Zorba	16	4
Horatio	35	5.91607978309961604256732829156161704842
Art	25.5	5.0497524691810389766816929585348003553

SELECT TO_CHAR(day, 'DD-Mon-YYYY') AS formatted_date

FROM Reserves;

FORMATTED_DATE
10-Oct-0098
10-Oct-0098
08-Oct-0098
07-Oct-0098
10-Nov-0098
06-Nov-0098
12-Dec-0098
05-Sep-0098
08-Sep-0098
08-Sep-0098

```
SELECT MIN(rating) AS min_rating, MAX(rating) AS max_rating  
FROM Sailor;
```

MIN_RATING	MAX_RATING
1	15

```
SELECT sname, age  
FROM Sailor  
WHERE sname LIKE 'B%'  
AND sname LIKE '%B'  
AND LENGTH(sname) >= 3;
```

```
SELECT sname, age  
FROM Sailor  
WHERE LOWER(sname) LIKE 'a%'  
OR LOWER(sname) LIKE 'l%';
```

SNAME	AGE
Lubber	55
Andy	25
Art	25.5

```
SELECT sname  
FROM Sailor  
WHERE rating > 7  
AND age BETWEEN 33 AND 45;
```

SNAME
Rusty
Horatio
Horatio

```

SELECT s.sname
FROM Sailor s
WHERE s.sid NOT IN (
    SELECT r.sid
    FROM Reserves r
    WHERE r.day = TO_DATE('10/10/98', 'MM/DD/YYYY')
);

```

SNAME
Brutus
Lubber
Andy
Rusty
Horatio
Zorba
Horatio
Art

```

SELECT s.sname
FROM Sailor s
WHERE s.sid IN (
    SELECT r.sid
    FROM Reserves r
    WHERE r.bid = 103
);

```

SNAME
Dustin
Lubber
Horatio

```

SELECT s.sname

```

```
FROM Sailor s
WHERE EXISTS (
    SELECT 1
    FROM Reserves r
    WHERE r.sid = s.sid
    AND r.bid = 103
);
```

SNAME
Dustin
Lubber
Horatio