DBMS LAB ON 12/02/2019

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

Sailors

Sid	Sname	Rating	Age
22	Dustin	7	45
29	Brutus	1	33
31	Lubber	8	55.5
32	Andy	8	25.5
58	Rusty	10	35
64	Horatio	7	35
71	Zorba	10	16
74	Horatio	9	40
85	Art	3	25.5
95	Bob	3	63.5

Boats

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

Reserves

sid	bid	day
22	101	1998-10-10
22	102	1998-10-10
22	103	1998-10-8
22	104	1998-10-7
31	102	1998-11-10
31	103	1998-11-6
31	104	1998-11-12
64	101	1998-9-5
64	102	1998-9-8
74	103	1998-9-8

Figure 1: Instances of Sailors, Boats and Reserves

1. Create the Tables:

```
CREATE TABLE sailors (      sid integer not null,
                            sname varchar(32),
                            rating integer,
                            age real,
                            CONSTRAINT PK_sailors PRIMARY KEY (sid) );
CREATE TABLE reserves (     sid integer not null,
                            bid integer not null,
                            day datetime not null,
                            CONSTRAINT PK_reserves PRIMARY KEY (sid, bid, day),
                            FOREIGN KEY (sid) REFERENCES sailors(sid),
                            FOREIGN KEY (bid) REFERENCES boats(bid) );
```

Queries:

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

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

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

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

5. Find the name and age of the sailors whose name begins and ends with ‘B’ and has ateast 3 characters

Union, Intersect and Except

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

2. Find the names of the sailors who have reserved both a red or a yellow boat.

3. Find all sids of sailors who have a rating of 10 or have reserved boat 111.

4. Find all sids of sailors who have reserved red boats but not yellow boats.

5. Find the names of the sailors who have reserved both a red and a yellow boat.

Nested Query

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

2. Find the name and the age of the youngest sailor.

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

4. Find the names of sailors who have reserved all boats.

EMPLOYEE TABLE

1. Display all the departments where department has 3 employees?

2. Display all the departments where department does not have any employees

3. Display all the departments where department does have atleast one employee

4. Display all the records for deptno which belongs to employee name JAMES?

5. Display all the records in emp table where salary should be less then or equal to ADAMS salary?

6. Display all employees those were joined before employee WARD joined?

7. Display all subordinate those who are working under BLAKE?

8. Display all subordinate(all levels) for employee BLAKE?

9. Display all record in emp table for deptno which belongs to KING's Job?

10. Display the employees for empno which belongs to job PRESIDENT?

11. Remove all the employees in SMITH's department

12. Update MARTIN salary same as SMITH's salary

13. Display all employees where their salary is less then the Ford’s salary?

14. Display all records in EMP table those were joined before SCOTT joined?

15. Display all ename, sal, deptno,dname from emp, dept table where all department which has employees as well as department does not have any employees. This query should includenon matching rows.

16. Display all ename, sal, deptno from emp, dept table where all employees which has matching department as well as employee does not have any departments. This query should includenon matching rows.

17. Display all ename, sal, deptno from emp, dept table where all employees which has matching and non matching department as well as all departments in dept table which has matching and non matching employees. This query should include non matching rows on both the tables.

18. Create table emp1 and copy the emp table for deptno 10 while creating the table

19. Create table emp2 with same structure of emp table. Do not copy the data

AGGREGATION OPERATORS

1. Count the number of different sailor names

2. Calculate the average age of all sailors

3. Find the name and the age of the youngest sailor.

GROUPBY HAVING CLAUSE

1. Find the average age of sailors for each rating level
2. Find the average age of sailors for each rating level that has at least two sailors.
3. An example shows difference between WHERE and HAVING: