Department of Electrical Engineering, UET Lahore
EE432: Computer Networks

Course Instructor: Dr. Naveed Nawaz	Dated: 27/11/2024
Session: Fall 2024	Semester: 7th

10. WRITING BASIC SQL QUERIES

Name	Roll. No.	Total Marks	Obtained Marks	Viva Marks
Ayesha Ahmad	2021-EE-052			

Checked on: _____

Signature: _____

10.1 Procedure

Consider the following database schema for this lab:

Sailor (sid, sname, rating, age)

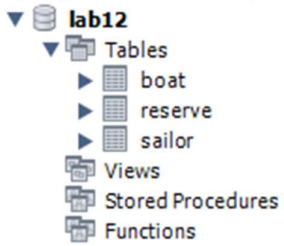
Boat (bid, bname, color)

Reserve (sid, bid, day)

Schema definition, table definition, and example instances of sailor, reserve, and boat are given in a separate SQL file.

```sql
-- Setting up Schemas lab12, and delete if table already exists
CREATE DATABASE IF NOT EXISTS lab12;
USE lab12;
DROP TABLE IF EXISTS `lab12`.`reserve`;
DROP TABLE IF EXISTS `lab12`.`sailor`;
DROP TABLE IF EXISTS `lab12`.`boat`;

CREATE TABLE SAILOR(
    sid INT PRIMARY KEY,
    sname VARCHAR(20),
    rating INT,
    age INT
);

CREATE TABLE BOAT(
    bid INT PRIMARY KEY,
    bname VARCHAR(20),
    color VARCHAR(20)
);
CREATE TABLE RESERVE(
    sid INT,
    bid INT,
    day_reserved DateTime,
    FOREIGN KEY (sid) REFERENCES SAILOR (sid),
    FOREIGN KEY (bid) REFERENCES BOAT (bid)
);
```

```sql
-- Importing Data from csvs into Empty Tables

LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab12/sailor.csv'
INTO TABLE SAILOR
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\r\n'
IGNORE 1 ROWS;

LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab12/boat.csv'
INTO TABLE BOAT
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\r\n'
IGNORE 1 ROWS;

LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces/MySQL/Lab12/reserve.csv'
INTO TABLE RESERVE
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\r\n'
IGNORE 1 ROWS (sid,bid,@day_reserved)
SET day_reserved = STR_TO_DATE(@day_reserved,'%d/%m/%Y');
```



#	Time	Action	Message	Duration / Fetch
1	05:24:35	CREATE DATABASE IF NOT EXISTS lab12	1 row(s) affected, 1 warning(s): 1007 Can't create dat...	0.047 sec
2	05:24:35	USE lab12	0 row(s) affected	0.000 sec
3	05:24:35	DROP TABLE IF EXISTS `lab12`.`reserve`	0 row(s) affected	0.250 sec
4	05:24:36	DROP TABLE IF EXISTS `lab12`.`sailor`	0 row(s) affected	0.047 sec
5	05:24:36	DROP TABLE IF EXISTS `lab12`.`boat`	0 row(s) affected	0.047 sec
6	05:24:36	CREATE TABLE SAILOR(sid INT PRIMARY KEY, ...	0 row(s) affected	0.062 sec
7	05:24:36	CREATE TABLE BOAT(bid INT PRIMARY KEY, ...	0 row(s) affected	0.031 sec
8	05:24:36	CREATE TABLE RESERVE(sid INT, bid INT, d...	0 row(s) affected	0.079 sec
9	05:24:36	LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces...	12 row(s) affected Records: 12 Deleted: 0 Skipped: ...	0.046 sec
10	05:24:36	LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces...	12 row(s) affected Records: 12 Deleted: 0 Skipped: ...	0.032 sec
11	05:24:36	LOAD DATA LOCAL INFILE 'C:/DriveA/Workspaces...	8 row(s) affected Records: 8 Deleted: 0 Skipped: 0 ...	0.047 sec

Write down the queries for executing the following examples in SQL notation on your SQL Workbench. Please remember that your queries should work in general for all valid instances not for just given sample database.

1. Find the names and ages of all sailors.

```
49    -- TASK 1: Find the names and ages of all sailors
50    SELECT sname, age
51    FROM SAILOR;
```

sname	age
Ali	25
Bob	45
Ahmad	36
Baryab	19
Abdullah	56
Bilal	64
Faizan	47
Ammad	39
Rajab	26
Lubber	29
Umer	53
Raza	42

#	Time	Action	Message	Duration / Fetch
32	05:41:54	SELECT sname, age FROM SAILOR LIMIT 0, 1000	12 row(s) returned	0.000 sec / 0.000 sec

2. Find all sailors with a rating above 7.

```
53    -- TASK 2: Find all sailors with a rating above 7
54    SELECT *
55    FROM SAILOR
56    WHERE rating > 7;
```

sid	sname	rating	age
4	Baryab	9	19
5	Abdullah	8	56
7	Faizan	10	47
10	Lubber	10	29
11	Umer	8	53
12	Raza	9	42

#	Time	Action	Message	Duration / Fetch
33	05:41:54	SELECT * FROM SAILOR WHERE rating > 7 LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec

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

```
58    -- TASK 3: Find the names of sailors who have reserved boat number 103
59    SELECT sname
60    FROM SAILOR
61    WHERE sid in (
62        SELECT sid
63        FROM RESERVE
64        WHERE bid = 103
65    );
```

sname
Faizan

#	Time	Action	Message	Duration / Fetch
34	05:41:54	SELECT sname FROM SAILOR WHERE sid in (SELECT sid FROM...	1 row(s) returned	0.000 sec / 0.000 sec

4. Find the sids of sailors who have reserved a red boat.

```
67    -- TASK 4: Find the sids of sailors who have reserved a red boat.
68    SELECT sid
69    FROM RESERVE
70    WHERE bid in (
71        SELECT bid
72        FROM BOAT
73        WHERE color = 'red'
74    );
```

sid
7
6

#	Time	Action	Message	Duration / Fetch
35	05:41:54	SELECT sid FROM RESERVE WHERE bid in (SELECT bid FRO...	2 row(s) returned	0.000 sec / 0.000 sec

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

```
76    -- TASK 5: Find the names of sailors who have reserved a red boat
77    SELECT sname FROM SAILOR
78    WHERE sid in (
79        SELECT sid FROM RESERVE
80        WHERE bid in (
81            SELECT bid FROM BOAT
82            WHERE color = 'red'
83        )
84    );
```

sname
Faizan
Bilal

#	Time	Action	Message	Duration / Fetch
36	05:41:54	SELECT sname FROM SAILOR WHERE sid in (SELECT sid FROM...	2 row(s) returned	0.000 sec / 0.000 sec

6. Find the colors of boats reserved by Lubber.

```
86    -- TASK 6: Find the colors of boats reserved by Lubber
87    SELECT color FROM BOAT
88    WHERE bid in (
89        SELECT bid FROM RESERVE
90        WHERE sid in (
91            SELECT sid FROM SAILOR
92            WHERE sname = 'Lubber'
93        )
94    );
```

color
purple

#	Time	Action	Message	Duration / Fetch
37	05:41:54	SELECT color FROM BOAT WHERE bid in (SELECT bid FROM R...	1 row(s) returned	0.000 sec / 0.000 sec

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

```
96    -- TASK 7: Find the names of sailors who have reserved at least one boat
97    SELECT sname
98    FROM SAILOR
99    WHERE sid in (
100       SELECT sid
101       FROM RESERVE
102   );
```

sname
Bob
Ahmad
Abdullah
Bilal
Faizan
Ammad
Rajab
Lubber

#	Time	Action	Message	Duration / Fetch
38	05:41:54	SELECT sname FROM SAILOR WHERE sid in (SELECT sid FR...	8 row(s) returned	0.000 sec / 0.000 sec

8. Find the ages of sailors whose name begins and ends with B and has at least three characters.

```
104   -- TASK 8: Find the ages of sailors whose name begins and ends with B and has at least three characters
105   SELECT age
106   FROM SAILOR
107   WHERE sname LIKE "b_%b";
```

age
45
19

#	Time	Action	Message	Duration / Fetch
39	05:41:54	SELECT age FROM SAILOR WHERE sname LIKE "b_%b" LIMIT ...	2 row(s) returned	0.000 sec / 0.000 sec

9. Find the names of sailors who have reserved a red or a green boat.

```
109   -- TASK 9: Find the names of sailors who have reserved a red or a green boat.
110   SELECT sname FROM SAILOR
111   WHERE sid in (
112       SELECT sid FROM RESERVE
113       WHERE bid in (
114           SELECT bid FROM BOAT
115           WHERE color = 'red' or color = 'green'
116       )
117   );
```

sname
Faizan
Ahmad
Bilal

#	Time	Action	Message	Duration / Fetch
40	05:41:55	SELECT sname FROM SAILOR WHERE sid in (SELECT sid FROM...	3 row(s) returned	0.000 sec / 0.000 sec

10. Find all sids of sailors who have a rating of 10 or reserved boat 104.

```
119   -- TASK 10: Find all sids of sailors who have a rating of 10 or reserved boat 104
120   SELECT sid
121   FROM RESERVE
122   WHERE bid = 104 or sid in (
123       SELECT sid FROM SAILOR
124       WHERE rating = 10
125   );
```

sid
9
7
10

#	Time	Action	Message	Duration / Fetch
41	05:41:55	SELECT sid FROM RESERVE WHERE bid = 104 or sid in (SELEC...	3 row(s) returned	0.000 sec / 0.000 sec

For better understanding, instead of executing all queries on the workbench, try writing them on a piece of paper first.

Assessment Rubrics for

EE432: Computer Networks Lab 10

Student Name: _____ **Roll Number:** _____

Method:

Lab report evaluation and instructor observation during lab sessions.

Outcomes Assessed:

a. Ability to conduct experiments as well as to analyze and interpret data
b. Ability to adhere to safety and disciplinary rules
c. Ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Performance	Exceeds expectation (5-4)	Meets expectation (3-2)	Does not meet expectation (1)	Marks
Realization of experiment (a)	Downloads and installs required software and sets up the system according to the experiment requirements	Needs guidance to set up the system according to the experiment requirements	Incapable of selecting relevant software to the experiment and unable to setup the system with required software tools	
Conducting experiment (a, c)	Carries out each procedural step in a satisfactory manner and studies outputs of the software application rigorously	Needs assistance or guidance to proceed through experiment steps, studies outputs with minor errors in interpretation	Unable to carry out procedural steps and make any useful observations of outputs	
Laboratory safety and disciplinary rules (b)	Observes lab safety rules; adheres to the lab disciplinary guidelines aptly	Observes safety rules and disciplinary guidelines with minor deviations	Disregards lab safety and disciplinary rules	
Data collection (c)	Completes data collection from the experiment setup by following procedural steps, ensures that the data is entered in the lab manual according to the specified instructions	Completes data collection with minor error and enters data in lab manual with slight deviation from guidelines	Fails at collecting data by giving proper inputs and observing output states of experiment setup, unable to fill the lab manual properly	
Data analysis (a, c)	Analyzes the data obtained from experiment thoroughly and accurately verifies it with theoretical understanding, accounts for any discrepancy in data from theory with sound explanation	Analyzes data with minor error and correlates it with theoretical values reasonably. Attempts to account for any discrepancy in data from theory	Unable to establish the relationship between practical and theoretical values and lacks the theoretical understanding to explain any discrepancy in data	