
CS246: Database Management Systems Lab

Lab # 09 (1 Questions, 89 Marks)

Lab session: AL1

Held on: 11-Mar-2024 (Mon)

Lab Timings: 14:00 to 17:00 Hours Pages: 4

Submission time: 16:45 Hrs, 19-Feb-2024

Instructors Dr. V. Vijaya Saradhi

Head TAs Adithya K Moorthy & Laxita Agrawal

Department of CSE, IIT Guwahati

- a. This lab assignment is based on the concepts
- i. Section 4.2 Views
 - ii. Section 4.4.6 assigning names to constraints
 - iii. Section 4.5 SQL data types
 - iv. Section 4.5.2 Type conversions and formatting functions
- from the text book titled *Database System Concepts* by Abraham Silberschatz, Henry F Korth & S. Sudarshan
- b. Some of the questions are so designed to yield errors.
- c. You can refer to the text book for SQL syntax.

Question 1: (89 points)

Using MySQL perform the following tasks:

Task 01 (1 mark) Create a database named *week09* and create following tables in this database.

Task 02 (6 marks) **Create the following tables**

- a. (2 marks) A table **sailors** containing the following

column #	name	data type	constraint
1	sid	int	primary key
2	sname	char(50)	None
3	rating	int	None
4	age	decimal(3,1)	None

- b. (2 marks) A table **boats** containing the following

column #	name	data type	constraint
1	bid	int	primary key
2	bname	char(50)	None
3	bcolor	char(50)	None

- c. (2 marks) A table **reserves** containing the following

column #	name	data type	constraint
1	sid	int	refers to sailors
2	bid	int	refers to boats
3	day	char(50)	None
			sid, bid, day is primary key

Task 03 (3 marks) Populate data

- populate **sailors** table from the file **sailors.csv**
- populate **boats** table from the file **boats.csv**
- populate **reserves** table from the file **reserves.csv**

Task 04 (69 marks) Creating Views

(19 marks) Creating updatable views

- (6 marks) Perform the following
 - (3 marks) Create a view containing the columns **sid**, **rating** from **sailors**.
 - (1 mark) insert the following records into this view with the following values (91, 7), (92, 8), (93, 9), (94, 10), (22, 8)
 - (1 mark) update the rating of **sid=91** to 8.
 - (1 mark) delete the sailor with **sid=91**
- (6 marks) Perform the following
 - (3 marks) Create a view containing the following: **boats** where color is green
 - (1 mark) insert the following records into this view with the following values (205, River Mania, green), (206, green-bird, green), (207, blue-warriors, blue)
 - (1 mark) Create a new view which restricts the insertion into the view with mis-matched color by adding the option **with check option**
 - (1 mark) insert the following records into this view with the following values (207, blue-warriors, blue)
- (7 marks) Perform the following
 - (3 marks) create a view and obtain the columns **sid**, **rating**, **bid**, **bname**
 - (1 mark) insert values (80, 8) for **sid**, **rating** into this view
 - (1 mark) insert values (105, 'Lucky Lake') for **bid**, **bname** into this view
 - (1 mark) update **bname** to Jumper for **bid = 101** in this view
 - (1 mark) update **bname** to Interlake for **bid = 101** in this view

(31 marks) Creating views that are not updatable

- (7 marks) Perform the following
 - (3 marks) **view involving aggregate functions** create a view and obtain the columns **sid**, **sname**, **rating**, **bid**, **bname** such that **sailors** having maximum **rating** among the reserved boats.
 - (1 mark) Insert a record in this view with fields **sid**, **sname**, **rating** taking values **sid = 80**, **sname='best sailor'**, **rating = 10**

- (1 mark) Update the **rating** of **sid** = 74 to -9 in this view.
 - (1 mark) Delete the record from this view with **sid** having value 74.
 - (1 mark) Update the **bname** of **bid** = 102 to Can I get updated? in this view.
- b. (6 marks) Perform the following
- (3 marks) **view involving distinct clause** create a view of **sailors** having distinct **ratings** and obtain the column **rating**.
 - (1 mark) Insert a new **rating** whose value is 2 in the created view
 - (1 mark) Update the **rating** from 7 to -7 from the created view
 - (1 mark) Delete the **rating** 7 from the created view
- c. (6 marks) Perform the following
- (3 marks) **view involving group by** create a view for the query: Boats reserved by sailors with same **rating**. Obtain all columns from the tables which are involved in the **join** operation.
 - (1 mark) Insert a new record in the created view having values **sid** = 80, **sname**='budding sailor', **rating**=10, **age**=25
 - (1 mark) Update the **rating** from 8 to 6 in the created view
 - (1 mark) Delete the **rating** 7 from the created view
- d. (6 marks) Perform the following
- (3 marks) **view involving having clause** create a view for the query: Boats reserved by sailors with same **rating** whose **age** is more than 36 years. Obtain all columns from the tables which are involved in the **join** operation.
 - (1 mark) Insert a new record in the created view having values **sid** = 80, **sname**='budding sailor', **rating**=10, **age**=25
 - (1 mark) Update the **rating** from 8 to 6 in the created view
 - (1 mark) Delete the **rating** 7 from the created view
- e. (6 marks) Perform the following
- (3 marks) **view involving union** create a view which contains sailors who reserved green boat or sailors who reserved blue boat. Include the following columns in the view **sid**, **sname**, **bid**, **bcolor**.
 - (1 mark) Insert a new record in the created view having values **sid** = 81, **rating**=9
 - (1 mark) Update the **rating** of **sid** = 22 to 9.
 - (1 mark) Delete the **sid**=22 from the created view.
- (9 marks) **Creating views using views**
- a. (3 marks) Create a view to obtain **rating** from the view in Task 04 (a).
- b. (1 mark) insert the following records into this view with the following values (7), (8), (9), (10), (8)
- c. (1 mark) update the **rating** 8 to 9.

- d. (1 mark) delete the `rating` 10.
- e. (3 marks) Create a view to obtain `sid`, `bname`, `day` using `reserves` and view created in Task 04 (b).

(9 marks) **Effect of altering original tables on views**

- a. (1 mark) Rename the column `rating` of `sailors` table to `rting`
- b. (2 marks) List the contents all the above views that involve the column name `rating`
- c. (1 mark) Rename the column `rting` of `sailors` to `rating`
- d. (2 marks) List the contents all the above views that involve the column name `rating`
- e. (1 mark) Delete the column `rating` of `sailors` table.
- f. (2 marks) List the contents all the above views that involve the column name `rating`

(9 marks) **Type conversion**

- a. (3 marks) **Create tables** `sailors_1`, `reserves_1` and `boats_1` as described in Task 02.
- b. (3 marks) Populate data from `sailors.csv` into table `sailors_1`; `reserves.csv` into `reserves_1` table and `boats.csv` into `boats_1` table.
- c. (3 marks) Change the following columns data type
 - i. `sid` to `smallint`
 - ii. `bid` to `char(3)`
 - iii. `bcolor` to `char(5)`