CS246: Database Management Systems Lab

Lab # 11 (1 Questions, 79 Marks)
Lab session: AL1
Held on: 01-Apr-2024 (Mon)
Lab Timings: 14:00 to 17:00 Hours Pages: 2
Submission time: 16:45 Hrs, 01-Apr-2024
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1. This lab theme is centered around section 5.2 Functions and Procedures of the text book *Database System Concepts* Abraham Silberschatz, Henry F Korth & S. Sudarshan.
2. Manual pages for stored procedure stored function are attached.
3. Manual page for prepare statement is also attached.

Question 1: (79 points)

Using `MySQL` perform the following tasks:

Task 01 (1 mark) Create a database named *week11*

1. (4 marks) Declare a session variable string whose content is to create `sailors` table. Issue a `prepare` statement and execute the contents this variable.
2. (4 marks) Declare a session variable string whose content is to create `reserves` table. Issue a `prepare` statement and execute the contents of this variable.
3. (4 marks) Declare a session variable whose string content is to create `boats` table. Issue a `prepare` statement and execute the contents of this variable.
4. (3 marks) Create the following three tables
   (a) `sailor_name` which has two columns. First column is a serial number of `int` data type and second column is a character data type of size 20.
   (b) `boat_name` which has two columns. First column is a serial number of `int` data type and second column is a character data type of size 20.
   (c) `boat_color` which has two columns. First column is a serial number of `int` data type and second column is a character data type of size 20.
5. (3 marks) Populate data
   (a) (1 mark) Populate `sailor_name` table with the data given in the file `sailor-name.csv`
   (b) (1 mark) Populate `boat_name` table with the data given in the file `boat_name.csv`
   (c) (1 mark) Populate `boat_color` table with the data given in the file `boat_name.csv`
6. (10 marks) Create a stored procedure which takes no argument and populates sailor table with 500 sailors by
   (a) Generating first name randomly from the `sailor_name` table
   (b) Generating age between 18 and 65 (inclusive)
   (c) Generating rating between 1 and 10 (inclusive)

(d) **Hint:** use `RAND()`, `FLOOR()` `MySQL` functions to obtain the required value Insert each record with the above random values into the `sailors` table.

7. (10 marks) Create a stored procedure which takes no arguments populates `boats` table with information about 50 boats generated as described.
   (a) Generate a name randomly from the `boat_name` table
   (b) Generate a color randomly from `boat_color` table
   (c) Generate `bid` sequentially.
   (d) **Hint:** use `RAND()`, `FLOOR()` `MySQL` functions to obtain the required value Insert the above record into `boats` table.
8. (10 marks) Create a stored procedure which takes no argument and populates `reserves` table with 5000 records by
   (a) Generating a `sid` randomly from the `sailors` table
   (b) Generating a `bid` randomly from the `boats` table
   (c) Generating a date between `2024-01-01` and `2024-12-31`
   (d) **Hint:** use `RAND()`, `FLOOR()` `MySQL` functions to obtain the required value and inserting the record into the `reserves` table.
9. (10 marks) In-order to generate a date randomly between the specified dates, write a stored function which takes no input arguments and has one return value of string data type in the date format `YYYY-MM-DD`. For this consider generating `DD` part randomly, `MM` part randomly and `YYYY` to be `2024`. Make sure to check the constraint on `DD` given `MM`. For example, if `MM = 02` then `DD` cannot take values 30 and 31.
10. (5 marks) Create a stored procedure with one `OUT` input argument to retrieve boat color registered by given sailor id.
11. (5 marks) Create a stored procedure having one `OUT` input argument to return cumulative rating of sailor who reserved boats on Sundays (use `dayname` function.
12. (5 marks) Create a stored function which takes as input rating and converts it into letter grade as per the table below:

rating	grade
1	F
2	F
3	F
4	DD
5	CD
6	CC
7	BC
8	BB
9	AB
10	AA

13. (5 marks) Write a query (outside this function) to which lists `sid, rating` and `grade` obtained by sailor using this function.