Assignment 2 & 3 – SQL Commands

Dates of work: Aug 20, 2022 & Aug 23, 2022;

Submission of complete assignment (code + report of analyses): Sep 9, 2022;

Viva: Sep 10, 2022 & Sep 11, 2022; Total Points: 190

Questions:

Q. 1.	Write an SQL query to display 3 numbers in 3 columns.	[2 points]
Q. 2.	Write an SQL query to display the result of an arithmetic expression.	[2 points]
Q. 3.	Create a table comprising <salesman_id, name, address_city, coverage_city commission> as its attributes. At any instance, a salesman can cover only one city. [2] A. Write SQL codes to: a. Display all information about all salespeople [2] b. Display all details of the salesperson named “abc” [2] c. Display display commission rates of Mumbai and Chennai [2] d. Display salesman_id and name of all salespeople who work in the same city as their address [3] e. Display salesman_id and name of all salespeople who have different address and coverage cities [3] f. Display the highest commission rate of all salespeople working in Mumbai [4] g. Display the coverage_city with the highest commission rate [4] h. Display the average commission rate for all cities [5] i. Find the coverage_city where the commission rate is the same for all salespeople [5] j. Find the commission rate that is common across all coverage cities [5] k. Display all details of the salesperson who has worked for all cities [6] l. Add two new columns ‘date_of_employment’, and ‘date_of_release’ to the table to record the date of employment for all employees, and date of release if the salesperson has left the company [3]	[78 points]

	B. What is the normal form of the table after Q.1.A.k? Can you improve upon it? You may create any attribute(s) that are necessary. [3+5] C. Using the newly formed normalized tables, write SQL queries to: a. Display details of all salespeople who are currently employed by the company [3] b. Display details of all salespeople who have left the company [3] c. Display details of the senior-most salesperson who is currently working in the company [4] d. Count the number of salespersons hired in 2022 [4] e. Display the year where maximum number of salespeople where hired [5] f. Display the year that saw maximum number of salespeople leaving the company [5]	
Q. 4.	A. Create all tables and attributes that you think are necessary to describe a database system for the stock of groceries in your pantry. Assume that you buy groceries all through the month, with the bulk purchase being made at the start of the month. You may even include a list of all that you plan or may buy. [8] B. Normalize the tables to BCNF. Prove the same. [10] C. Compare the execution times between SQL codes for the normalized and the un-normalized tables for the following questions: i. Display all details of groceries that were purchased the earliest [5 + 5] ii. Display all details of groceries that were purchased in August [5 + 5] iii. Display all details of groceries that you 'need' to buy in September [5 + 5] iv. Display all details of groceries that you do not have to buy in September [5 + 5] v. Display all details of groceries that you 'may' buy in September [5 + 5] vi. Display the total price of all groceries purchased in the last three months. Calculate and display the average expenditure. [5 + 5]	[108 points]

	vii. Display the names of groceries that you buy every month. [5 + 5] D. Comment on your conclusion about the need for normalization after Q.4.c? [5] E. Design a decision network to design a menu comprising only groceries that are there in the pantry. This must include at least one item from the list of groceries that has been lying in the pantry for the longest time. [15]	

Assessment Rubric for Submitted Work - Evaluation per answer (Viva & Analyses):

Proper understanding of question and work done accordingly:	80 - 95%
Attempt to work beyond what has been asked, with in-depth understanding: (Definite contender for full score for question)	95 - 100%
Vague understanding, bursts of in-depth answers:	70 - 80%
Vague understanding, bursts of broad conceptual answers:	50 - 70%
Weird hash of work submitted, some understanding:	40 - 50%
No understanding, just work submitted: (Probable plagiarism)	0

Submission Rubric:

Within 2 days of Deadline:	No penalty
Within 5 days of Deadline:	30% penalty
Within 7 days of Deadline:	50% penalty
After 7 days of Deadline:	Will not be evaluated