Database Systems (CS 2005) Spring 2024

Department: BS(SE)

Assignment 02

Topic: SQL

Deadline: 27 March 2024

Total Marks: 120

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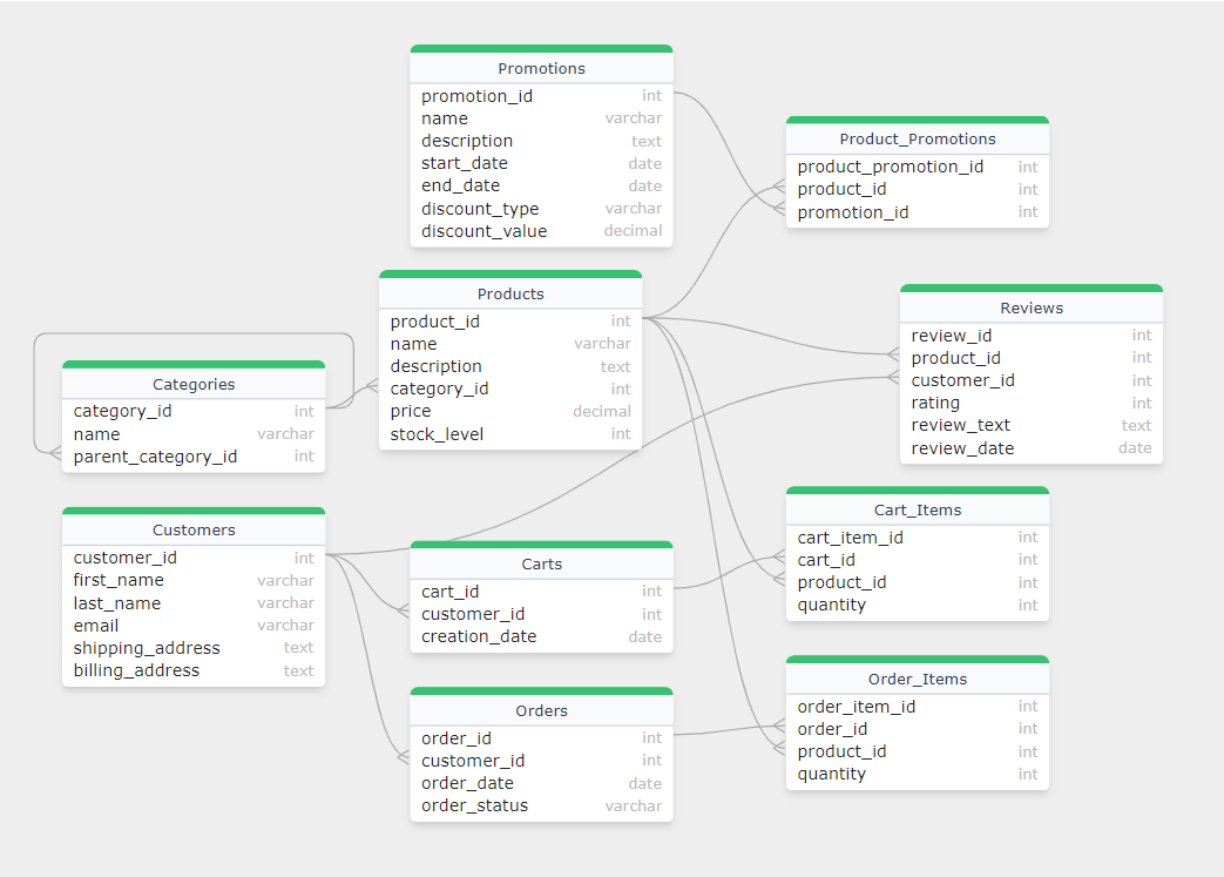
1. Design a conceptual schema through ER diagrams for all the given scenarios.
2. It is necessary to specify all entities, attributes, constraints, relationships, and concepts you have studied in Chapter 03.
3. Mention the diagramming software that you have used for the assignment.
4. If you had to make assumptions concerning the requirements, state them clearly.
5. Mention constraints (business rules) apparent from the requirements that you are unable to model via your ERD.
6. Submit your assignment in following files on Google Classroom with the naming convention Rollno_Section_AssignmentNumber.

a A SQL file for database creation queries.
b A SQL file for the data insertion queries.
c A SQL file containing select queries listed in the Question 3.
d A PDF file for with the results (screenshot) of the queries in Question 3.

7. Any plagiarism will result in ZERO marks in the Assignment.
8. NOTE: this assignment will be done by the group of two people. Both students must be from same section. One group member will write all the odd number queries and the other group member will write all even number queries.

Case Study

You are tasked to generate a database for an online shopping site. The schema for the site is shown below:



Question: 1	**Database Creation**	Marks: 20

You are required to write SQL statements to create a database as per description provided above.

Question: 2	**Insertion**	Marks: 20

Write SQL statements to insert 10 rows in each table. The data for those rows should be realistic e.g. Customer name Zeshan instead of ABC.

Question: 3	**Select Statements**	Marks: 2*40=80

Write SQL statement of the following queries.

NOTE: One group member will write all the odd number queries and the other group member will write all even number queries.

1. Select all columns from the Products table.
2. Select specific columns (name, price) from the Products table.
3. Select products with a price greater than 1000.
4. Select products with a stock level less than or equal to 50.
5. Select products sorted by price in descending order.
6. Select products with a price between 1000 and 5000.
7. Select products with a name starting with 'P'.
8. Select products with a name containing 'Shoes'.
9. Select products sorted by name in ascending order.
10. Select distinct categories from the Products table.
11. Select products with a price less than or equal to 3000 and in category 2.
12. Select products with a stock level greater than or equal to 10 and less than or equal to 20.
13. Select products with a name starting with 'M' and price greater than 5000.
14. Select products with a description containing 'embroidered' and price less than 3000.
15. Select products sorted by stock level in descending order.
16. Select products with a name not starting with 'L'.
17. Select products with a price greater than the average price.
18. Select products with a stock level less than the minimum stock level.
19. Select products with a category ID in a list (1, 3, 4).
20. Select products with a name ending with 'Suit'.
21. Count the total number of products.
22. Calculate the average price of products.
23. Find the maximum price among products.
24. Find the minimum stock level among products.
25. Sum up the total stock levels of all products.
26. Calculate the average stock level of products.
27. Count the number of products in each category.
28. Calculate the total value of all products (price * stock_level).
29. Find the product with the highest price.
30. Calculate the total number of characters in all product names.
31. Find the average price of products in each category.
32. Find the product with the lowest stock level.
33. Calculate the total number of products in stock (stock_level > 0).
34. Calculate the total price of all products.
35. Find the category with the most products.
36. Calculate the difference between the highest and lowest prices.

37. Find the product with the highest stock level.
38. Find the category with the highest average price.
39. Calculate the total number of products with prices greater than 5000.
40. Calculate the total value of products in each category (price * stock_level).
41. Calculate the total number of orders.
42. Calculate the average order total.
43. Find the customer who made the most orders.
44. Calculate the total number of reviews for each product.
45. Calculate the total revenue generated from each category.
46. Find the average price of products purchased by each customer.
47. Calculate the total value of products in each promotion.
48. Count the total number of carts for each customer.
49. Calculate the total number of items in each order.
50. Find the customer with the highest total spending.
51. Calculate the total number of reviews written by each customer.
52. Calculate the average order total for each customer.
53. Find the category with the highest average price of products.
54. Count the total number of orders placed in each month.
55. Calculate the total revenue generated by each customer.
56. Calculate the total number of reviews for each product category.
57. Find the product with the highest average rating.
58. Calculate the total number of orders per year.
59. Find the customer who made the highest single order.
60. Calculate the total value of products purchased by each customer.
61. Find the total number of products in each category.
62. Find the average price of products in each category.
63. Find the category with the highest total value of products (price * stock_level).
64. Find the average stock level of products in categories with more than 10 products.
65. Find the total number of orders for each customer.
66. Find the average order value (total price of order) for each customer.
67. Find the total number of products in stock in each city where customers are located.
68. Find the customer(s) with the highest total order value.
69. Find the category with the highest average price.
70. Find the product with the highest rating.
71. Find the total number of products purchased by each customer.
72. Find the average rating of products in each category.
73. Find the category with the highest total number of products.
74. Find the customer(s) who have placed orders with the highest total value.
75. Find the product(s) with the highest total number of orders.
76. Find the category with the highest total order value.
77. Find the customer(s) with the highest average order value.
78. Find the product(s) with the highest total order quantity.

79. Find the customer(s) who have placed orders with the highest average quantity per order.
80. Find the category with the highest average stock level.