Birla Institute of Technology and Science Pilani, Pilani Campus
Department of Computer Science and Information System
2nd Semester 2021-22
Database System (CS F212)
Lab Test May-2022 (Open Book) (Re-Test)

Maximum Marks: 30(10%) **Time:** 60 Minutes

Instructions

1. First, execute the sample database file "**bombaytraders.sql**" to create a sample database.
2. Perform the SQL query on that sample database.
3. You must use the file "**Answers_Template.sql**" to paste SQL queries into a single file. After pasting all queries rename the SQL file with your complete BITS ID i.e., **"2017PHXF0428P.sql"**.
4. Please paste your query in a specified place after a successful compilation. if you paste in the wrong place and wrong filename, zero marks will be given.
5. After completion of the exam, upload the SQL file on Nalanda.
6. Submission is open from 07:15 to 07:30 PM, after that no submission.

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1. Write the queries to do the following tasks. [6]
   A. The company 'Bombay Traders' does the business of food import-export. Write the query to find the monthly import order amount, export order amount, and difference in the amount of import-export for all orders.

months	ExpAmt	ImpAmt	Exp - Imp
1	3836.00000000	44725.00000000	-40889.00000000
3	32609.25000000	26345.00000000	6264.25000000
4	19355.25000000	6851.00000000	12504.25000000

   B. Write a query to print customer ID, name, number of orders, number of products, the average amount per order, the total amount for all orders, and customer status as active/inactive (inactive - does not place any order). **[29 rows returned]**

id	first_name	OrdNum	ProdNum	AvgAmt	TotAmt	STATUS
1	Anna	2	4	602.687500000000	2410.75000000	Active
2	Antonio	0	0	NULL	NULL	In-Active
3	omas	3	5	510.000000000000	2550.00000000	Active
4	Christina	5	7	707.000000000000	4949.00000000	Active
5	Martin	0	0	NULL	NULL	In-Active
6	Francisco	6	5	1334.583333333333	8007.50000000	Active

   C. The company Bombay Traders have different suppliers for the same product. Find the name(s) of the supplier that/those supplies at least one product of each category.

id	company
1	Supplier A
NULL	NULL

   D. Find the details of suppliers, who supply the most expensive product for each category of product.

supplier_ids	product_code	product_name	MostExpensive
4	Supplier D	bombay Traders Chai	46.0000
10	Supplier J	bombay Traders Syrup	22.0000
10	Supplier J	bombay Traders Olive Oil	31.3500
2;6	Supplier B	bombay Traders Boysenberry Spread	81.0000
2	Supplier B	bombay Traders Dried Pears	53.0000

[16 rows]

E. For all the orders successfully shipped, provide the order details such as order ID, name of customer, name of sales representative, product name, and order amount.

id	employee_id	customer_id	order_date	shipped_date	shipper_id	ship_name	ship_address	ship_city	ship_st
42	1	10	2006-03-24 00:00:00	2006-04-07 00:00:00	1	Roland Wacker	123 10th Street	Chicago	IL
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

F. List the details of employees of Bombay Traders who are in third place from the bottom in the employee hierarchy.

id	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle
2	Patterson	Mary	x4611	mpatterso@classicmodelcars.com	1	1	VP Sales
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

2. Customer of Bombay Traders, Company A, wants to purchase ten 'bombay Traders Chai' units. Company A is an old customer of Bombay Traders, 'Vice President, Sales' offers a 10 % discount. The seller shipped this order in 'Christina Lee' ship of 'Shipping Company A,' and the shipping company charged 40$ per unit as a shipping fee. The seller and shipper imposed 18% GST and 18% service tax on the order amount. You need to fetch values for referential attributes from parent tables using SQL queries before inserting them into a table. You can assume values for attributes not available in the databases and for non-referential attributes. [4+4]
   A. Write a complete transaction for the selling process with proper save points.
   B. After completing the selling order in part, A, the Bombay Traders want to refill the stock with the same quantity in the next ten days. Write a complete transaction for the purchase process with proper save points.
3. Write a SQL stored procedure, ‘Order_Stats()’ to do the following task. [2+5]
   A. Write a procedure to print the order ID, product ID, product name, and average, maximum, minimum, and sum of per order amount for multiple products. Also, write the test query to show the working of your queries.

   [40 rows]

order_id	Average	Maximum	Minimum	Sum
30	752.500000000000	1400.00000000	105.00000000	1505.00000000
31	288.333333333333	530.00000000	35.00000000	865.00000000
32	595.000000000000	920.00000000	270.00000000	1190.00000000
33	276.000000000000	276.00000000	276.00000000	276.00000000
34	184.000000000000	184.00000000	184.00000000	184.00000000
35	127.500000000000	127.50000000	127.50000000	127.50000000
36	1930.000000000000	1930.00000000	1930.00000000	1930.00000000
37	680.000000000000	680.00000000	680.00000000	680.00000000
38	13800.000000000000	13800.00000000	13800.00000000	13800.00000000
39	1275.000000000000	1275.00000000	1275.00000000	1275.00000000
40	598.000000000000	598.00000000	598.00000000	598.00000000
41	13800.000000000000	13800.00000000	13800.00000000	13800.00000000

   B. Rewrite the procedure created in part A without using the aggregate functions. Also, write the test query to show the working of your queries. **[same result as part A]**
4. The company Bombay Traders follow a four-stage process in order processing. First, the company received new orders and then generates an invoice for the order. After generating the invoice company ship the product to the customer. After receiving the product at the customer end, the company closes the order. Write a SQL stored procedure, Order_stage(stage_name), to list the orders that are in a specific stage. The procedure accepts the stage name as an input. Also, write the test query to show the working of your queries. [3]

```
CALL `Order_Stage`('New'); [return 16 rows]
```

id	order_date	shipped_date	ship_name	status_id
41	2006-03-24 00:00:00	NULL	Ming-Yang Xie	0
43	2006-03-24 00:00:00	NULL	Peter Krschne	0
44	2006-03-24 00:00:00	NULL	Anna Bedecs	0
57	2006-04-22 00:00:00	2006-04-22 00:00:00	Karen Toh	0
59	2006-04-22 00:00:00	2006-04-22 00:00:00	John Edwards	0
61	2006-04-07 00:00:00	2006-04-07 00:00:00	Christina Lee	0
62	2006-04-12 00:00:00	2006-04-12 00:00:00	Soo Jung Lee	0
64	2006-05-09 00:00:00	2006-05-09 00:00:00	Francisco Pérez-Olaeta	0
65	2006-05-11 00:00:00	2006-05-11 00:00:00	Amritansh Raghav	0
66	2006-05-24 00:00:00	2006-05-24 00:00:00	Elizabeth Andersen	0
68	2006-05-24 00:00:00	NULL	Ming-Yang Xie	0
69	2006-05-24 00:00:00	NULL	Roland Wacker	0

5. Each employee of Bombay Traders has multiple customers. Write a stored function 'Emp_Status()' that generates a derived attribute for each employee in the select statement as status. The status depends on the number of customers associated with the employee as 'Gold (max number of customers), 'Silver' (between the min and max), and 'Bronze' (min number of customers). Also, write the test query to show the working of your queries. [3].

```
select e.id, e.firstName, e.lastName, e.jobTitle, count( distinct
o.customer_id) as OrderCount, Emp_Status(e.id)
from orders o join employees e on o.employee_id = e.id
group by e.id; [return 8 rows]
```

id	firstName	lastName	jobTitle	OrderCount	Emp_Status(e.id)
1	Diane	Murphy	President	6	Gold
2	Mary	Patterson	VP Sales	3	Silver
3	Anthony	Bow	Sales Manager (NA)	3	Silver
4	Leslie	Jennings	Sales Rep	4	Silver
6	Julie	Firrelli	Sales Rep	2	Silver
7	Steve	Patterson	Sales Rep	1	Bronze
8	Foon Yue	Tseng	Sales Rep	1	Bronze
9	George	Vanauf	Sales Rep	5	Silver

6. An employee of the company 'Bombay Traders' is currently reporting to another employee (Current work supervisor). You need to find out about the previous supervisor's details of employees. Write queries to do necessary changes in the database in context to additional tables and triggers to maintain the previous supervisor's details. [3]

```
Store employee information in separate table using trigger.
```

********** END **********