SQL_ASSIGNMENT_1

Problem Statements:

1. Design the complete database + schema + tables for the diagram shown above using appropriate data type for every column along with any contraints (checks + PK) mentioned in the task description and load the below data into the requisite tables.



-- NEW DATABASE CREATED

CREATE DATABASE BIKESTORES; USE DATABASE BIKESTORES;

-- NEW SCHEMA CREATED

CREATE OR REPLACE SCHEMA PRODUCTION; CREATE OR REPLACE SCHEMA SALES;

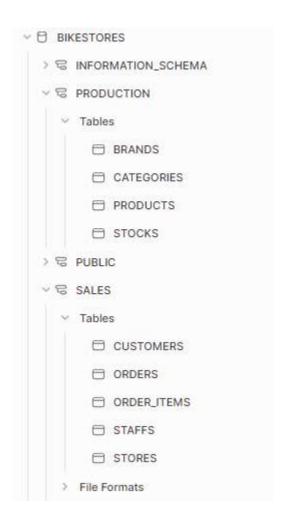
-- TABLE CREATION IN SALES SCHEMA

```
CREATE OR REPLACE TABLE SALES.STORES
(
STORE_ID INT IDENTITY(1,1),
STORE_NAME VARCHAR(25),
PHONE VARCHAR(25),
EMAIL VARCHAR(30),
STREET VARCHAR(30),
CITY VARCHAR(15),
STATE VARCHAR(5),
ZIP_CODE INT,
PRIMARY KEY (STORE_ID)
);
CREATE OR REPLACE TABLE SALES.STAFFS
STAFF_ID INT,
 FIRST_NAME VARCHAR(15),
 LAST_NAME VARCHAR(15),
 EMAIL VARCHAR(50),
 PHONE VARCHAR(20),
ACTIVE TINYINT,
STORE_ID INT,
 MANAGER_ID INT,
 PRIMARY KEY (STAFF_ID)
);
```

```
CREATE OR REPLACE TABLE SALES.CUSTOMERS
CUSTOMER_ID INT IDENTITY(1,1),
FIRST_NAME VARCHAR(15),
LAST NAME VARCHAR(15),
PHONE VARCHAR(20),
EMAIL VARCHAR(50),
STREET VARCHAR(50),
CITY VARCHAR(50),
STATE CHAR(10),
ZIP_CODE INT,
PRIMARY KEY(CUSTOMER_ID)
);
CREATE OR REPLACE TABLE SALES.ORDERS
ORDER_ID INT,
CUSTOMER_ID INT,
ORDER_STATUS INT,
ORDER_DATE VARCHAR(10),
REQUIRED_DATE VARCHAR(10),
SHIPPED_DATE VARCHAR(10),
STORE_ID INT,
STAFF_ID INT,
PRIMARY KEY(ORDER_ID)
);
CREATE OR REPLACE TABLE SALES.ORDER_ITEMS
ORDER_ID INT,
ITEM_ID INT,
PRODUCT_ID INT,
QUANTITY INT,
LIST_PRICE DECIMAL(10,2),
DISCOUNT DECIMAL(4,2),
PRIMARY KEY(ORDER_ID,ITEM_ID)
);
```

```
-- TABLE CREATION IN PRODUCTION SCHEMA
  CREATE OR REPLACE TABLE PRODUCTION.CATEGORIES
   CATEGORY ID INT,
   CATEGORY_NAME VARCHAR(50),
   PRIMARY KEY(CATEGORY_ID)
  );
  CREATE OR REPLACE TABLE PRODUCTION.BRANDS
   BRAND_ID INT,
   BRAND_NAME VARCHAR(50),
   PRIMARY KEY(BRAND_ID)
  );
  CREATE OR REPLACE TABLE PRODUCTION.PRODUCTS
   PRODUCT_ID INT,
   PRODUCT_NAME VARCHAR(100),
   BRAND_ID INT,
   CATEGORY_ID INT,
   MODEL_YEAR INT,
   LIST_PRICE DECIMAL(10,2),
   PRIMARY KEY(PRODUCT_ID)BIKESTORESBIKESTORES.PRODUCTIONBIKESTORES.SALES
  );
  CREATE OR REPLACE TABLE PRODUCTION.STOCKS
   STORE_ID INT,
   PRODUCT_ID INT,
   QUANTITY INT,
   PRIMARY KEY(STORE_ID, PRODUCT_ID)
  );
```

FINAL OUTPUT IS:



2. Once the table has got created, there is a requirement of FOREIGN KEY implementation coming into picture where one needs to add(ALTER TABLE COMMAND) below foreign key on the table mentioned pointing to another table (READ ABOUT FOREIGN KEY) as:

-- SALES.STAFFS (STORE_ID) -> SALES.STORES(STORIED)

ALTER TABLE SALES.STAFFS
ADD FOREIGN KEY(STORE_ID) REFERENCES SALES.STORES(STORE_ID);

-- SALES.STAFFS (MANAGER_ID) -> SALES.STAFFS (STAFF_ID)

ALTER TABLE SALES.STAFFS
ADD FOREIGN KEY(MANAGER_ID) REFERENCES SALES.STAFFS(STAFF_ID);

-- PRODUCTION.PRODUCTS (CATEGORY_ID) -> PRODUCTION.CATEGORIES (CATEGORY_ID)

ALTER TABLE PRODUCTION.PRODUCTS
ADD FOREIGN KEY(CATEGORY_ID) REFERENCES PRODUCTION.CATEGORIES(CATEGORY_ID);

-- PRODUCTION.PRODUCTS(BRAND_ID) -> PRODUCTION.BRANDS (BRAND_ID)

ALTER TABLE PRODUCTION.PRODUCTS
ADD FOREIGN KEY(BRAND_ID) REFERENCES PRODUCTION.BRANDS(BRAND_ID);

-- SALES.ORDERS (CUSTOMER_ID) -> SALES.CUSTOMERS (CUSTOMER_ID)

ALTER TABLE SALES.ORDERS
ADD FOREIGN KEY(CUSTOMER_ID) REFERENCES SALES.CUSTOMERS(CUSTOMER_ID);

-- SALES.ORDERS(STORE_ID) -> SALES.STORES (STORE_ID)

ALTER TABLE SALES.ORDERS
ADD FOREIGN KEY(STORE_ID) REFERENCES SALES.STORES(STORE_ID);

-- SALES.ORDERS (STAFF_ID) -> SALES.STAFFS (STAFF_ID)

ALTER TABLE SALES.ORDERS
ADD FOREIGN KEY(STAFF_ID) REFERENCES SALES.STAFFS(STAFF_ID);

-- SALES.ORDER_ITEMS(ORDER_ID) -> SALES.ORDERS (ORDER_ID)

ALTER TABLE SALES.ORDER_ITEMS
ADD FOREIGN KEY(ORDER_ID) REFERENCES SALES.ORDERS(ORDER_ID);

-- SALES.ORDER_ITEMS (PRODUCT_ID) -> PRODUCTION.PRODUCTS (PRODUCT_ID)

ALTER TABLE SALES.ORDER_ITEMS
ADD FOREIGN KEY(PRODUCT_ID) REFERENCES PRODUCTION.PRODUCTS(PRODUCT_ID);

-- PRODUCTION.STOCKS (STORE_ID) -> SALES.STORES (STORE_ID)

ALTER TABLE PRODUCTION.STOCKS
ADD FOREIGN KEY(STORE_ID) REFERENCES SALES.STORES(STORE_ID);

-- PRODUCTION.STOCKS (PRODUCT_ID) -> PRODUCTION.PRODUCTS (PRODUCT_ID)

ALTER TABLE PRODUCTION.STOCKS
ADD FOREIGN KEY(PRODUCT_ID) REFERENCES PRODUCTION.PRODUCTS(PRODUCT_ID);

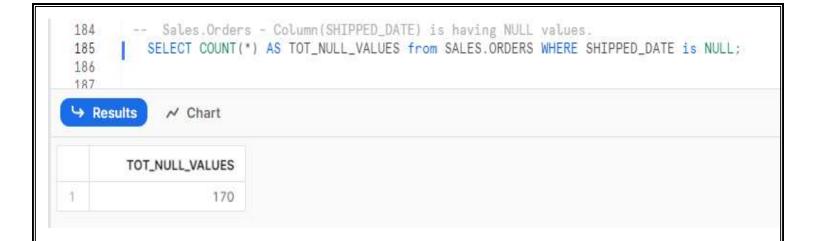
3. Does any of the table has missing or NULL value? If yes which are those and what are their counts?

Sales.Customer - Column(PHONE) is having NULL values.

SELECT COUNT(*) AS TOT_NULL_VALUES FROM SALES.CUSTOMERS WHERE PHONE IS NULL;

Sales.Orders - Column(SHIPPED_DATE) is having NULL values.

SELECT COUNT(*) AS TOT_NULL_VALUES from SALES.ORDERS WHERE SHIPPED_DATE is NULL;



4. Does the datasets has any DUPLICATE(identical rows)? If yes – can you just keep the first record and remove all rest if its possible without using any JOINS or WINDOW function.

```
SELECT COUNT(*) AS TOT ROWS FROM SALES.CUSTOMERS; -- 1445
 SELECT COUNT(DISTINCT FIRST_NAME, LAST_NAME, PHONE, EMAIL, STREET, CITY, STATE, ZIP_CODE) AS
TOT DISTINCT ROWS
 FROM SALES.CUSTOMERS; --1445
 SELECT COUNT(*) AS TOT ROWS FROM SALES.ORDERS; -- 1615
 SELECT COUNT(DISTINCT ORDER ID, CUSTOMER ID, ORDER STATUS, ORDER DATE, REQUIRED DATE, SHIPPED DATE,
STORE_ID,STAFF_ID) AS TOT_DISTINCT_ROWS
 FROM SALES.ORDERS; -- 1615
 SELECT COUNT(*) AS TOT_ROWS FROM SALES.ORDER_ITEMS; -- 4722
 SELECT COUNT(DISTINCT ORDER_ID, ITEM_ID, PRODUCT_ID, QUANTITY, LIST_PRICE, DISCOUNT) AS TOT_DISTINCT_ROWS
 FROM SALES.ORDER ITEMS; -- 4722
 SELECT COUNT(*) AS TOT ROWS FROM SALES.STAFFS; -- 10
 SELECT COUNT(DISTINCT STAFF ID, FIRST NAME, LAST NAME, EMAIL, PHONE, ACTIVE, STORE ID, MANAGER ID) AS
TOT DISTINCT ROWS
 FROM SALES.STAFFS; -- 10
 SELECT COUNT(*) AS TOT ROWS FROM SALES.STORES; -- 3
 SELECT COUNT(DISTINCT STORE NAME, PHONE, EMAIL, STREET, CITY, STATE, ZIP CODE) AS TOT DISTINCT ROWS
 FROM SALES.STORES; -- 3
 SELECT COUNT(*) AS TOT ROWS FROM PRODUCTION.BRANDS; -- 9
 SELECT COUNT(DISTINCT BRAND ID, BRAND NAME) AS TOT DISTINCT ROWS
 FROM PRODUCTION.BRANDS; -- 9
 SELECT COUNT(*) AS TOT ROWS FROM PRODUCTION.CATEGORIES; -- 7
 SELECT COUNT(DISTINCT CATEGORY ID, CATEGORY NAME) AS TOT DISTINCT ROWS
 FROM PRODUCTION.CATEGORIES; -- 7
```

SELECT COUNT(*) AS TOT_ROWS FROM PRODUCTION.PRODUCTS; -- 321 SELECT COUNT(DISTINCT PRODUCT ID, PRODUCT NAME, BRAND ID, CATEGORY ID, MODEL YEAR, LIST PRICE) AS TOT_DISTINCT_ROWS FROM PRODUCTION.PRODUCTS; -- 321 SELECT COUNT(*) AS TOT_ROWS FROM PRODUCTION.STOCKS; -- 939 SELECT COUNT(DISTINCT STORE_ID, PRODUCT_ID, QUANTITY) AS TOT_DISTINCT_ROWS FROM PRODUCTION.STOCKS; -- 939 Therefore, this dataset has no Duplicate (Identical Rows). 5. How many unique tables are present in each schema and under each table how many records are having? (Write SQL Script for the same - I don't need answer like 3/5/4 etc) SELECT TABLE SCHEMA, TABLE NAME, ROW COUNT FROM INFORMATION_SCHEMA.TABLES ORDER BY 1 DESC;

271

SELECT TABLE_SCHEMA, TABLE_NAME, ROW_COUNT FROM INFORMATION_SCHEMA.TABLES ORDER BY 1 DESC;

→ Results

→ Chart

	TABLE_SCHEMA	TABLE_NAME	ROW_COUNT
1	SALES	ORDERS	1,615
2	SALES	STAFFS	10
3	SALES	STORES	3
4	SALES	CUSTOMERS	1,445
5	SALES	ORDER_ITEMS	4,722
6	PRODUCTION	BRANDS	9
7	PRODUCTION	STOCKS	939
8	PRODUCTION	PRODUCTS	321
9	PRODUCTION	CATEGORIES	7
10	INFORMATION_SCHEMA	TABLES	null
11	INFORMATION_SCHEMA	USAGE_PRIVILEGES	null
12	INFORMATION_SCHEMA	REPLICATION_GROUPS	null
13	INFORMATION_SCHEMA	PROCEDURES	null
14	INFORMATION_SCHEMA	CLASS_INSTANCES	nial
15	INFORMATION_SCHEMA	CLASSES	null
16	INFORMATION_SCHEMA	CLASS_INSTANCE_FUNCTIONS	null
17	INFORMATION_SCHEMA	PACKAGES	nati
18	INFORMATION_SCHEMA	REPLICATION_DATABASES	null
19	INFORMATION_SCHEMA	FILE_FORMATS	null
20	INFORMATION_SCHEMA	APPLICABLE_ROLES	nul

6. How many total serving customer BikeStore has?

SELECT COUNT(DISTINCT CUSTOMER_ID) AS TOT_SERVING_CUST FROM SALES.ORDERS;



7. How many total orders are there?

SELECT COUNT(DISTINCT ORDER_ID) AS TOT_ORDERS FROM SALES.ORDERS;



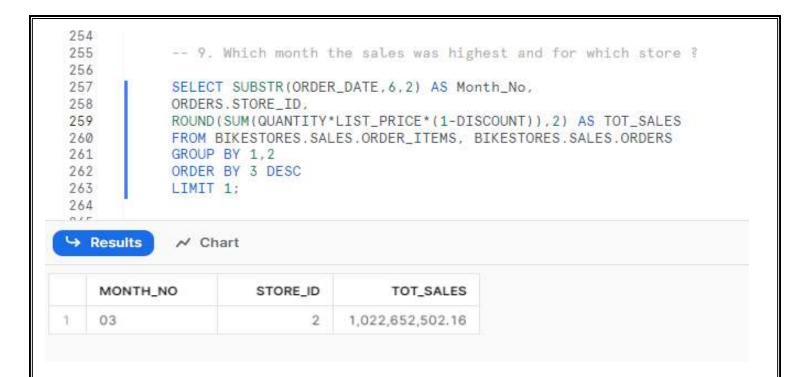
8. Which store has the highest number of sales?

```
SELECT STORE_ID, COUNT(ORDER_ID) AS Highest_Sales FROM SALES.ORDERS
GROUP BY 1
ORDER BY 2 DESC
LIMIT 1;
```

```
244
           -- 8. Which store has the highest number of sales ?
245
246
247
            SELECT STORE_ID.
248
            COUNT(ORDER_ID) AS Highest_Sales
249
            FROM SALES.ORDERS
250
            GROUP BY 1
            ORDER BY 2 DESC
251
252
            LIMIT 1;
253
254
→ Results
             ~ Chart
       STORE_ID
                     HIGHEST_SALES
              2
                              1,093
```

9. Which month the sales was highest and for which store?

```
SELECT SUBSTR(ORDER_DATE,6,2) AS Month_No,
ORDERS.STORE_ID,
ROUND(SUM(QUANTITY*LIST_PRICE*(1-DISCOUNT)),2) AS TOT_SALES
FROM BIKESTORES.SALES.ORDER_ITEMS, BIKESTORES.SALES.ORDERS
GROUP BY 1,2
ORDER BY 3 DESC
LIMIT 1;
```



10. How many orders each customer has placed (give me top 10 customers)

SELECT CUSTOMER_ID,
COUNT(DISTINCT ORDER_ID) AS TOT_ORDERS
FROM BIKESTORES.SALES.ORDERS
GROUP BY 1
ORDER BY 2 DESC
LIMIT 10;

```
-- 10. How many orders each customer has placed (give me top 10 customers)
 266
 267
 268
            SELECT CUSTOMER_ID,
            COUNT(DISTINCT ORDER_ID) AS TOT_ORDERS
 269
            FROM BIKESTORES, SALES, ORDERS
 270
 271
            GROUP BY 1
            ORDER BY 2 DESC
 272
 273
            LIMIT 10;
→ Results

→ Chart

        CUSTOMER_ID
                          TOT_ORDERS
1
                  32
                                    3
2
                   8
                                    3
                   7
                                    3
3
4
                  31
                                    3
                                    3
5
                  66
6
                   9
                                    3
                  50
                                    3
8
                   5
                                    3
9
                  43
                                    3
                  24
10
                                    3
```

11. Which are the TOP 3 selling product?

SELECT PRODUCT_ID,

ROUND(SUM(QUANTITY*LIST_PRICE*(1-DISCOUNT)),2) AS TOT_SALES
FROM BIKESTORES.SALES.ORDER_ITEMS
GROUP BY 1
ORDER BY 2 DESC
LIMIT 3;



12. Which was the first and last order placed by the customer who has placed maximum number of orders ?

```
SELECT CUSTOMER_ID,

MIN(ORDER_ID) AS First_Order,

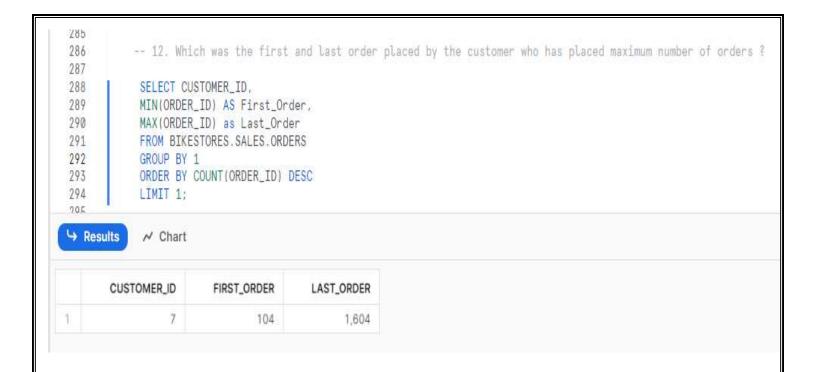
MAX(ORDER_ID) as Last_Order

FROM BIKESTORES.SALES.ORDERS

GROUP BY 1

ORDER BY COUNT(ORDER_ID) DESC

LIMIT 1;
```



13. For every customer, which is the cheapest product and the costliest product which the customer has bought.

```
SELECT Cheap.CUSTOMER ID, Cheapest Product, Costliest Product
     FROM
        SELECT CUSTOMER ID, PRODUCT NAME AS Cheapest Product
        FROM
          SELECT CUSTOMER ID, PRODUCT NAME,
          DENSE RANK() OVER (PARTITION BY CUSTOMER ID ORDER BY OT.LIST PRICE
ASC) AS PRICE RANK
          FROM BIKESTORES. SALES. ORDERS O
          INNER JOIN BIKESTORES.SALES.ORDER_ITEMS OT
          ON O.ORDER ID = OT.ORDER ID
          INNER JOIN BIKESTORES.PRODUCTION.PRODUCTS P
          ON OT.PRODUCT_ID = P.PRODUCT_ID
          ORDER BY 1,3
        WHERE PRICE RANK = 1
        ) Cheap
        INNER JOIN
```

```
(
SELECT CUSTOMER_ID, PRODUCT_NAME AS Costliest_Product
FROM

(
SELECT CUSTOMER_ID, PRODUCT_NAME,
DENSE_RANK() OVER (PARTITION BY CUSTOMER_ID ORDER BY OT.LIST_PRICE

DESC) AS PRICE_RANK
FROM BIKESTORES.SALES.ORDERS O
INNER JOIN BIKESTORES.SALES.ORDER_ITEMS OT
ON O.ORDER_ID = OT.ORDER_ID
INNER JOIN BIKESTORES.PRODUCTION.PRODUCTS P
ON OT.PRODUCT_ID = P.PRODUCT_ID
ORDER BY 1,3
)
WHERE PRICE_RANK = 1
) Costly
ON Cheap.CUSTOMER_ID = Costly.CUSTOMER_ID;
```

```
BIKESTORES.SALES *
                       Settings *
24/
298
          -- 13. For every customer , which is the cheapest product and the costliest product which the customer has bought.
299
300
                SELECT Cheap.CUSTOMER_ID, Cheapest_Product, Costliest_Product
301
         FROM
302
303
            SELECT CUSTOMER_ID, PRODUCT_NAME AS Cheapest_Product
304
305
306
                         SELECT CUSTOMER_ID, PRODUCT_NAME,
307
                          DENSE_RANK() OVER (PARTITION BY CUSTOMER_ID ORDER BY OT.LIST_PRICE ASC) AS PRICE_RANK
308
                          FROM BIKESTORES SALES ORDERS O
309
                          INNER JOIN BIKESTORES SALES ORDER_ITEMS OT
310
                          ON O.ORDER_ID = OT.ORDER_ID
311
                          INNER JOIN BIKESTORES PRODUCTION PRODUCTS P
312
                          ON OT PRODUCT_ID = P PRODUCT_ID
313
                          ORDER BY 1,3
314
315
       WHERE PRICE_RANK = 1
316
       ) Cheap
317
318
       INNER JOIN
319
320
       (
321
            SELECT CUSTOMER_ID, PRODUCT_NAME AS Costliest_Product
322
323
324
                         SELECT CUSTOMER_ID, PRODUCT_NAME,
                          DENSE_RANK() OVER (PARTITION BY CUSTOMER_ID ORDER BY OT.LIST_PRICE DESC) AS PRICE_RANK
325
326
                          FROM BIKESTORES SALES ORDERS O
327
                          INNER JOIN BIKESTORES SALES ORDER_ITEMS OT
328
                          ON O.ORDER_ID = OT.ORDER_ID
329
                          INNER JOIN BIKESTORES. PRODUCTION. PRODUCTS P
330
                          ON OT.PRODUCT_ID = P.PRODUCT_ID
331
                          ORDER BY 1,3
332
333
       WHERE PRICE_RANK = 1
334
       ) Costly
335
       ON Cheap.CUSTOMER_ID = Costly.CUSTOMER_ID;
336
```

→ Results

→ Chart

	CUSTOMER_ID	CHEAPEST_PRODUCT	COSTLIEST_PRODUCT
1	1	"Electra Girl's Hawaii 1 (16-inch) - 2015/2016*	"Trek Domane SL Frameset - 2018"
2	2	"Sun Bicycles Lil Bolt Type-R = 2017"	"Trek Domane SLR 6 Disc - 2017"
3	3	"Trek Precaliber 12 Boy's - 2018"	"Trek Silque SLR 7 Women's - 2017"
4	4	"Strider Strider 20 Sport - 2018"	"Trek Slash 8 27.5 - 2016"

14. Which product has orders more than 200?

SELECT PRODUCT_ID, COUNT(DISTINCT ORDER_ID) AS TOT_ORDERS
FROM BIKESTORES.SALES.ORDER_ITEMS
GROUP BY 1
HAVING TOT_ORDERS > 200
ORDER BY 2 DESC;

There is no product who has more than 200 orders



15. Add a column TOTAL_PRICE with appropriate data type into the sales.order_items.

ALTER TABLE BIKESTORES.SALES.ORDER_ITEMS
ADD COLUMN TOTAL_PRICE DECIMAL(11,2);

-- 15. Add a column TOTAL_PRICE with appropriate data type into the sales.order_items

ALTER TABLE BIKESTORES.SALES.ORDER_ITEMS ADD COLUMN TOTAL_PRICE DECIMAL(11,2);

16. Calculate TOTAL_PRICE = quantity * list price and Update the value for all rows in the sales.order items table. UPDATE BIKESTORES.SALES.ORDER ITEMS

SET TOTAL_PRICE = ROUND(QUANTITY * LIST_PRICE,2);

-- 16. Calculate TOTAL_PRICE = quantity * list price and Update the value for all rows in the sales.order_items table.

UPDATE BIKESTORES. SALES. ORDER_ITEMS SET TOTAL_PRICE = ROUND(QUANTITY * LIST_PRICE, 2);

17. What is the value of the TOTAL_PRICE paid for all the sales.order_items?

SELECT SUM(TOTAL_PRICE) AS TOT_PRICE_PAID FROM BIKESTORES.SALES.ORDER_ITEMS;

