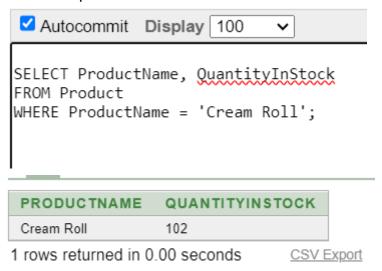# Query

There will be one simple query. One with Group/ Aggregate function, 2 single row Subquery, 2 Multiple Row subquery, 4 different type of joining.

a) simple query

b) Query with a single row function

c) Query with a Multiple row function/ aggregate function

d) 2 Single row subquery and 2 multiple row subquery

e) 4 kinds of joining

Simple:

1. Find if the product 'cream roll' is available or not.

Query with a single row function:

2. Write a SQL query to retrieve the product name and shelf life from the Product table. Additionally, categorize each product based on its shelf life as follows: label products as "Expired" if the shelf life is greater than 10 months, "Expiring Soon" if the shelf life is greater than 8 months but 10 months or less, "Neutral" if the shelf life is greater than 6 months but less than or equal to 8 months, and "Safe" if the shelf life is 6 months or less.

SELECT P.ProductName,
P.ShelfLifeMonths,
CASE
WHEN P.ShelfLifeMonths > 10 THEN 'Expired'
WHEN P.ShelfLifeMonths > 8 THEN 'Expiring Soon'
WHEN P.ShelfLifeMonths > 6 THEN 'Neutral'

ELSE 'Safe' -- This covers 6 months or less

END AS ExpiryStatus

FROM Product P;

```
Autocommit   Display  50        ∨

SELECT P.ProductName,
       P.ShelfLifeMonths,
       CASE
            WHEN P.ShelfLifeMonths > 10 THEN 'Expired'
            WHEN P.ShelfLifeMonths > 8 THEN 'Expiring Soon'
            WHEN P.ShelfLifeMonths > 6 THEN 'Neutral'
            ELSE 'Safe'   -- This covers 6 months or less
       END AS ExpiryStatus
FROM Product P;
```

PRODUCTNAME	SHELFLIFEMONTHS	EXPIRYSTATUS
Aarong Basmati Rice	7	Neutral
Teer Atap Rice	2	Safe
Pusti Atap Rice	6	Safe
ACI Pure Masoor Dal	12	Expired
Pran Chhola	8	Neutral
ACI Pure Halud	6	Safe
BD Foods Cumin Powder	9	Expiring Soon
Pran Jeera Powder	5	Safe
Fresh Mustard Oil	8	Neutral
BD Foods Garam Masala	10	Expiring Soon
Organic Eggplant (Bengal Greens)	8	Neutral
Local Farm Fresh Tomatoes	5	Safe
Carrots	10	Expiring Soon
Beets	4	Safe
Lettuce	1	Safe
Cavendish Banana (Imported)	9	Expiring Soon
Local Citrus Oranges (Bangladesh)	12	Expired
Dragon Fruit	4	Safe
Green Apple	1	Safe
Watermelon	7	Neutral
Aarong Milk	12	Expired
Danish Milk (Denmark)	9	Expiring Soon
Pran Mishti Doi	6	Safe
Amul Butter	4	Safe
Aarong Butter	1	Safe
Kazi Farms Fresh Chicken	7	Neutral
Bengal Meat Beef	3	Safe
Pran Fresh Beef	2	Safe
Bengal Meat Mutton	8	Neutral
Shwapno Mutton	10	Expiring Soon
Pran Rui Fish	7	Neutral
Fresh Shrimp (Khulna)	6	Safe
Padma River Ilish	10	Expiring Soon
ACI Frozen Bata fish	5	Safe

Bengal Meat Mutton	8	Neutral
Shwapno Mutton	10	Expiring Soon
Pran Rui Fish	7	Neutral
Fresh Shrimp (Khulna)	6	Safe
Padma River Ilish	10	Expiring Soon
ACI Frozen Bata fish	5	Safe
ACI Frozen Koi Fish	1	Safe

35 rows returned in 0.00 seconds   CSV Export

3. Query with a Multiple row function/ aggregate function:
   Calculate the number of restocking orders placed each month in the current year. The query should return the following columns: the month formatted as `YYYY-MM`, the total number of orders placed in that month, and the total order quantity for that month. Ensure the results are grouped by month and ordered by month in ascending order

SELECT TO_CHAR(OrderDate, 'YYYY-MM') AS OrderMonth,
COUNT(OrderID) AS NumberOfOrders,
SUM(OrderQuantity) AS TotalOrderQuantity
FROM RestockingOrder
GROUP BY TO_CHAR(OrderDate, 'YYYY-MM')
ORDER BY OrderMonth;

Results   Explain   Describe   Saved SQL   History

ORDERMONTH	NUMBEROFORDERS	TOTALORDERQUANTITY
2024-08	15	2294

1 rows returned in 0.00 seconds   CSV Export

4. 2 Single row subquery and 2 multiple row subquery
   i. Single row subquery
   a) What is the name of the supplier who supplies the product with the highest unit price?
   SELECT S.SupplierName
   FROM Supplier S
   WHERE S.SupplierID = (
   SELECT P.SupplierID
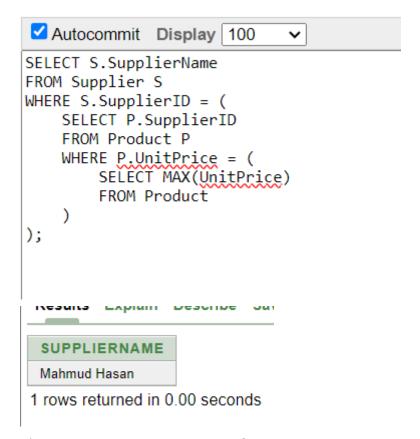   FROM Product P
   WHERE P.UnitPrice = (
   SELECT MAX(UnitPrice)
   FROM Product
)
   );

```
✓ Autocommit   Display  100          ⌄
SELECT S.SupplierName
FROM Supplier S
WHERE S.SupplierID = (
     SELECT P.SupplierID
     FROM Product P
     WHERE P.UnitPrice = (
          SELECT MAX(UnitPrice)
          FROM Product
     )
);
```

Results   Explain   Describe   Sav

SUPPLIERNAME
Mahmud Hasan

1 rows returned in 0.00 seconds

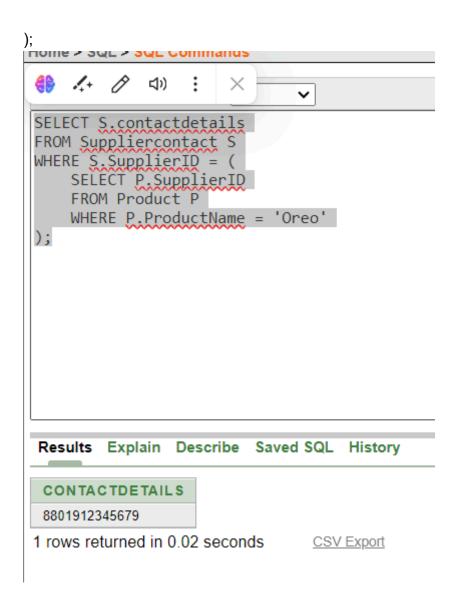b) What is the phone number of the supplier who supplies the product "Oreo"?

SELECT S.contactdetails

FROM Suppliercontact S

WHERE S.SupplierID = (

SELECT P.SupplierID

FROM Product P

WHERE P.ProductName = 'Oreo'

);

```
SELECT S.contactdetails
FROM Suppliercontact S
WHERE S.SupplierID = (
    SELECT P.SupplierID
    FROM Product P
    WHERE P.ProductName = 'Oreo'
);
```

Results   Explain   Describe   **Saved SQL**   **History**

CONTACTDETAILS
8801912345679

1 rows returned in 0.02 seconds   CSV Export

ii. Multiple row subquery:
a) Find the higest sales product based on their total sales value (calculated as QuantityInStock *UnitPrice).*
SELECT ProductName,
QuantityInStock,
UnitPrice,
(QuantityInStock UnitPrice) AS TotalSalesValue
FROM Product
WHERE (QuantityInStock *UnitPrice) = (*
SELECT MAX(QuantityInStock UnitPrice)
FROM Product
);

```
SELECT ProductName,
       QuantityInStock,
       UnitPrice,
       (QuantityInStock * UnitPrice) AS TotalSalesValue
FROM Product
WHERE (QuantityInStock * UnitPrice) = (
    SELECT MAX(QuantityInStock * UnitPrice)
    FROM Product
);
```

Results Explain Describe Saved SQL History

PRODUCTNAME	QUANTITYINSTOCK	UNITPRICE	TOTALSALESVALUE
Aarong Ghee	149	830	123670

1 rows returned in 0.00 seconds   CSV Export

b) Identify the names of suppliers who offer products at the minimum unit price in category 'Rice & Grains'

SELECT SupplierName

FROM Supplier

WHERE SupplierID IN (

SELECT p.SupplierID

FROM Product p

WHERE p.UnitPrice = (

SELECT MIN(UnitPrice)

FROM Product

WHERE CategoryID = (

SELECT CategoryID

FROM Category

WHERE CategoryName = 'Rice & Grains'

)

)

```
☑ Autocommit  Display [15      ▾]
SELECT SupplierName
FROM Supplier
WHERE SupplierID IN (
    SELECT p.SupplierID
    FROM Product p
    WHERE p.UnitPrice = (
        SELECT MIN(UnitPrice)
        FROM Product
        WHERE CategoryID = (
            SELECT CategoryID
            FROM Category
            WHERE CategoryName = 'Rice & Grains'
        )
    )
);
```

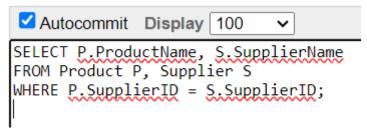**Results** Explain Describe Saved SQL History

SUPPLIERNAME
Arif Hossain

5. 4 kinds of joining
i.Equi join:
What are the names of the products along with their supplier names?
SELECT P.ProductName, S.SupplierName
FROM Product P, Supplier S
WHERE P.SupplierID = S.SupplierID;

```
☑ Autocommit  Display [100     ▾]
SELECT P.ProductName, S.SupplierName
FROM Product P, Supplier S
WHERE P.SupplierID = S.SupplierID;
```

PRODUCTNAME	SUPPLIERNAME
Aarong Basmati Rice	Arif Hossain
Teer Atap Rice	Arif Hossain
Pusti Atap Rice	Arif Hossain
ACI Pure Masoor Dal	Arif Hossain
Pran Chhola	Arif Hossain
ACI Pure Halud	Hasan Ahmed
BD Foods Cumin Powder	Hasan Ahmed
Pran Jeera Powder	Hasan Ahmed
Fresh Mustard Oil	Hasan Ahmed
BD Foods Garam Masala	Hasan Ahmed
Organic Eggplant (Bengal Greens)	Rahman Ali
Local Farm Fresh Tomatoes	Rahman Ali
Carrots	Rahman Ali
Beets	Rahman Ali
Lettuce	Rahman Ali
Cavendish Banana (Imported)	Karim Uddin
Local Citrus Oranges (Bangladesh)	Karim Uddin
Dragon Fruit	Karim Uddin
Green Apple	Karim Uddin
Watermelon	Karim Uddin
Aarong Milk	Jamil Rahman
Danish Milk (Denmark)	Jamil Rahman
Pran Mishti Doi	Jamil Rahman
Amul Butter	Jamil Rahman
Aarong Butter	Jamil Rahman
Kazi Farms Fresh Chicken	Mahmud Hasan
Bengal Meat Beef	Mahmud Hasan
Pran Fresh Beef	Mahmud Hasan
Bengal Meat Mutton	Mahmud Hasan
Shwapno Mutton	Mahmud Hasan
Pran Rui Fish	Rafiq Ahmed
Fresh Shrimp (Khulna)	Rafiq Ahmed
Padma River Ilish	Rafiq Ahmed

Ispahani Mirzapore Tea	Siddiqur Rahman
Nescafe Classic	Siddiqur Rahman
Acme Mango Juice	Siddiqur Rahman
Pran Orange Juice	Siddiqur Rahman
Mojo	Siddiqur Rahman
Olympic Energy Plus Biscuits	Faruk Ahmed
Pran Potata Biscuit	Faruk Ahmed
Danish Milk Cookies	Faruk Ahmed
Banoful Fruit Cake	Faruk Ahmed
Danish Layer Cake	Faruk Ahmed
Pran Flour (Maida)	Kamal Uddin
Teer Sugar	Kamal Uddin
Deshi Unrefined Sugar	Kamal Uddin
Fresh Salt	Kamal Uddin
BD Foods Baking Powder	Kamal Uddin
Mr. Noodles	Shahid Alam
Pran Ramen Noodles	Shahid Alam
Kolson Macaroni	Shahid Alam
Barilla Macaroni (Italy)	Shahid Alam
Fresh Egg Noodles	Shahid Alam
Pran Tomato Ketchup	Saiful Islam
Ruchi Tomato Ketchup	Saiful Islam
BD Foods Tomato Ketchup	Saiful Islam
Kikkoman Soy Sauce (Japan)	Saiful Islam
Ruchi Mango Pickle	Saiful Islam
Fresh Soybean Oil	Monir Hossain
Pusti Mustard Oil	Monir Hossain
Fresh Sunflower Oil	Monir Hossain
Teer Sunflower Oil	Monir Hossain
Aarong Ghee	Monir Hossain

75 rows returned in 0.00 seconds   CSV Export

ii. Non equi join:

What is the list of products with their respective reorder levels, ensuring the reorder level is less than the quantity in stock?

SELECT P.ProductName, P.QuantityInStock, R.orderquantity

FROM Product P, RestockingOrder R

WHERE P.QuantityInStock > R.orderquantity

```
SELECT P.ProductName, P.QuantityInStock, R.orderquantity
FROM Product P, RestockingOrder R
WHERE P.QuantityInStock > R.orderquantity
```

PRODUCTNAME	QUANTITYINSTOCK	ORDERQUANTITY
ACI Frozen Bata fish	104	103
Aarong Milk	105	103
Deshi Unrefined Sugar	107	103
Pran Ramen Noodles	112	103
Mr. Noodles	112	103
Pran Orange Juice	114	103
Olympic Energy Plus Biscuits	115	103
Kikkoman Soy Sauce (Japan)	117	103
Bombay Sweets Chanachur	119	103
Pusti Mustard Oil	120	103
Barilla Macaroni (Italy)	126	103
Oreo	133	103
Fresh Soybean Oil	136	103
Danish Milk (Denmark)	140	103
Bengal Meat Beef	140	103
Danish Layer Cake	141	103
Local Citrus Oranges (Bangladesh)	144	103
Green Apple	147	103
BD Foods Baking Powder	147	103
Mama Waffer	148	103
Aarong Ghee	149	103
Bombay Sweets Chanachur	119	117
Pusti Mustard Oil	120	117
Barilla Macaroni (Italy)	126	117
Oreo	133	117
Fresh Soybean Oil	136	117
Danish Milk (Denmark)	140	117
Bengal Meat Beef	140	117
Danish Layer Cake	141	117
Local Citrus Oranges (Bangladesh)	144	117
Green Apple	147	117
BD Foods Baking Powder	147	117

Aarong Ghee	149	129
Danish Milk (Denmark)	140	138
Bengal Meat Beef	140	138
Danish Layer Cake	141	138
Local Citrus Oranges (Bangladesh)	144	138
Green Apple	147	138
BD Foods Baking Powder	147	138
Mama Waffer	148	138
Aarong Ghee	149	138
Local Citrus Oranges (Bangladesh)	144	142
Green Apple	147	142
BD Foods Baking Powder	147	142
Mama Waffer	148	142
Aarong Ghee	149	142
Green Apple	147	146
BD Foods Baking Powder	147	146
Mama Waffer	148	146
Aarong Ghee	149	146

72 rows returned in 0.02 seconds   CSV Export

iii. Self join

Create a SQL query to find products that have the same supplier. For each product, return the ProductName, the name of the supplier, and the other products supplied by that same supplier.

SELECT S1.SupplierName AS Supplier1,
S2.SupplierName AS Supplier2,
C.CategoryName
FROM Supplier S1, Supplier S2, Product P1, Product P2, Category C
WHERE S1.SupplierID = P1.SupplierID
AND S2.SupplierID = P2.SupplierID
AND P1.CategoryID = P2.CategoryID
AND S1.SupplierID <> S2.SupplierID
AND P1.ProductID <> P2.ProductID
AND C.CategoryID = P1.CategoryID;

```
Autocommit  Display 100    ∨
SELECT S1.SupplierName AS Supplier1,
       S2.SupplierName AS Supplier2,
       C.CategoryName
FROM Supplier S1, Supplier S2, Product P1, Product P2, Category C
WHERE S1.SupplierID = P1.SupplierID
  AND S2.SupplierID = P2.SupplierID
  AND P1.CategoryID = P2.CategoryID
  AND S1.SupplierID <> S2.SupplierID
  AND P1.ProductID <> P2.ProductID
  AND C.CategoryID = P1.CategoryID;
|
```

Results **Explain** **Desc**

no data found

As there is no clashing suppliers, "no data" is returned.

iv. Outerjoin:

Retrieve a list of all products, including those that have not been restocked. Display the product name along with any restocking order details (such as order ID, quantity, order date, and delivery date), even if no restocking orders have been placed for some products.

SELECT P.ProductName,

RO.OrderID,

RO.OrderQuantity,

RO.OrderDate,

RO.DeliveryDate

FROM Product P

LEFT OUTER JOIN RestockingOrder RO

ON P.ProductID = RO.ProductID;

```
Autocommit  Display 100    ∨
SELECT P.ProductName,
       RO.OrderID,
       RO.OrderQuantity,
       RO.OrderDate,
       RO.DeliveryDate
FROM Product P
LEFT OUTER JOIN RestockingOrder RO
ON P.ProductID = RO.ProductID;
```

PRODUCTNAME	ORDERID	ORDERQUANTITITY	ORDERDATE	DELIVERYDATE
Aarong Basmati Rice	-	-	-	-
Teer Atap Rice	-	-	-	-
Pusti Atap Rice	-	-	-	-
ACI Pure Masoor Dal	-	-	-	-
Pran Chhola	3001	200	01-AUG-24	05-SEP-24
ACI Pure Halud	-	-	-	-
BD Foods Cumin Powder	-	-	-	-
Pran Jeera Powder	-	-	-	-
Fresh Mustard Oil	-	-	-	-
BD Foods Garam Masala	-	-	-	-
Organic Eggplant (Bengal Greens)	-	-	-	-
Local Farm Fresh Tomatoes	-	-	-	-
Carrots	-	-	-	-
Beets	-	-	-	-
Lettuce	-	-	-	-
Cavendish Banana (Imported)	-	-	-	-
Local Citrus Oranges (Bangladesh)	-	-	-	-
Dragon Fruit	3003	103	04-AUG-24	10-SEP-24
Green Apple	-	-	-	-
Watermelon	-	-	-	-
Aarong Milk	-	-	-	-
Danish Milk (Denmark)	-	-	-	-
Pran Mishti Doi	3005	117	08-AUG-24	14-SEP-24
Amul Butter	-	-	-	-
Aarong Butter	-	-	-	-
Kazi Farms Fresh Chicken	-	-	-	-
Bengal Meat Beef	-	-	-	-
Pran Fresh Beef	-	-	-	-
Bengal Meat Mutton	3007	129	12-AUG-24	18-SEP-24
Shwapno Mutton	-	-	-	-
Pran Rui Fish	-	-	-	-
Fresh Shrimp (Khulna)	-	-	-	-

Product				
Kazi Farms Chicken Nuggets	-	-	-	-
Ispahani Mirzapore Tea	-	-	-	-
Nescafe Classic	-	-	-	-
Acme Mango Juice	-	-	-	-
Pran Orange Juice	-	-	-	-
Mojo	-	-	-	-
Olympic Energy Plus Biscuits	-	-	-	-
Pran Potata Biscuit	-	-	-	-
Danish Milk Cookies	-	-	-	-
Banoful Fruit Cake	-	-	-	-
Danish Layer Cake	-	-	-	-
Pran Flour (Maida)	-	-	-	-
Teer Sugar	-	-	-	-
Deshi Unrefined Sugar	-	-	-	-
Fresh Salt	-	-	-	-
BD Foods Baking Powder	-	-	-	-
Mr. Noodles	-	-	-	-
Pran Ramen Noodles	-	-	-	-
Kolson Macaroni	-	-	-	-
Barilla Macaroni (Italy)	-	-	-	-
Fresh Egg Noodles	-	-	-	-
Pran Tomato Ketchup	-	-	-	-
Ruchi Tomato Ketchup	3011	157	19-AUG-24	27-SEP-24
BD Foods Tomato Ketchup	-	-	-	-
Kikkoman Soy Sauce (Japan)	-	-	-	-
Ruchi Mango Pickle	-	-	-	-
Fresh Soybean Oil	-	-	-	-
Pusti Mustard Oil	-	-	-	-
Fresh Sunflower Oil	-	-	-	-
Teer Sunflower Oil	3013	165	22-AUG-24	01-OCT-24
Aarong Ghee	-	-	-	-

75 rows returned in 0.00 seconds   CSV Export

1. Simple View:

CREATE VIEW ProductCategoryView AS
SELECT p.ProductName, c.CategoryName
FROM Product p
JOIN Category c ON p.CategoryID = c.CategoryID;

```
desc productcategoryview
```

Object Type **VIEW** Object **PRODUCTCATEGORYVIEW**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PRODUCTCATEGORYVIEW	PRODUCTNAME	Varchar2	255	-	-	-	-	-	-
	CATEGORYNAME	Varchar2	50	-	-	-	✓	-	-
									1 - 2

```
SELECT *
FROM ProductCategoryView;
```

PRODUCTNAME	CATEGORYNAME
Organic Eggplant (Bengal Greens)	Vegetables
Teer Atap Rice	Rice & Grains
Pusti Atap Rice	Rice & Grains
ACI Pure Masoor Dal	Rice & Grains
Pran Chhola	Rice & Grains
ACI Pure Halud	Spices & Condiments
BD Foods Cumin Powder	Spices & Condiments
Pran Jeera Powder	Spices & Condiments
Fresh Mustard Oil	Spices & Condiments
BD Foods Garam Masala	Spices & Condiments
Local Farm Fresh Tomatoes	Vegetables
Carrots	Vegetables
Beets	Vegetables
Lettuce	Vegetables
Cavendish Banana (Imported)	Fruits
Local Citrus Oranges (Bangladesh)	Fruits
Dragon Fruit	Fruits
Green Apple	Fruits
Watermelon	Fruits
Aarong Milk	Dairy Products

2. COMPLEX VIEW:
   CREATE VIEW SupplierProductView AS

SELECT

p.ProductID,

p.ProductName,

```
(SELECT SupplierName
 FROM Supplier s
 WHERE s.SupplierID = p.SupplierID) AS SupplierName,
(SELECT CategoryName
 FROM Category c
 WHERE c.CategoryID = p.CategoryID) AS CategoryName
```

FROM Product p

WHERE p.SupplierID IN (9012, 9013);

```
CREATE VIEW SupplierProductView AS
SELECT
    p.ProductID,
    p.ProductName,

    (SELECT SupplierName
     FROM Supplier s
     WHERE s.SupplierID = p.SupplierID) AS SupplierName,
    (SELECT CategoryName
     FROM Category c
     WHERE c.CategoryID = p.CategoryID) AS CategoryName
FROM Product p
WHERE p.SupplierID IN (9012, 9013);
```

```
desc SupplierProductView
```

Results **Explain** **Describe** **Saved SQL** **History**

Object Type **VIEW** Object **SUPPLIERPRODUCTVIEW**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
SUPPLIERPRODUCTVIEW	PRODUCTID	Number	-	-	0	-	-	-	-
	PRODUCTNAME	Varchar2	255	-	-	-	-	-	-
	SUPPLIERNAME	Varchar2	100	-	-	-	✓	-	-
	CATEGORYNAME	Varchar2	50	-	-	-	✓	-	-
									1 - 4

```
select * from SupplierProductView
```

PRODUCTID	PRODUCTNAME	SUPPLIERNAME	CATEGORYNAME
1056	Pran Flour (Maida)	Kamal Uddin	Baking ingredients
1057	Teer Sugar	Kamal Uddin	Baking ingredients
1058	Deshi Unrefined Sugar	Kamal Uddin	Baking ingredients
1059	Fresh Salt	Kamal Uddin	Baking ingredients
1060	BD Foods Baking Powder	Kamal Uddin	Baking ingredients
1061	Mr. Noodles	Shahid Alam	Pasta and noodles
1062	Pran Ramen Noodles	Shahid Alam	Pasta and noodles
1063	Kolson Macaroni	Shahid Alam	Pasta and noodles
1064	Barilla Macaroni (Italy)	Shahid Alam	Pasta and noodles
1065	Fresh Egg Noodles	Shahid Alam	Pasta and noodles