

Initial Table

Interpret 33s on 13:57:39, 01/24

-- Loading resources from main.sql

Product Name	Category Id	Category	Year	Quantity Purchased
Shampoo	006	Health and beauty	2020	10070
Bowl	005	Home and lifestyle	2021	210
Potato	002	Produce	2021	30130
Protein Powder	001	Sports and travel	2022	400
Energy Drink	001	Sports and travel	2020	834
Light Bulbs	005	Home and lifestyle	2022	900
Baking Powder	004	Baking	2020	5000
Skimmed Milk	003	Diary	2021	300000
Yogurt	003	Diary	2020	98700
Cake Mix	004	Baking	2020	720
Lotion	006	Health and beauty	2020	100
Grapes	002	Produce	2020	59000
Hand Soap	006	Health and beauty	2021	89211
Flour	004	Baking	2021	39091
Brownie Mix	004	Baking	2021	2131
Tomato	002	Produce	2021	653

Divided into Products and Categories

Products

Interpret 58s on 13:57:39, 01/24

Product Name	Category Id	Year	Quantity Purchased
Shampoo	006	2020	10070
Energy Drink	001	2020	834
Baking Powder	004	2020	5000
Yogurt	003	2020	98700
Cake Mix	004	2020	720
Lotion	006	2020	100
Bowl	005	2021	210
Potato	002	2021	30130
Skimmed Milk	003	2021	300000
Hand Soap	006	2021	89211
Flour	004	2021	39091
Brownie Mix	004	2021	2131
Tomato	002	2021	653
Protein Powder	001	2022	400
Light Bulbs	005	2022	900
Grapes	002	2020	59000

Categories

Interpret		1m on 13:57:39, 01/24	
Category Id	Category		
001	Sports and travel		
002	Produce		
003	Diary		
004	Baking		
005	Home and lifestyle		
006	Health and beauty		

Table View after grouping both table with query as required

Interpret		1m on 13:57:39, 01/24	
Category_Id	Category	Year	TotQuantity
004	Baking	2020	5720
004	Baking	2021	41222
003	Diary	2020	98700
003	Diary	2021	300000
006	Health and beauty	2020	10170
006	Health and beauty	2021	89211
005	Home and lifestyle	2021	210
005	Home and lifestyle	2022	900
002	Produce	2020	59000
002	Produce	2021	30783
001	Sports and travel	2020	834
001	Sports and travel	2022	400
SQLite version 3.39.4 2022-09-29 15:55:41			
Enter ".help" for usage hints.			

Outputs with query(with “.echo on” in sqlite)

Interpret

1m on 13:48:20, 01/24

```
-- Loading resources from main.sql
```

```
-----  
-- initial table  
-----
```

```
create table sold_products (  
  "Product Name" varchar(255),  
  "Category Id" varchar(255),  
  "Category" varchar(255),  
  "Year" int,  
  "Quantity Purchased" int  
);
```

Interpret

1m on 13:48:20, 01/24

```
insert into sold_products ("Product Name", "Category Id", "Category", "Year", "Quantity Purchased") values  
  ('Shampoo', "006", 'Health and beauty', 2020, 10070),  
  ('Bowl', "005", 'Home and lifestyle', 2021, 210),  
  ('Potato', "002", 'Produce', 2021, 30130),  
  ('Protein Powder', "001", 'Sports and travel', 2022, 400),  
  ('Energy Drink', "001", 'Sports and travel', 2020, 834),  
  ('Light Bulbs', "005", 'Home and lifestyle', 2022, 900),  
  ('Baking Powder', "004", 'Baking', 2020, 5000),  
  ('Skimmed Milk', "003", 'Diary', 2021, 300000),  
  ('Yogurt', "003", 'Diary', 2020, 98700),  
  ('Cake Mix', "004", 'Baking', 2020, 720),  
  ('Lotion', "006", 'Health and beauty', 2020, 100),  
  ('Grapes', "002", 'Produce', 2020, 59000),  
  ('Hand Soap', "006", 'Health and beauty', 2021, 89211),  
  ('Flour', "004", 'Baking', 2021, 39091),  
  ('Brownie Mix', "004", 'Baking', 2021, 2131),  
  ('Tomato', "002", 'Produce', 2021, 653);
```



```
select * from sold_products;
```

Product Name	Category Id	Category	Year	Quantity Purchased
Shampoo	006	Health and beauty	2020	10070
Bowl	005	Home and lifestyle	2021	210
Potato	002	Produce	2021	30130
Protein Powder	001	Sports and travel	2022	400
Energy Drink	001	Sports and travel	2020	834
Light Bulbs	005	Home and lifestyle	2022	900
Baking Powder	004	Baking	2020	5000
Skimmed Milk	003	Diary	2021	300000
Yogurt	003	Diary	2020	98700
Cake Mix	004	Baking	2020	720
Lotion	006	Health and beauty	2020	100
Grapes	002	Produce	2020	59000
Hand Soap	006	Health and beauty	2021	89211
Flour	004	Baking	2021	39091
Brownie Mix	004	Baking	2021	2131
Tomato	002	Produce	2021	653

```
-- Queries for (3.1)
```

```
-- There are functional dependencies in this table, so first, normalise the relation/table to the second normal form (2NF). Please show the resulting table(s) after the normalization.
```

```
-- Creating different tables for products and categories
```

```
CREATE TABLE products (
  "Product Name" varchar(255),
  "Category Id" varchar(255),
  "Year" int,
  "Quantity Purchased" int,
  PRIMARY KEY ("Product Name", "Category Id", "Year")
);
```

```
CREATE TABLE categories (
  "Category Id" varchar(255) PRIMARY KEY,
  "Category" varchar(255)
);
```

```
INSERT INTO categories ("Category Id", "Category") VALUES
("001", 'Sports and travel'),
("002", 'Produce'),
("003", 'Diary'),
("004", 'Baking'),
("005", 'Home and lifestyle'),
("006", 'Health and beauty');
```

```
INSERT INTO products ("Product Name", "Category Id", "Year", "Quantity Purchased") VALUES
('Shampoo', "006", 2020, 10070),
('Energy Drink', "001", 2020, 834),
('Baking Powder', "004", 2020, 5000),
('Yogurt', "003", 2020, 98700),
('Cake Mix', "004", 2020, 720),
('Lotion', "006", 2020, 100),
('Bowl', "005", 2021, 210),
('Potato', "002", 2021, 30130),
('Skimmed Milk', "003", 2021, 300000),
('Hand Soap', "006", 2021, 89211),
('Flour', "004", 2021, 39091),
('Brownie Mix', "004", 2021, 2131),
('Tomato', "002", 2021, 653),
('Protein Powder', "001", 2022, 400),
('Light Bulbs', "005", 2022, 900),
('Grapes', "002", 2020, 59000);
```

```
select * from products;
```

Product Name	Category Id	Year	Quantity Purchased
Shampoo	006	2020	10070
Energy Drink	001	2020	834
Baking Powder	004	2020	5000
Yogurt	003	2020	98700
Cake Mix	004	2020	720
Lotion	006	2020	100
Bowl	005	2021	210
Potato	002	2021	30130
Skimmed Milk	003	2021	300000
Hand Soap	006	2021	89211
Flour	004	2021	39091
Brownie Mix	004	2021	2131
Tomato	002	2021	653
Protein Powder	001	2022	400
Light Bulbs	005	2022	900
Grapes	002	2020	59000

```
select * from categories;
```

Category Id	Category
001	Sports and travel
002	Produce
003	Diary
004	Baking
005	Home and lifestyle
006	Health and beauty

```
-- Queries for (3.2)
```

```
-- Using the table(s) in 2NF, write a query to display the total quantity purchased per year
for each category, sorted by category and year.
```

```
SELECT
    c."Category Id" AS Category_Id,
    c.Category AS Category,
    p.Year AS Year,
    SUM(p."Quantity Purchased") AS TotQuantity
FROM
    products p
JOIN
    categories c ON p."Category Id" = c."Category Id"
GROUP BY
    c.Category, p.Year
ORDER BY
    c.Category, p.Year;
```

Category_Id	Category	Year	TotQuantity
004	Baking	2020	5720
004	Baking	2021	41222
003	Diary	2020	98700
003	Diary	2021	300000
006	Health and beauty	2020	10170
006	Health and beauty	2021	89211
005	Home and lifestyle	2021	210
005	Home and lifestyle	2022	900
002	Produce	2020	59000
002	Produce	2021	30783
001	Sports and travel	2020	834
001	Sports and travel	2022	400

SQLite version 3.39.4 2022-09-29 15:55:41
Enter ".help" for usage hints.