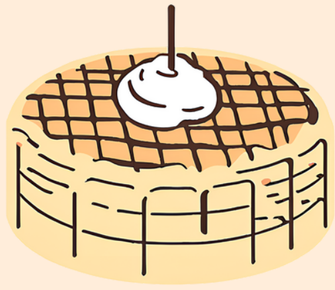
Analysis of Bakery Transactions:

Insights Through SQL Queries

Let’s take a look of Data

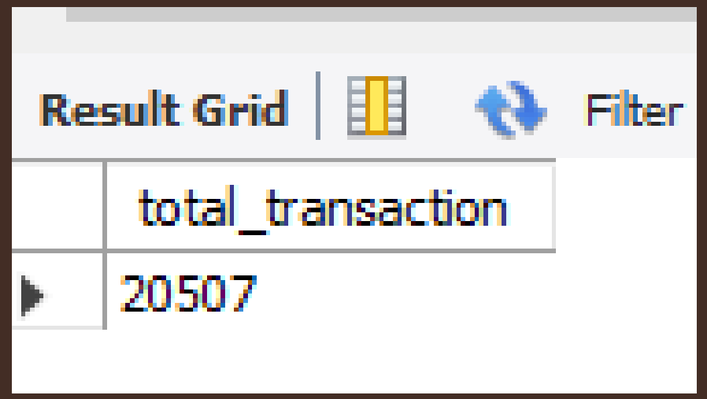
select * from bakery;

TransactionNo	Items	DateTime	Daypart	DayType
1	Bread	2016-10-30 09:58:11	Morning	Weekend
2	Scandinavian	2016-10-30 10:05:34	Morning	Weekend
2	Scandinavian	2016-10-30 10:05:34	Morning	Weekend
3	Hot chocolate	2016-10-30 10:07:57	Morning	Weekend
3	Jam	2016-10-30 10:07:57	Morning	Weekend
3	Cookies	2016-10-30 10:07:57	Morning	Weekend
4	Muffin	2016-10-30 10:08:41	Morning	Weekend
5	Coffee	2016-10-30 10:13:03	Morning	Weekend
5	Pastry	2016-10-30 10:13:03	Morning	Weekend
5	Bread	2016-10-30 10:13:03	Morning	Weekend
6	Medialuna	2016-10-30 10:16:55	Morning	Weekend
6	Pastry	2016-10-30 10:16:55	Morning	Weekend
6	Muffin	2016-10-30 10:16:55	Morning	Weekend
7	Medialuna	2016-10-30 10:19:12	Morning	Weekend
7	Pastry	2016-10-30 10:19:12	Morning	Weekend

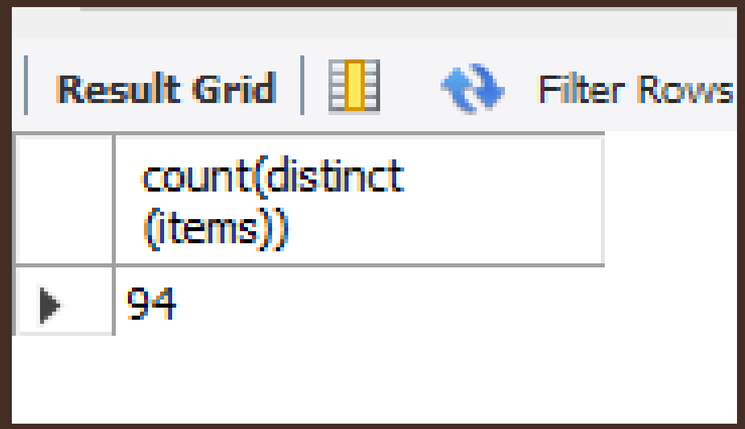


START PERFORMING SOME QUERIES

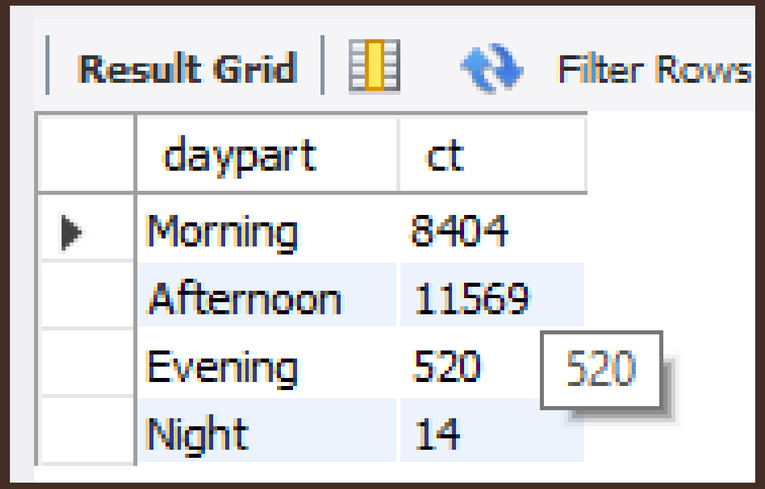
-- 1 What is the total number of transactions in the bakery?



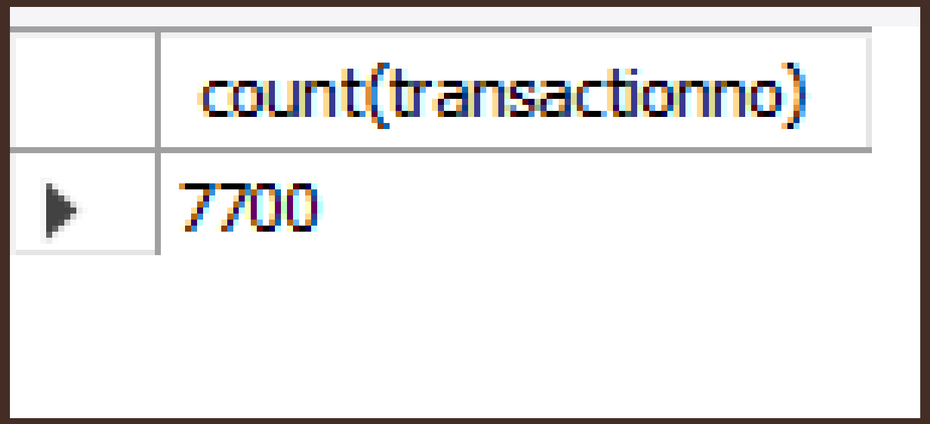
-- 2 How many unique items are listed in the bakery?



-- 3 What is the most common day part for transactions?



-- 4 How many transactions occurred on weekends?

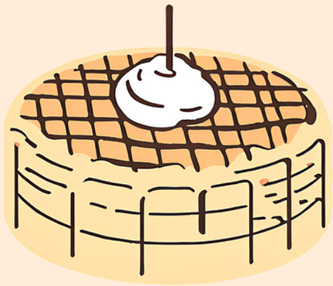


-- 5 What is the earliest transaction date in the dataset?

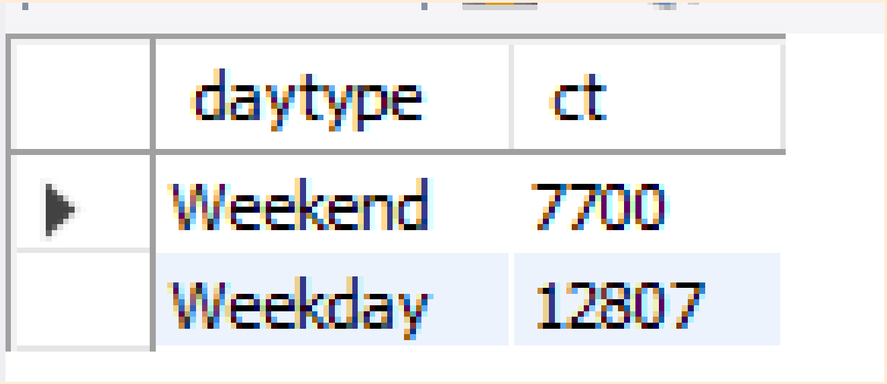
	earliest
▶	2016-01-11 07:51:20

-- 6 How many transactions were made on weekdays?

	WEEKDAY_TRANSACTION
▶	12807

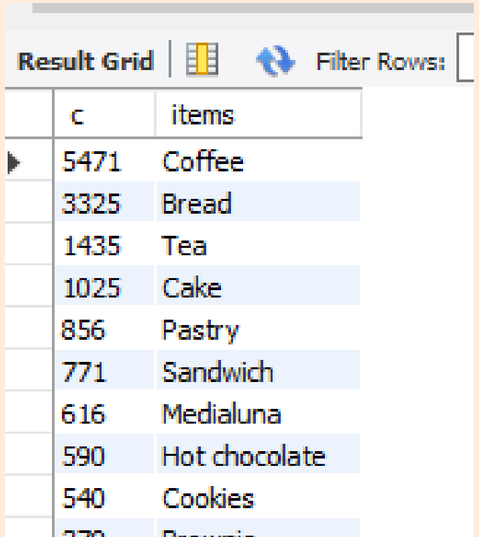


-- 7 What is the most common day type for transactions?



daytype	ct
Weekend	7700
Weekday	12807

-- 8 What is the total number of transactions for each item?



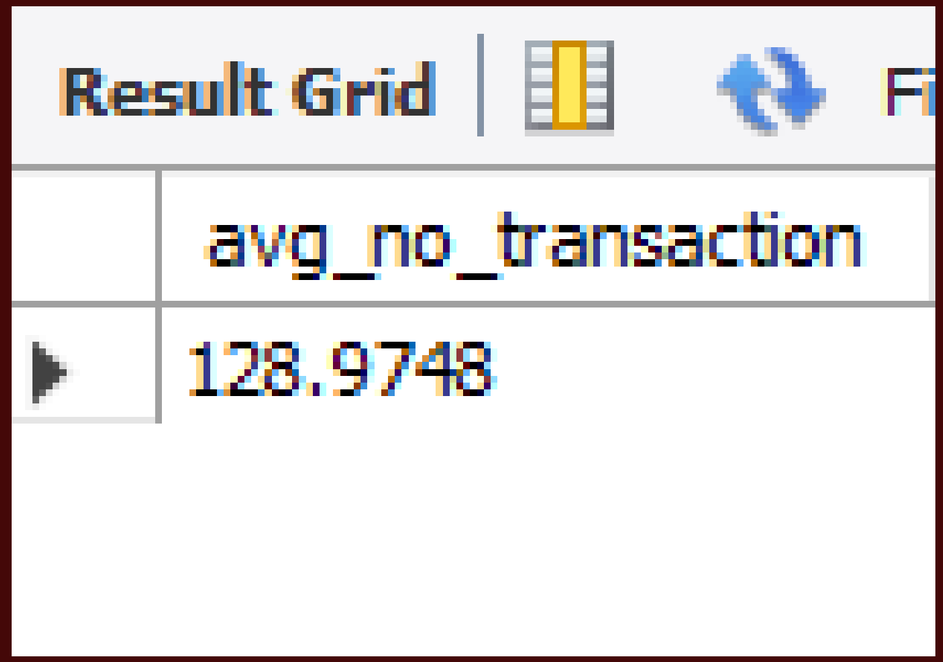
Result Grid | Filter Rows:

c	items
5471	Coffee
3325	Bread
1435	Tea
1025	Cake
856	Pastry
771	Sandwich
616	Medialuna
590	Hot chocolate
540	Cookies

185	Coke
172	Spanish Brunch
159	Fudge
152	Baguette
149	Jam
146	Tiffin
136	Mineral water
125	Jammie Dodg...

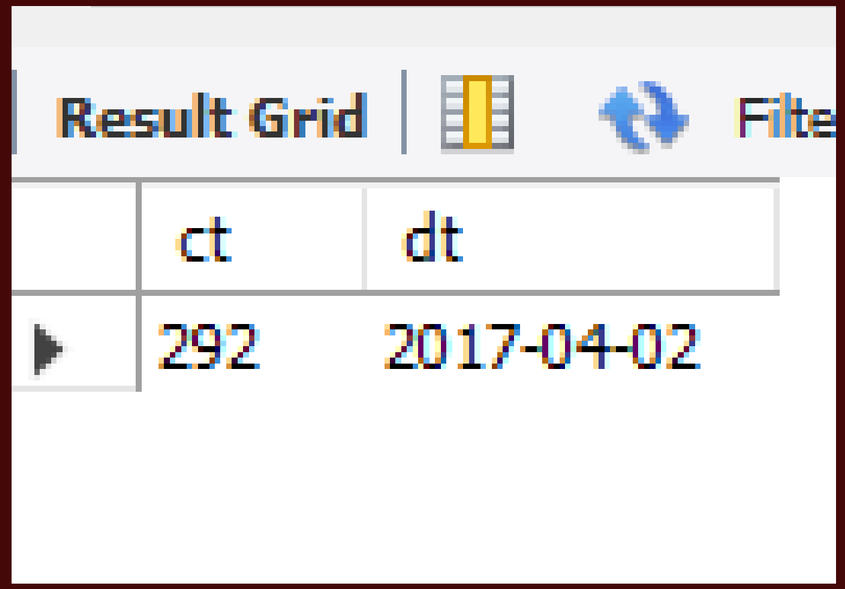
-- 9 What is the average number of transactions per day?

```
select avg(ct) as
avg_no_transaction
from (
select
count(transactionno)
as ct, date(datetime)
as dt from bakery
group by dt) t;
```



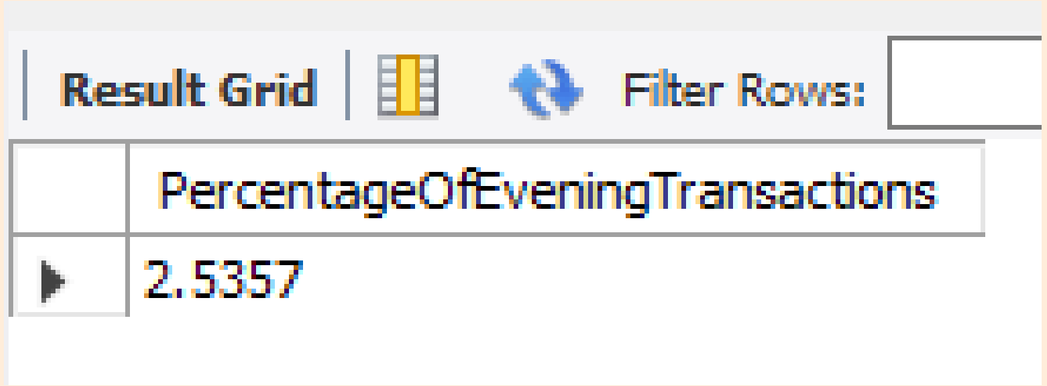
-- 10 How many transactions were recorded on the most frequent day?

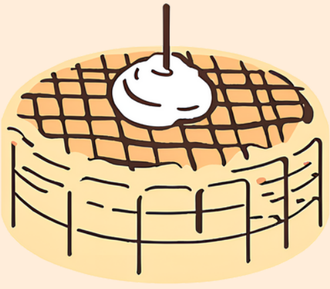
```
select
count(transactionno)
as ct, date(datetime)
as dt from bakery
group by dt order by ct
desc limit 1;
```



-- 11 What percentage of transactions occurred during the evening day part?

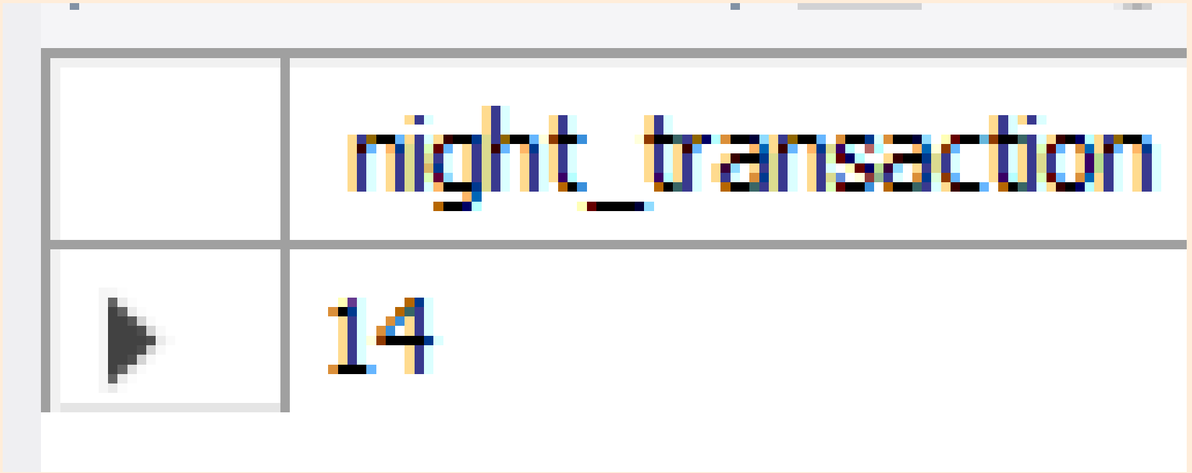
```
SELECT
(COUNT(CASE
WHEN Daypart =
'Evening' THEN 1 END)
/ COUNT(*)) * 100 AS
PercentageOfEvening
Transactions
FROM bakery;
```





-- 12 How many transactions were made on night?

```
select
count(transaction
no)  as
night_transaction
from bakery
where
daypart='night';
```



	night_transaction
▶	14

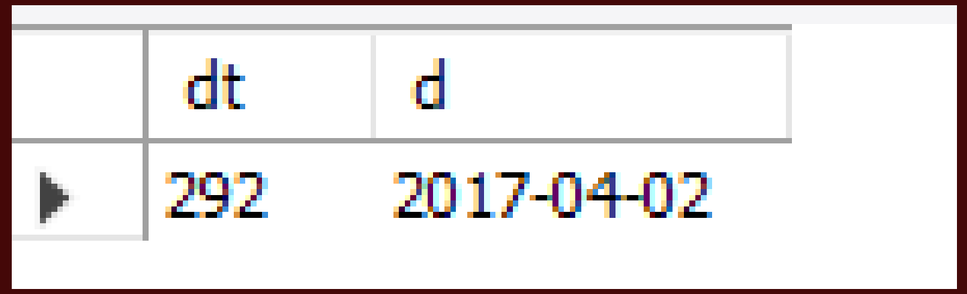
-- 13 What is the distribution of transactions across different day parts?

```
select
count(transactionno) ,
daypart from bakery
group by daypart;
```

count(transactionno)	daypart
8404	Morning
11569	Afternoon
520	Evening
14	Night

-- 14 What is the most frequent transaction date and its count?

```
select
count(date(datetime
)) as dt
,date(datetime) as d
from bakery group by
date(datetime) order
by dt desc limit 1;
```



	dt	d
▶	292	2017-04-02

-- 15 How many unique transaction numbers are there for each item?

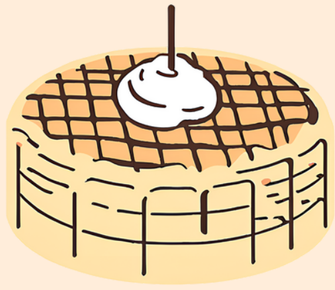
```
select
count(distinct(transac
tionno)) as t , items
from bakery group by
items order by t desc;
```

t	items
4528	Coffee
3097	Bread
1350	Tea
983	Cake
815	Pastry
680	Sandwich
585	Medialuna
552	Hot chocolate
515	Cookies
371	Farm House
365	Juice
364	Muffin
344	Alfajores
327	Scone
326	Soup
318	Toast
275	Scandinavian

-- 16 What is the average number of transactions per daypart?

```
select avg(t) as t1,daypart from  ( select count(transactionno) as t , daypart from bakery group by daypart,Date(DateTime)) t
group by daypart;
```

	t1	daypart
▶	52.8553	Morning
	73.2215	Afternoon
	5.5319	Evening
	3.5000	Night



-- 17 How does the number of transactions vary by day type?

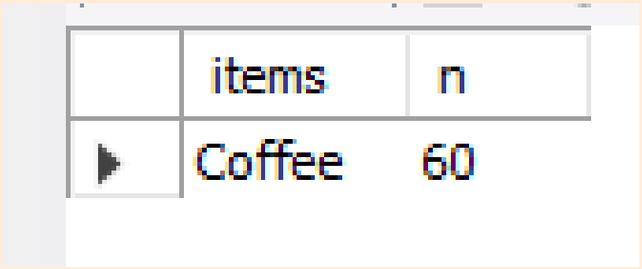
```
SELECT
DayType,
COUNT(*) AS TotalTransactions,
AVG(ct) AS AverageTransactionsPerDay,
MAX(ct) AS MaxTransactionsPerDay,
MIN(ct) AS MinTransactionsPerDay
FROM (
select count(transactionno) as ct, Date(DateTime),daytype from bakery group by daytype,Date(DateTime)) t
GROUP BY DayType;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

DayType	TotalTransactions	AverageTransactionsPerDay	MaxTransactionsPerDay	MinTransactionsPerDay
Weekend	46	167.3913	292	1
Weekday	113	113.3363	199	47

-- 18 Which item has the highest number of transactions on weekdays?

```
select items ,
count(transactionno) as n from
bakery where daytype =
'weekday' group by
items,date(datetime) order by n
desc limit 1;
```



	items	n
▶	Coffee	60

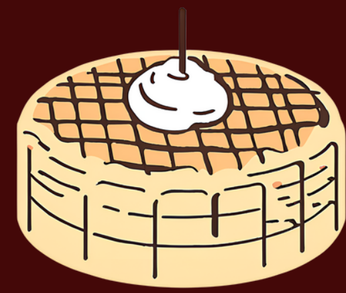
-- 19 What is the median transaction count for each day part?

```
WITH RankedCounts AS (
SELECT
Daypart,
COUNT(*) AS TransactionCount,
ROW_NUMBER() OVER (PARTITION BY Daypart ORDER BY COUNT(*) ASC)
AS RowAsc,
COUNT(*) OVER (PARTITION BY Daypart) AS TotalCount
FROM bakery
GROUP BY Daypart, Date(DateTime)
),MedianCounts AS (
SELECT
Daypart,
AVG(TransactionCount) AS MedianTransactionCount
FROM RankedCounts
```

```
WHERE RowAsc in
((TotalCount+1)/2,
(TotalCount+2)/2)
GROUP BY Daypart
)
SELECT
Daypart,

MedianTransactionCount
FROM MedianCounts;
```

Daypart	MedianTransactionCount
Afternoon	71.0000
Evening	4.0000
Morning	47.0000
Night	2.0000



-- 20 What day part has the least number of transactions?

```
select min(t) as
minTransaction, daypart
from(
select
count(transactionno) as t ,
daypart from bakery group
by daypart,
date(datetime))t
group by daypart;
```

	minTransaction	daypart
▶	1	Morning
	19	Afternoon
	1	Evening
	2	Night

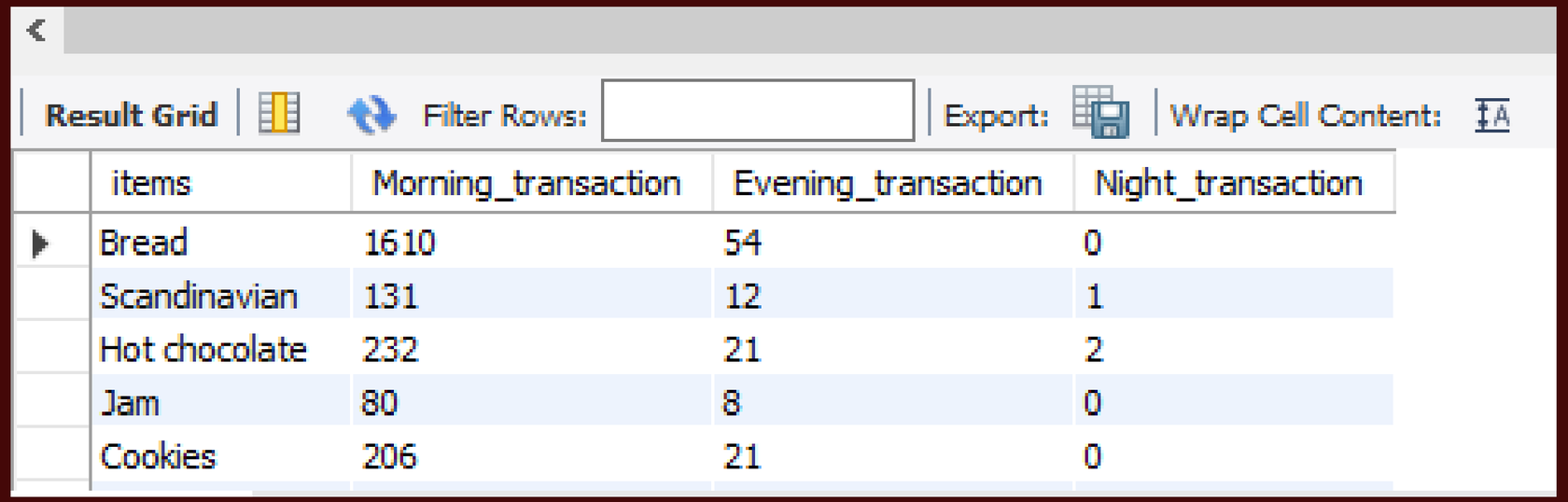
-- 21 What is the peak hour for transactions during each day part?

```
with cte as(
select count(*) as t ,
hour(datetime) as h,daypart from
bakery group by h , daypart),
cte1 as (
select max(t) as
max_transaction,daypart from
cte group by  daypart)
select
max_transaction,c.daypart,h
from cte1 c1 join cte c on c.t =
c1.max_transaction;
```

max_transaction	daypart	h
3102	Morning	11
2854	Afternoon	12
368	Evening	17
8	Night	22

-- 22 What is the total number of transactions for each item across different dayparts?

```
select items,
sum(case when daypart = 'Morning' then 1 else 0 End)
as Morning_transaction,
sum(case when daypart = 'Evening' then 1 else 0 end)
as Evening_transaction,
sum(case when daypart = 'Night' then 1 else 0 end) as
Night_transaction
from bakery
group by items;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

items	Morning_transaction	Evening_transaction	Night_transaction
Bread	1610	54	0
Scandinavian	131	12	1
Hot chocolate	232	21	2
Jam	80	8	0
Cookies	206	21	0

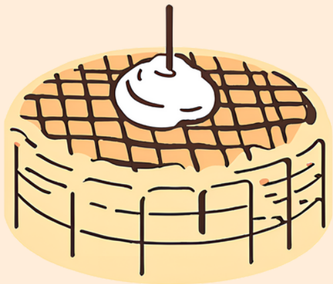
Muffin	153	11	0
Coffee	2561	87	0
Pastry	604	10	0
Medialuna	402	16	0
Tea	456	49	0
Tartine	19	1	0
Basket	6	0	0
Mineral water	20	4	1
Farm House	210	9	0

-- 23 How do the total transactions for each item compare across weekdays and weekends?

```
select items,
sum(case when daytype = 'Weekday' then 1 else 0
End) as Weekday_transaction,
sum(case when daytype = 'Weekend' then 1 else 0
end) as Weekend_transaction
from bakery
group by items;
```

Result Grid | Filter Rows: | Export:

items	Weekday_transaction	Weekend_transaction
Bread	2092	1233
Scandinavian	132	145
Hot chocolate	340	250
Jam	86	63
Cookies	398	142
Muffin	214	156
Coffee	3543	1928
Pastry	566	290
Medialuna	339	277
Tartine	24	23
Basket	0	6
Mineral water	86	50
Farm House	246	128
Fudge	98	61
Juice	229	140
Ella's Kitchen...	14	3
Victorian Spo...	2	5
Frittata	26	55



-- 24 What is the running total of transactions for each item over time?

```
select items,date(datetime) as date, count(*) as daily_transaction,
sum(count(*)) over (partition by items order by date(datetime) rows between unbounded preceding and current row) AS RunningTotal
from bakery group by items, DATE(DateTime)
ORDER BY items ,date;
```

Result Grid | Filter Rows: | Export: | Wrap Ce

items	date	daily_transaction	RunningTotal
Adjustment	2016-09-11	1	1
Afternoon with the baker	2017-01-14	3	3
Afternoon with the baker	2017-01-16	1	4
Afternoon with the baker	2017-01-20	1	5
Afternoon with the baker	2017-01-21	3	8
Afternoon with the baker	2017-01-22	2	10
Afternoon with the baker	2017-02-14	2	12
Afternoon with the baker	2017-02-16	2	14
Afternoon with the baker	2017-02-18	1	15

-- 25 What is the average number of transactions for each item, considering a 7-day moving window?

```
select items,date(datetime) as date, count(*) as daily_transaction,
avg(count(*)) over (partition by items order by date(datetime) rows between 6 preceding and current row) AS RunningTotal
from bakery group by items, DATE(DateTime)
ORDER BY items ,date;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Co

items	date	daily_transaction	RunningTotal
Adjustment	2016-09-11	1	1.0000
Afternoon with the baker	2017-01-14	3	3.0000
Afternoon with the baker	2017-01-16	1	2.0000
Afternoon with the baker	2017-01-20	1	1.6667
Afternoon with the baker	2017-01-21	3	2.0000
Afternoon with the baker	2017-01-22	2	2.0000
Afternoon with the baker	2017-02-14	2	2.0000
Afternoon with the baker	2017-02-16	2	2.0000
Afternoon with the baker	2017-02-18	1	1.7143

items	date	daily_transaction	RunningTotal
Afternoon with the baker	2017-03-19	1	1.5714
Afternoon with the baker	2017-05-03	6	2.1429
Afternoon with the baker	2017-06-01	1	2.1429
Afternoon with the baker	2017-06-03	1	2.1429
Afternoon with the baker	2017-07-01	1	2.0000
Afternoon with the baker	2017-08-01	1	1.7143
Afternoon with the baker	2017-08-04	2	1.8571
Afternoon with the baker	2017-10-02	1	1.8571
Afternoon with the baker	2017-11-01	2	1.2857

-- 26 How does the transaction count for each item compare to the average transaction count over a 30-day period?

```
with DailyTransactions AS (
select
items,
date(datetime) AS date,
count(*) AS DailyTransactionCount
from bakery
GROUP BY items, DATE(DateTime)
),
MovingAverage AS (
SELECT
items,
Date,
DailyTransactionCount,
```

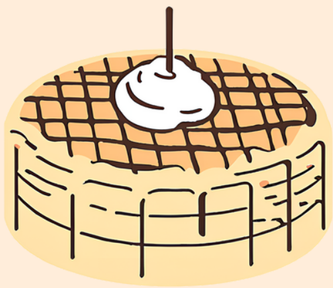
```
AVG(DailyTransactionCount) OVER (
    PARTITION BY items
    ORDER BY Date

ROWS BETWEEN 29 PRECEDING AND CURRENT ROW
    ) AS ThirtyDayMovingAverage
    FROM DailyTransactions
)
```

```
SELECT
    items,
    Date,
    DailyTransactionCount,
    ThirtyDayMovingAverage,
    DailyTransactionCount - ThirtyDayMovingAverage
    AS DifferenceFromAverage
    FROM MovingAverage
    ORDER BY items, Date;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

items	Date	DailyTransactionCount	ThirtyDayMovingAverage	DifferenceFromAverage
Adjustment	2016-09-11	1	1.0000	0.0000
Afternoon with the baker	2017-01-14	3	3.0000	0.0000
Afternoon with the baker	2017-01-16	1	2.0000	-1.0000
Afternoon with the baker	2017-01-20	1	1.6667	-0.6667
Afternoon with the baker	2017-01-21	3	2.0000	1.0000
Afternoon with the baker	2017-01-22	2	2.0000	0.0000
Afternoon with the baker	2017-02-14	2	2.0000	0.0000
Afternoon with the baker	2017-02-16	2	2.0000	0.0000
Afternoon with the baker	2017-02-18	1	1.8750	-0.8750




THANK
YOU