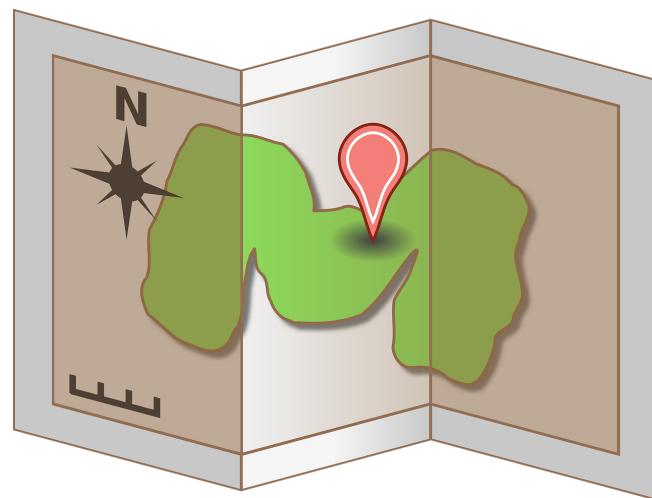


Datetime and coordinates

Datetime and coordinates



Date and time

1. Periodicity
2. Time since
3. Difference between dates

Date and time

1. Periodicity

Day number in week, month, season, year
second, minute, hour.

2. Time since

3. Difference between dates

Date and time

1. Periodicity

Day number in week, month, season, year
second, minute, hour.

2. Time since

a. Row-independent moment

For example: since 00:00:00 UTC, 1 January 1970;

b. Row-dependent important moment

Number of days left until next holidays/ time passed after last holiday.

3. Difference between dates

Date and time

1. Periodicity

Day number in week, month, season, year
second, minute, hour.

2. Time since

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For example: since 00:00:00 UTC, 1 January 1970;

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Number of days left until next holidays/ time passed after last holiday.

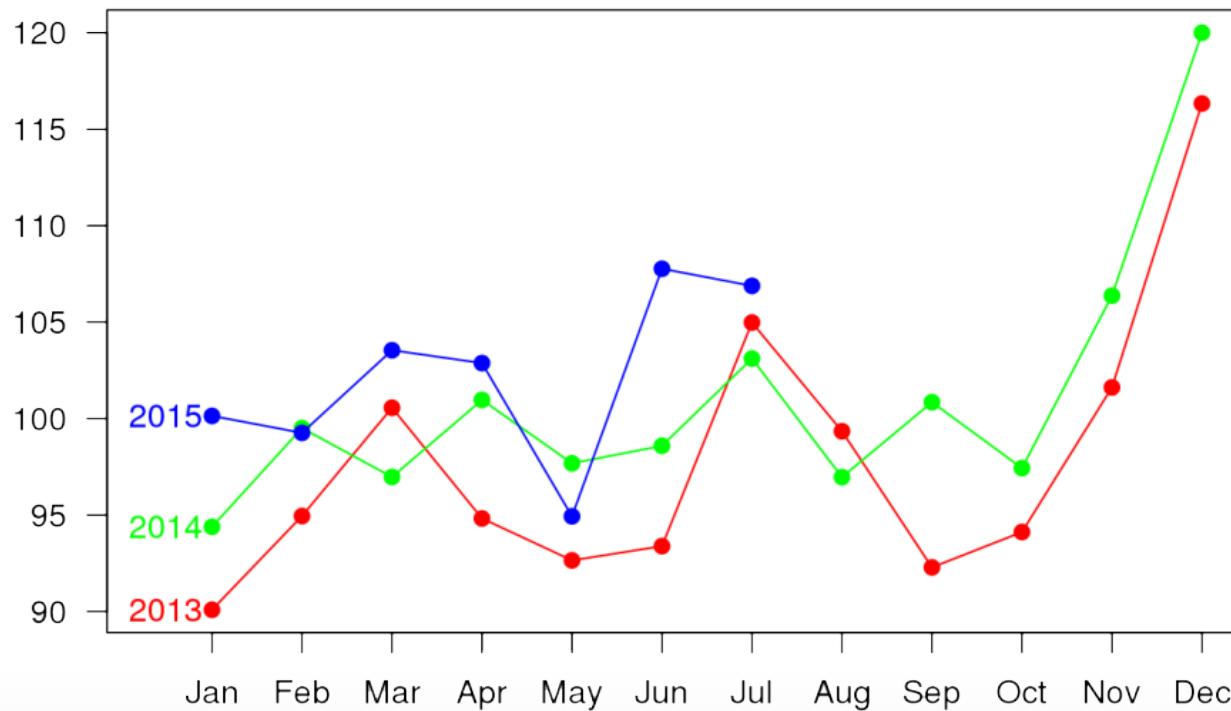
3. Difference between dates

`datetime_feature_1 - datetime_feature_2`

Date and time



Seasonal plot: SalesTS



Rossmann Store Sales, <https://www.kaggle.com/thie1e/exploratory-analysis-rossmann>

Periodicity. «Time since»

Date	weekday	daynumber_since_year_2014	is_holiday	days_till_holidays	<i>sales</i>
01.01.2014	5	0	True	0	1213
02.01.2014	6	1	False	3	938
03.01.2014	0	2	False	2	2448
04.01.2014	1	3	False	1	1744
05.01.2014	2	4	True	0	1732
06.01.2014	3	5	False	9	1022

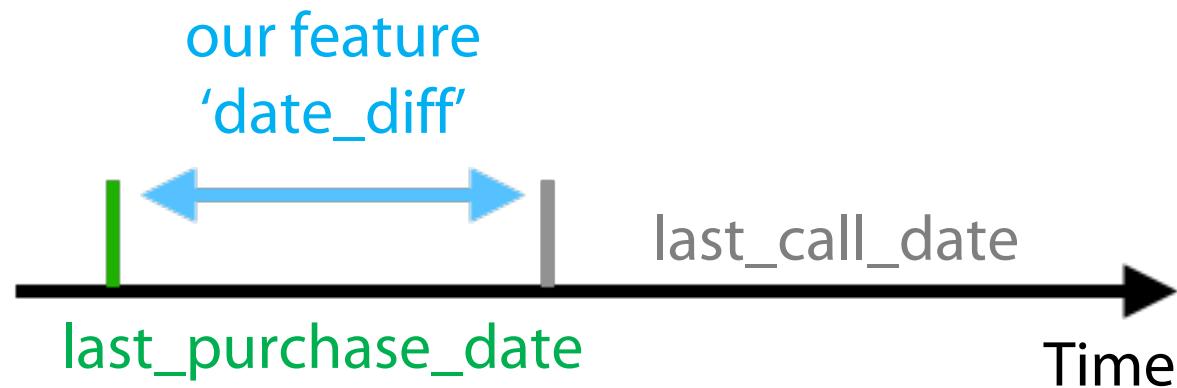
Difference between dates

Churn prediction

user_id	registration_date	<i>last_purchase_date</i>	<i>last_call_date</i>	date_diff	churn
14	10.02.2016	21.04.2016	26.04.2016	5	0
15	10.02.2016	03.06.2016	01.06.2016	-2	1
16	11.02.2016	11.01.2017	11.01.2017	1	1
20	12.02.2016	06.11.2016	08.02.2017	94	0

Difference between dates

For a particular user:



Competitions with coordinates

Western Australia Rental Prices

Deloitte.

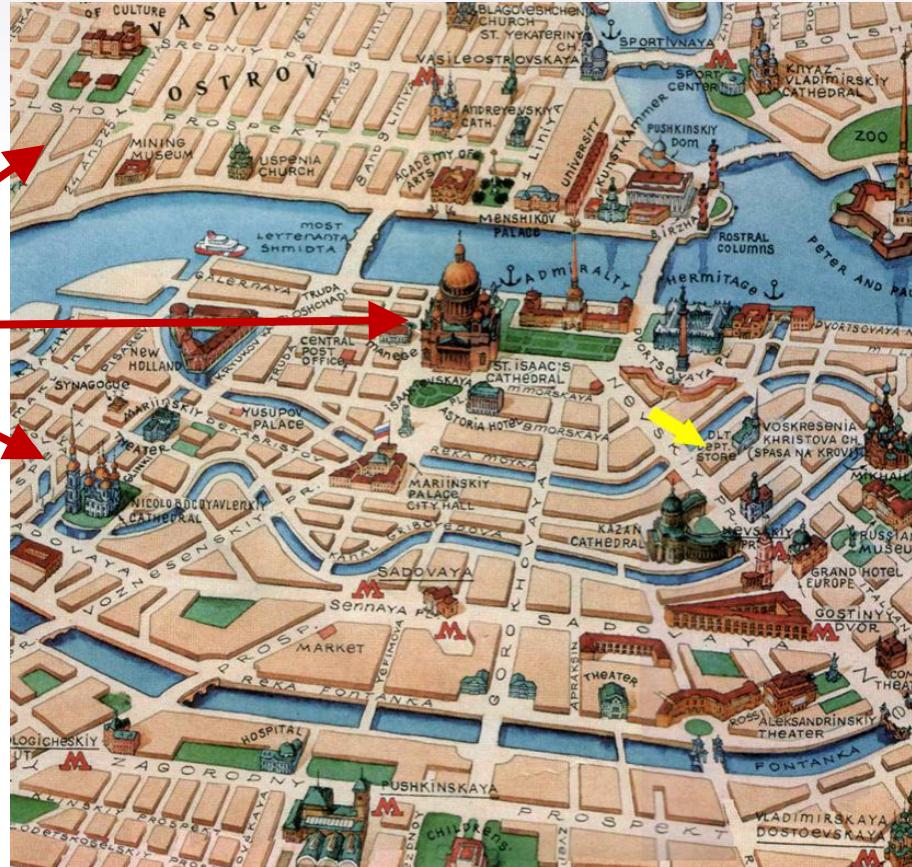


Sberbank Russian Housing Market



Coordinates

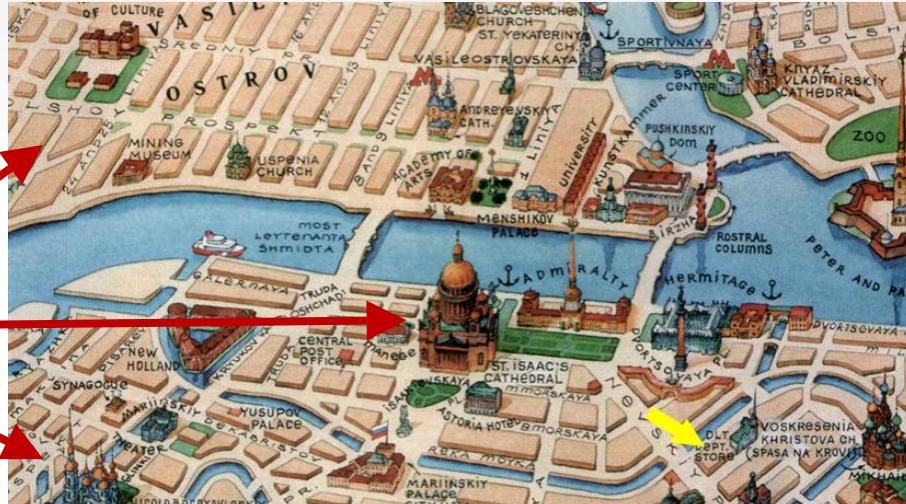
Additional
data



St. Petersburg

Coordinates

Additional
data

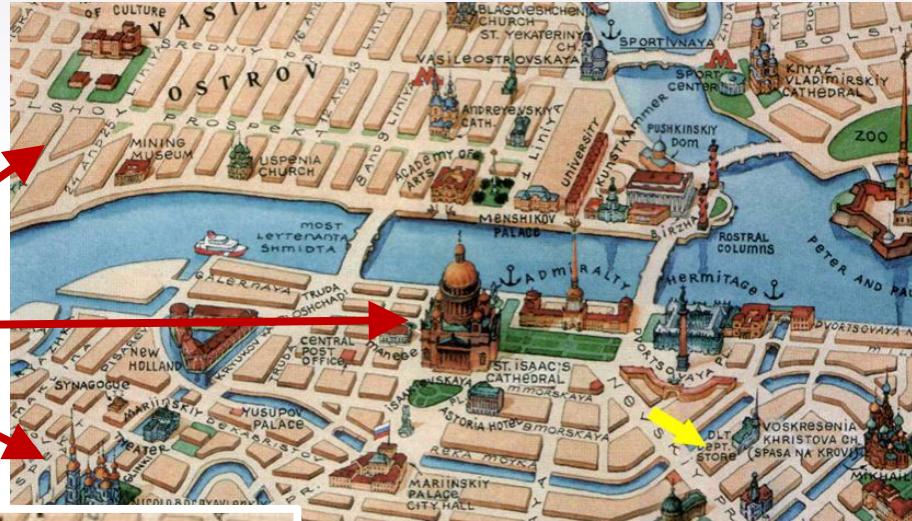


Other train samples
and centers of
clusters

St. Petersburg

Coordinates

Additional
data



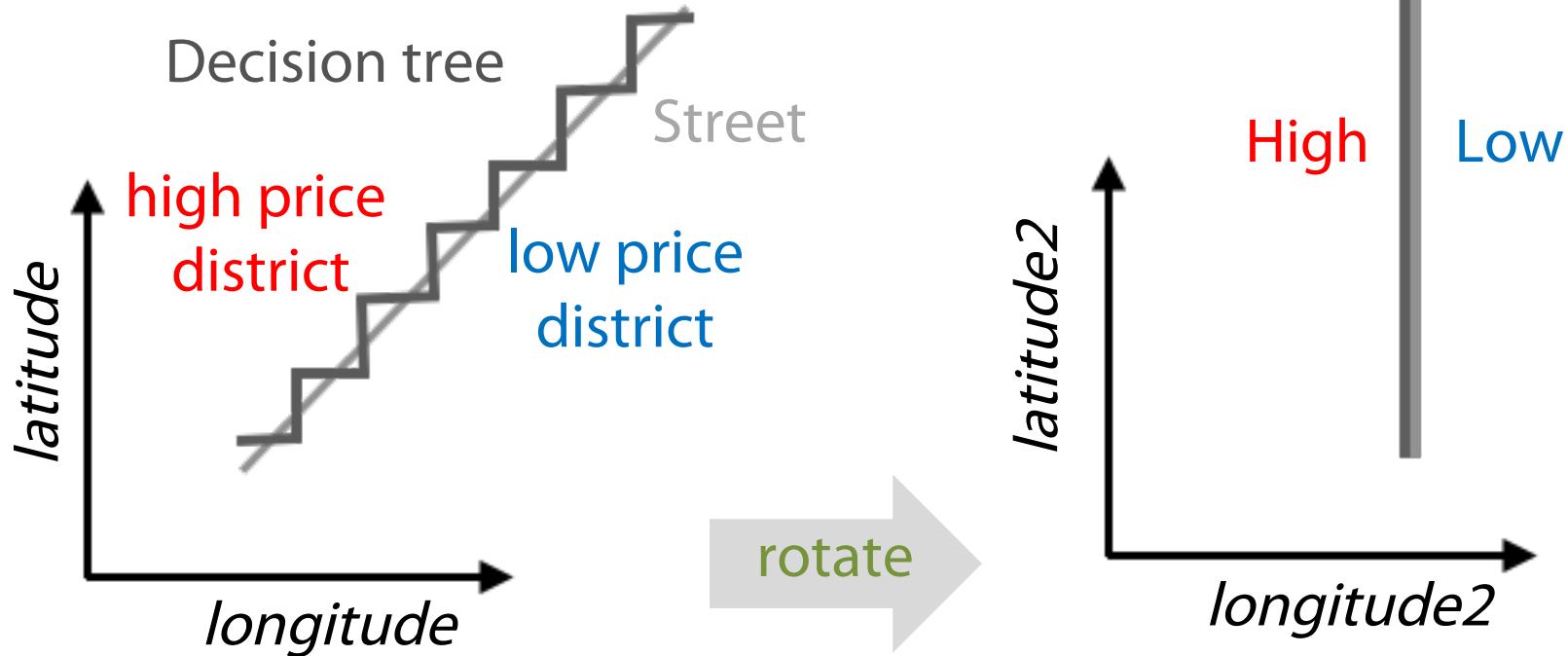
Other train samples
and centers of
clusters



Aggregated
stats

St. Petersburg

Coordinates



Conclusion

1. Datetime
 - a. Periodicity
 - b. Time since row-independent/dependent event
 - c. Difference between dates
2. Coordinates
 - a. Interesting places from train/test data or additional data
 - b. Centers of clusters
 - c. Aggregated statistics