Feature Engineering with DateTime

Examples of Date Time Feature

Examples of Date Time Feature

- Predicting number of room booking in a hotel

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Examples of Date Time Feature

- Predicting number of room booking in a

Booking ID

Number of People

Number of days

Date of Booking

Type of room

Time of Booking

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Examples of Date Time Feature

- Predicting number of room booking in a hotel
- Predicting price of flight for an Airline

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Examples of Date Time Feature

- Predicting number of room booking in a

  hotel

Date of travel

Source

Time of departure

Time of Arrival

Destination

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Examples of Date Time Feature

- Predicting number of room booking in a hotel
- Predicting price of flight for an Airline
- Stock Market analysis

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Examples of Date Time Feature

- Predicting number of room booking in a hotel
- Predicting price of flight for an Airline
- Stock Market analysis

Low

Date

Closing Price

High

Opening Price

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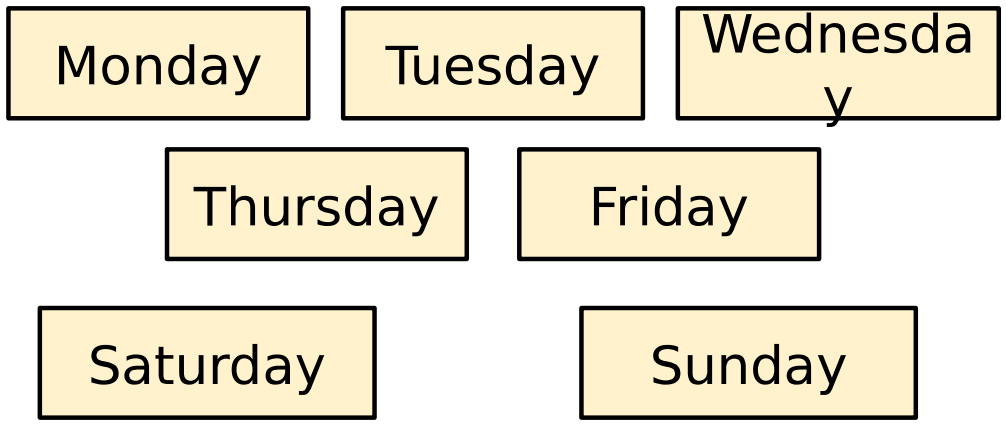
Extract Information using Date Feature

- What day of the week is it?



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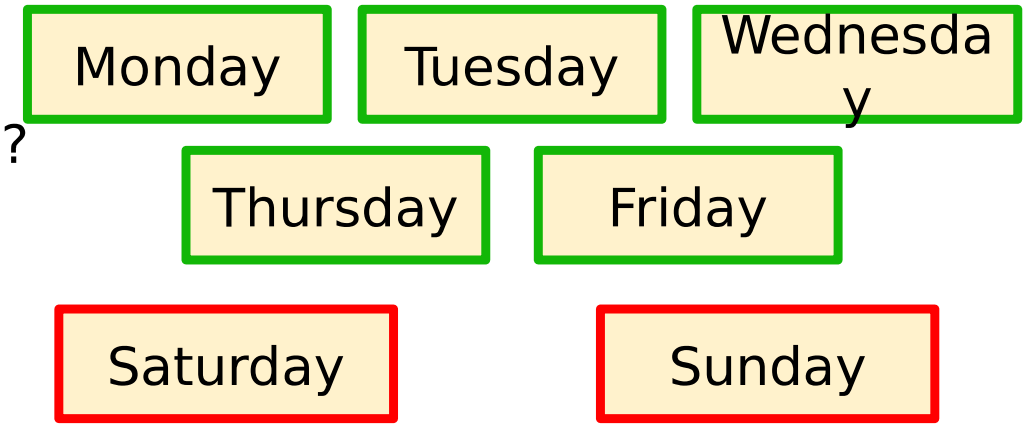
Extract Information using Date Feature

- What day of the week is it?
- Is it a weekday or weekend?



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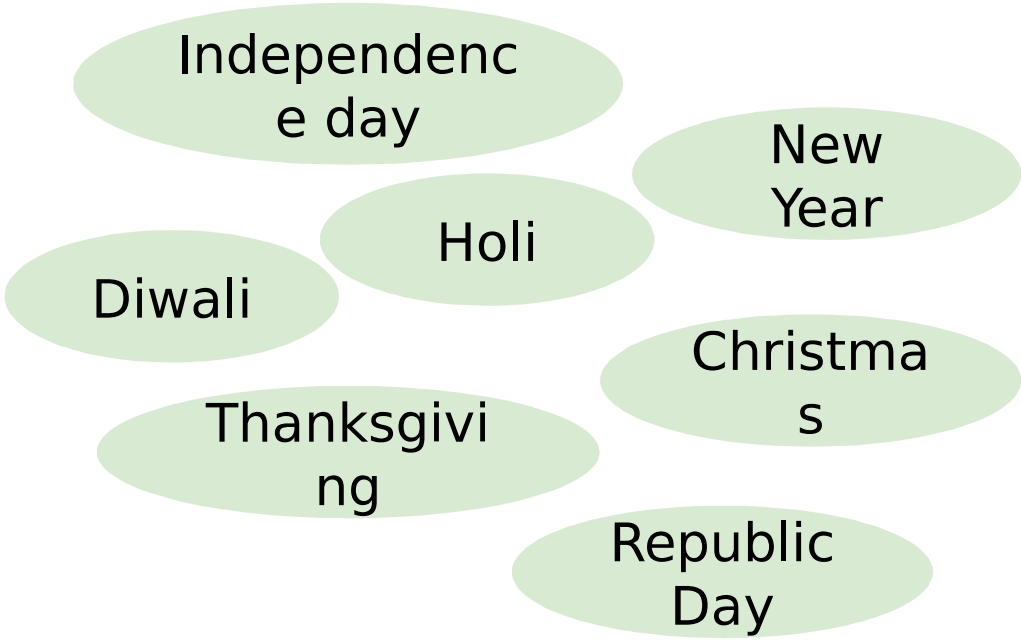
Extract Information using Date Feature

- What day of the week is it?
- Is it a weekday or weekend?
- Is it a national holiday?



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Extract Information using Date Feature

- What day of the week is it?
- Is it a weekday or weekend?
- Is it a national holiday?
- Which month of the year is it?

January

February

March

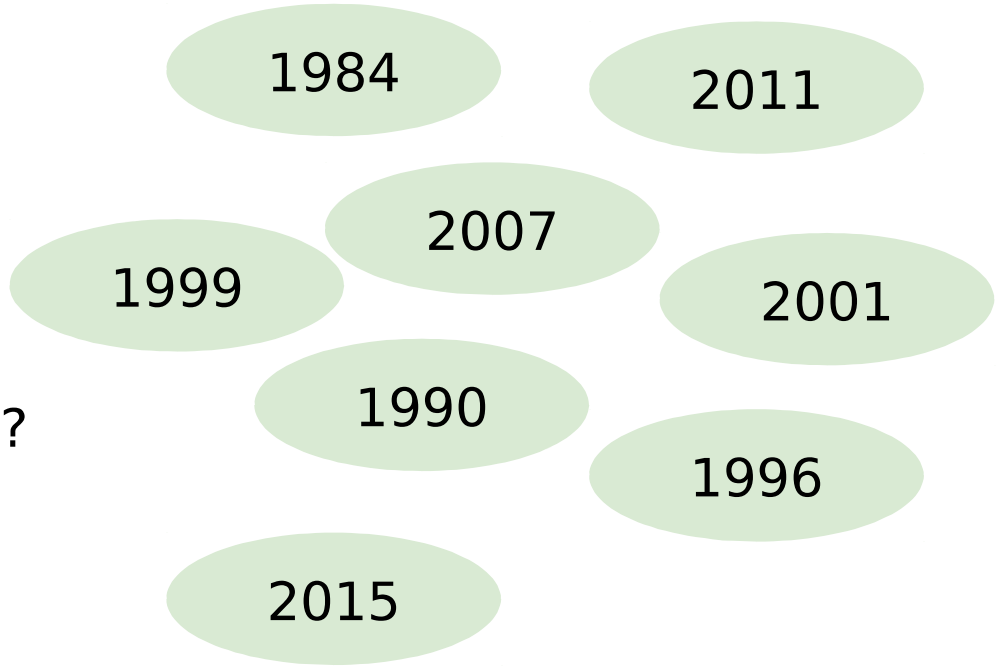
.....

November

December

Extract Information using Date Feature

- What day of the week is it?
- Is it a weekday or weekend?
- Is it a national holiday?
- Which month of the year is it?
- Which year is it?



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Extract Information using Time Feature

- What hour of the day is it?

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Extract Information using Time Feature

- What hour of the day is it?

- Is it morning time or evening?

Extract Information using Time Feature

- What hour of the day is it?
- Is it morning time or evening?
- First or second half of the day

Extract Information using Time Feature

- What hour of the day is it?
- Is it morning time or evening?
- First or second half of the day
- Difference between time

Extract Information using Date-Time Feature

`year`	The year of the datetime
`month`	The month as January=1, December=12
`day`	The days of the datetime
`hour`	The hours of the datetime
`minute`	The minutes of the datetime
`second`	The seconds of the datetime
`microsecond`	The microseconds of the datetime
`nanosecond`	The nanoseconds of the datetime
`date`	Returns numpy array of python datetime.date objects (namely, the date part of Timestamps without timezone information).
`time`	Returns numpy array of datetime.time.
`dayofyear`	The ordinal day of the year
`weekofyear`	The week ordinal of the year
`week`	The week ordinal of the year
`dayofweek`	The day of the week with Monday=0, Sunday=6
`weekday`	The day of the week with Monday=0, Sunday=6
`quarter`	The quarter of the date
`freq`	Return the frequency object if it is set, otherwise None
`freqstr`	Return the frequency object as a string if it is set, otherwise None
`is_month_start`	Logical indicating if first day of month (defined by frequency)
`is_month_end`	Indicator for whether the date is the last day of the month.
`is_quarter_start`	Indicator for whether the date is the first day of a quarter.
`is_quarter_end`	Indicator for whether the date is the last day of a quarter.
`is_year_start`	Indicate whether the date is the first day of a year.
`is_year_end`	Indicate whether the date is the last day of the year.
`is_leap_year`	Boolean indicator if the date belongs to a leap year.
`inferred_freq`	Tries to return a string representing a frequency guess, generated by infer_freq.

Problem Statement

Objective: Predict the amount of NO_2

in Air.

Date	Time	NO2(GT)
10/03/2004	18.00.00	166
10/03/2004	19.00.00	1174
10/03/2004	20.00.00	131
10/03/2004	21.00.00	172
10/03/2004	22.00.00	131
10/03/2004	23.00.00	89
11/03/2004	00.00.00	62
11/03/2004	01.00.00	1453
11/03/2004	02.00.00	45
11/03/2004	03.00.00	-200
11/03/2004	04.00.00	1818
11/03/2004	05.00.00	16
11/03/2004	06.00.00	34
11/03/2004	07.00.00	98

Problem Statement

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10/03/2004	18.00.00	166
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10/03/2004	20.00.00	131
10/03/2004	21.00.00	172
10/03/2004	22.00.00	131
10/03/2004	23.00.00	89
11/03/2004	00.00.00	62
11/03/2004	01.00.00	1453
11/03/2004	02.00.00	45
11/03/2004	03.00.00	-200
11/03/2004	04.00.00	1818
11/03/2004	05.00.00	16
11/03/2004	06.00.00	34
11/03/2004	07.00.00	98

- Cars
- Buses/ Trucks
- Power plants

Notebook