



# Advanced Analytics

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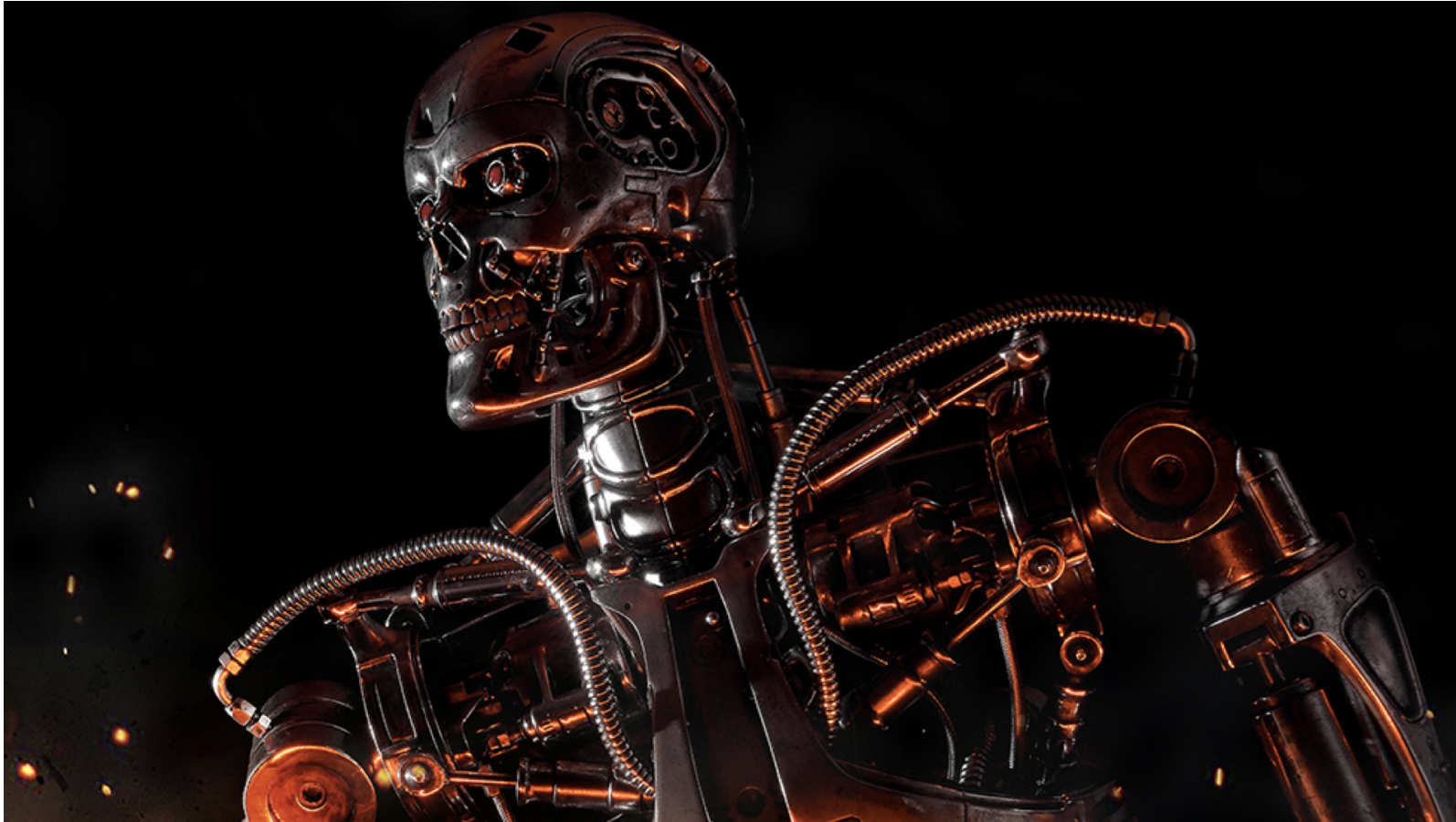
Most Changes Are About Learning



1

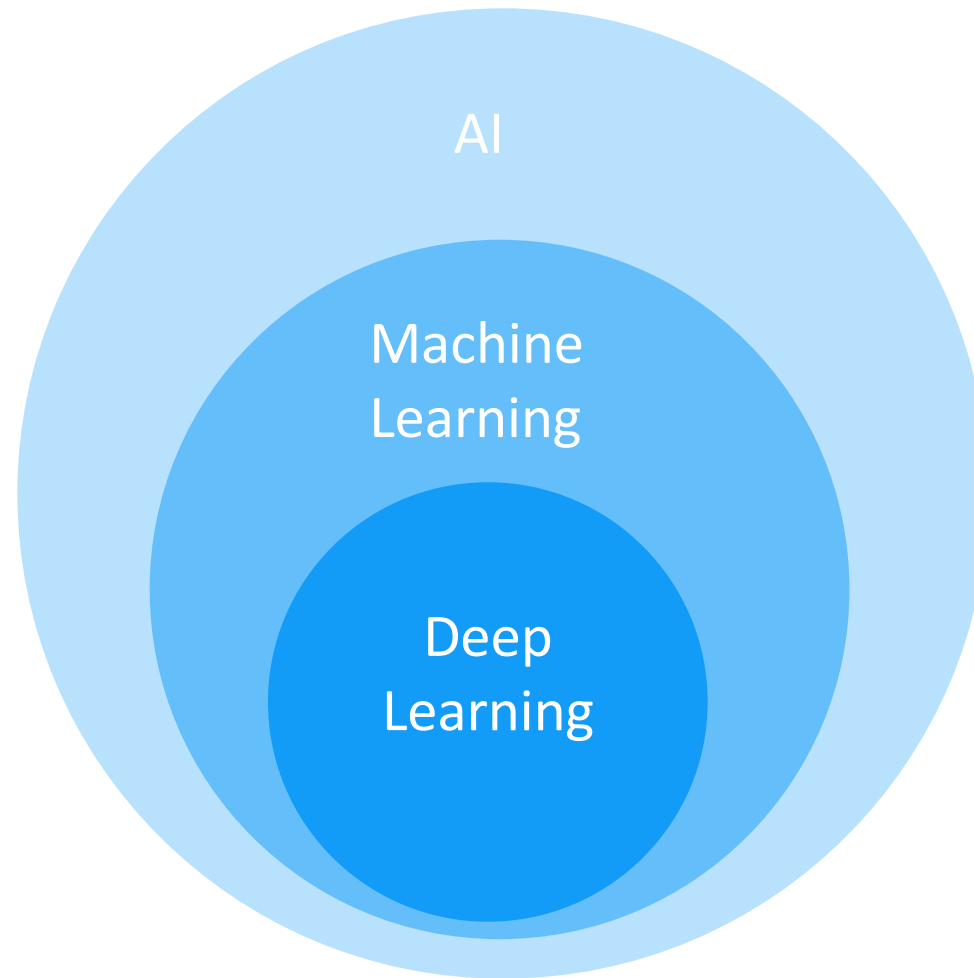
Introduction to Machine Learning

# What is Machine Learning?



1

## Introduction to Machine Learning Fields





Introduction to Machine Learning  
**Simplifying**

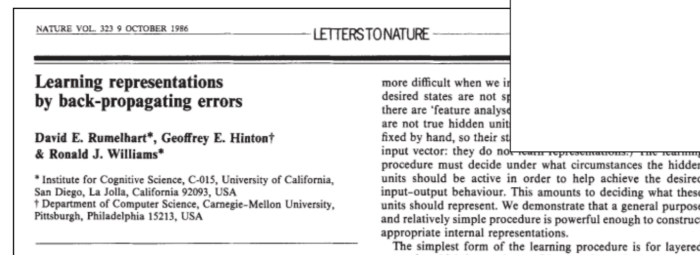
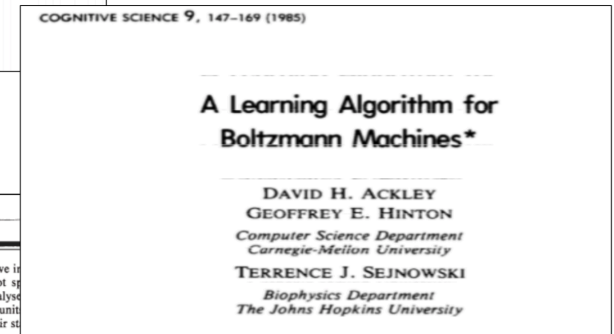
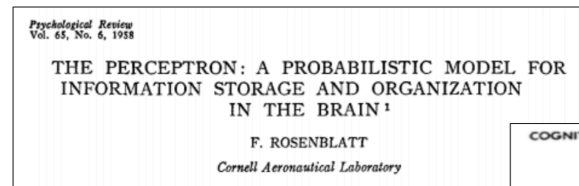
Discovers **patterns**  
on **high amounts of data**

# 1

## Introduction to Machine Learning It's not new

In 1959 professor Arthur Samuel defined **Machine Learning** as:

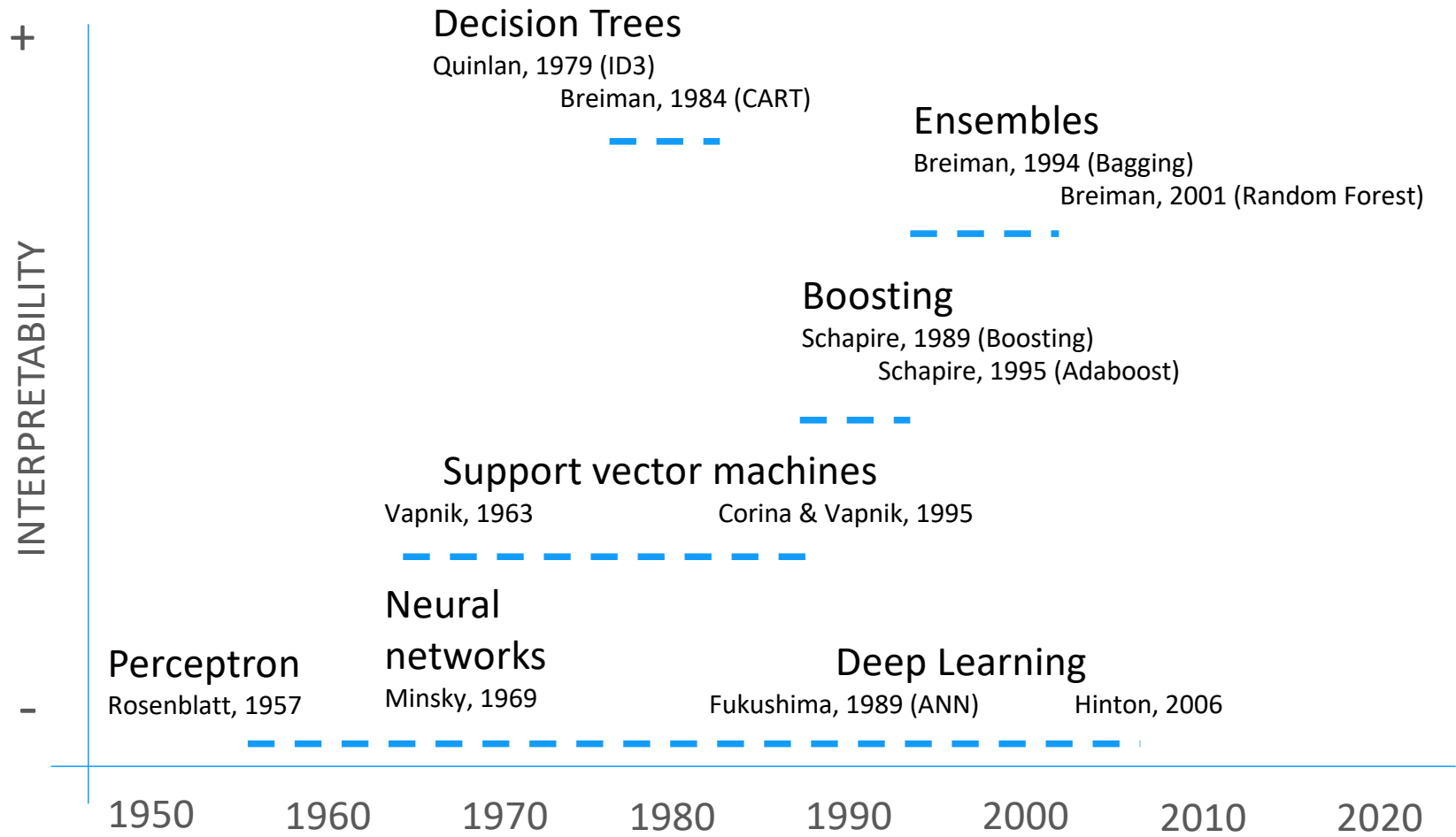
*'Field of study that gives computers the ability to learn without being explicitly programmed.'*



# 1

## Introduction to Machine Learning

# Algorithm History



# 1

## Introduction to Machine Learning

### Why now?



#### Enabling tech

IBM is already creating the first commercial use quantum computing system.

[IBM newsroom, Jan 2019](#)



#### Data availability

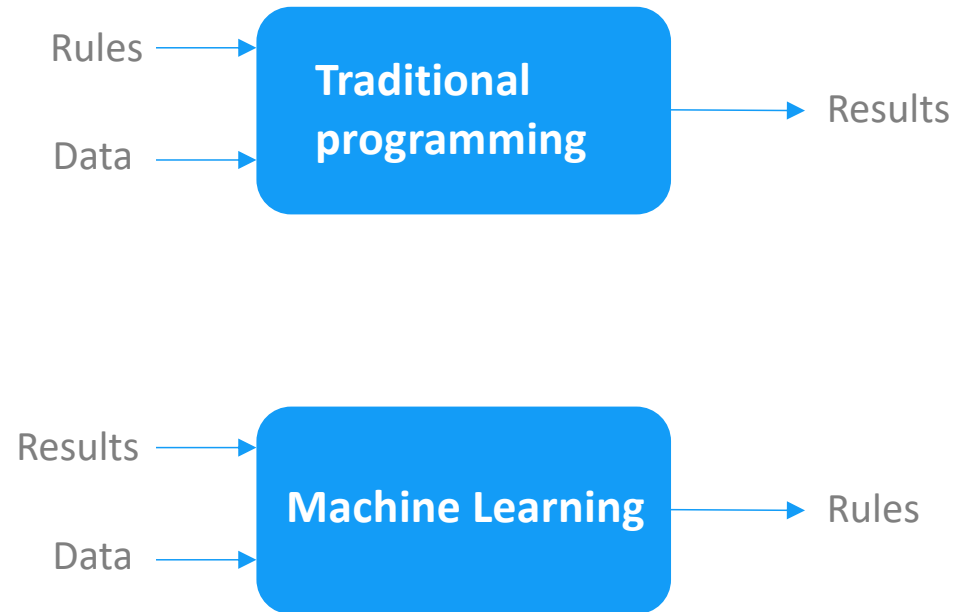
Data generated in the last two years alone is equivalent to 90% of all the data ever produced.

[Forbes, May 2018](#)

# 1

## Introduction to Machine Learning

# Traditional programming vs. Machine Learning





## 2

Use cases

## Rossmann Store Sales



- Rossmann is Germany's second-largest drug store chain with over 3.790 stores in Europe.
- Our objective is to **predict daily sales** for one of its stores. Sales are influenced by a lot of factors including promotions, competition, seasonality or holidays.

2

Use cases

## Available data: Rossmann Store Sales / Features



# 2

## Use cases EDA

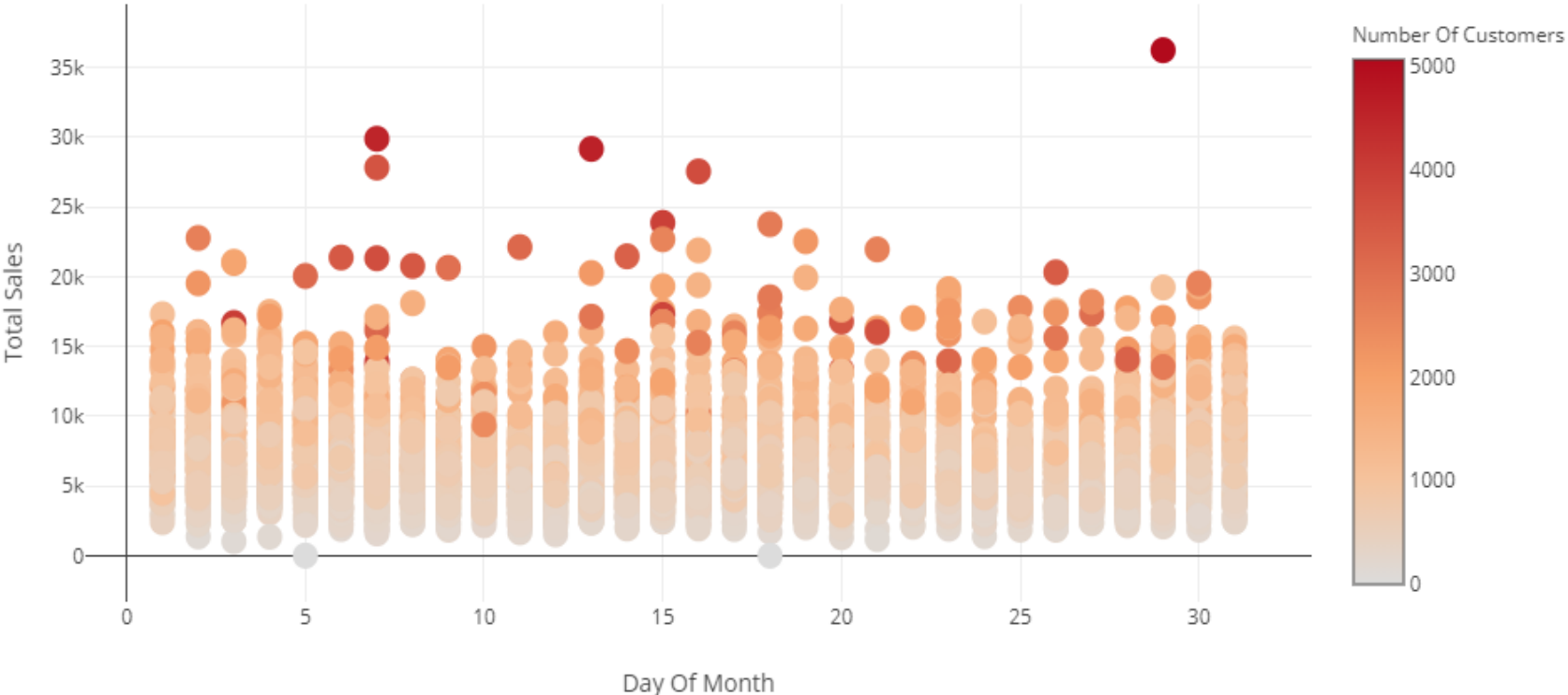
Sales vs. Number Of Customers



# 2

## Use cases EDA

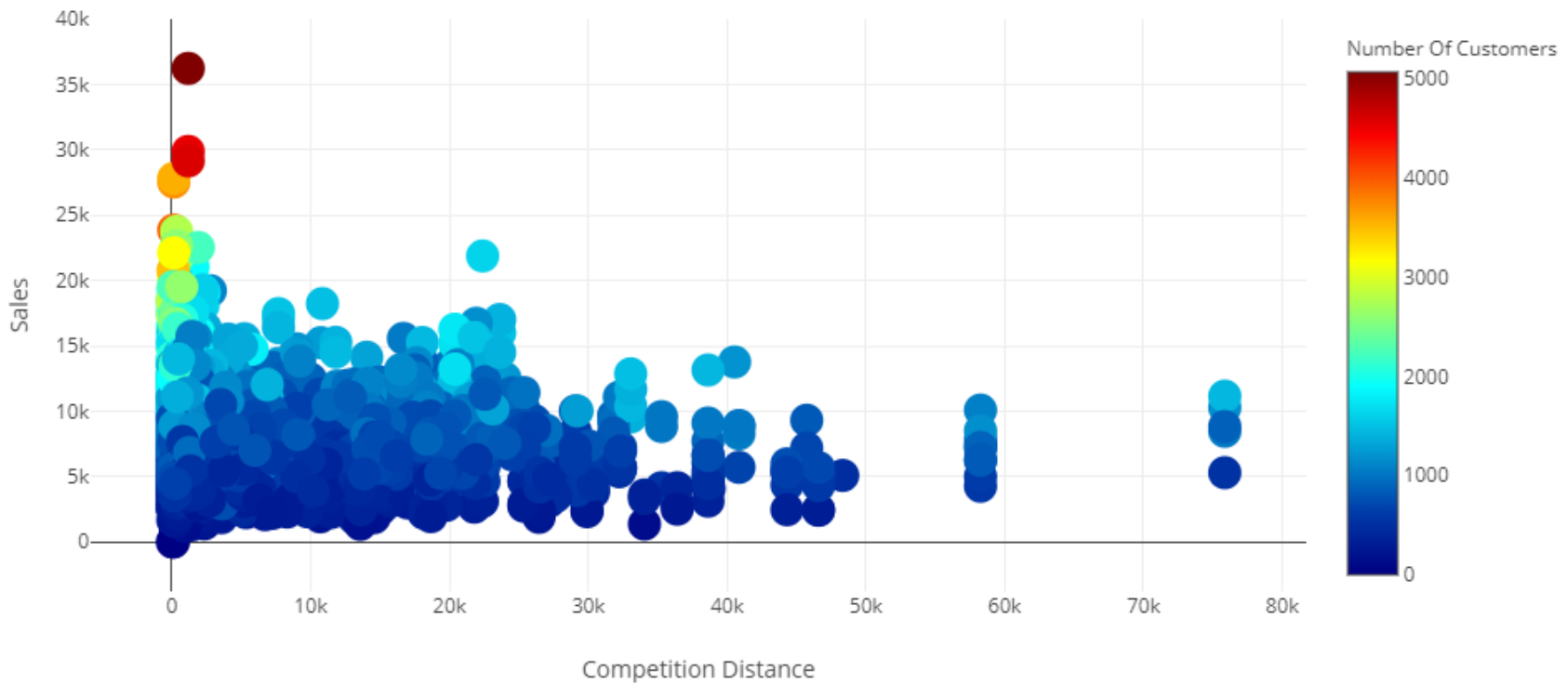
Sales Over Days Of A Month



# 2

## Use cases EDA

Sales vs. Competition Distance



2

Use cases

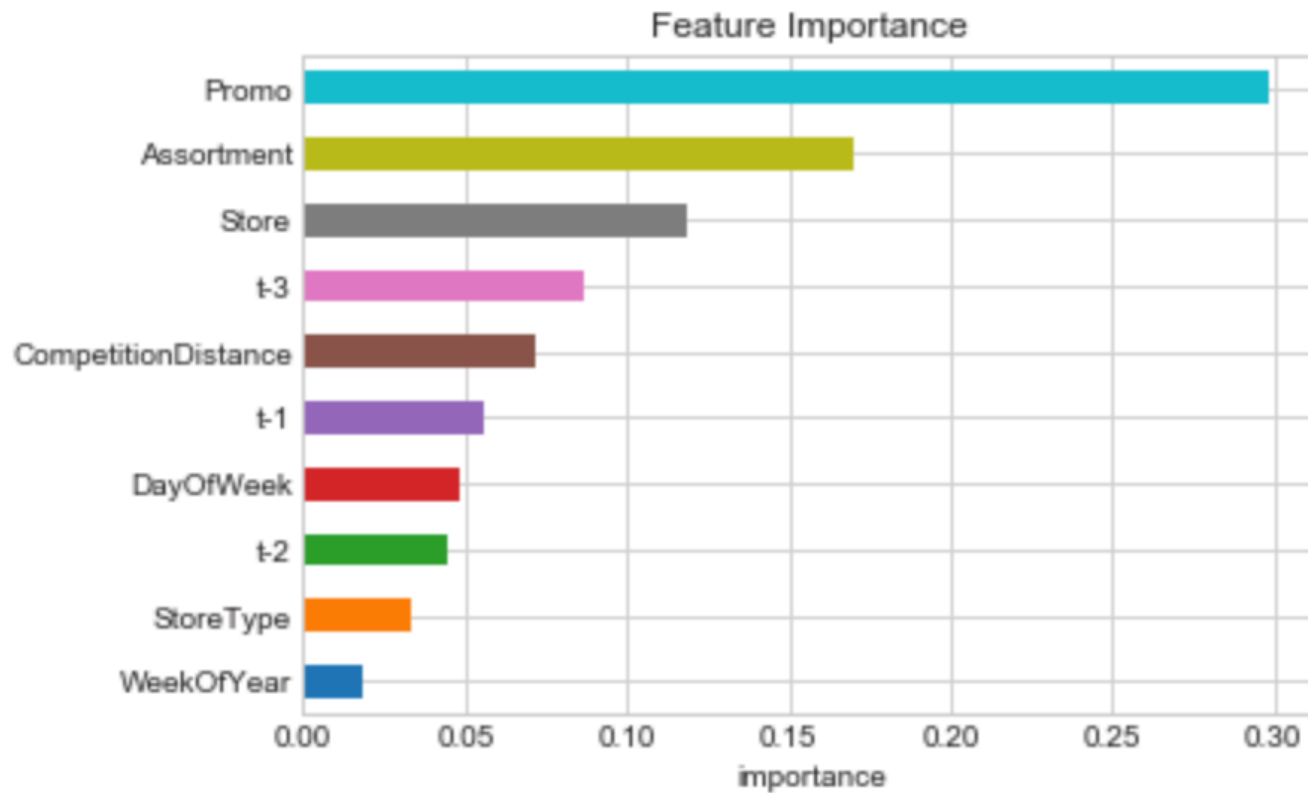
## Available data: Rossmann Store Sales / Cleaning & Creating Features



# 2

Use cases

## Feature selection



2

Use cases

## Available data: Rossmann Store Sales / Modeling Features

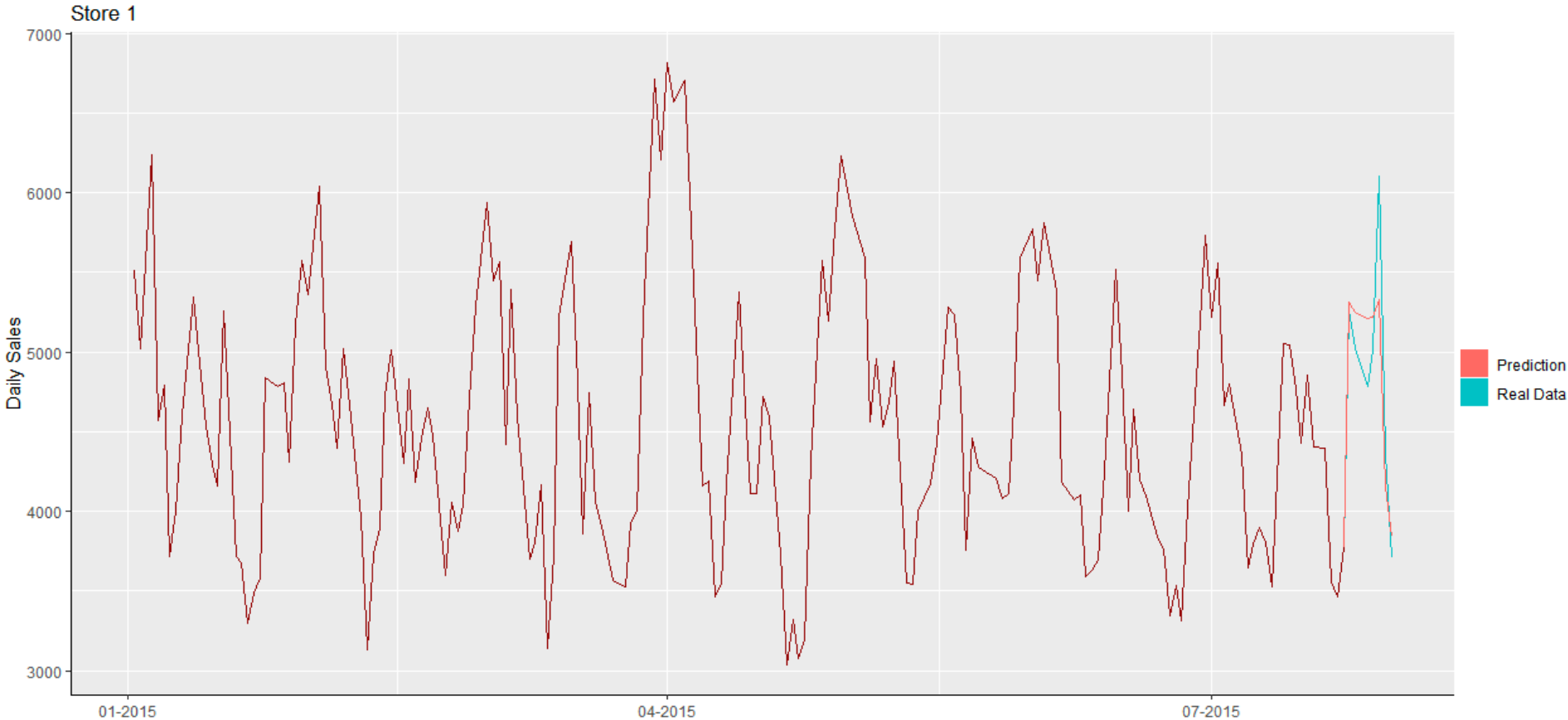




# 2

Use cases

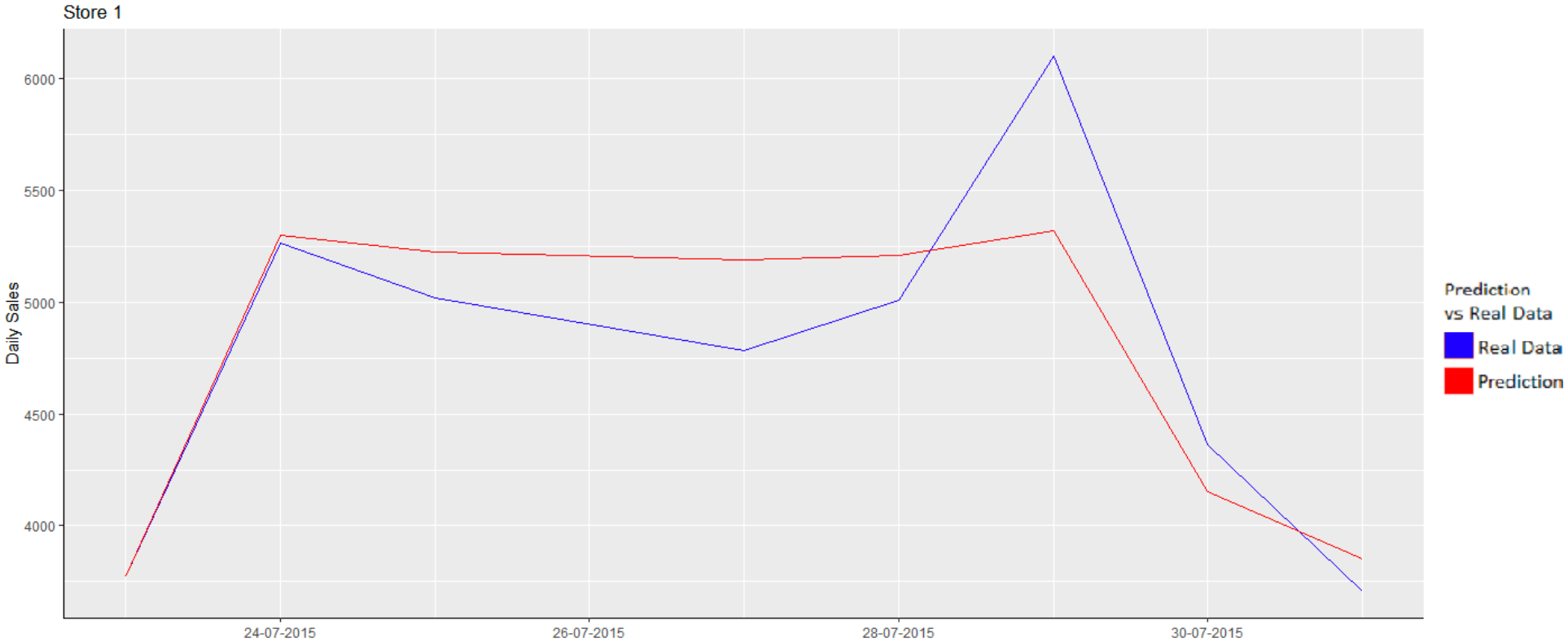
## Weekly prediction



# 2

Use cases

## Weekly prediction detail





THANK YOU

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Technology 2 Client S.L.