# This module covers…

- Challenges in IoT Sensor Data Analysis
- different methods used for IoT data analysis

# In this Video you will learn…

***different methods used for IoT data analysis***

# Exploratory Data Analysis (Visualisation and Metrics)

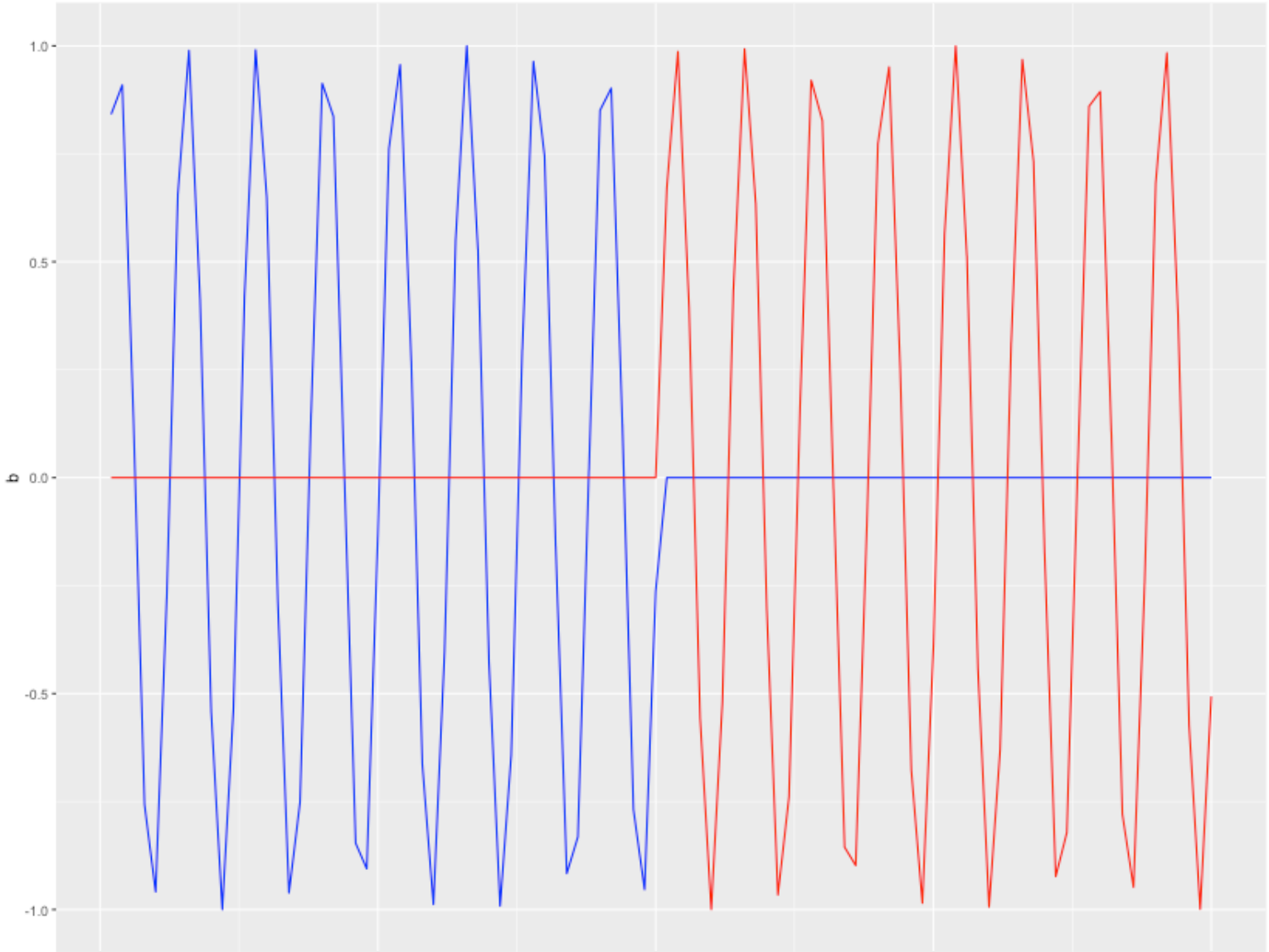
- usually the first step in any data science project
- preparation for downstream analytics disciplines
- good start for learning data science
- two main tasks
  - calculate metrics on your data
  - plot data in may ways (including data preparation)

# Predicting Future Events from the Past (Time Series Forecasting)

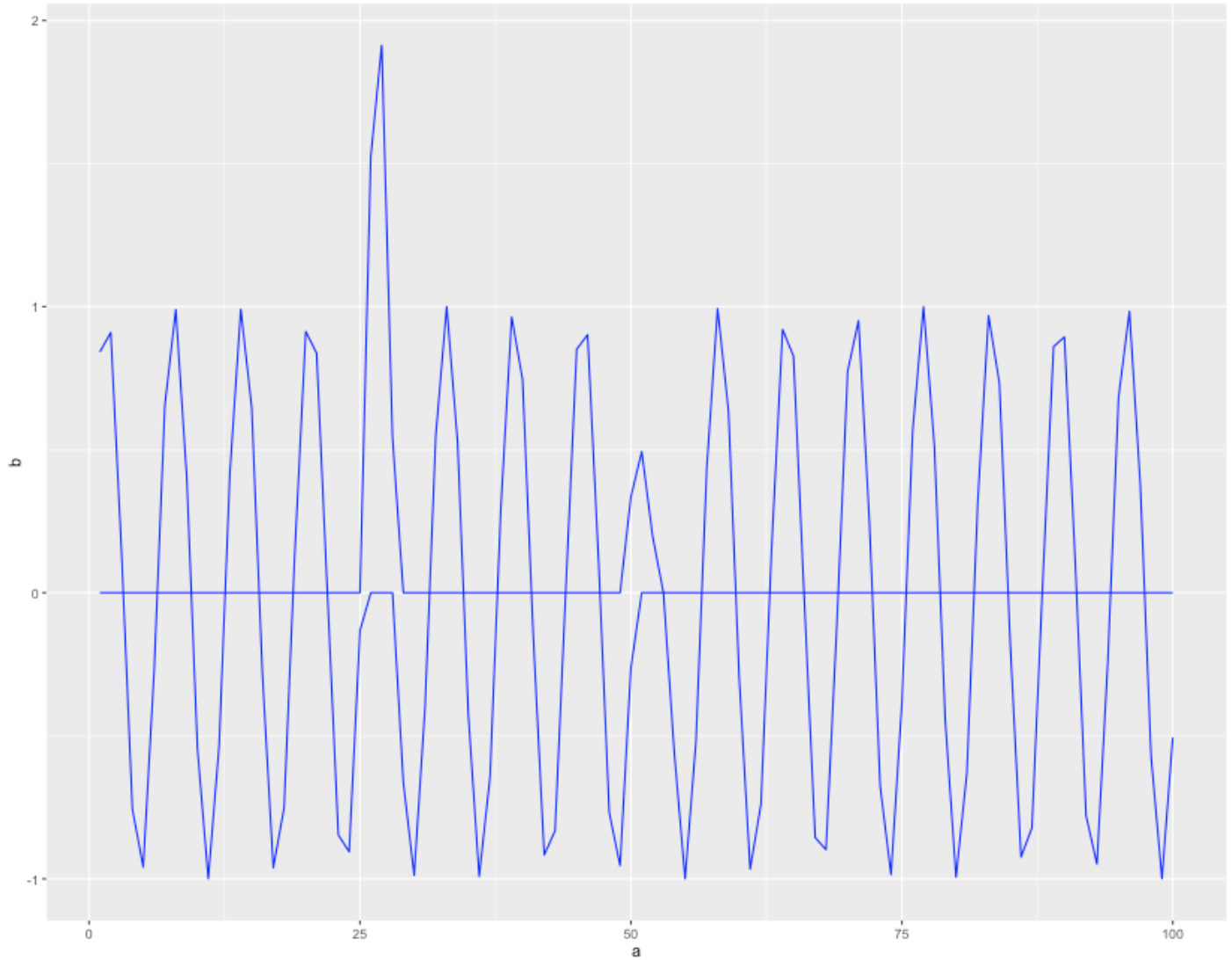
- Often called “Predictive Analytics”
- Weather forecast
- Stock market prediction
- Temperature in building
  - shall I switch on AC now
    - ..wait for predicted energy
    - ..at all?

# Predicting Future Events from the Past (Time Series Forecasting)

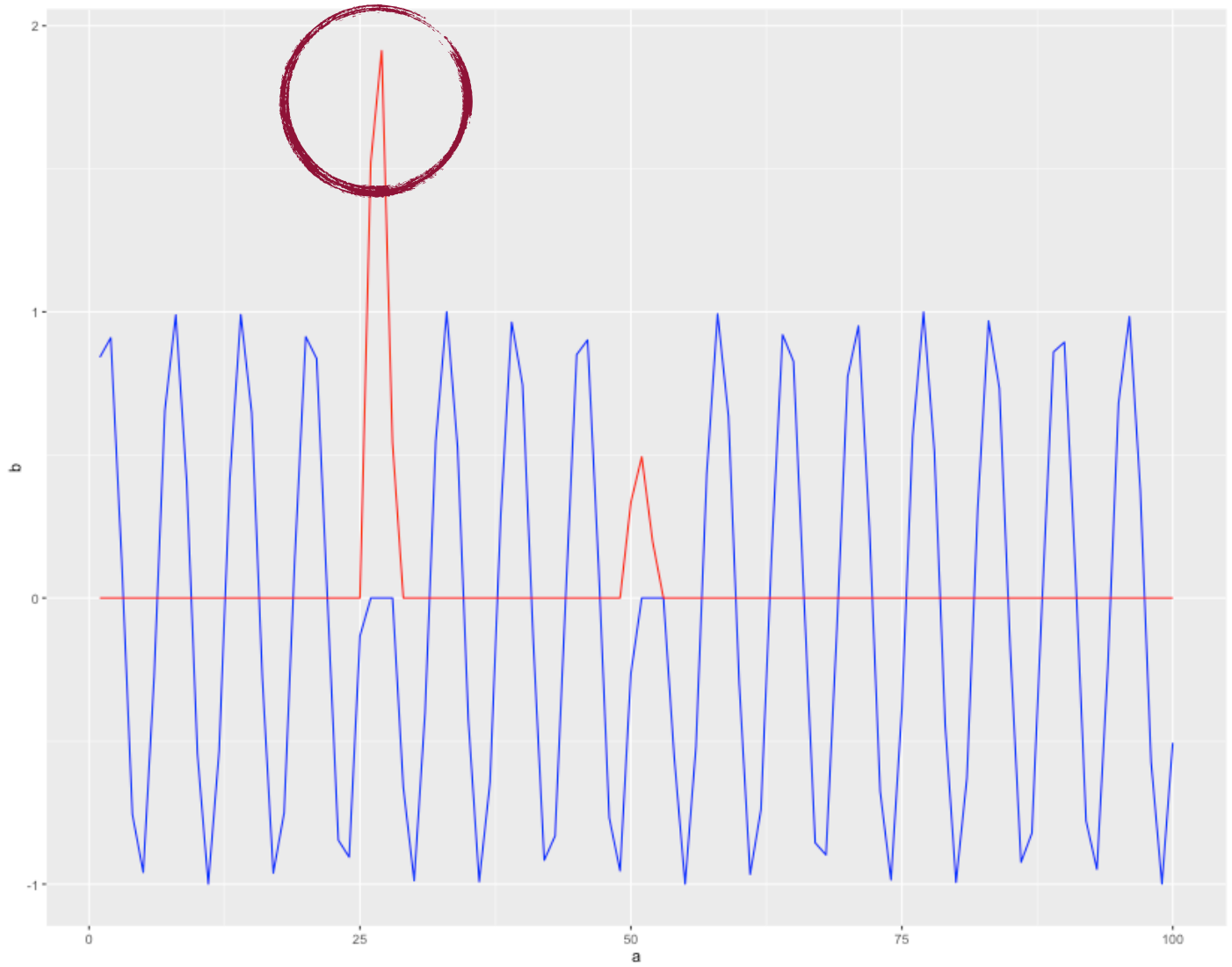
# Predicting Future Events from the Past (Time Series Forecasting)



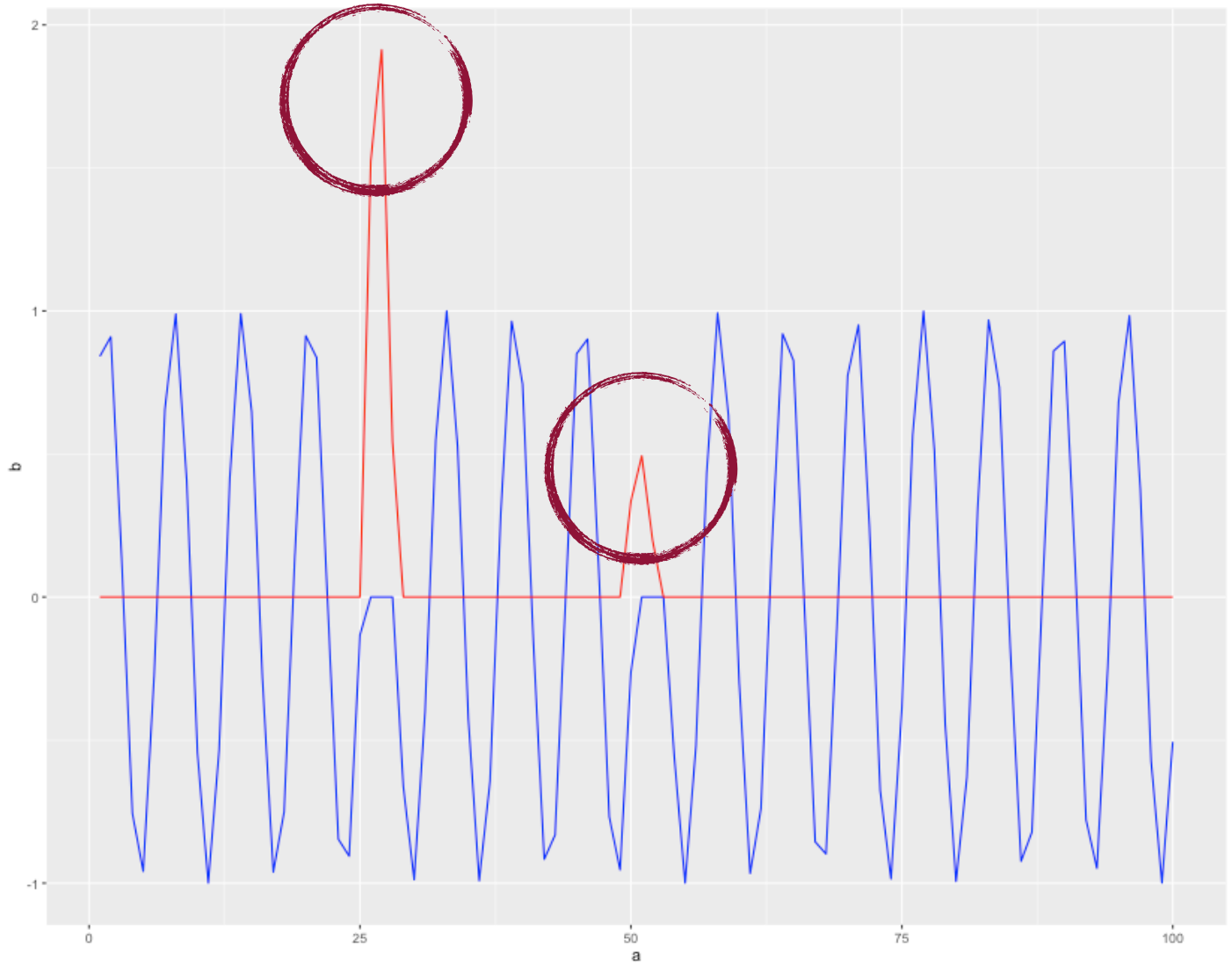
# Detecting Abnormal behavior of your monitored Systems (Time Series Anomaly Detection)



# Detecting Abnormal behavior of your monitored Systems (Time Series Anomaly Detection)



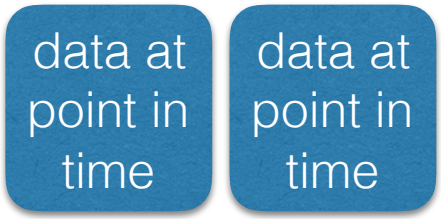
# Detecting Abnormal behavior of your monitored Systems (Time Series Anomaly Detection)



# Assign behavioral patterns to your sensor streams (Time Series Classification)

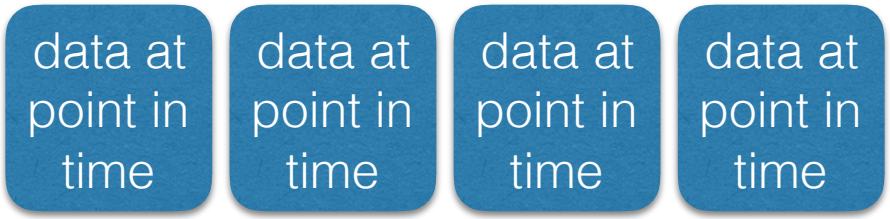
data at point in time

# Assign behavioral patterns to your sensor streams (Time Series Classification)



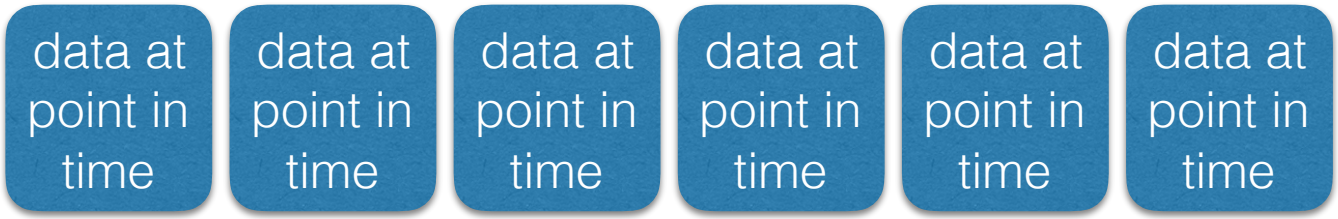
# Assign behavioral patterns to your sensor streams (Time Series Classification)

# Assign behavioral patterns to your sensor streams (Time Series Classification)

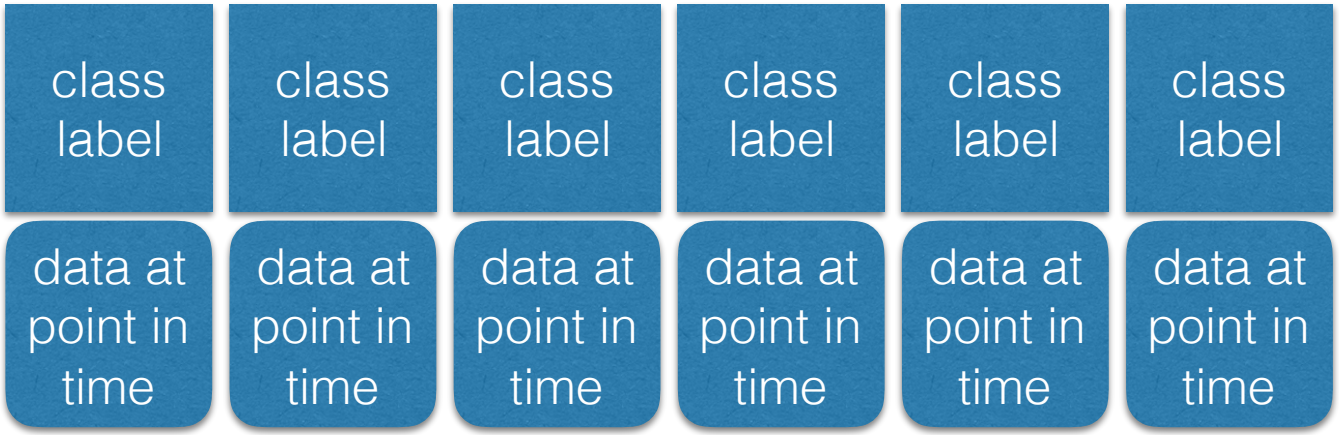


# Assign behavioral patterns to your sensor streams (Time Series Classification)

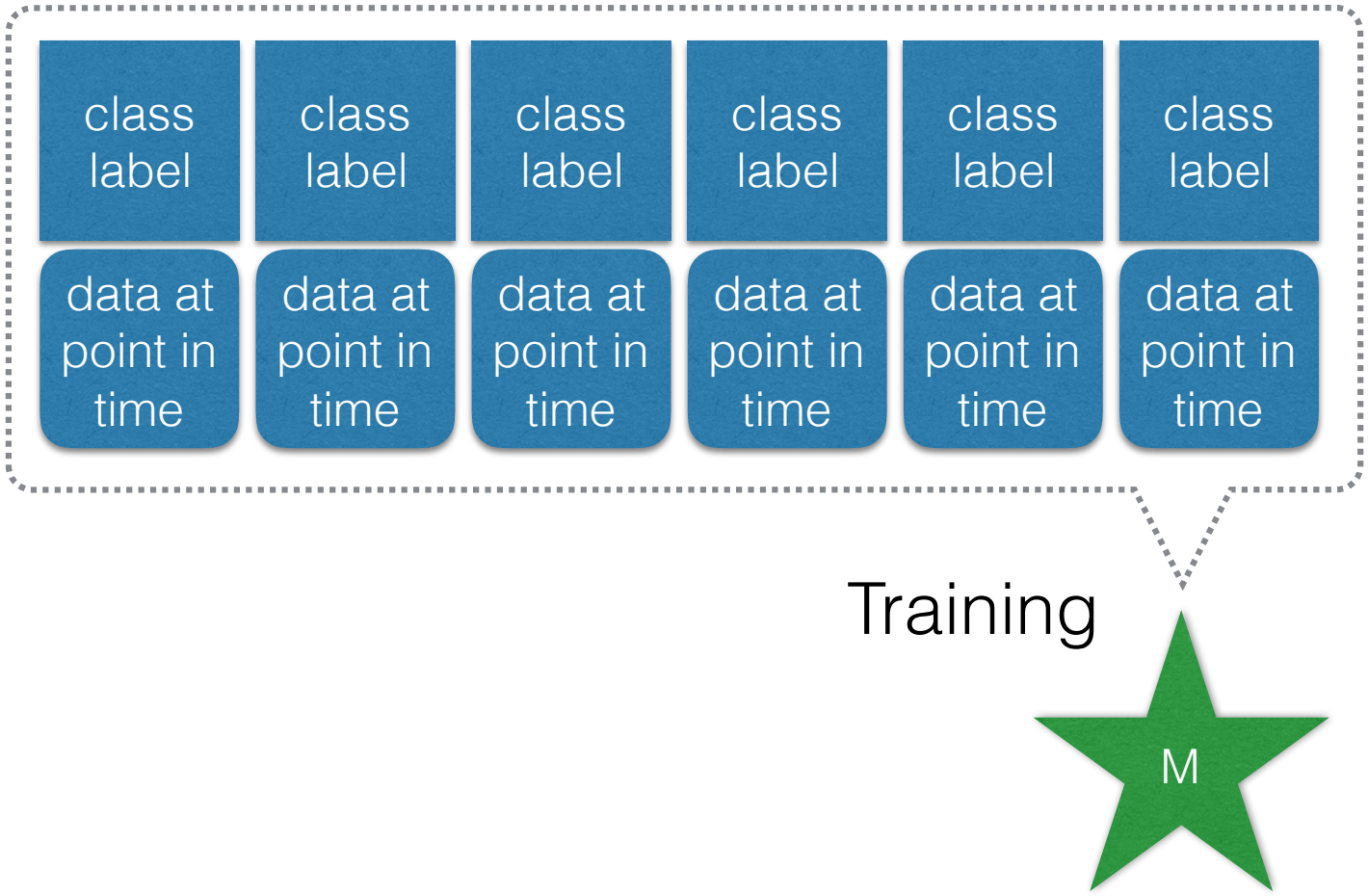
# Assign behavioral patterns to your sensor streams (Time Series Classification)



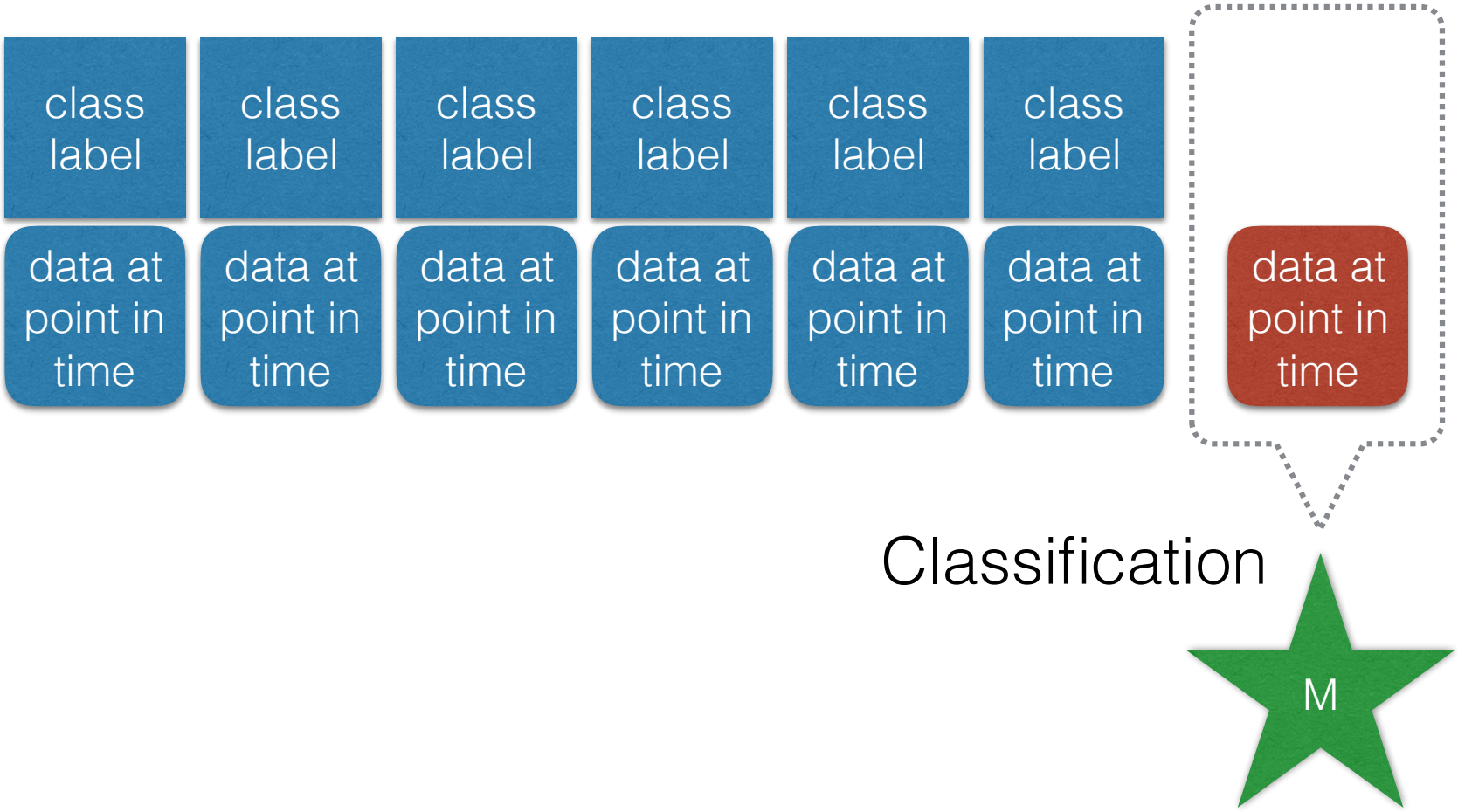
# Assign behavioral patterns to your sensor streams (Time Series Classification)



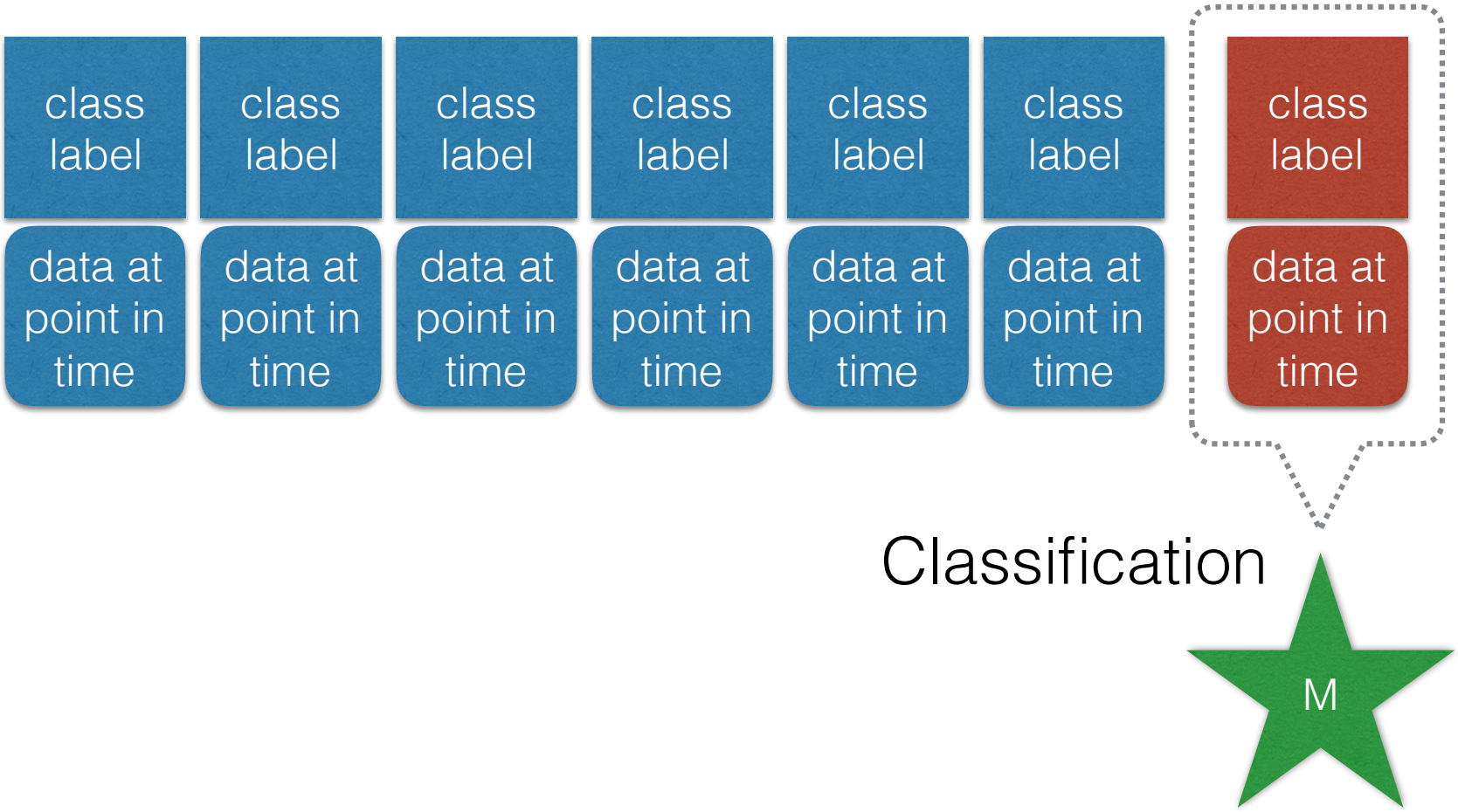
# Assign behavioral patterns to your sensor streams (Time Series Classification)



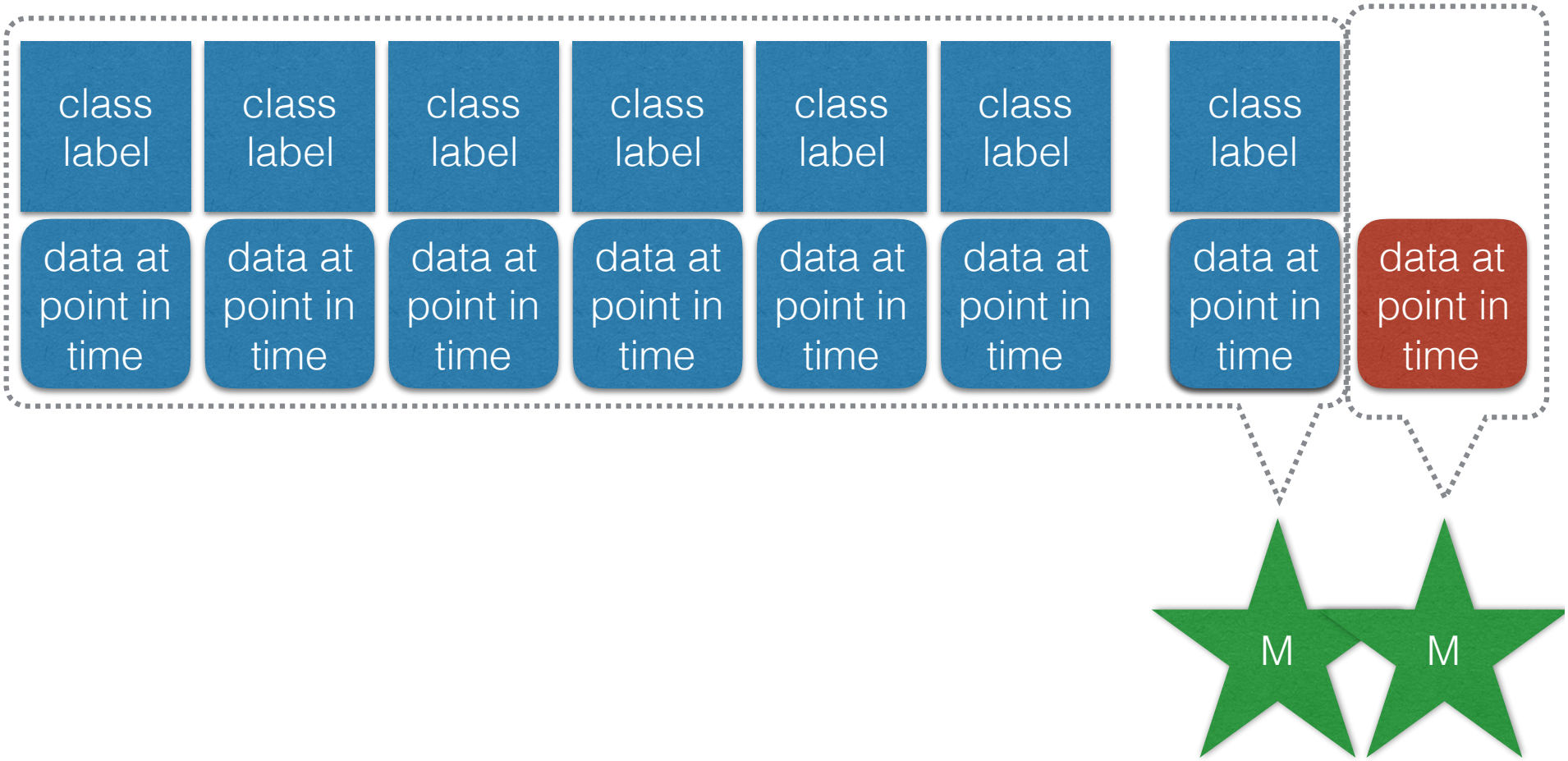
# Assign behavioral patterns to your sensor streams (Time Series Classification)



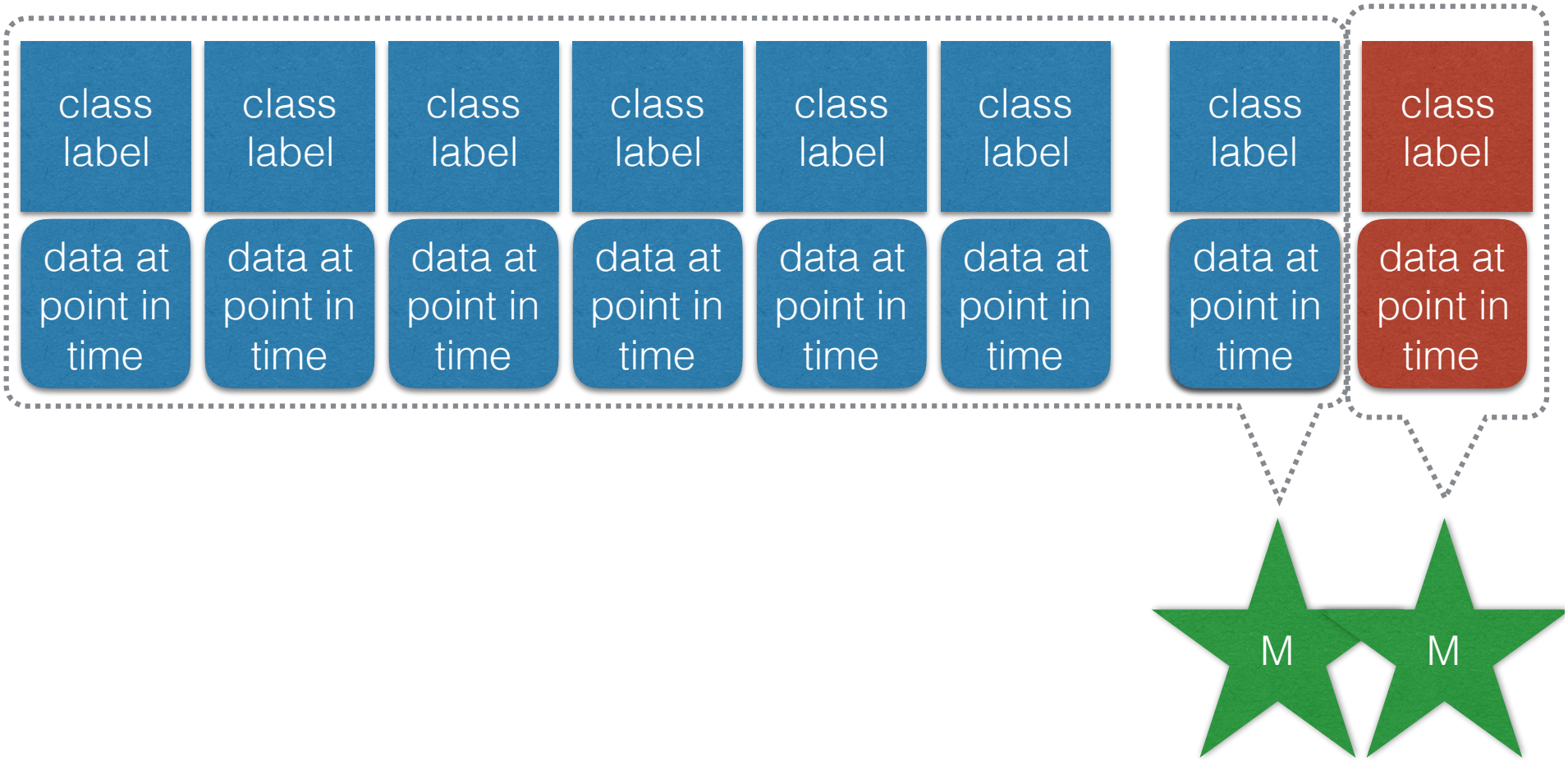
# Assign behavioral patterns to your sensor streams (Time Series Classification)



# Assign behavioral patterns to your sensor streams (Time Series Classification)



# Assign behavioral patterns to your sensor streams (Time Series Classification)



# Real-time, low latency reaction (Stream Computing, On-The-Edge Analytics)

- Stream Computing
  - Incremental Data Processing (on Windows)
  - Low latency results
- Edge computing
  - Pre-aggregate data (band with saving)
  - Low latency reaction to events

# Summary

- exploratory data analysis always a good staring point
- advanced methods exists
  - forecasting
  - anomaly detection
  - classification
  - stream / edge computing

# The next module covers…

***Toolset Introduction***