

# Dental Business Analysis

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## About the company:

Manufacturing company which produces dental products (crowns, implants, etc.) and delivers these to their customers

## Problem:

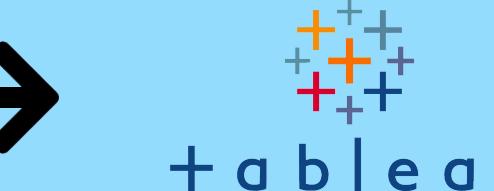
We were provided with 10 years worth of unanalysed data and tasked to analyse it to better understand the company

## Methodology:

Data cleaning



Data Visualisation & Modelling



Conclusions



## Business Efficiency

### Production Efficiency

How long does it take to complete 1 case?

Over the years, (2012-2021):

**11.2 days**

Lesser time taken to complete 1 case  
**Increase in production efficiency**

### Delivery Efficiency

How early / late are the products delivered based on customer's requested date?

Over the years, (2012-2021):

**97.23 %** delivered early

**2.77 %** delivered late

### Early cases

80% are delivered 0 - 6 days early

Compared to late cases, 60% of the late cases are delivered 1 - 28 days later

Focus on reducing the **delivery lag time for late cases**, to attain overall customer satisfaction

### Late Cases

Out of the total cases, the annual proportion of late cases

On **average** is **2.87%**

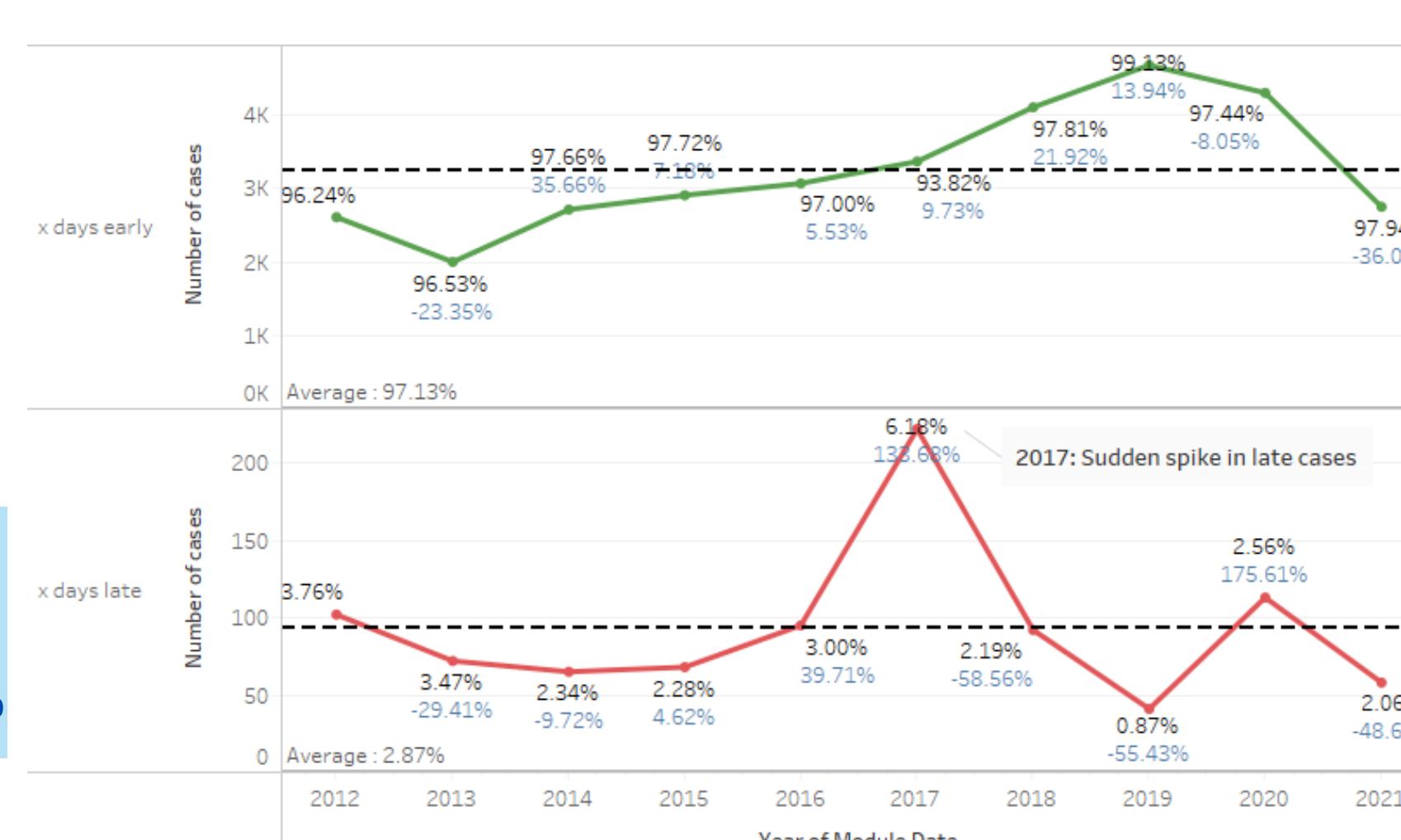
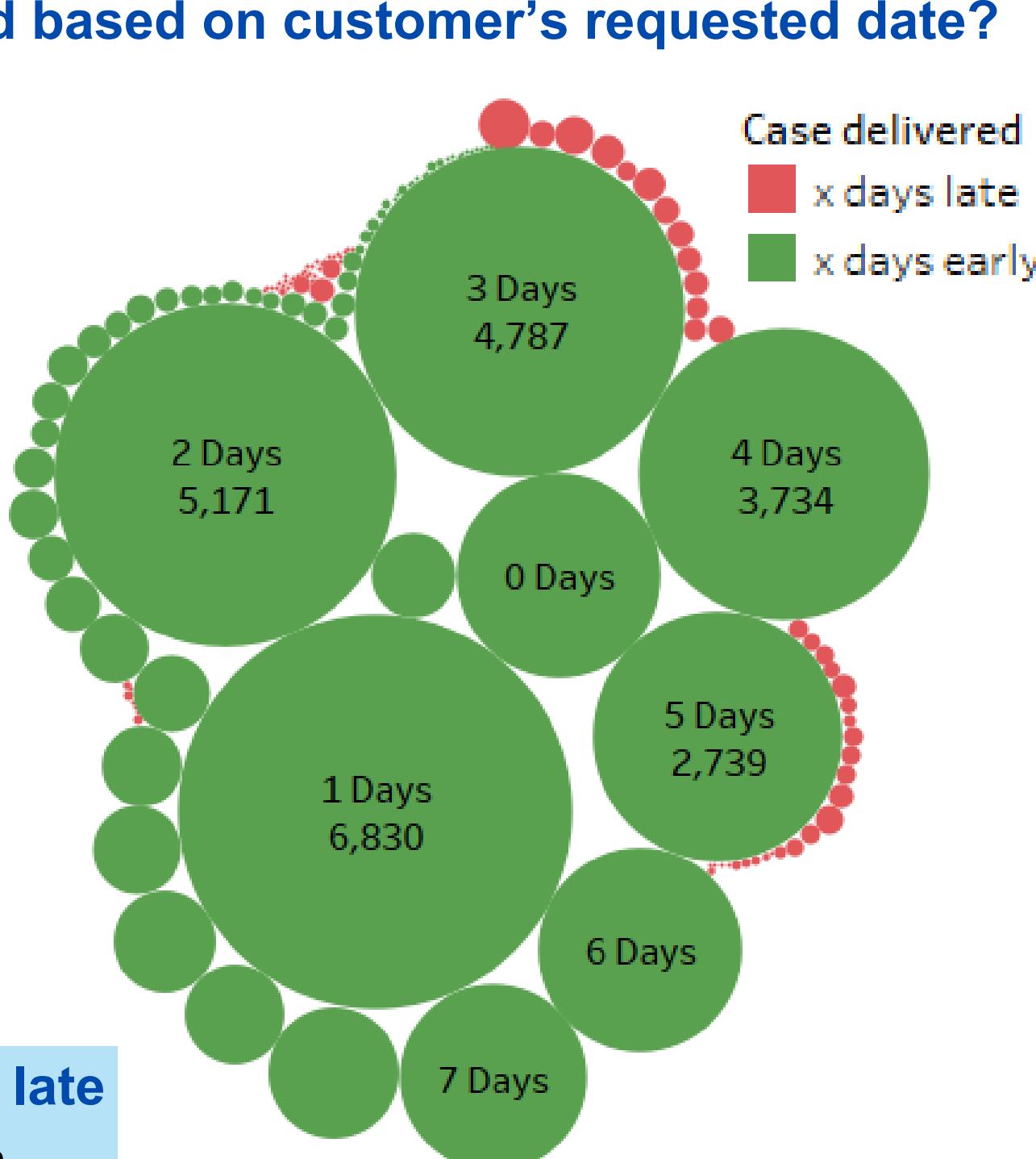
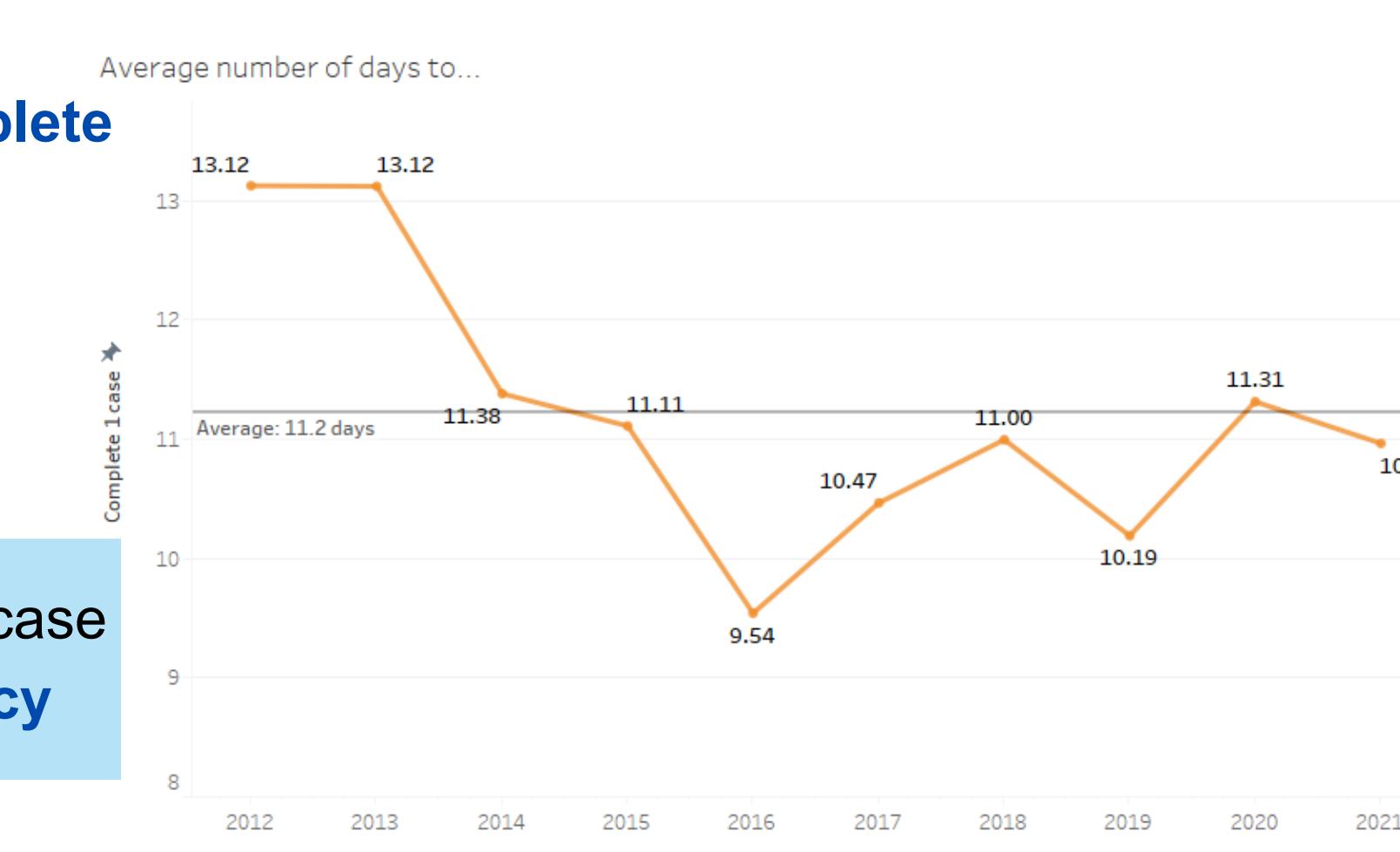
The company could aim to reduce the proportion of late cases below the current **2.87%**

### Limitations:

Some anomalies have been left out of the visualisations, such as cases where:

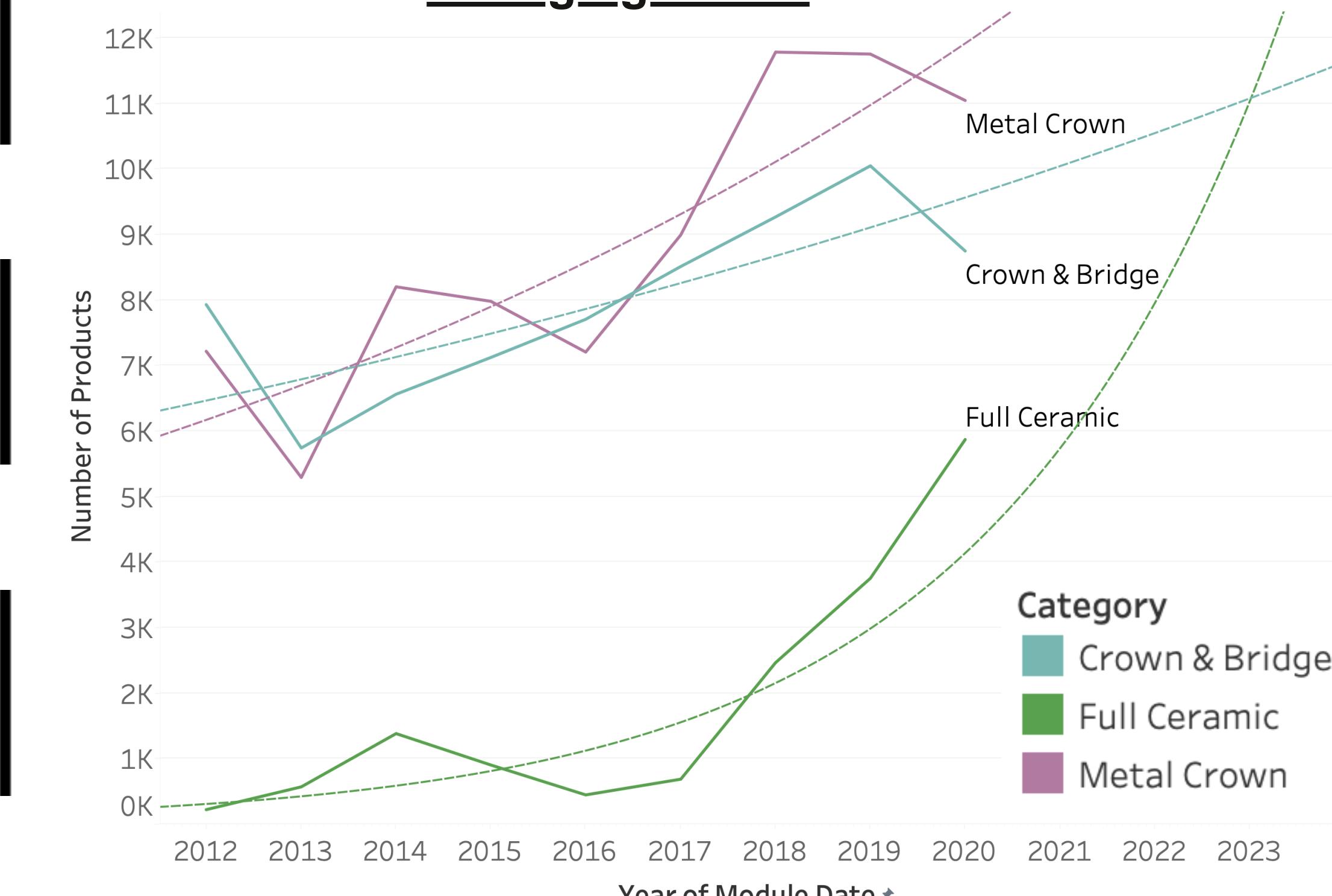
1. Delivery dates are empty (294/ 33,464 cases) (0.88%)

2. Delivery dates are earlier than Job Received date (115/ 33,464 cases) (0.34%)



## Customer Buying Patterns

### Changing trends



### Important observations:

-Increase in metal crown, crown & bridge, full ceramic.

### Anomaly:

-Data in 2021 is incomplete, hence it has been excluded

### Model formula:

Number of Product = Category \* (Month of Module Date + intercept)

### Key Trends:

Over the years, (2012-2020):

### -Rising trend

**-Metal crown, Crown & bridge, Full ceramic** are the top 3 selling products recently.

**-Full ceramic** is the fastest growing product.

### Importance:

-Increase in the popularity of full ceramics which would likely continue in the future.

-Company can prepare for the increasing demand of their most important products

### Limitations:

-Heavily dependent on accuracy of dataset provided.

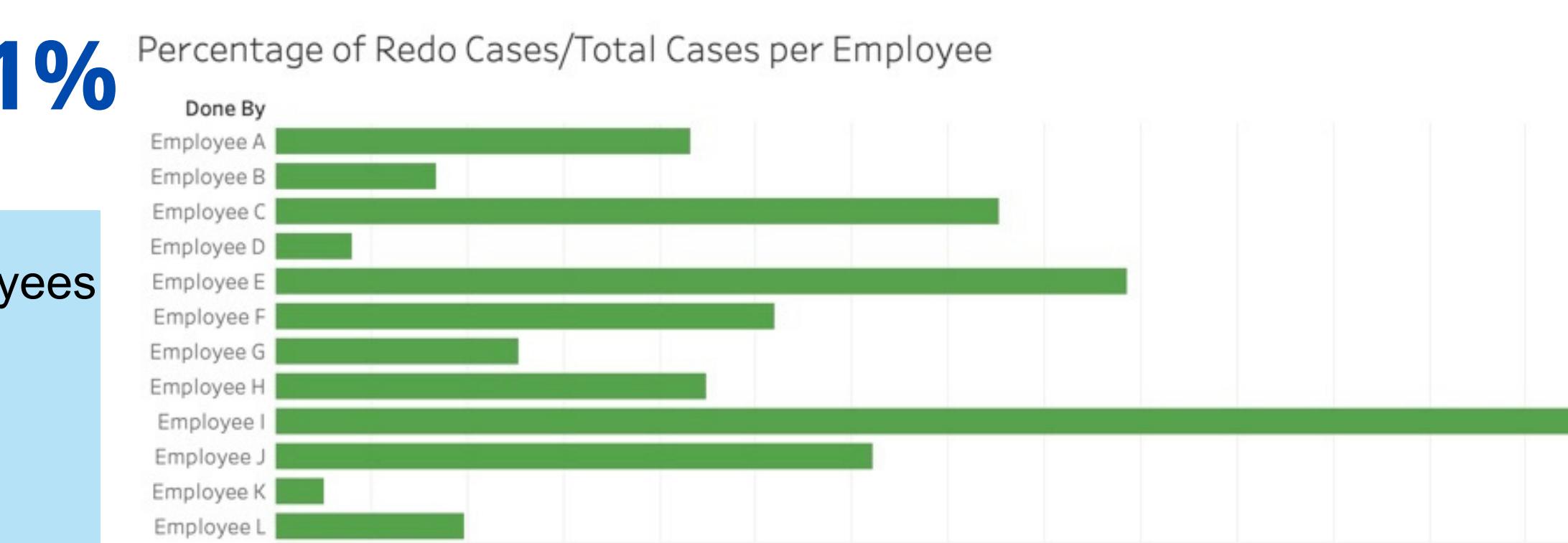
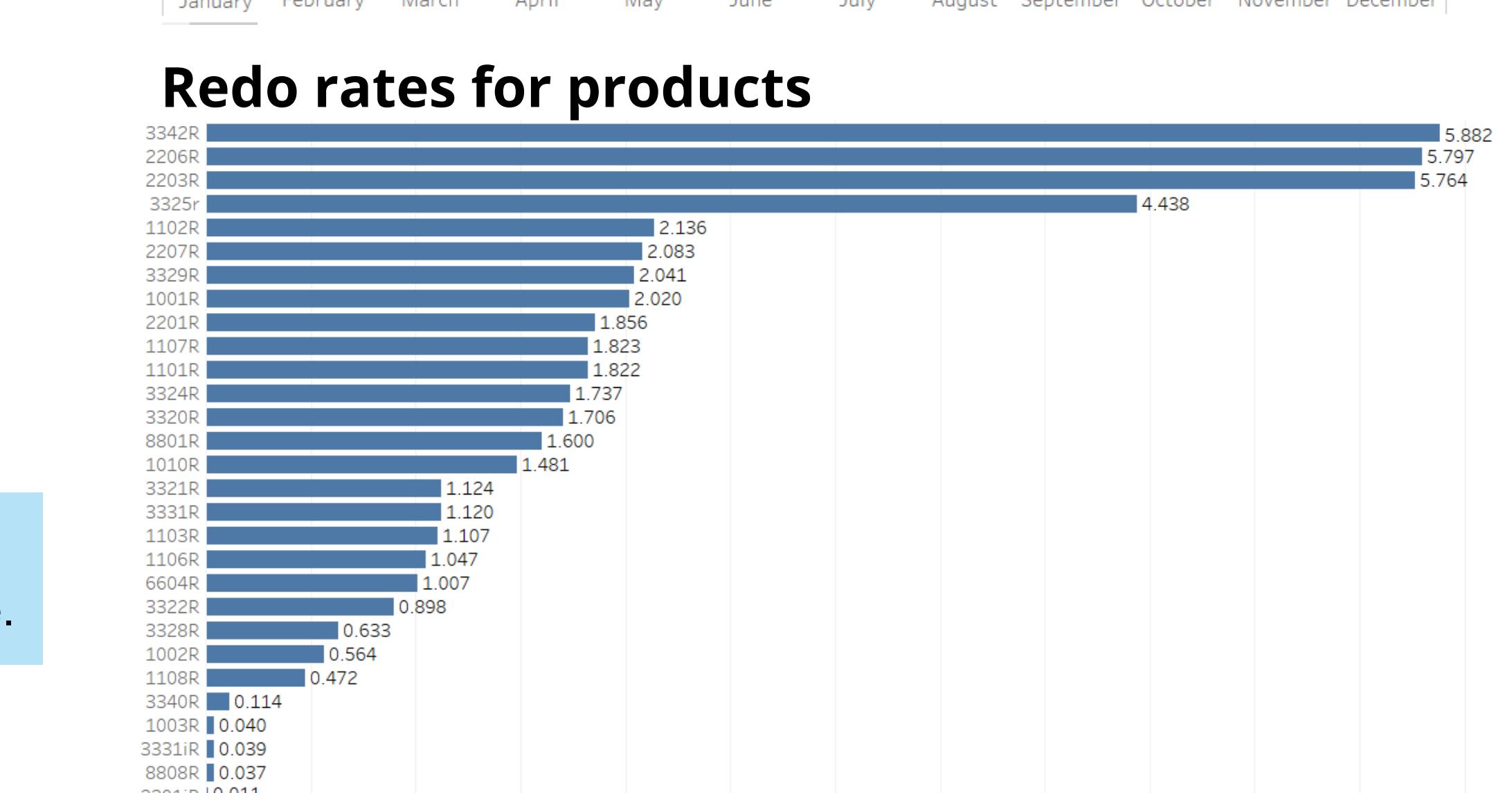
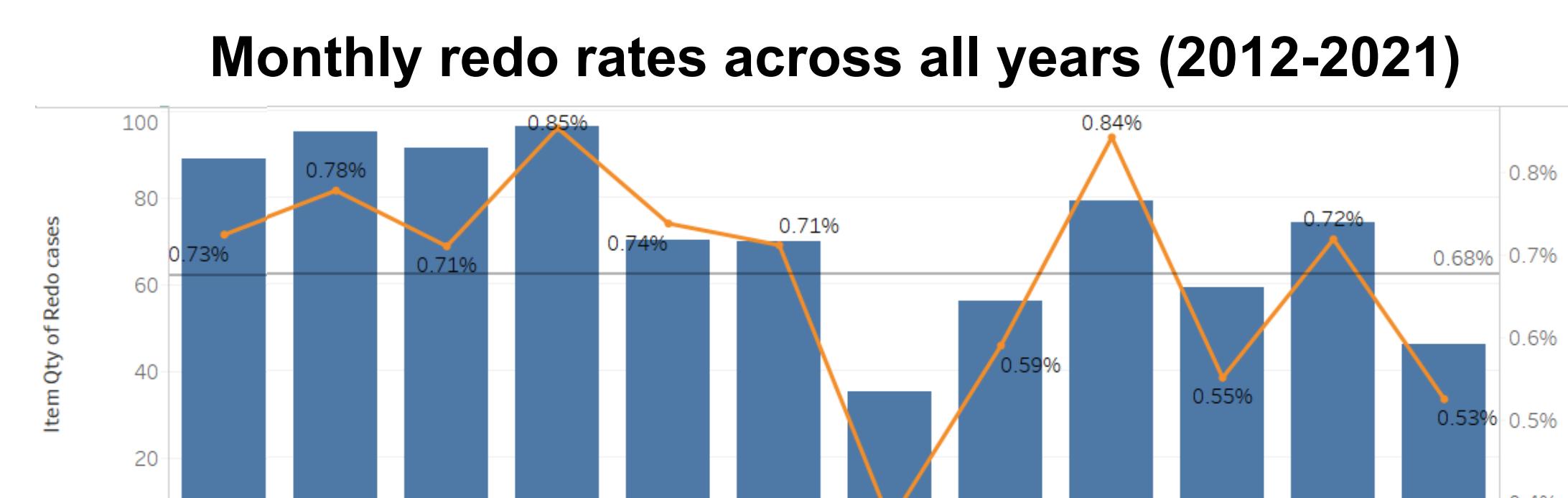
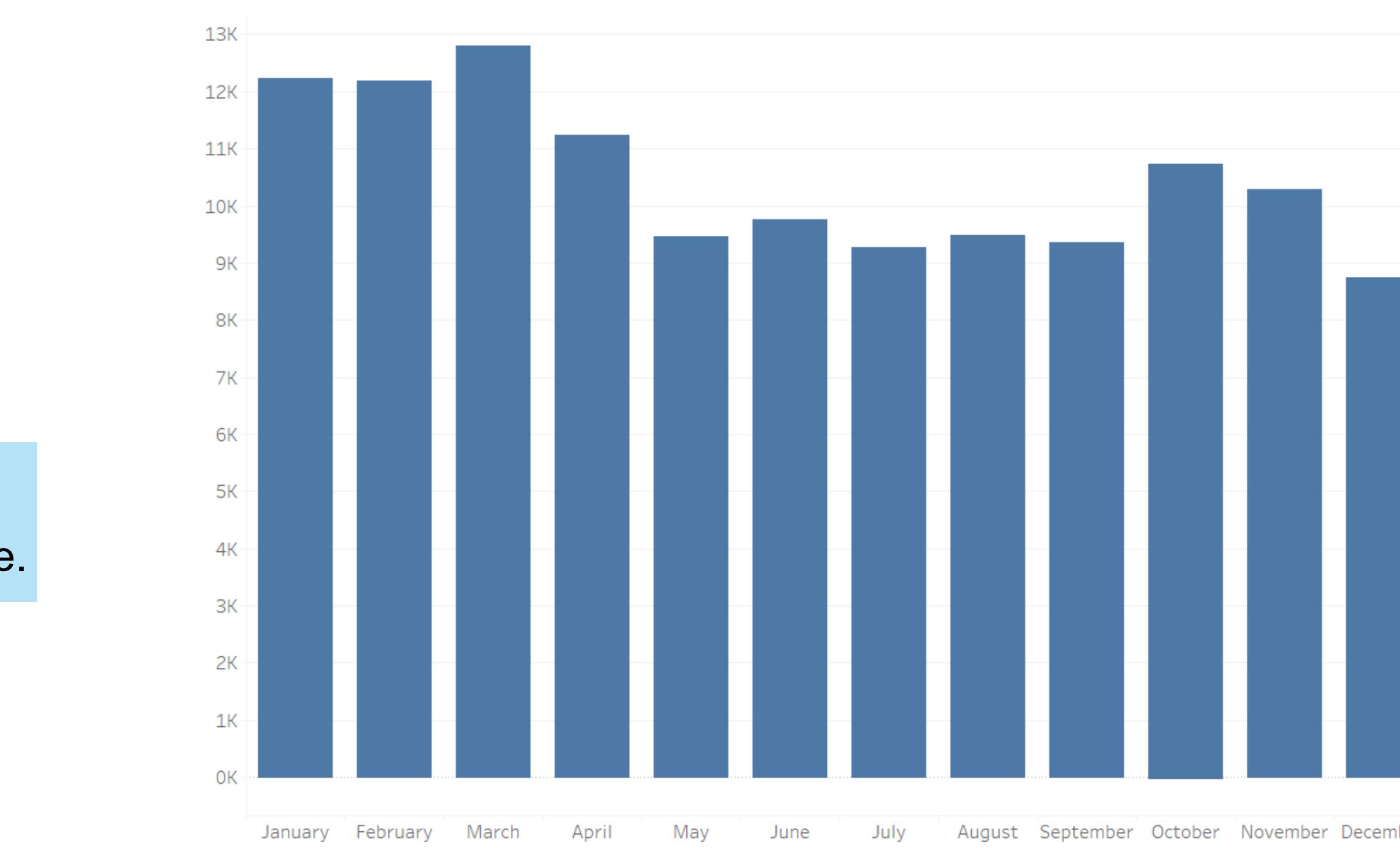
-Trends are not entirely accurate as it may not take into account events that have not happened in the past.

-Only applicable to a short-term duration up to 2023

## Redo/ Rejection rates

Manufacturing of dental products are detail specific, where it's **customized to a person's teeth**. Thus, redo cases are cases that were **rejected by the customers** and sent back to the company to be redone.

### Total number of monthly cases across all years (2012-2021)



This sets as a target for the individual employees to hit below their current redo rates

and provides an insight for the company on their employees' performances.