

---

# Customer churn prediction

For company XYZ by Jan Hynek

---

# Customers are leaving

And it costs money.

- 25x more expensive to acquire new one than retain old one
- 5% increase in customer retention  
=> 25%-95% increase in profits

Source: <https://hbr.org/2014/10/the-value-of-keeping-the-right-customers>

—

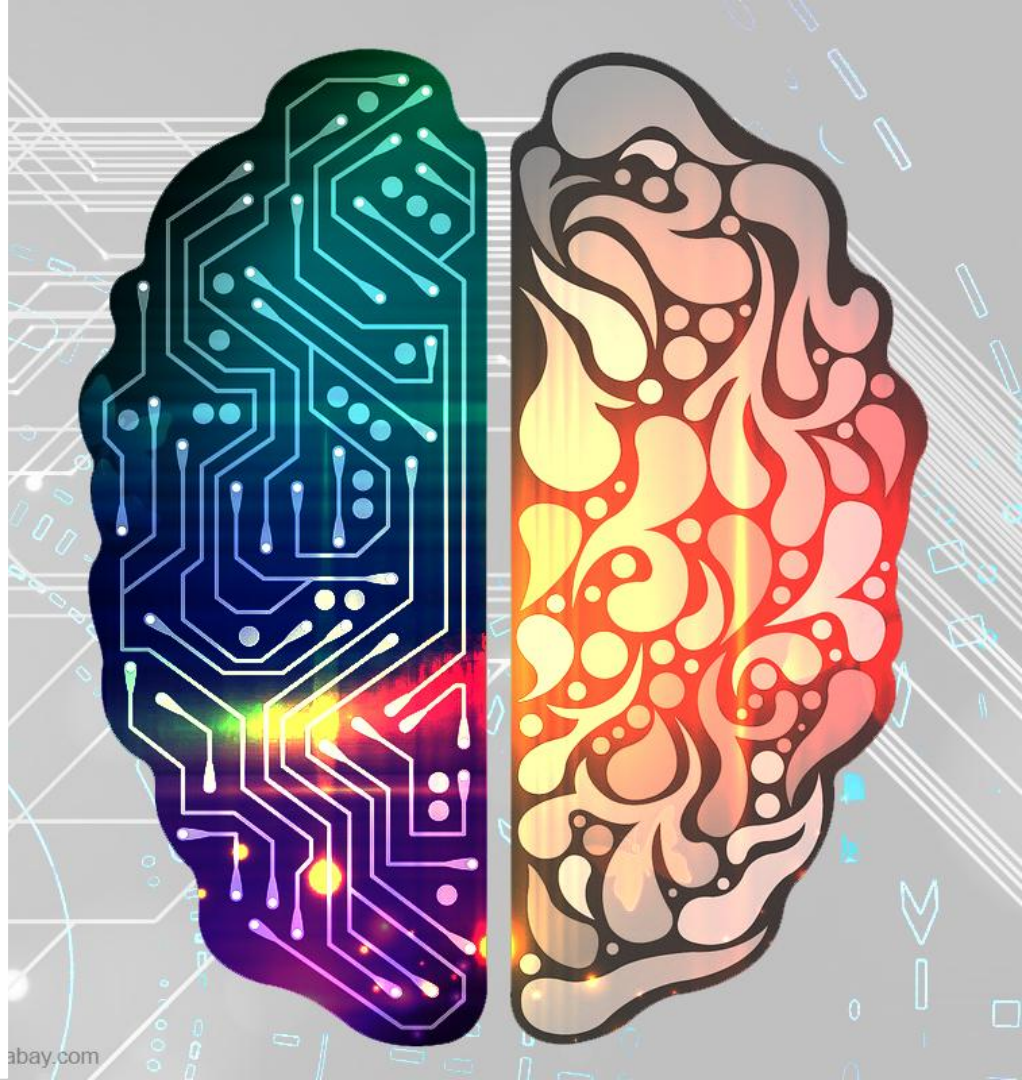
# Can we lower the churn rate?

—

# Handpicking all leaving customers would take so much time...

We can offer everyone big and expensive discounts.  
Or maybe...

We can apply  
**MACHINE  
LEARNING** to do the  
hard work instead of us.



**Meet Carlos.** He bought a  
several shirts two months ago and a  
trousers three months ago, and pretty  
expensive one.

However, he forgot the name of the  
e-shop where he bought it.

*Story for illustration purposes only*





## He is not alone.

Gabrielle used to shop at your e-shop a lot, but half a year ago, she started to buy clothes at a rival e-shop and three months ago was her last purchase.

Nice return offer could persuade her to come back.



A brown-toned puzzle with a person in a long coat and hat walking, leaving a trail of footprints. The text is overlaid on the left side of the puzzle.

These patterns can  
be found in their  
transaction history.



One short e-mail, along with 10% discount and **Carlos returned immediately.**

This new polo really suits him, doesn't it. And he is not going to forget the name again.



—

And we can find more of them.

Using **few hundreds**  
**of code and a bit of**  
**know-how.** Let's see  
what can we do.

# What exactly are we aiming for?

- To find as most people as possible, who will churn
- To find those people especially, who are bringing in the most revenue.

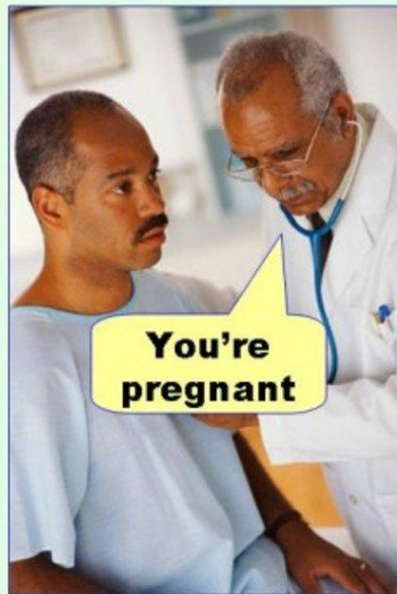
That's why we have two models instead of one.

# Small crash course.

And both of these errors cost money.

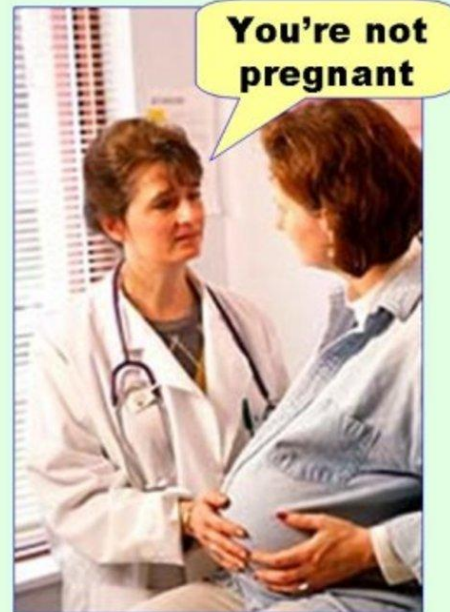
Which of them costs more?

**Type I error**  
(false positive)

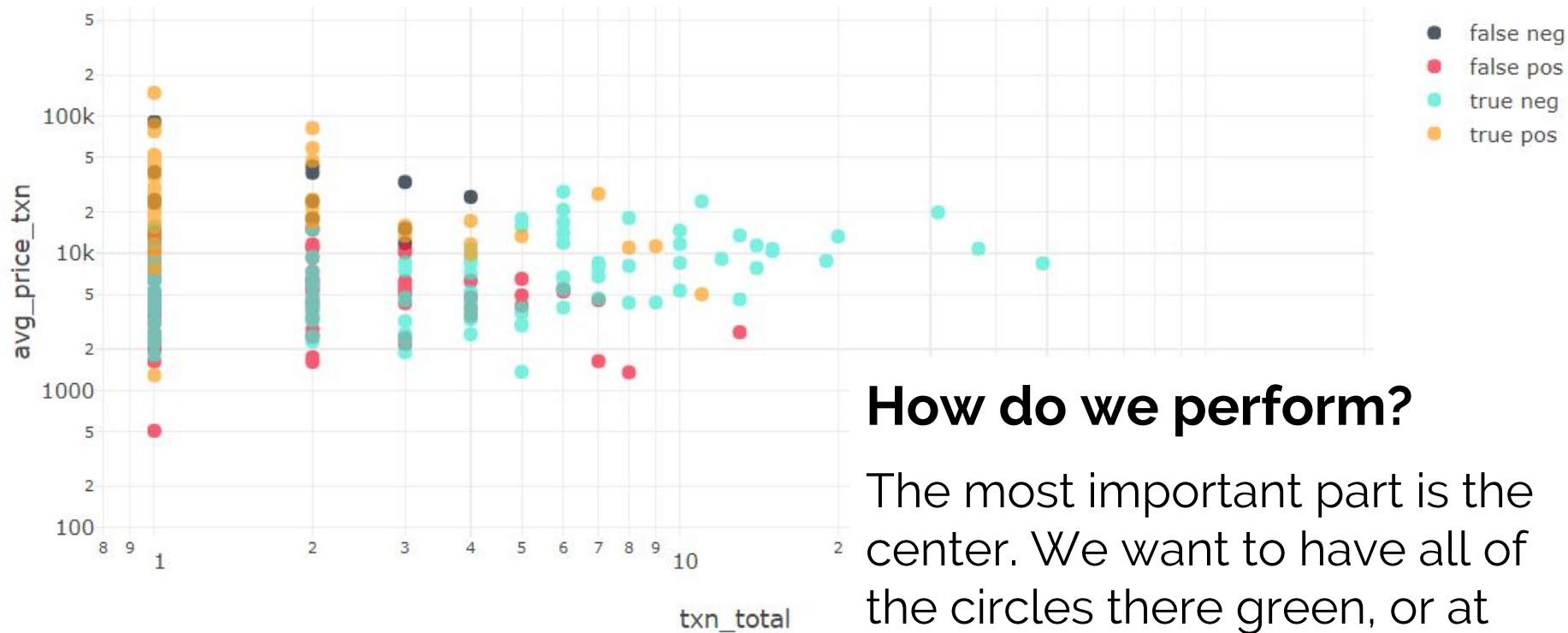


People, who **are not going** to churn, but computer say they will not.

**Type II error**  
(false negative)



People, who are going to churn, but we **have not found** them.



## How do we perform?

The most important part is the center. We want to have all of the circles there green, or at least yellow, so we can address them.



# What do we know?

- Average churn has 2 transactions before he leaves, averaging at 14k.
- Returning customer has on average 7, even though averaging at 8k.

If we could transform 5% of churns into returning customers, averaging at the same level as the rest...

We could transform them

INTO **4M** OF REVENUE.

THAT'S **10% RISE**

IN YEARLY

REVENUE OF

**RETURNING**

**CUSTOMERS.**

---

The background of the image shows the silhouettes of several people sitting at a long table in a dimly lit room, looking out a large window. Outside the window, a city skyline is visible, featuring a prominent domed building, likely St. Paul's Cathedral in London, under a hazy sky. The text is overlaid on the left side of the image.

Let's make it happen,  
address the **right customers.**  
Everything is **ready.**