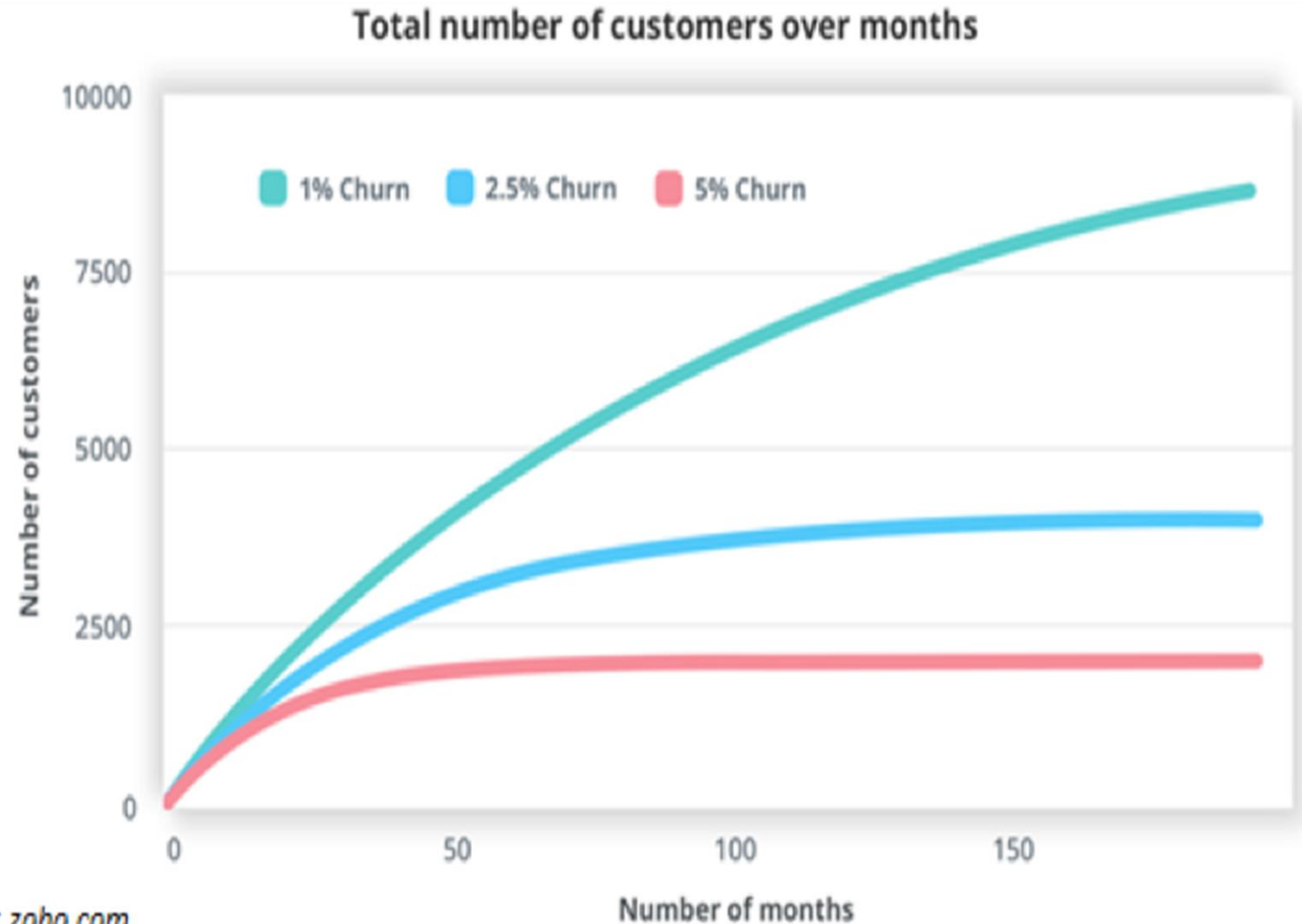# CHURN RATE PREDICTION

CAHYA PUTERA P

JCDS8

PROBLEM

Customer churn is one of the most important metrics for a growing business to evaluate.

Churn is significant because it directly affects the competitiveness of the service provider and give company the hard truth about its customer retention.

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What Is The Impact ?

According to a study by Kolsky, when churn rate is high, it can affect the decisions you make for your business as well as your revenue. As 1 in 26 unhappy customers will complain, the rest will churn.

And *Zoho.com* revealed that the higher your churn rate, the bigger the negative impact will be on your business.

Total number of customers over months

1% Churn   2.5% Churn   5% Churn

Number of customers

10000
7500
5000
2500
0

0   50   100   150

Number of months

Source: zoho.com

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Why Should It Be Prioritized ?

Churn is one of the few metrics that can be directly correlated to revenue.

If your customer churn rate is higher than your new customer acquisition rate, your business will struggle.

The table on the right, illustrating the impact of churn rate on revenue and valuation.

Success Metrics	Scenario 1	Scenario 2
Customers Acquired	1200	1200
Average Monthly Revenue per customer	$700	$700
Customers Lost	180	90
Customer Churn	15%	7.5%
Average Lifetime in Months per customer	6.7	13.3
Total Revenue	$5.6M	$11.2M
Valuation (if 5x)	$28M	$56M

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CHURN ?

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What Is Churn Rate ?

- [Investopedia](https://www.investopedia.com/terms/c/churnrate.asp) defines churn rate as **"*the percentage of subscribers to a service who discontinue their subscriptions to that service within a given time period.*"**

- You can calculate it by dividing the number of customers you lost during that time period, by the number of customers you had at the beginning of that time period.

- For example, if you start your quarter with 400 customers and end with 380, your churn rate is 5% because you lost 5% of your customers.

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Churn Type

There are 2 types of churners : Voluntary churner and Involuntary Churner.

Voluntarily Churner

- This are the customers that voluntarily decide to leave and terminate their services. It can be subdivided into 2 categories: Incidental and Deliberate churn.

- Incidental churn occurs due to location change, financial issues, and can happen even due to bad experiences.

- Deliberate churn occurs when the customer wants to upgrade to new service providers. It can also happens due to price sensitivity, quality of the services, and other factors.

Involuntarily Churner

- This type includes the customers that are removed by the service providers from the subscription list.

- The customers that come under this category are the customers who cheat or are churned for fraudulent activities, the customers who do not pay their subscription charges and the customers who do not use the services.

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Why The Customers Churning ?

- **Lack of (or Zero) Engagement**

- **Poor Product-Market Fit**

- **Product Bugginess**

- **Difficult User Experience**

- **Lack of Proactive Support**

- **Business Competitors**

A Data Scientist prediction could help the company especially to spot the customers who will be churned.

This is important, because it costs more to acquire new customers than it does to retain existing customers.

As a result, your company can spend less on the operating costs of having to acquire new customers.

In fact, an **increase in customer retention** of just 5% can create at least a 25% increase in profit.

Data Scientist Role ?

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- Data used are from the IBM Watson Repository - Sample Datasets for Customer Retention Programs.

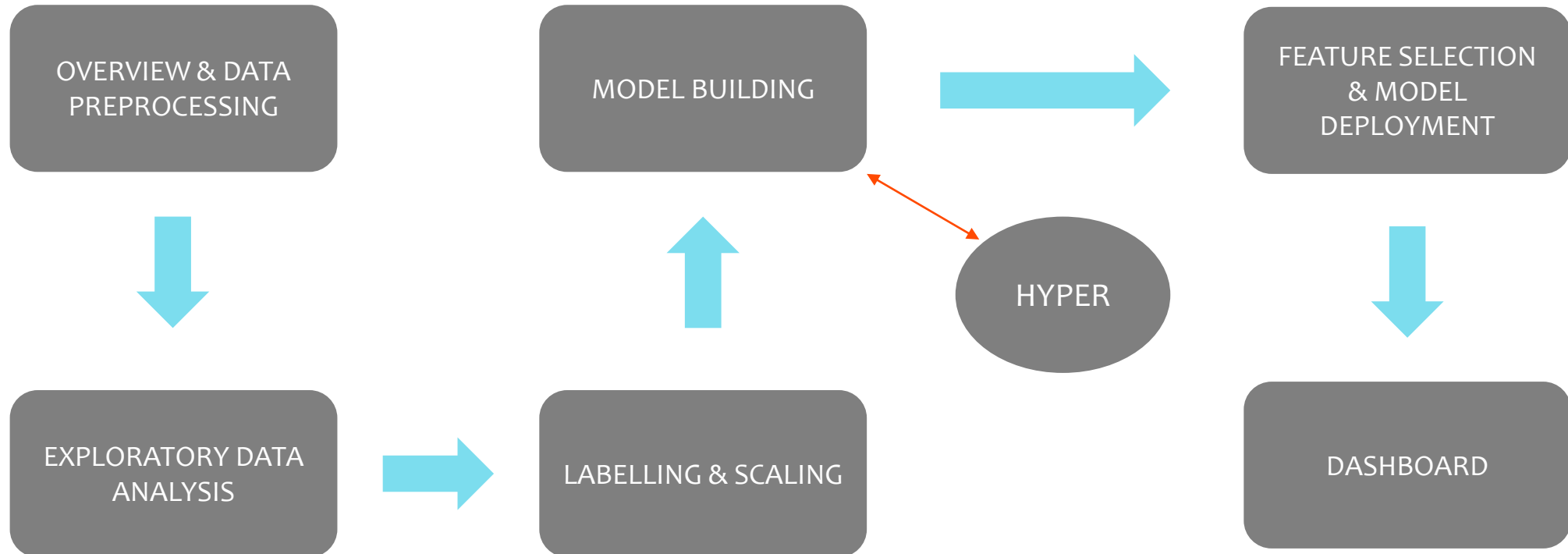- Dataset contains 7043 rows and 20 variables, including the target ('Churn').

DATASET ?

https://github.com/IBM/customer-churn-prediction

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OBJECTIVE ?

- To predict customer's churn

- Highlighting the variables influencing churn

- Build prediction model

- Choose best model to predict based on it's *recall*

- Apply and test the model into *dashboard*

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PROJECT MODEL PREDICTION FLOW

OVERVIEW & DATA PREPROCESSING

MODEL BUILDING

FEATURE SELECTION & MODEL DEPLOYMENT

HYPER

EXPLORATORY DATA ANALYSIS

LABELLING & SCALING

DASHBOARD

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CONCLUSION

- Lean to your best customers

- Define *roadmap* for new and loyal customer

- Offer a better services for the indicated churn customer

- Ask for feedback and suggestion regularly

- Offer incentives and such, to stay competitive with the competitors

Thank You

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