

GROUP 5

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The Great Escape: Unraveling the Mystery of Customer Churn in Engineering Models





The Art of Retention

Unlock the secrets of **customer churn** with a masterpiece of engineering. Discover the creative approach to **retention** that will keep your customers engaged and loyal. This presentation will unveil the code behind our innovative **Customer Churn Engineering Model**.



Introduction

Welcome to 'The Great Escape: Unraveling the Mystery of Customer Churn in Engineering Models'. In this presentation, we will explore the fascinating world of customer churn and its impact on engineering models. Get ready to dive into the strategies and techniques that can help us understand and address this challenge.

1	14-06-2010	7047	779	3578	1574	22338.99	4938.86	19392.76	11222.62	14	06	2010
2	15-06-2010	1572	2082	585	1145	4983.24	13199.88	3224.90	8163.85	15	06	2010
3	16-06-2010	5657	2399	3140	1672	17932.69	15209.66	17018.80	11921.36	16	06	2010
4	17-06-2010	3668	3207	2184	708	11627.56	20332.38	11837.28	5048.04	17	06	2010
...
4595	30-01-2023	2478	3419	525	1359	7848.92	21678.46	2845.50	9689.67	30	01	2023
4596	31-01-2023	7446	841	4825	1311	23603.82	5331.94	26151.50	9347.43	31	01	2023
4597	01-02-2023	6289	3143	3588	474	19936.13	19926.62	19446.96	3379.62	01	02	2023
4598	02-02-2023	3122	1188	5899	517	9896.74	7531.92	31972.58	3686.21	02	02	2023
4599	03-02-2023	1234	3854	2321	406	3911.78	24434.36	12579.82	2694.78	03	02	2023

4600 rows x 12 columns

In [8]: `data_reduced = data.query("Year != '2010' and Year != '2023'")`

```
In [ ]: def plot_bar_chart(df, columns, str1, str1, val):
        if val == 'sum':
            sales_by_year = df.groupby('Year')[columns].sum().reset_index()
        elif val == 'mean':
            |
```

```
df = df.drop(['customerID'], axis = 1)
df.head()
```

Out[10]:

	gender	SeniorCitizen	Partner	Dependents	ter
0	Female	0	Yes	No	1
1	Male	0	No	No	34
2	Male	0	No	No	2
3	Male	0	No	No	



```
import numpy as np
# prepare test data
A = np.random.normal(size=(10,10))
A = np.dot(A,A.T)
L = np.tril(A)
#actual in-place cholesky
assert L.dtype is np.dtype(np.float64)
assert L.flags['C_CONTIGUOUS']
n, m = L.shape
assert n==m
result = np.linalg.lapack_lite.dportrf('U', n, L, n, 0)
assert result[0] is 0
#check if L is the desired L cholesky factor |
assert np.allclose (np.dot(L,L.T), A)
assert np.allclose (L, np.linalg.cholesky(A))
```

AttributeError

Traceback (most recent call last)

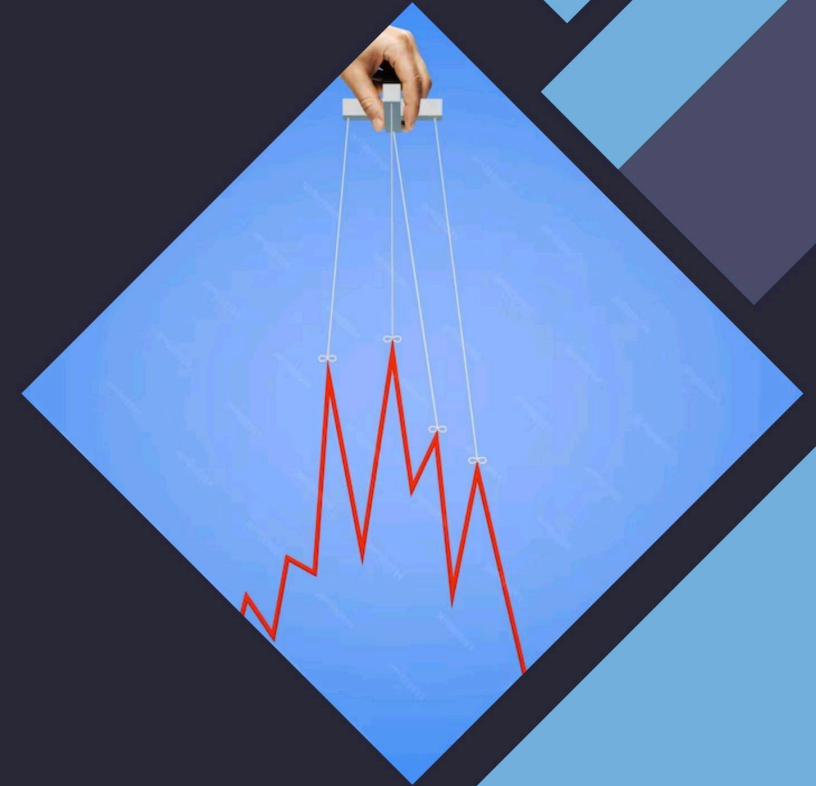
<ipython-input-7-7c56eb63f708> in <module>

9 n, m = L.shape

10 assert n==m

Understanding Customer Churn

Customer churn, also known as customer attrition, refers to the phenomenon of customers leaving a product or service. It is a critical metric for businesses to monitor as it directly impacts revenue and growth. By analyzing customer behavior and identifying key churn drivers, we can develop effective strategies to retain customers and minimize churn.



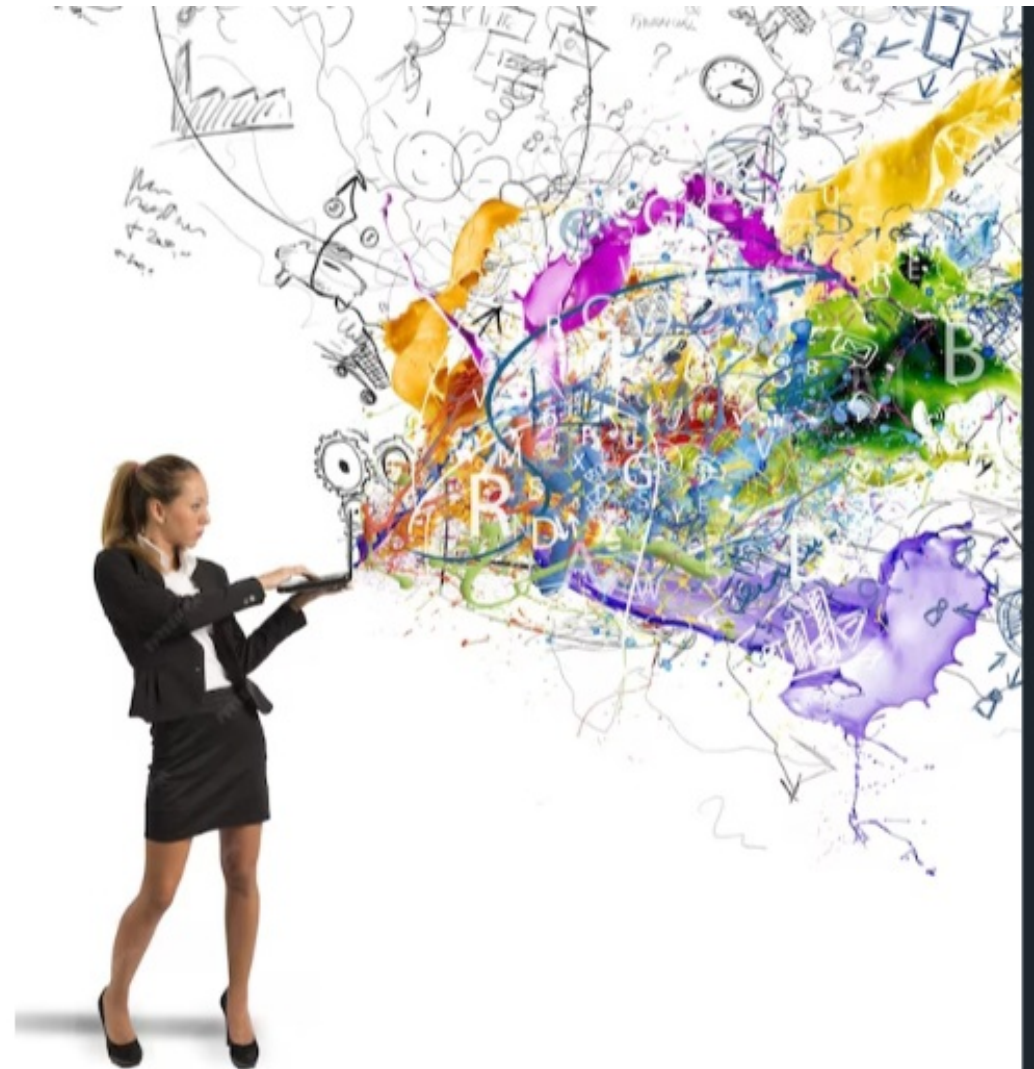


Data-Driven Insights

Data is the key to unlocking the potential of churn engineering. In this slide, we'll discuss the importance of **data-driven insights** in understanding customer behavior and predicting churn. By leveraging analytics and machine learning, you can proactively address customer needs and intervene before they churn.

Designing the Masterpiece

By combining creativity, data-driven insights, and customer-centric strategies, we can become **Churn Architects**. Let's design a masterpiece that keeps customers engaged, loyal, and delighted.





Building the Customer Churn Model

We will now dive into the step-by-step process of building the customer churn model using NumPy. The model will involve tasks such as data preprocessing, feature engineering, model training, and evaluation. By following this approach, we can gain valuable insights into the factors influencing customer churn.

Engineering Models and Customer Churn

Engineering models play a crucial role in understanding and predicting customer churn. By leveraging data analytics and machine learning techniques, we can develop sophisticated models that uncover patterns and factors contributing to churn. These models enable us to proactively identify at-risk customers and take preventive measures to retain them.



Unraveling the Mystery

In this section, we will delve into the various factors that contribute to customer churn in engineering models. We will explore the impact of product quality, customer support, pricing, and competitive landscape on customer retention. By unraveling this mystery, we can gain valuable insights to optimize our strategies and enhance customer loyalty.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Column1	column2	column3	column4	column5	column6	column7	column8	column9	column10	column11	column12	column13	column14
2														
3														
4	state_cod	CAD_no	age_grou	surename	engineer	customer	month	tensure	industry/	state_cod	manage_	churn		
5	34051	BC.XAT1	18-25	jjd	mechanni	9102	jan	18882	scott-045	it.310	chennai	no	Grand Total	
6	34051	BC.XAT2	21-31	jdk	informati	8918	feb	2889001	telsa-410	tx.67	bangalore	yes	8907.11	no.reposit
7	34051	BC.XAT3	34-45	jaava	electronic	2801	mar	89900	rtu-701	uh.61	mumbai	no	5361.11	
8	34051	BC.XAT4	age not_a	python	computer	918	apirl	1019	webex-70	yu.10	vasj	no	8393	
9	34051	BC.CDI5	21-20	java	accountac	182	may	190920	ty-901	gu.19	hydrabad	no	89300.1	
10	34051	BC.LI712	30-34	kaggle	informati	8180	june	829010	tie-4901	nj.19jk.34	gujarat	yes	291.1	
11	34051	BC.671	18+	djno	eeengineer	918	juily	8010	remo-401	dono.21.1	delhi	yes	1980231	
12	34051	BC.425	26+	andrew	ecengineer	9189	aug	87290	brove-019	koj.87	mumbai	yes	8300.1	



Strategies to Reduce Churn

Reducing customer churn requires a proactive approach and targeted strategies. By leveraging customer feedback, implementing personalized retention campaigns, and continuously monitoring key metrics, we can effectively reduce churn rates. Additionally, building strong customer relationships and delivering exceptional experiences are crucial in retaining customers and fostering long-term loyalty.



Conclusion

In conclusion, customer churn in engineering models is a complex challenge that requires a creative and data-driven approach. By understanding the factors contributing to churn and implementing effective strategies, businesses can minimize customer attrition and foster long-term customer loyalty. Let's unlock the potential of engineering models to create a great escape from customer churn.

Thanks!

Do you have any queries idea

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