CUSTOMER CHURN

BY

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INTODUCTION

- Customer churn is when customers cease their relationship with a company or business, typically by discontinuing their use of its products or services. It is a significant concern for businesses across various industries, including telecommunications, software, e-commerce, and subscription-based services.

PROBLEM STATEMENT:

Predicting Customer Churn in Telecom Industry

BUSINESS USE CASES:

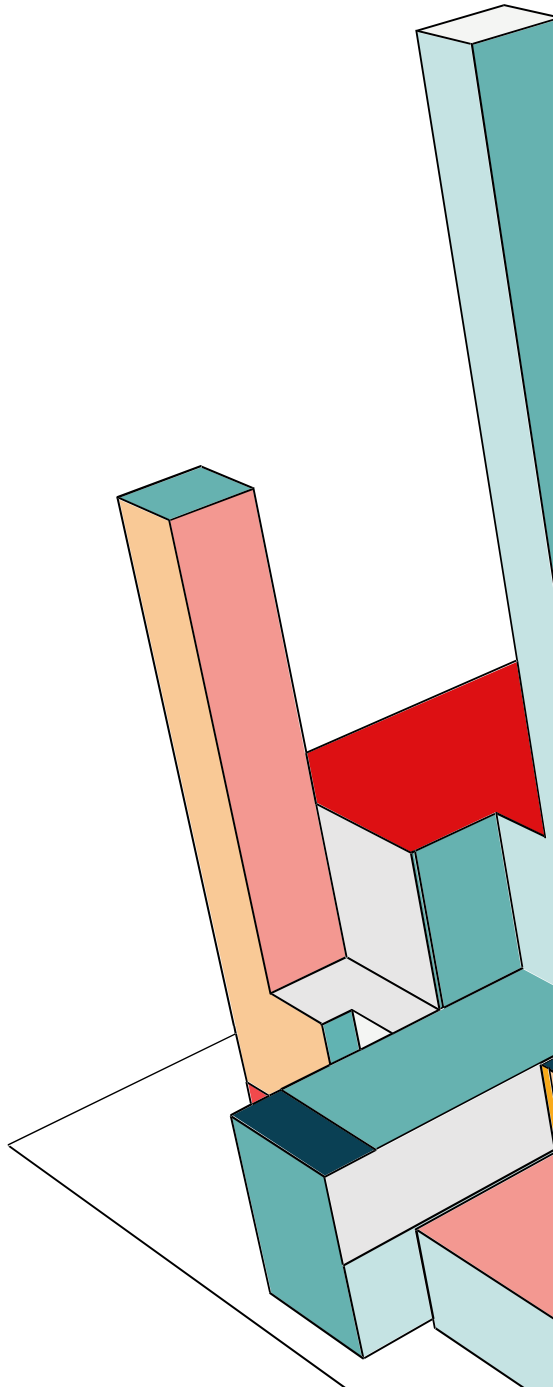
1. **Customer Retention**: Identify at-risk customers and proactively implement retention strategies.

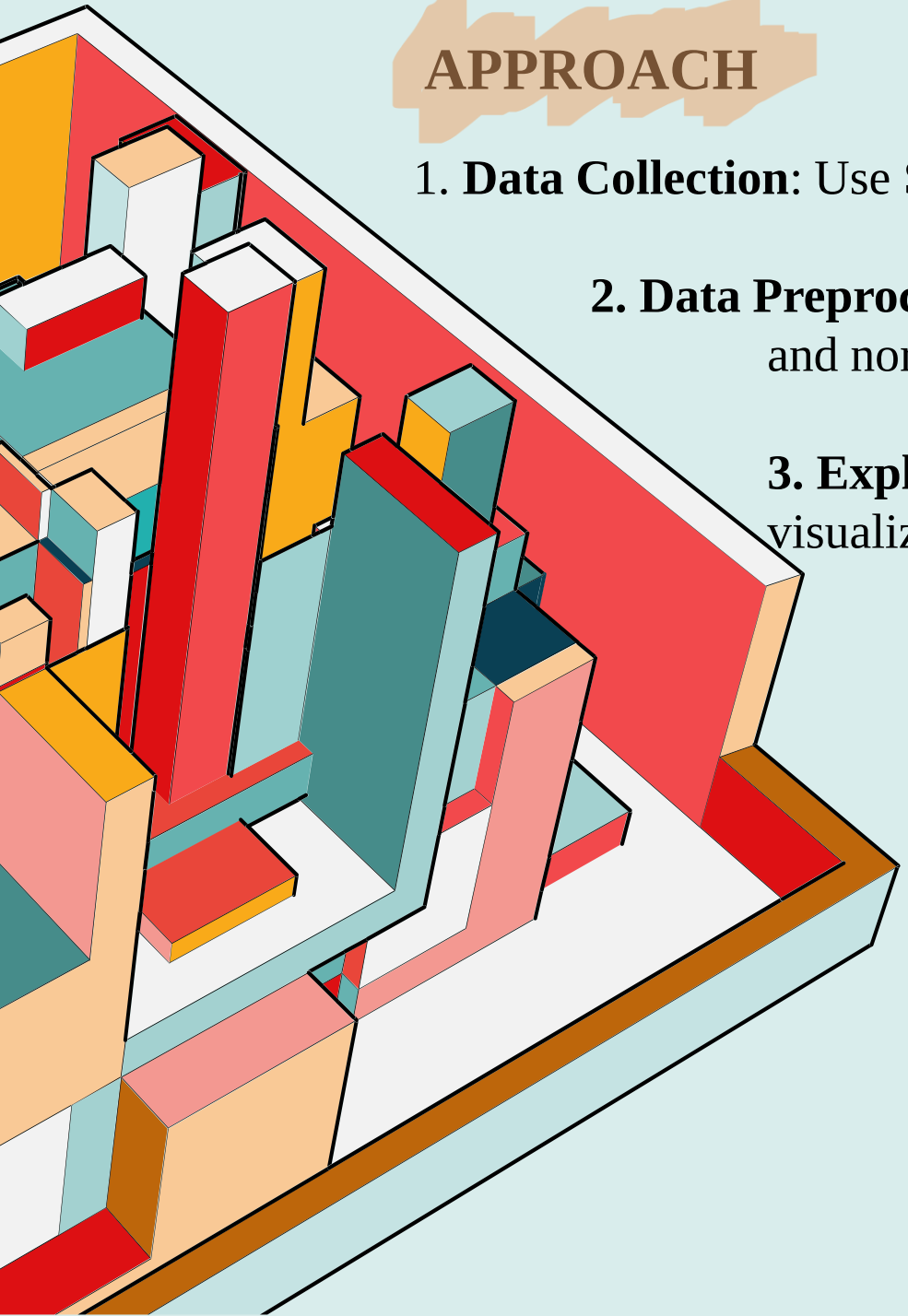
2. **Marketing Campaigns**: Tailor marketing efforts towards customers who are more likely to churn.

3. **Service Improvement**: Analyze churn patterns to improve service offerings and customer support.

4. **Revenue Optimization**: Reduce churn rates to maintain a steady revenue stream.

5. **Customer Segmentation**: Segment customers based on churn probability to offer personalized experiences.





APPROACH

1. **Data Collection**: Use SQL to query the telecom database and extract relevant data.

2. **Data Preprocessing**: Clean and preprocess the data to handle missing values, outliers, and normalize features.

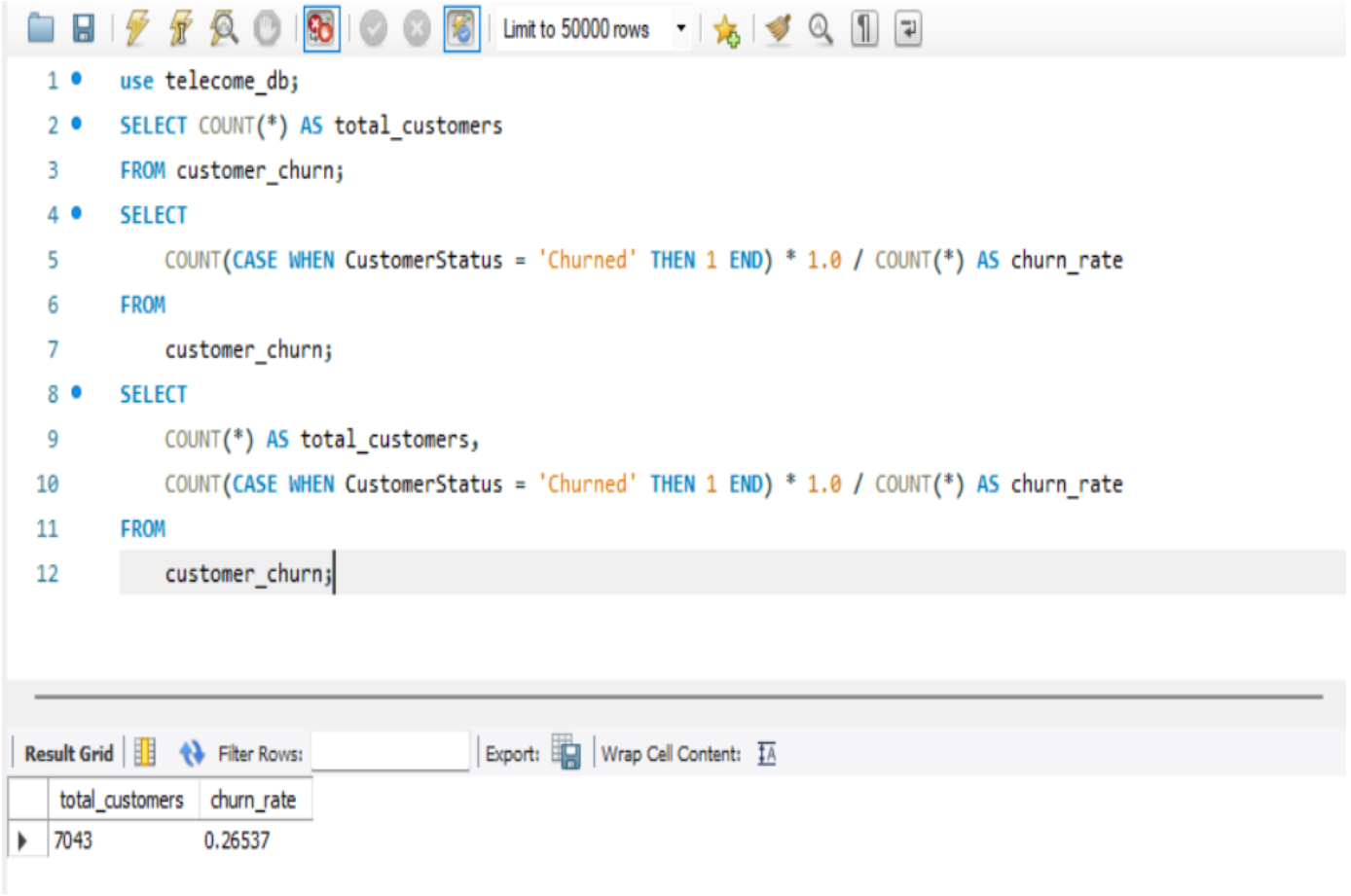
3. **Exploratory Data Analysis (EDA)**: Use Power BI or Tableau for data visualization to identify trends and patterns.

4. **Feature Engineering**: Create new features that could help in predicting churn.

5. **Visualization and Reporting**: Create detailed dashboards and reports in Power BI or Tableau to present findings.

CUSTOMER RETENTION

Identify the total number of customers and the churn rate



```
1  use telecome_db;
2  SELECT COUNT(*) AS total_customers
3  FROM customer_churn;
4  SELECT
5      COUNT(CASE WHEN CustomerStatus = 'Churned' THEN 1 END) * 1.0 / COUNT(*) AS churn_rate
6  FROM
7      customer_churn;
8  SELECT
9      COUNT(*) AS total_customers,
10     COUNT(CASE WHEN CustomerStatus = 'Churned' THEN 1 END) * 1.0 / COUNT(*) AS churn_rate
11 FROM
12     customer_churn;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

total_customers	churn_rate
7043	0.26537

This analysis show the total customer and total churn rate

Low Churn Rate: A churn rate of 0.2% is exceptionally low. This suggests that the vast majority of your customers are satisfied with the service, or the factors leading to churn are minimal.

CUSTOMER RETENTION

Determine the most common reasons for churn among customers

```sql
SELECT
    `Churn Category`,
    COUNT(*) AS churn_count
FROM
    customer_churn
WHERE
    `CustomerStatus` = 'Churned'
GROUP BY
    `Churn Category`
ORDER BY
    churn_count DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Churn Category	churn_count
Competitor	841
Dissatisfaction	321
Attitude	314
Price	211
Other	182

- The most significant reason for churn is customers switching to competitors, accounting for 841 cases.
- The second most common reason is dissatisfaction with the service, with 321 cases.
- Attitude-related churn accounts for 314 cases, which could be due to negative experiences with support staff or service representatives.
- Price is a significant factor, with 211 customers leaving due to cost-related concerns.
- There are 182 cases categorized as "Other," which could include various less common reasons for churn.

CUSTOMER RETENTION

Identify customers with high total charges who have churned

```sql
SELECT
    `Customer ID`,
    `Total Charges`,
    `CustomerStatus`
FROM
    customer_churn
WHERE
    `CustomerStatus` = 'Churned'
ORDER BY
    `Total Charges` DESC
LIMIT 10;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

Customer ID	Total Charges	CustomerStatus
2889-FPWRM	8684.8	Churned
0201-OAMXR	8127.6	Churned
3886-CERTZ	8109.8	Churned
1444-VVSGW	7968.85	Churned
5271-YNWVR	7856	Churned
8199-ZLLSA	7804.15	Churned
9053-JZFKV	7752.3	Churned
1555-DJEQW	7723.9	Churned
3259-FDWOY	7723.7	Churned

customer_churn 3

- The results display the top 10 churned customers who had the highest total charges.
- The customer with ID 2889-FPWRM had the highest total charges of **8,648.8** before churning.
- These customers represent significant revenue losses for the company, and understanding the reasons behind their churn can help prevent similar losses in the future

MARKETING CAMPAIGNS

Segment customers based on churn probability and suggest targeted marketing campaigns

```sql
SELECT
    `Customer ID`,
    `Churn Category` AS churn_segment
FROM
    customer_churn;
SELECT
    `customer id`,
    CASE
        WHEN CustomerStatus = 'Churned' THEN 'High Risk'
        ELSE 'Low Risk'
    END AS churn_segment
FROM
    customer_churn;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer id	churn_segment
0002-ORFBO	Low Risk
0003-MKNFE	Low Risk
0004-TLHLJ	High Risk
0011-IGKFF	High Risk
0013-EXCHZ	High Risk
0013-MHZWF	Low Risk
0013-SMEOE	Low Risk
0014-BMAQU	Low Risk

customer_churn 8 | Result 9

- High Risk Customers: These are customers who have already churned and are at risk of leaving permanently.

  Example IDs: 0004-TLHJ, 0011-IGKFF, 0013-EXCHZ

- Low Risk Customers: These customers are still with us and less likely to leave.

  Example IDs: 0002-ORFBO, 0003-MKNFE, 0013-MHZWF

MARKETING CAMPAIGNS

Analyze the impact of promotional offers on customer

```sql
SELECT
    CASE
        WHEN `Monthly Charge` < 50 THEN 'Low Charge'
        WHEN `Monthly Charge` BETWEEN 50 AND 100 THEN 'Medium Charge'
        ELSE 'High Charge'
    END AS Charge_Category,
    COUNT(*) AS Total_Customers,
    SUM(CASE WHEN CustomerStatus = 'Churned' THEN 1 ELSE 0 END) AS Churned_Customers,
    SUM(CASE WHEN CustomerStatus != 'Churned' THEN 1 ELSE 0 END) AS Retained_Customers,
    SUM(CASE WHEN CustomerStatus != 'Churned' THEN 1 ELSE 0 END) * 100.0 / COUNT(*) AS Retention_Rate
FROM
    customer_churn
GROUP BY
    Charge_Category;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Charge_Category	Total_Customers	Churned_Customers	Retained_Customers	Retention_Rate
Medium Charge	3780	1238	2542	67.24868
Low Charge	2372	379	1993	84.02192
High Charge	891	252	639	71.71717

- Customers with Low Charge have the highest retention rate (84.02%).
- Customers with Medium Charge have the lowest retention rate (67.25%).

SERVICE IMPROVEMENT

Analyze customer support interactions and their correlation with churn

```sql
SELECT
    CASE
        WHEN CustomerStatus = 'Stayed' THEN 'Retained'
        ELSE 'Churned'
    END AS RetentionStatus,
    AVG(`Total Refunds`) AS AvgRefunds,
    AVG(`Total Extra Data Charges`) AS AvgExtraCharges,
    COUNT(`Customer ID`) AS TotalCustomers
FROM customer_churn
GROUP BY RetentionStatus;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

RetentionStatus	AvgRefunds	AvgExtraCharges	TotalCustomers
Retained	2.303457627118643	7.1737	4720
Churned	1.268760223848472	6.2247	2323

Result 1

- Retained customers have a higher average refund (2.30) and slightly higher extra charges (7.17) compared to churned customers.
- The total number of retained customers (4,720) is more than double that of churned customers (2,323).

SERVICE IMPROVEMENT

Identify the most common service issues reported by churned customers

```sql
SELECT
    `Churn Reason`,
    COUNT(`Customer ID`) AS IssueFrequency
FROM
    customer_churn
WHERE
    `CustomerStatus` = 'Churned'
GROUP BY
    `Churn Reason`
ORDER BY
    IssueFrequency DESC
LIMIT 0, 50000;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

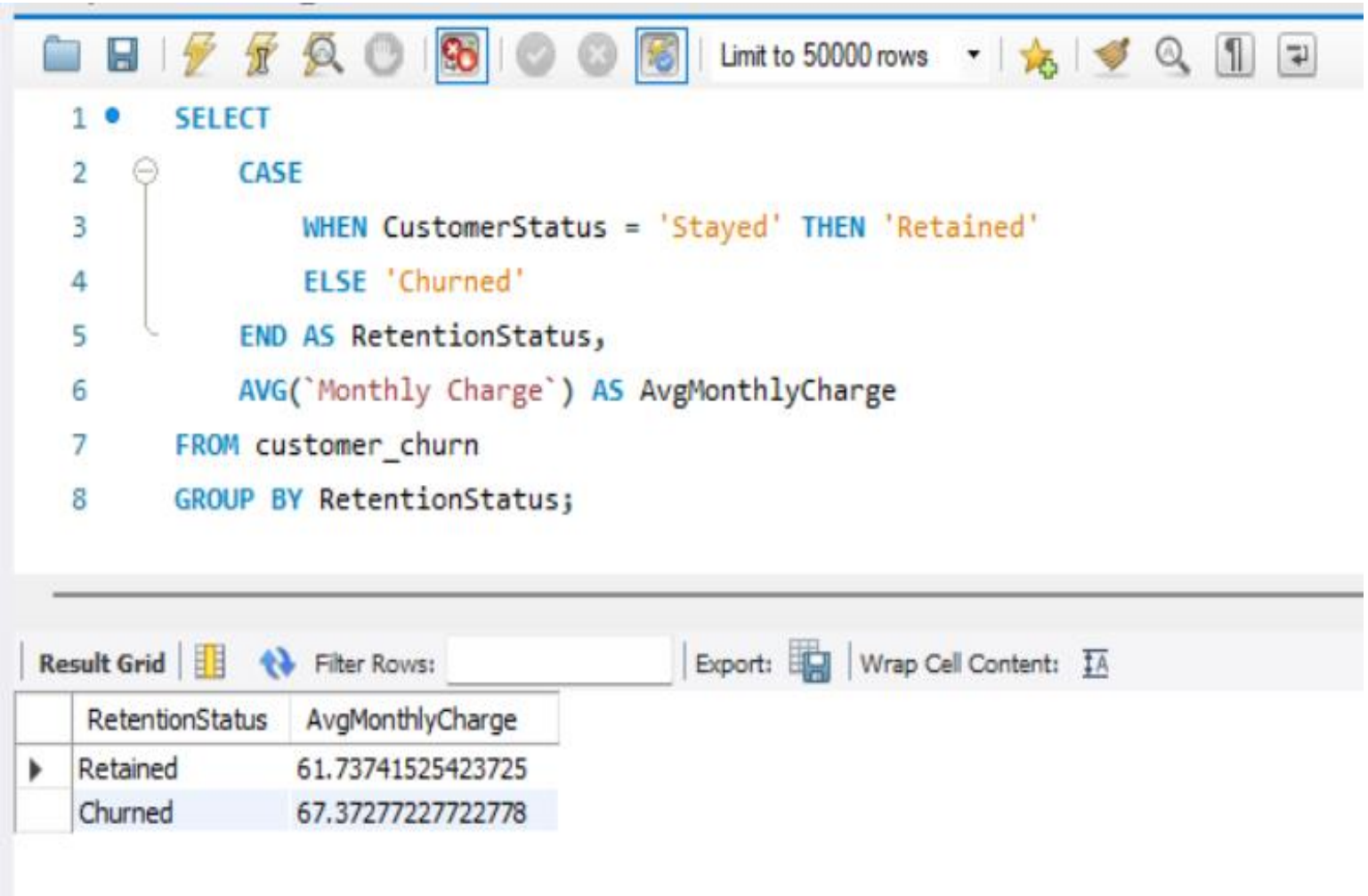
Churn Reason	IssueFrequency
Competitor had better devices	313
Competitor made better offer	311
Attitude of support person	220
Don't know	130
Competitor offered more data	117
Competitor offered higher download speeds	100
Attitude of service provider	94
Price too high	78
Product dissatisfaction	77
Network reliability	72
Long distance charges	64
Service dissatisfaction	63
Moved	46
Extra data charges	39
Limited range of services	37
Poor expertise of online support	31
Lack of affordable download/upload speed	30
Lack of self-service on Website	29

Result 1

- Top reasons for leaving:
  - Competitors had better devices (313 customers).
  - Competitors made better offers (311 customers).
  - Poor support staff attitude (310 customers).
- Other reasons:
  - Some didn't know why they left (130 customers).
  - Competitors offered more data or higher download speeds (117 and 110 customers).
- Less common reasons:
  - High prices, product dissatisfaction, and network reliability were also factors.
  - Some left because of extra charges, moving, or poor website services.

REVENUE OPTIMIZATION

Calculate the average monthly charges for customers who have churned and compare it with those who have not



- Retained customers have an average monthly charge of 61.74.
- Churned customers have a higher average monthly charge of 67.37.

REVENUE OPTIMIZATION

Identify customers who generate the highest revenue and assess their churn risk

```
Limit to 50000 rows
1  WITH top_revenue_customers AS (
2      SELECT
3      `Customer ID`, `Total Revenue`,`Churn Category`, `Monthly Charge`,`CustomerStatus`FROM customer_churn
4      ORDER BY `Total Revenue` DESC
5      LIMIT 10
6  )
7  SELECt
8   `Customer ID`, `Total Revenue`, `Monthly Charge`,`Churn Category`,`CustomerStatus`,
9      CASE
10     WHEN `Churn Category` = 'Churned'
11     THEN 'High Risk'
12     ELSE 'Low Risk'
13     END AS ChurnRisk
14 FROM
15     top_revenue_customers
16 ORDER BY
17     `Total Revenue` DESC;
18
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Customer ID	Total Revenue	Monthly Charge	Churn Category	CustomerStatus	ChurnRisk
0164-APGRB	11979.34	114.9	NULL	Stayed	Low Risk
8263-QMNTJ	11868.34	115.55	NULL	Stayed	Low Risk
5451-YHYPW	11795.78	115.75	NULL	Stayed	Low Risk
3810-DVDQQ	11688.9	117.6	NULL	Stayed	Low Risk
7569-NMZYQ	11634.53	118.75	NULL	Stayed	Low Risk
3963-RYFNS	11596.99	116.45	NULL	Stayed	Low Risk
9351-HXDMR	11564.37	110.9	NULL	Stayed	Low Risk
5914-XRFQB	11529.54	115.8	NULL	Stayed	Low Risk
0619-OLYUR	11514.81	111.9	NULL	Stayed	Low Risk
3508-CFVZL	11501.82	111.3	NULL	Stayed	Low Risk

Result 1

- The result grid shows that all the top 10 customers have stayed (CustomerStatus is "Stayed") and are categorized as "Low Risk" for churn. The total revenue for these customers ranges from approximately 11,158.31 to 19,793.94, and their monthly charges range from 111.3 to 114.9.

CUSTOMER SEGMENTATION

Segment customers by service usage and analyze churn rates within each segment

```sql
SELECT
    CASE
        WHEN `Avg Monthly GB Download` <= 10 THEN 'Low Usage'
        WHEN `Avg Monthly GB Download` BETWEEN 11 AND 50 THEN 'Medium Usage'
        ELSE 'High Usage'
    END AS DataUsageSegment,
    CASE
        WHEN `Monthly Charge` <= 30 THEN 'Low Spend'
        WHEN `Monthly Charge` BETWEEN 31 AND 70 THEN 'Medium Spend'
        ELSE 'High Spend'
    END AS SpendSegment,
    COUNT(CASE WHEN `CustomerStatus` = 'Churned' THEN 1 END) AS ChurnedCount,
    COUNT(`Customer ID`) AS TotalCount,
    ROUND((COUNT(CASE WHEN `CustomerStatus` = 'Churned' THEN 1 END) * 100.0) / COUNT(`Customer ID`), 2) AS ChurnRate
FROM customer_churn
GROUP BY
    DataUsageSegment,SpendSegment
ORDER BY
    DataUsageSegment, SpendSegment;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

DataUsageSegment	SpendSegment	ChurnedCount	TotalCount	ChurnRate
High Usage	High Spend	140	571	24.52
High Usage	Low Spend	123	1564	7.86
High Usage	Medium Spend	75	339	22.12
Low Usage	High Spend	308	724	42.54
Low Usage	Low Spend	19	44	43.18
Low Usage	Medium Spend	82	319	25.71
Medium Usage	High Spend	814	2259	36.03
Medium Usage	Low Spend	45	136	33.09
Medium Usage	Medium Spend	263	1087	24.20

Result 1

- High data users with low spending have the highest churn rate at 72.66%.
- Low data users with medium spending have the lowest churn rate at 5.98%.Generally,
- customers who spend less are more likely to leave, especially those who use a lot of data.

CUSTOMER SEGMENTATION

Identify the most profitable customer segments and analyze their churn rates

```sql
SELECT
    CASE
        WHEN `Total Revenue` > 1000 THEN 'High Revenue'
        WHEN `Total Revenue` BETWEEN 500 AND 1000 THEN 'Medium Revenue'
        ELSE 'Low Revenue'
    END AS RevenueSegment,
    COUNT(CASE WHEN `CustomerStatus` = 'Churned' THEN 1 END) AS ChurnedCount,
    COUNT(`Customer ID`) AS TotalCount,
    ROUND((COUNT(CASE WHEN `CustomerStatus` = 'Churned' THEN 1 END) * 100.0) / COUNT(`Customer ID`), 2) AS ChurnRate
FROM
    customer_churn
GROUP BY
    RevenueSegment
ORDER BY
    RevenueSegment;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

RevenueSegment	ChurnedCount	TotalCount	ChurnRate
High Revenue	891	4698	18.97
Low Revenue	742	1594	46.55
Medium Revenue	236	751	31.42

- HighRevenue:
  - ChurnedCustomers: 991
  - TotalCustomers: 4698
  - Churn Rate: 18.97%
- LowRevenue:
  - ChurnedCustomers: 742
  - TotalCustomers: 1594
  - Churn Rate: 46.54
- MediumRevenue:
  - ChurnedCustomers: 236
  - TotalCustomers: 751
  - Churn Rate: 31.42%

Dashboard of Churn customer

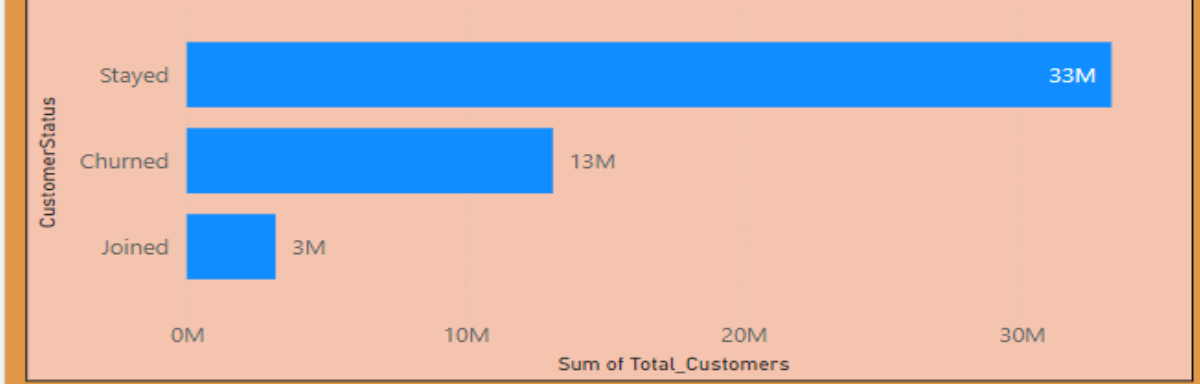
0.27
churn rate

7043
Count of Customer ID

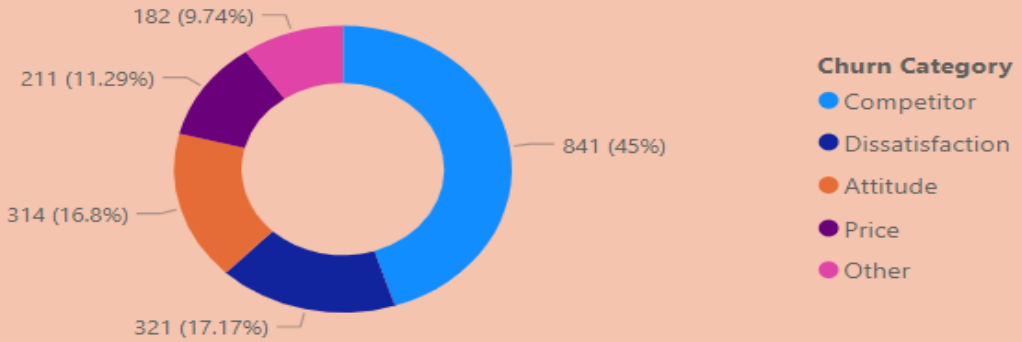
Age
19 80

City
All

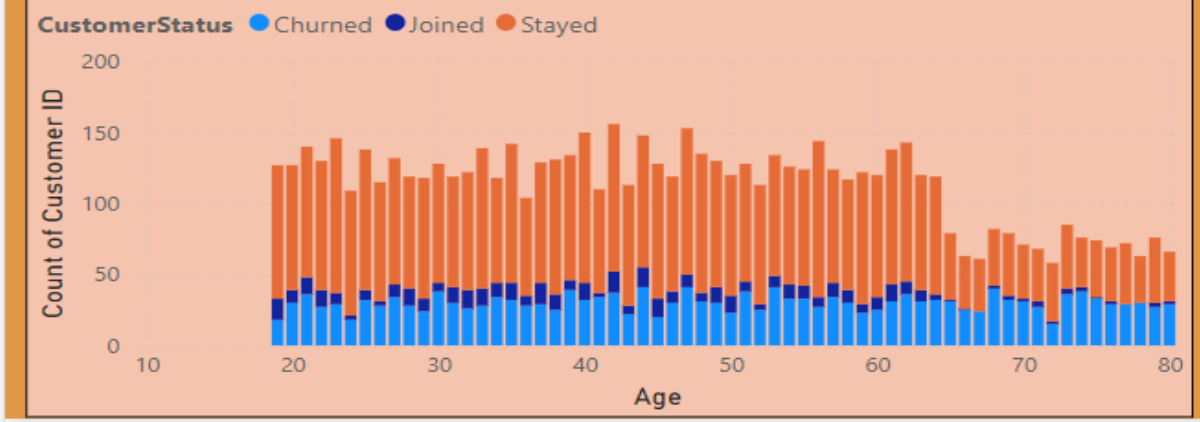
Customer states from total customer



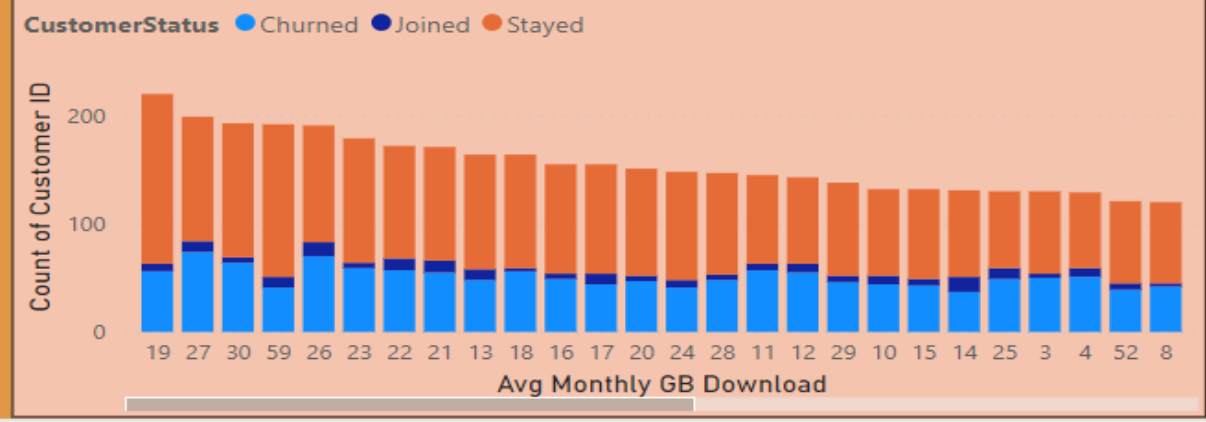
Churn Category



Churn status by age



Churn by Service Usage



FINDING FROM ANALYSIS

- **Low Churn Rate**: The overall churn rate is low at 0.2%, indicating most customers are satisfied.
- **Primary Reasons for Churn**:
  - Competitor offers and better devices are the top reasons.
  - Service dissatisfaction and poor support staff attitude are also significant factors.
  - High costs are another key reason for churn.
- **High Revenue Customers**: Customers with high total charges who churn represent significant revenue losses.

STRATEGIES TO STOP CHURN

- **Proactive Customer Retention**:
  - **Identify At-Risk Customers**: Use data analytics to identify customers who show early signs of dissatisfaction or are considering switching to competitors.
  - **Personalized Offers**: Develop personalized offers for these at-risk customers based on their usage patterns and previous interactions.

- **Improve Customer Support**:
  - **Training for Support Staff**: Improve training programs for customer support staff to ensure better handling of customer issues, as poor attitude from support staff is a common reason for churn.
  - **Faster Resolution Times**: Implement measures to reduce the time taken to resolve customer issues, particularly for high-value customers.

- **Enhance Service Offerings**:
  - **Competitive Pricing**: Regularly review pricing models to ensure they are competitive with industry standards, especially for services like high-speed internet and device plans.
  - **Loyalty Programs**: Introduce or enhance loyalty programs that reward long-term customers with discounts, free upgrades, or other perks.

STRATEGIES TO STOP CHURN

- **Targeted Marketing Campaigns**:
  - **Focus on High Churn Segments**: Create targeted marketing campaigns aimed at customers in high churn segments, such as low data users with medium spending.
  - **Retention Promotions**: Offer promotions that specifically address the reasons for churn, such as better device offers or lower prices.

- **Service Improvement Based on Feedback**:
  - **Feedback Loops**: Establish feedback loops where customers can provide feedback on why they might leave or are dissatisfied, and use this information to make data-driven improvements to services.
  - **Regular Check-Ins**: Conduct regular check-ins with customers to gauge their satisfaction levels and address any issues before they lead to churn.

- **Predictive Analytics**:
  - **Churn Prediction Models**: Implement predictive analytics models to continuously monitor customer data and predict churn before it happens. This allows the company to take preemptive actions.

THANK YOU