**Activities done using Excel**

1. Avg monthly long distance charges , Multiple lines , Internet Type, Avg monthly GB download, Online Security, Online Backup, Device Protection plan, Premium tech support, streaming tv,music,movies , unlimited data , Churn category, Churn Reason these columns have blanks or nulls
2. No Duplicates found in our data (using data>remove duplicates , or conditional formatting)
3. Assign text for all values or characters where calculations not required, zip codes always text as they might have zeros which might be ignored when used number format
4. Lati,long we set to number format for accuracy.
5. Treat spaces in column names \_ as space is not taken in sql
6. Now count the blanks % for each column by using formula to understand if we want to drop columns

countA helpe to count only non blanks where as rows helps to count all the rows in the dataset.

Used countblank/rows. Since we don’t have much of blank % we are not dropping any columns

1. Its all good and clean now to import into SQL we have total 7043 rows with data excluding column names
2. In excel avg monthly long distance charges,avg monthly gb download, we are replacing with 0 in place of nulls/blanks with formula. Using condition =if(B3=” “, 0 , B3)
3. We don’t have much of blank % so we don’t have to drop any column

**Activities done using SQL**

1. We use latitude as decimal(9,6) --🡪 which means total 9 digits and 6 digits after decimal,this gives exact data to locate geographies.
2. We are using alter table and then modify the columns to make changes to data type

Example: Alter table\_name

Modify column\_name data\_type;

1. Load the data using table data import wizard, load data infile command etc..

Activities done on Power BI

1)Claculated measure on total customers

2)Churned Customers

3)Churned Rate

4)Select the various data categories for each column

Female   
  
26.92% churn rate,3488 total customers , 49.43 avg churned age,391 high charged churned customers,month to month contract type churned customers are 842 with their avg monthly charge for senior citizens is 72 , under 30 is 62 and mid age is 62,and total charges is 1.8k for stayed customers,1.1k churned customers and 0.1k joined customers,and 17.22 is avg of tenure in months,

b)one year contract is 75 churned customers,with 77 as avg monthly charges for senior citizes and under 30 is 67 and mid age is 62 where as 4.1k total charges for churned customers,3.0k for stayed customers,0.1k joined cutomers,and 41.43 is avg tenure in months,

c) we have 22 churned cutomers for two years with 53.58 as avg tenure in months,71 as avg monthly charges for senior citizens , 60 as avg monthly charges for under 30 and 50 for mid age ,avg of total charges is 4.9k for churned customers,3.6k for stayed customers and 0.1k for joined customers.

d)customers churned by age agroup and churn reasons are 206-mid age customers(avg monthly charge is 75.51),131 senior citizens(avg monthly charge is 77.18), 83 under 30(avg monthly charge is 76.95) due to to competitors,73 mid age(avg monthly charge is 61.99),64 senior citizens(avg monthly charge is 75.28),29 under 30 (avg monthly charge is 71.76)due to attitude,87 mid age(avg monthly charge is 71.42),52 senior citizens(avg monthly charge is 76.72),19 under 30 (avg monthly charge is 61.66)due to dissatisfaction,50 mid age(avg monthly charge is 69.40),41 senior citizens(avg monthly charge is 80.10),19 under 30(avg monthly charge is 56.62) due to price,49 mid age(avg monthly charge is 43.53),23 senior citizens(avg monthly charge is 75.42),13 under 30(avg monthly charge is 84.58) due to othe reasons.

e) from pie visual we get avg monthly charges and total charges by dependents top 3 %’s   
1)we have 6 dependents gender female with avg monthly charge 95.40 which is 21.45%, with 1 customer and sum of total charges is 4,613

2)then we have 0 dependenta gender female with with avg monthly charge 66.58% which is 14.97%, 2690 total customers,sum of total charges is 60,54,085 and

3) we have 5 dependents 61.77 as avg monthly charges which is 13.89%,total customers 9,sum of total charges 22,533

f)we have 939 churned customers,sum of monthly charges is 2,24,028,sum of total charges is 79,55,182,sum of total refunds is 6,712,sum of total revenue is 1,05,52,361.99

Female (Not married)

1)we have 34.44% as churn rate,1800 total customers,49.47 avg churned age,199 high charged churned customers count,580 month to month customers churned by contract,30 one year contract,10 two year ontract churned customers,

2) we have highest 151 mid age churned ,83 senior citizes,57 under 30 churend due to competition,then 46 senior citizens,43 mid age,17 under 30 churned due to attitude,

3)620 total churned customers,sum of monthly charges is 1,12,965,sum of total charges is 29,29582,3157 sum of total refunds,sum of total revenue is 38,82,090

4)top 3 pie chart visuals are number of dependents

a)2 under female,with avg monthly charge is 63.73 which is 24.19%,total customers 42,sum of total charges 65,554

b)0 dependents under female avg monthly charges 63.22 which is 24 % and total customers 1674,sum of total charges is 27,73,615

Female (Married)

1)Churn rate is 18.90% ,1688 total customers,49.35 avg churned age,192 high charges churned count,262 month to month contract customers churned with 23.89 avg tenure in months,followed by 45 one year with 46.57 avg tenure in months,12 two year contract with 57.11 avg tenure n months

2)55 mid age (avg monthly charges are 81.36),48 senior citizens(avg monthly charges are 70.36),26 under 30 customers(avg monthly charges are 82.90) churned lost them due to competition,followed by 33 mid age,24 senior citizen and 7 under 30 lost due to dissatisfaction

3)We have 7 customers churned and hcurn rate is 4.96% , sum of monthly charges is 13,013.05, sum of total charges is 828,153, sum of total refunds is 448.16 and sum of total revenue is 10,33,478

4)we have 6 dependents under 1 customer where avg of monthly charges is 95.40% which is 20.79% and sum of total charges is 4,613.95, followed by 0 dependents with 1016 total customers avg monthly charge is 72.13% which is 15.72% and sum of total charges is 32,80,469

Male

1)26.16% is the Churn rate with 3555 total customers 50.05 is avg churned age ,408 is high charged churned customers

2)we have 813 month to month contract churned customers with 17.48 avg tenure in months followed by 91 customers churned by one year contact with 41.09 avg tenure in months,26 customers churned with two year contact with 54.25 avg tenure in months

3)201 mid age(avg monthly charge is 72.88),155 senior citizen(avg monthly charge is 79.09),65 under 30 (avg monthly charge is 73.60),customers churned due to competition,followed by customers churned due to dissatisfaction,attitude,price and other

4)We have 12 churned customers with 6.09% churn rate 17,985 as sum of monthly charges,11,63,752 as sum of total charges,293 as sum of total refunds,14,57,948 as sum of total revenue

5) we have 8 dependents and total customers is 1 with avg monthly charge is 79.95 which is 16.49% and sum of total charges is 4,362 followed by 2762 total customers with avg monthly charge is 65.28 which is 13.46% and sum of total charges is 60,89,231

Male(Not married)

1)31.50% is the Churn rate with 1841 total customers 48.41 is avg churned age ,189 is high charged churned customers

2)we have 535 month to month contract churned customers with 13.38 avg tenure in months followed by 38 customers churned by one year contact with 38.03 avg tenure in months,7customers churned with two year contact with 46.45 avg tenure in months

3)132 mid age(avg monthly charge is 71.09),78 senior citizen(avg monthly charge is 75.78),41 under 30 (avg monthly charge is 70.33),customers churned due to competition,followed by customers churned due to attitude, dissatisfaction ,price and other

4)We have 7 churned customers with 13.46% churn rate 4,719 as sum of monthly charges,269,966 as sum of total charges,80 as sum of total refunds,332906 as sum of total revenue

5) we have 4 dependents and total customers is 1 with avg monthly charge is 95.00 which is 28.3% and sum of total charges is 655 followed by 1665 total customers with avg monthly charge is 59.98% which is 17.87% and sum of total charges is 26,07,063

Male(married)

1)20.42% is the Churn rate with 1714 total customers 52.76 is avg churned age ,219 is high charged churned customers

2)we have 278 month to month contract churned customers with 25.30 avg tenure in months followed by 53 customers churned by one year contact with 43.31 avg tenure in months,19 customers churned with two year contact with 58.15 avg tenure in months

3)69 mid age(avg monthly charge is 76.30),77 senior citizen(avg monthly charge is 82.44),24 under 30 (avg monthly charge is 79.20),customers churned due to competition,followed by customers churned due to dissatisfaction , attitude, other and price.

4)We have 5 churned customers with 3.45% churn rate 13,266 as sum of monthly charges,893785 as sum of total charges,213 as sum of total refunds,1125042 as sum of total revenue

5) we have 8 dependents and total customers is 1 with avg monthly charge is 79.95which is 17.6% and sum of total charges is 4362 followed by 1061 total customers with avg monthly charge is 73.60% which is 16.2% and sum of total charges is 34,82,168.60

Internet Type

If its is Cable

1)25.66% is churn rate ,830 total customers,47.87 avg churned age,74 high charged churned count,with month to month contract we have (97 female,90 male) and avg tenure in months is 15.28,one year contract we have (6 female,17 male) with 40.99 avg tenure in months,two year contract we have (2 female,1 male )56.68 avg tenure in months. We have highest customers churned due to competition,dissatisfaction followed by attitude, other and price.we have 49,264 sum of monthly charges,1731453 as sum of total charges,1390 as sum of total refunds,22,28,473 as sum of total revenue.

If it is DSL

1)18.58% is churn rate ,1652 total customers,47.71 avg churned age,76 high charged churned count,with month to month contract we have (125 female,137 male) and avg tenure in months is 15.65,one year contract we have (14 female,22 male) with 39.47 avg tenure in months,two year contract we have (5 female,4 male )56.56 avg tenure in months. We have highest customers churned due to competition,dissatisfaction followed by attitude, other and price.we have 93,821 sum of monthly charges,35,15,755 as sum of total charges,3338 as sum of total refunds,45,49,289 as sum of total revenue.

If it is Fiber Optics

1)40.72% is churn rate ,3035 total customers,51.13 avg churned age,643 high charged churned count,with month to month contract we have (570 female,537 male) and avg tenure in months is 20.79,one year contract we have (51 female,47 male) with 49.90 avg tenure in months,two year contract we have (13 female,18 male )56.85 avg tenure in months. We have highest customers churned due to competition,dissatisfaction followed by attitude,price and other .we have 273364 sum of monthly charges 9801071as sum of total charges,6567 as sum of total refunds,12408074 as sum of total revenue.

If Used Phone Service

1) 26.71% is churn rate ,6361 total customers,49.72 avg churned age,760 high charged churned count,with month to month contract we have (768 female,734 male) and avg tenure in months is 17.27,one year contract we have (71 female,81 male) with 41.49 avg tenure in months,two year contract we have (20 female,25 male )54.08 avg tenure in months. We have highest customers churned due to competition,attitude followed by dissatisfaction ,price and other .we have 419753 sum of monthly charges 15039344 sum of total charges,12585 as sum of total refunds,20344704 as sum of total revenue.

If Used Internnet Service

1) 31.83% is churn rate ,5517 total customers,50.14 avg churned age,793 high charged churned count,with month to month contract we have (792 female,764 male) and avg tenure in months is 18.73,one year contract we have (71 female,86 male) with 44.89 avg tenure in months,two year contract we have (20 female,23 male )56.71 avg tenure in months. We have highest customers churned due to competition,dissatisfaction followed by attitude ,other and price .we have 416450 sum of monthly charges 15048280 sum of total charges,11295 as sum of total refunds,19185838 as sum of total revenue.

If Payment method is mailed check

1) 36.88% is churn rate ,385 total customers,43.85 avg churned age,20 high charged churned count,with month to month contract we have (64 female,66 male) and avg tenure in months is 8.31,one year contract we have (8 female,4 male) with 30.57 avg tenure in months. We have highest customers churned due to competition,dissatisfaction followed by attitude ,price and other .we have 17967 sum of monthly charges 385656 sum of total charges,451 as sum of total refunds,541854 as sum of total revenue.

If Payment method is credit card

1) 14.48% is churn rate ,2749 total customers,48.29 avg churned age,172 high charged churned count,with month to month contract we have (174 female,156 male) and avg tenure in months is 16.60,one year contract we have (27 female,25 male) with 38.61 avg tenure in months,two year contract we have (8 female,8male)with 52.62 avg tenure in months. We have highest customers churned due to competition,attitude followed by dissatisfaction ,price and other .we have 150455 sum of monthly charges 5980741 sum of total charges,4846 as sum of total refunds,8157186 as sum of total revenue.

If Payment method is Bank Withdrawl

1. 34.00% is churn rate ,3909 total customers,50.80 avg churned age,607 high charged churned count,with month to month contract we have (604 female,591 male) and avg tenure in months is 18.93,one year contract we have (40 female,62 male) with 44.58 avg tenure in months,two year contract we have (14 female,18male)with 52.24 avg tenure in months. We have highest customers churned due to competition,dissatisfaction followed by attitude ,price and other .we have 279494 sum of monthly charges 9694327 sum of total charges,8520 as sum of total refunds,12672091 as sum of total revenue

If the contract is Month to Month

1. We have 1655 total customers churned , 50.13 avg churned age,606 high charged churned count with 842 female and 813 male 14.02 is avg tenure in months churned customers are due to categories like competition,attitude,dissatisfaction,price and other.Sum of monthly charges is 118802,sum of total charges is 1927182,sum of total refunds 2554,sum of total revenue is 2490105
2. We have 408 total customers joined ,606high charged churned count
3. 1547 total customers stayed .

If the contract is One Year

1. We have 166 total customers churned , 46.48 avg churned age,147 high charged churned count with 75 female and 91 male 44.96 is avg tenure in months churned customers are due to categories like competition, dissatisfaction ,attitude, other and price.Sum of monthly charges is 14118,sum of total charges is 674991,sum of total refunds 186,sum of total revenue is 858489
2. We have 24 total customers joined ,147 high charged churned count
3. 1360 total customers stayed .

If the contract is two Year

1. We have 48 total customers churned , 47.27 avg churned age,46 high charged churned count with 22 female and 26 male 61.27 is avg tenure in months churned customers are due to categories like competition, price, dissatisfaction ,attitude and other.Sum of monthly charges is 4165,sum of total charges is 260753,sum of total refunds 97,sum of total revenue is 335864
2. We have 22 total customers joined ,46 high charged churned count with 22 female and 26 male 1.82 avg tenure in months
3. 1813 total customers stayed .

**Customer Churn Summary & Recommendations**

**🔍 Key Churn Drivers**

* **Contract Type**: Month-to-Month = Highest churn (1,655 customers)
* **Service**: Fiber Optic users churn most (40.7%)
* **Demographics**:
  + Non-married customers = 34%+ churn
  + Senior Citizens & <30 age group = High price sensitivity
* **Payment Method**:
  + Mailed Check (36.9%) & Bank Withdrawal (34%) = Higher churn
  + Credit Card = Lowest churn (14.5%)

**✅ Actionable Recommendations**

🔒 **Lock-in Loyalty**

* Promote annual/two-year contracts with discounts

💰 **Price Sensitivity Focus**

* Tailor low-cost plans for seniors & younger customers
* Launch bundle offers for families

📞 **Combat Competition & Dissatisfaction**

* Win-back offers for lost customers
* Track early signs of dissatisfaction via support data

💳 **Digital Payment Push**

* Incentivize auto-pay via credit cards
* Educate users still using mailed checks

📶 **Fiber User Retention**

* Ensure top-tier service & support
* Offer loyalty upgrades for long-tenured users

👥 **Demographic Personalization**

* Special offers for non-married users
* Family loyalty programs for married users

🧾 **Refund & Revenue Leaks**

* Proactively resolve service issues before refund
* Capture exit feedback to prevent silent churn