

# Mapping

## 1- Customers

Customer ID PK, Location ID FK, Status ID FK, Churn reason ID FK, Contract ID FK, Number of refs, Referred a friend, Gender, Age, Married, Dependents, Number of Dependents, Quarter, Tenure in Months, Offer, Paperless Billing, Payment Method, Monthly Charge, Total Charges, Total Refunds, Total Revenue, CLTV, Churn Score, Satisfaction Score.

## 2- Phone Services

Phone Service ID PK, Customer ID FK, Multiple Lines, average monthly Long-Distance Charges, Total Long-Distance Charges.

## 3- Internet Service

Internet ID PK, Internet Type.

## 4- Customer Internet Service

(Internet ID FK, Customer ID FK) PK, Online Security, Online Backup, Device Protection Plan, Premium Tech Support, Streaming TV, Streaming Movies, Streaming Music, Unlimited Data, Avg Monthly GB Download, Total Extra Data Charges.

## 5- Status

Status ID PK, Customer Status.

## 6- Churn Category

Churn Category ID PK, Churn Category

## 7- Churn Reason

Churn reason ID PK, Churn Category ID FK, Churn Reason.

## 8- Location

Location ID PK, Zip code FK, Latitude, Longitude, Latlong, City.

## 9- Population

Zip code PK, Population.

## 10- Call

Call ID PK, Customer ID FK, Date, Time, Topic, Agent, Resolved, Speed of answer, Duration, Answered (Y/N), Satisfaction rate.

## 11- Contract

Contract ID PK, Contract type.

# Rules

## Mapping Weak entity:

- 1- Create a table.
- 2- Add foreign key represents the owner.
- 3- Choose PK (Owner FK, Weak Partial PK).

## 1: Many Relation:

- 1- Take PK of one put it as FK in the “many” Table.
- 2- Relation attributes go to the “many” table.

## M: N Relation:

- 1- Create a new table (Table1 FK, Table2 FK) PK
- 2- Put relation attributes in this table.

## 1:1 Relation

T1(C1 PK, C2) T2(C3PK, C4)

## 1: 1 Must from both sides:

- 1- Merge 2 tables into a new table that has all tables attribute and choose one PK.  
T (C1 PK, C2, C3, C4)

## 1: 1 May from both sides (very hard to find it in real life):

- 1- Table1 and Table2 do not change.
- 2- Create a new table T3 (C1 FK, C3 FK) PK

## 1: 1 Must from T2, May from T1:

- 1- Add new column in the must table.  
The new column is the may table PK will be an FK in must table.
- 2- If there are attributes to the relationship those can be placed in Must table.

## Relations

Customer Internet service M: N – May: May.

Customer Phone service 1:1 – May: Must.

Customer Contract M: 1 - Must: May.

Customer Call 1:M May – Must.

Customer Location M: 1 Must – Must.

Location Population M: 1 Must – Must.

Customer Status 1: M Must – May.

Customer Reason M: 1 May – May.

Category Reason 1: M – Must: Must

Example: Employee Dept M: 1