ERD Documentation
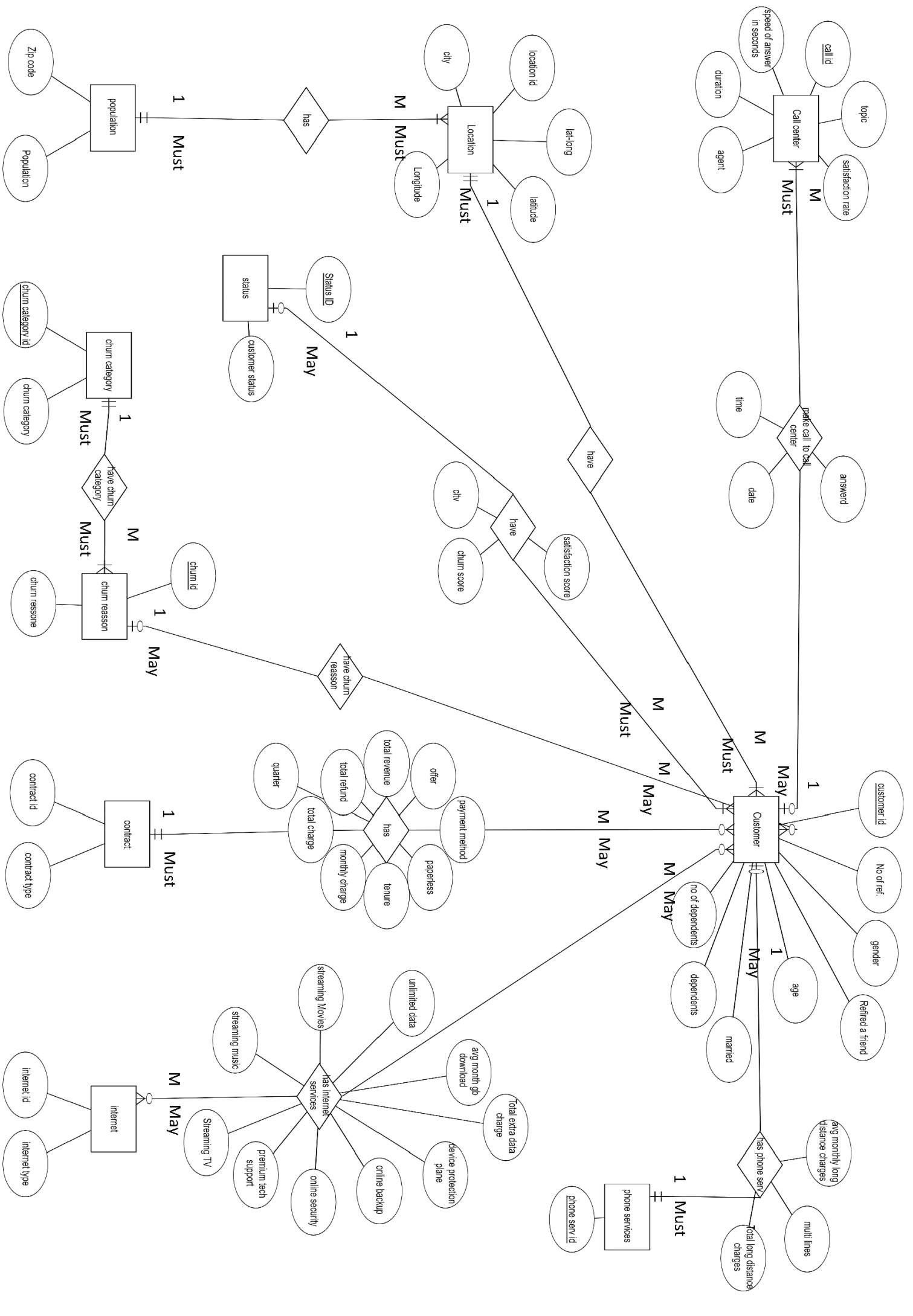
➤ Our ERD consists of :

    a) Main Entitys:
        1- Customers.
        2- Phone Services.
        3- Internet Service.
        4- Contract.
        5- Churn Reason.
        6- Churn Category
        7- Status.
        8- Location.
        9- Population.
        10-   Call Center.

    b) Main Relatioships

        1- Customers - Phone Services Relationship.
        2- Customers - Internet Service Relationship.
        3- Customers - Contract Relationship.
        4- Customers - Churn Reason Relationship.
        5- Churn Reason - Churn Category Relationship.
        6- Customers - Status Relationship.
        7- Customers - Location Relationship.
        8- Location - Population Relationship.
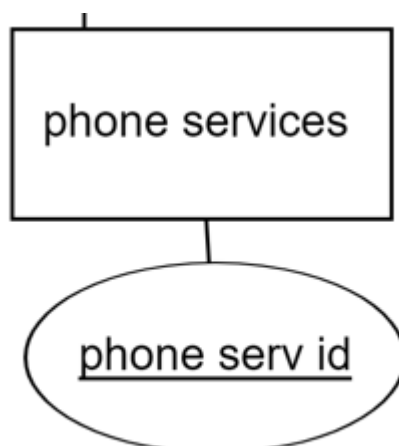   9- Customers – Call Center Relationship.

a) Main Entitys:

1- Customers is a strong Entity Consisting of 8 simple attributes:
   a) <u>Customer ID</u>
   b) Age.
   c) Gender.
   d) Married.
   e) Dependents.
   f) Number of Dependents.
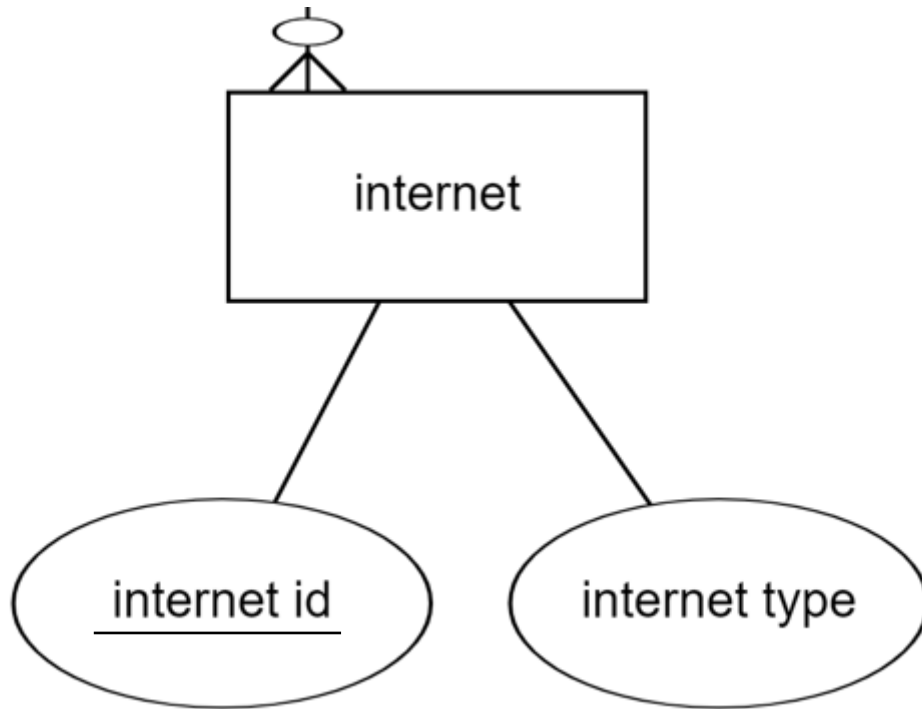   g) Refels.
   h) Number of refers.
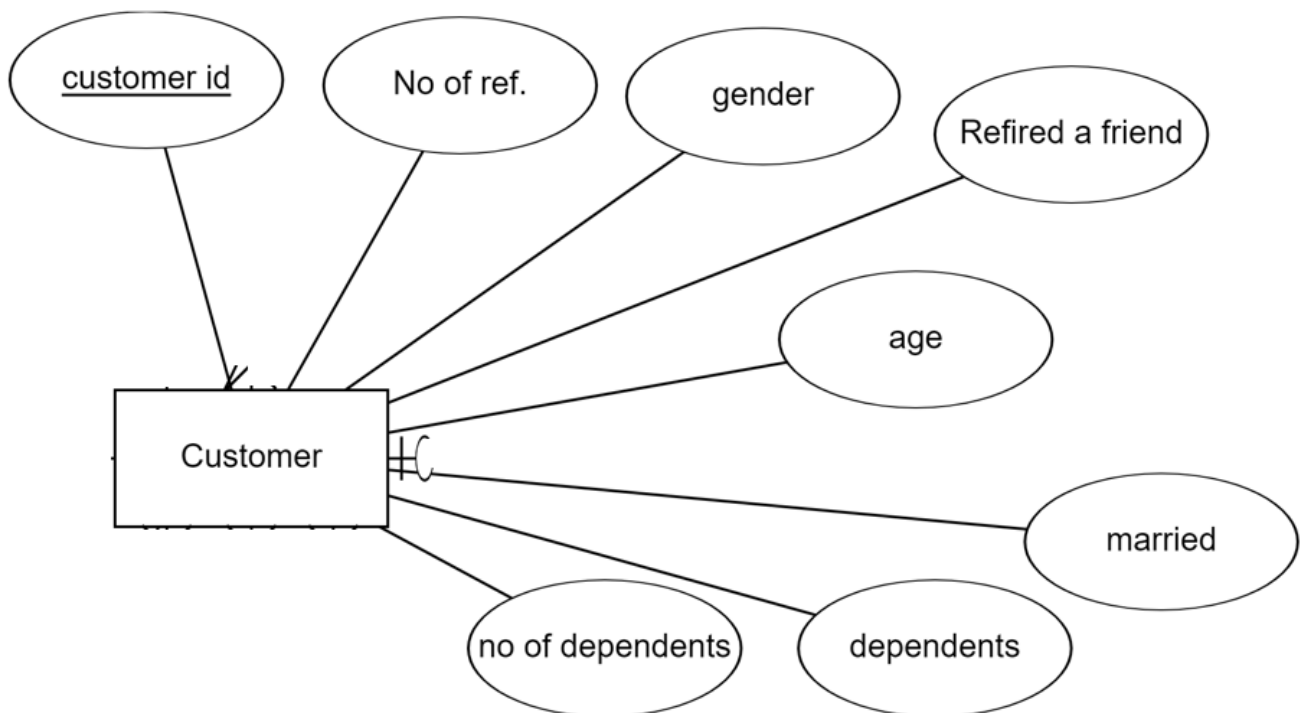
2- Phone Services is a strong Entity Consisting of 1 simple attribute.
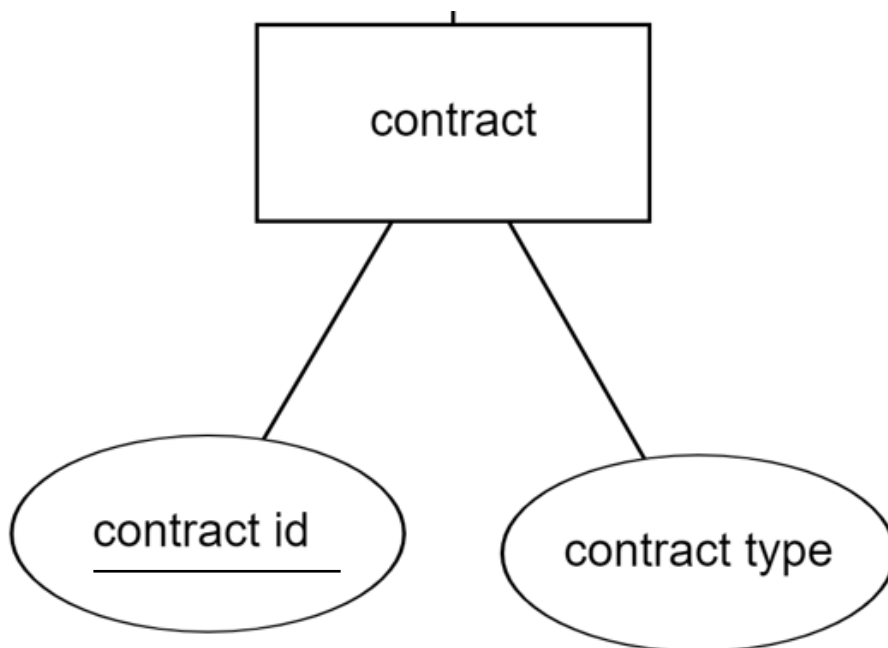   a) <u>Phone Services ID</u>

3- Internet Service Strong Entity Consists of 2 simple attributes
   a) <u>Internet ID.</u>
   b) Internet Type.

```
                    ⬭
                    △
        ┌───────────────────────┐
        │                       │
        │       internet        │
        │                       │
        └───────────────────────┘
           ╱                 ╲
          ╱                   ╲
    ⬭───────────⬭       ⬭───────────⬭
   (             )     (             )
   ( internet id )     ( internet type )
   (             )     (             )
    ⬭───────────⬭       ⬭───────────⬭
```

4- Contract is a strong Entity Consisting of 2 simple attributes.
   a) <u>Contract ID.</u>
   b) Contract Type.

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              │
        ┌───────────────┐
        │               │
        │   contract     │
        │               │
        └───────────────┘
          ╱           ╲
         ╱             ╲
   ⬭─────────⬭     ⬭─────────⬭
  (           )   (           )
  ( contract id ) ( contract type )
  (           )   (           )
   ⬭─────────⬭     ⬭─────────⬭
```

5- Churn Reason strong Entity Consists of 2 simple attributes.
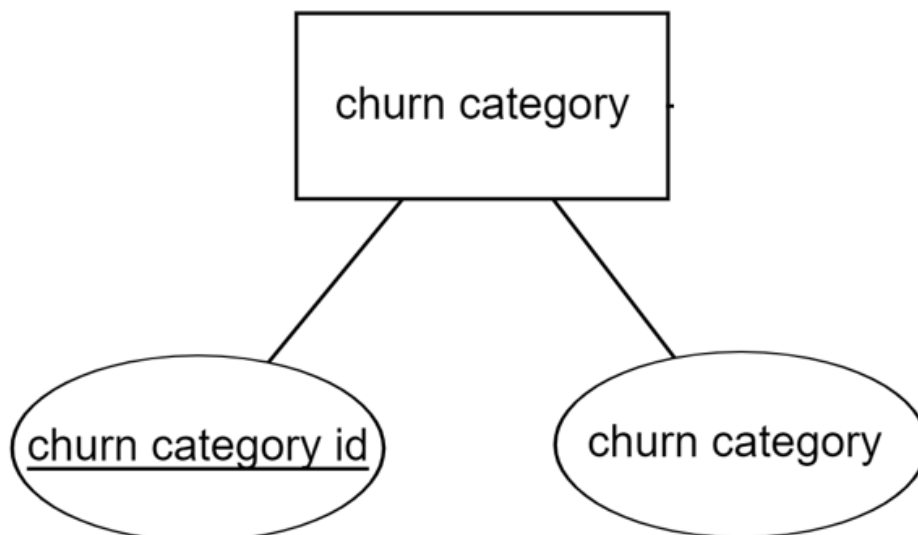   a) Churn ID.
   b) Churn Reason.

churn id

churn reasson

churn ressone
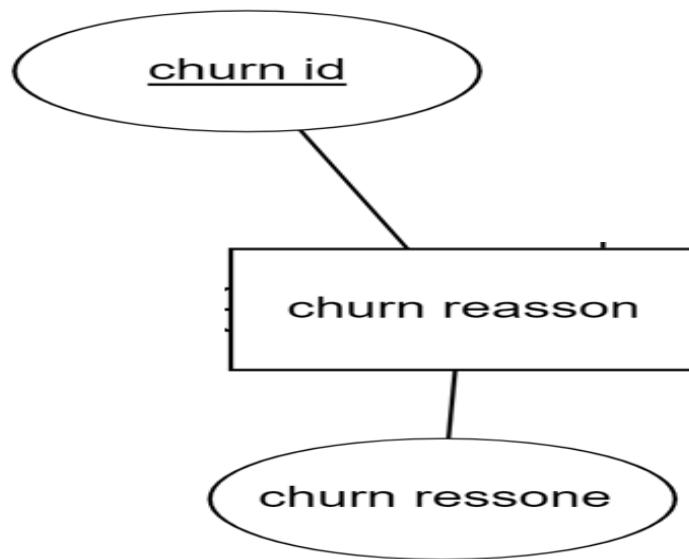
6- Churn Category is strong Entity Consists of 2 simple attributes
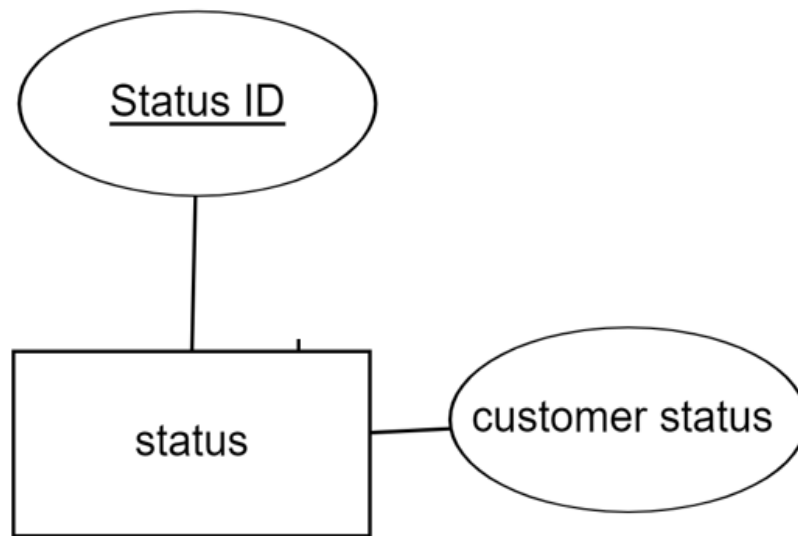   a) Churn Category ID.
   b) Churn Category.

churn category
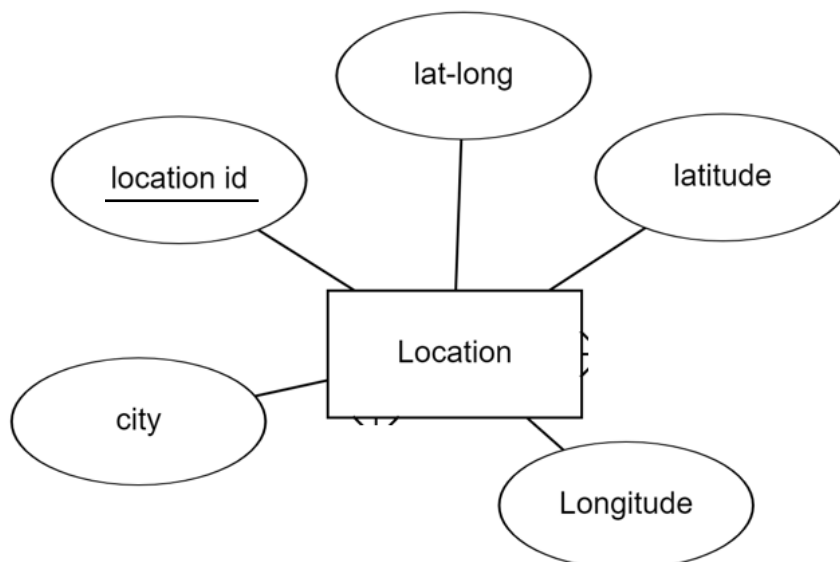
churn category id

churn category

7- Status strong Entity Consists of 2 simple attributes
   a) Status ID.
   b) Customer Status.

```
        _____
       /        \
      ( Status ID )
       _____/
           |
           |
   _____|_____        _____
  |                 |      /        \
  |     status      |-----( customer status )
  |_____|      _____/
```
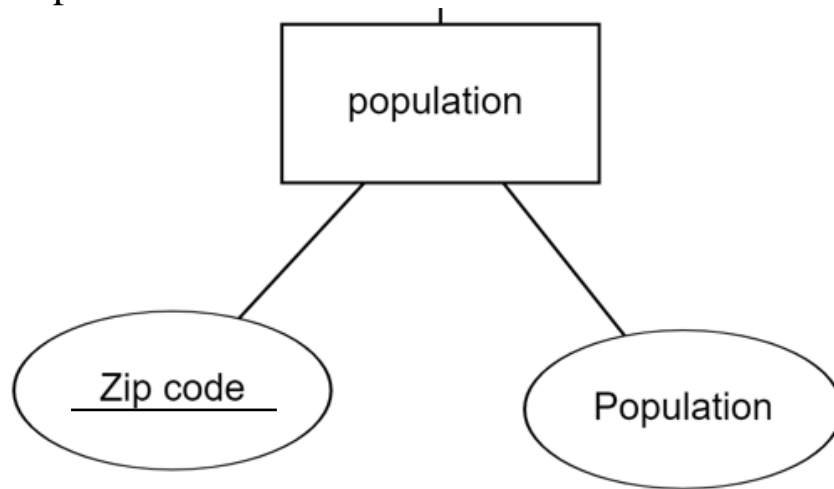
8- Location is a strong Entity Consists of 5 simple attributes.
   a) Location ID.
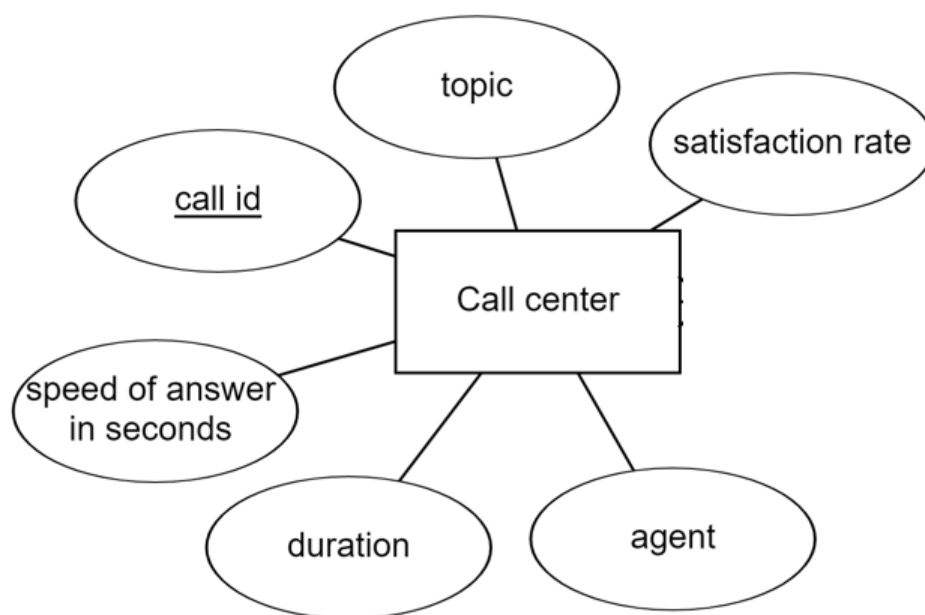   b) Lat – Long.
   c) Latitude.
   d) Longitude
   e) City

```
                    _____
                   /        \
                  ( lat-long )
   _____        _____/        _____
  /        \           |            /        \
 ( location id )       |           ( latitude )
  _____/           |            _____/
          \        ____|____        /
           \      |         |      /
            \     | Location |    
    _____  \   |         |   
   /        \  \  |_____|  _____
  (  city    )--  |    |    --/        \
   _____/          |      ( Longitude )
                              _____/
```

9- Population is strong Entity Consists of 2 simple attributes.

   a) Zip Code.
   b) Population.

```
                    ┌──────────────────┐
                    │   population     │
                    │                  │
                    └──────────────────┘
                   ╱                    ╲
          ╭──────────────╮        ╭──────────────╮
          │   Zip code   │        │  Population  │
          ╰──────────────╯        ╰──────────────╯
```

10- Call Center is a strong Entity Consisting of 6 simple attributes.
   a) Call ID   d) Agent.
   b) Topic.   e) Duration.
   c) Satisfaction Rate.   f) Speed of answer in Seconds.

```
                        ╭──────────╮
                        │  topic   │
                        ╰──────────╯        ╭────────────────────╮
          ╭──────────╮                      │ satisfaction rate  │
          │ call id  │                      ╰────────────────────╯
          ╰──────────╯        ┌──────────────┐
                              │ Call center  │
     ╭────────────────╮       │              │
     │ speed of answer│       └──────────────┘
     │  in seconds    │      ╱              ╲
     ╰────────────────╯  ╭──────────╮   ╭──────────╮
                         │ duration │   │  agent   │
                         ╰──────────╯   ╰──────────╯
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c) Main Relatioships

1- Customers - Phone Services Relationship.

  a) Degree: Binary.

  b) Cardinality 1:1
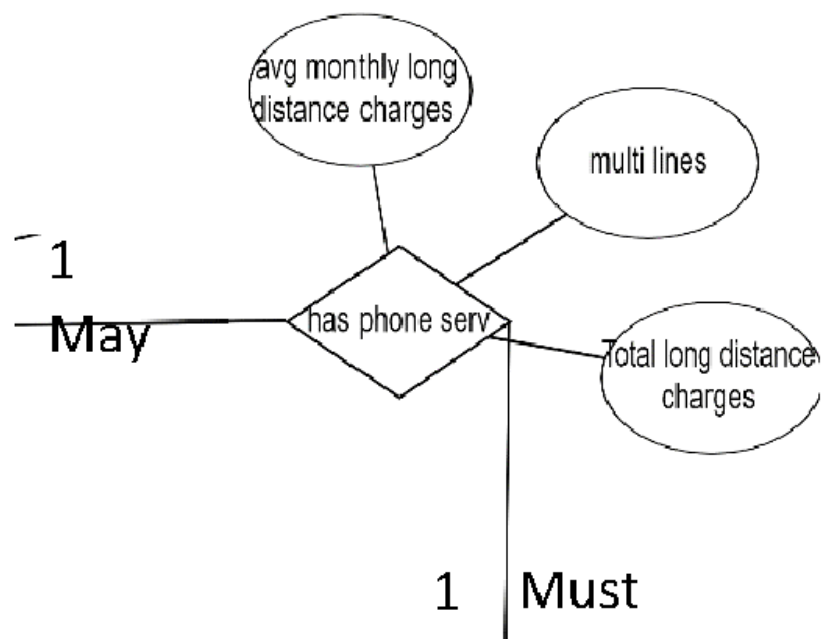
  c) Participation: May : Must

  d) Attributes on Relationship

      I.   Avg Monthly Long Distance Charge.

      II.   Multi Lines.

      III. Total Long Distance Charge.
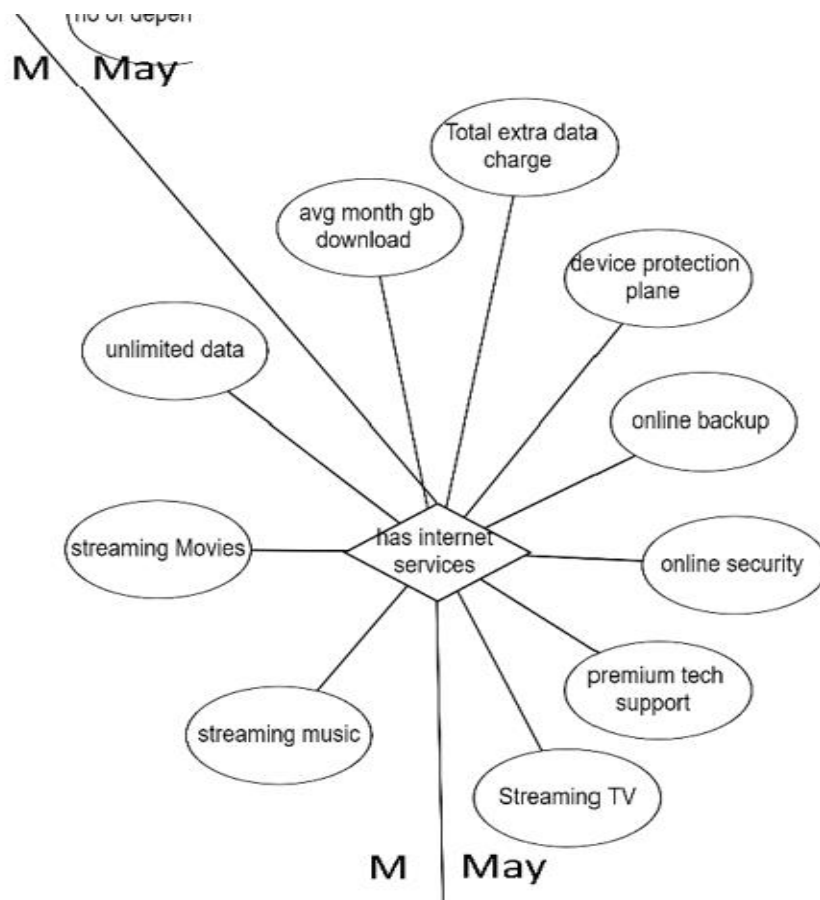
2- Customers - Internet Service Relationship.

  a. Degree: Binary.

  b. Cardinality: M:M

  c. Participation: May : May

  d. Attributes on Relationship.

i. Total extra data charge.	i. Streaming TV.
ii. Device protection plane.	ii. Streaming Music.
iii. Online backup.	iii. Streaming Movies.
iv. Online security.	iv. Unlimited Data.
v. Premium tech support.	v. Avg monthly GB Downloaded

3- Customers - Contract Relationship.

a) Degree: Binary.

b) Cardinality: 1:M

c) Participation: May : Must

d) Attributes on Relationship

i.	Payment Method.	vi.	Total Refund.
ii.	Paperless.	vii.	Total Revenue.
iii.	Tenure.	viii.	Streaming Movies.
iv.	Monthly Charge.	ix.	Offer.
v.	Total Charge.	x.	Quarter

4- Customers - Churn Reason Relationship.

   a) Degree: Binary.

   b) Cardinality: 1:M

   c) Participation: May : May
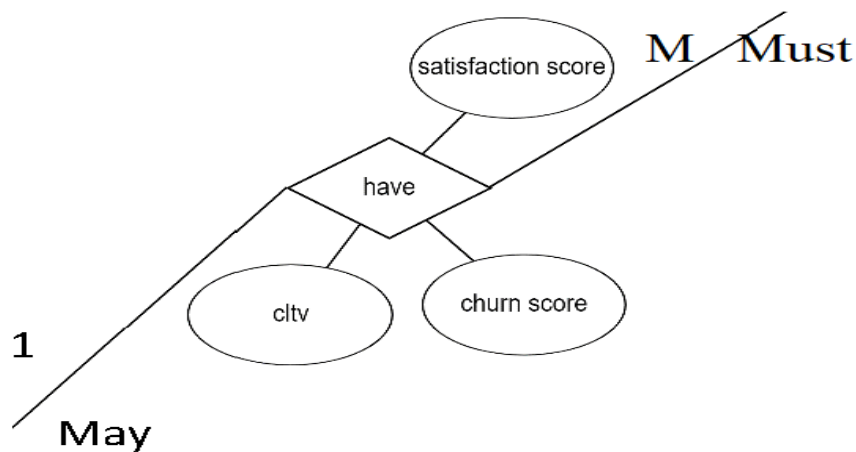
   d) There is no Attributes on Relationship
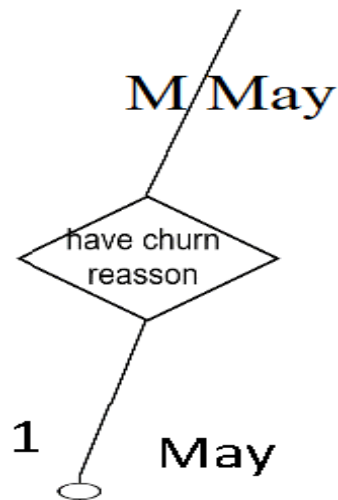
M/May

have churn
reasson

1   May

5- Churn Reason - Churn Category Relationship.

   a) Degree: Binary.

   b) Cardinality: 1:M

   c) Participation: Must : Must
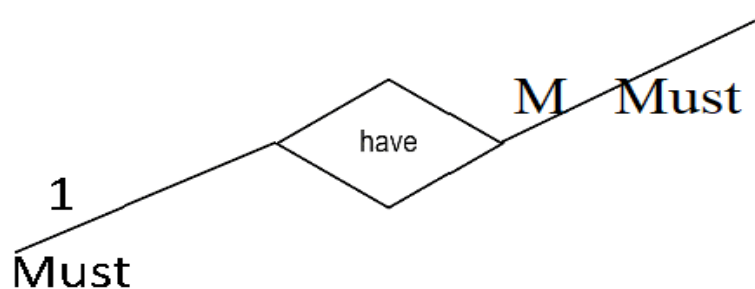
   d) There is no Attributes on Relationship

1   M

have churn
category

Must   Must

6- Customers - Status Relationship.

  a) Degree: Binary.

  b) Cardinality: 1:M

  c) Participation: May Must

  d) Attributes on Relationship

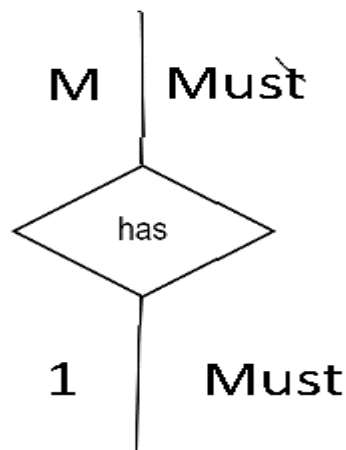   i.   Satisfaction Score

    ii. Churn Score.

    iii. CLTV

7- Customers - Location Relationship.

  a) Degree: Binary.

  b) Cardinality 1:M

  c) Participation: Must : Must

  d) There is no Attributes on Relationship

8- Location - Population Relationship.

  a) Degree: Binary.

  b) Cardinality: 1:M

  c) Participation: Must : Must

  d) There is No Attributes on Relationship

M | Must

has

1 | Must

9- Customers – Call Center Relationship.
  a) Degree: Binary.
  b) Cardinality: M:1
  c) Participation: Must : May
  d) Attributes on Relationship
      i. Answerd
      ii. Date.

      iii. Time

answerd

M

make call to call center

1

Must

May

date

time