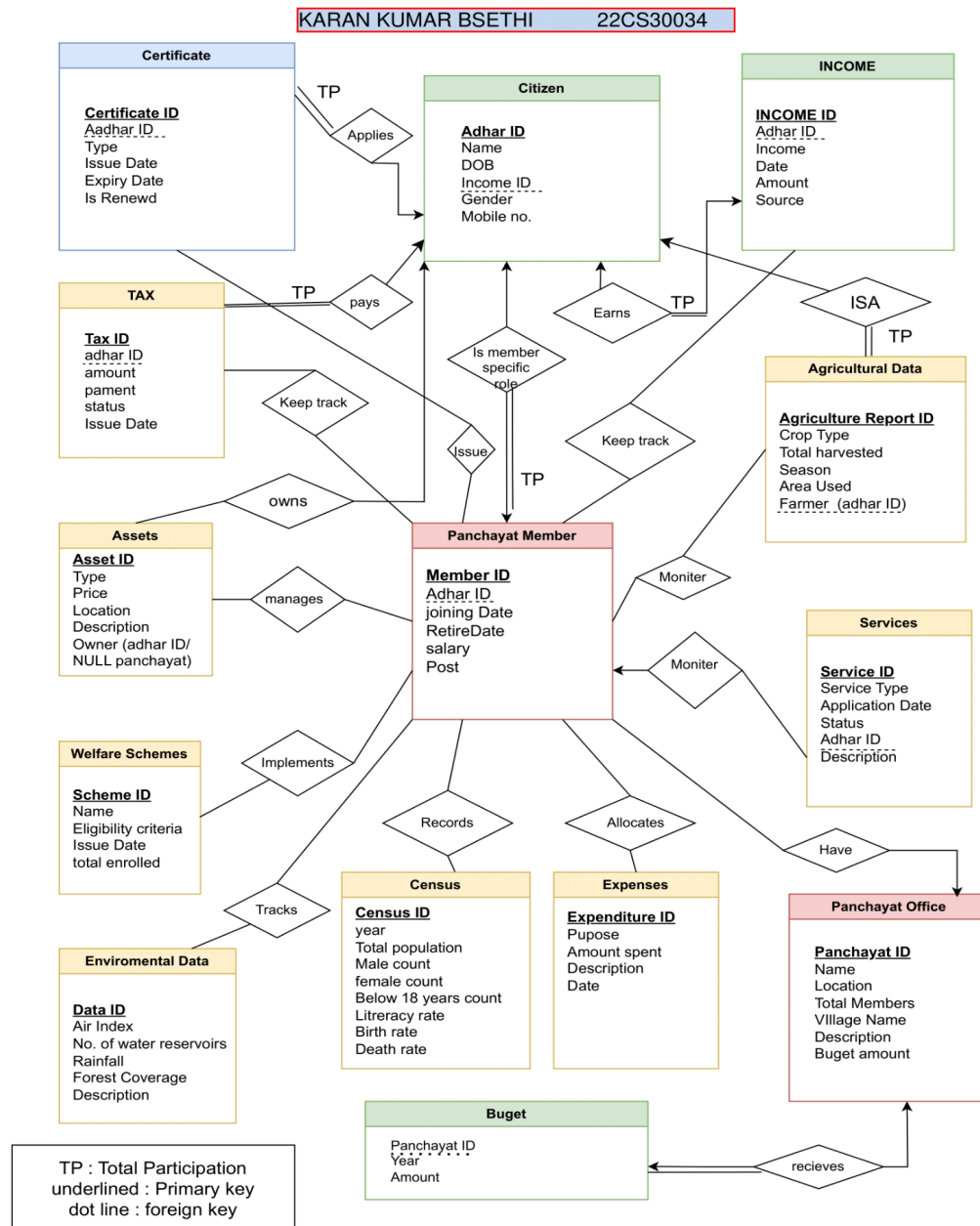


## Lab Assignment 2

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**1. The ER Diagram that I have created is given Below**



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## 2. Analysis of the ER Diagram

**Certificate:** This entity represents the citizen's identification document, capturing details like Aadhaar ID, type, issue date, expiry date, and renewal status. It has total participation with citizens. Here, Adhar ID, I have made a foreign key that relates to the citizen's primary key. And certificate ID as primary key.

**Citizen:** The primary link between the system's many components—personal information, household, and panchayat involvement—is this. Numerous other entities are related to it, such as income, ISA panchayat members, and an individual's tax information. If a farmer, then what is the agricultural data status?

**Tax:** The tax-related information for each citizen, such as tax ID, amount, payment status, and issue date. Members of the panchayat maintain a record of the tax information, and citizens are also involved in this; they can pay the taxes that are due at any time.

**Assets:** Details about the various assets owned by the panchayat, including type, price, location, description, and ownership. Members of the panchayat keep track of asset details, such as whether the asset is owned by the private sector, the government, or the public.

**Welfare Schemes:** Information about the different welfare schemes offered, including scheme ID, name, eligibility criteria, and enrollment details.

The panchayat members kept track of the number of people who were benefiting from the various welfare schemes that were in operation.

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**Environmental Data:** Tracking environmental factors like air index, water reservoirs, rainfall, and forest coverage.

**Panchayat Member:** Captures the details of panchayat employees, such as their ID, joining date, retirement date, salary, and role. It manages and maintains all of the panchayat's information and plays the most significant role. It has relationships with practically every other entity.

**Agricultural Data:** Maintains records related to land ownership, crop types, and cultivation details.

**Services:** represents the various services provided by the panchayat, with details like service ID, type, application date, status, and Aadhaar ID.

**Census Data:** Tracks population-related statistics like total population, birth rate, death rate, and literacy rate.

**Expenses:** Records the expenditure details, including ID, purpose, amount, and date.

**Panchayat Office:** Captures the identification and location details of the panchayat office. How many people work for the panchayat? How much is its budget? It also keeps track of its additional relationship with the budget entity.

**Budget:** IT only works with the panchayat office, which is responsible for monitoring the annual budget of a panchayat during a working year.

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## Schema Defination:

### Citizen

- Aadhar\_ID VARCHAR(20) PRIMARY KEY
- Name VARCHAR(100)
- DOB DATE
- Gender VARCHAR(10)
- Mobile\_No VARCHAR(15)

### Income

- Income\_ID INT PRIMARY KEY
- Aadhar\_ID VARCHAR(20) FOREIGN KEY REFERENCES Citizen(Aadhar\_ID)
- Income DECIMAL(15, 2)
- Date DATE
- Amount DECIMAL(15, 2)
- Source VARCHAR(100)

### Tax

- Tax\_ID INT PRIMARY KEY
- Aadhar\_ID VARCHAR(20) FOREIGN KEY REFERENCES Citizen(Aadhar\_ID)
- Amount DECIMAL(15, 2)
- Payment\_Status VARCHAR(20)
- Issue\_Date DATE

### Certificate

- Certificate\_ID INT PRIMARY KEY
- Aadhar\_ID VARCHAR(20) FOREIGN KEY REFERENCES Citizen(Aadhar\_ID)
- Type VARCHAR(50)
- Issue\_Date DATE
- Expiry\_Date DATE
- Is\_Renewed BOOLEAN

### Agricultural\_Data

- Agriculture\_Report\_ID INT PRIMARY KEY
- Crop\_Type VARCHAR(50)
- Total\_Harvested DECIMAL(10, 2)
- Season VARCHAR(20)

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- Area\_Used DECIMAL(10, 2)
  - Farmer\_Aadhar\_ID VARCHAR(20) FOREIGN KEY REFERENCES Citizen(Aadhar\_ID)

### **Assets**

- Asset\_ID INT PRIMARY KEY
- Type VARCHAR(50)
- Price DECIMAL(15, 2)
- Location VARCHAR(100)
- Description TEXT
- Owner\_Aadhar\_ID VARCHAR(20) FOREIGN KEY REFERENCES Citizen(Aadhar\_ID) NULLABLE

### **Welfare\_Schemes**

- Scheme\_ID INT PRIMARY KEY
- Name VARCHAR(100)
- Eligibility\_Criteria TEXT
- Issue\_Date DATE
- Total\_Enrolled INT

### **Employment\_Data**

- Data\_ID INT PRIMARY KEY
- Air\_Index DECIMAL(5, 2)
- No\_of\_Water\_Reservoirs INT
- Rainfall DECIMAL(5, 2)
- Forest\_Coverage DECIMAL(5, 2)
- Description TEXT

### **Panchayat\_Member**

- Member\_ID INT PRIMARY KEY
- Aadhar\_ID VARCHAR(20) FOREIGN KEY REFERENCES Citizen(Aadhar\_ID)
- Joining\_Date DATE
- Retire\_Date DATE
- Salary DECIMAL(10, 2)
- Post VARCHAR(50)

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## Census

- Census\_ID INT PRIMARY KEY
- Year INT
- Total\_Population INT
- Male\_Count INT
- Female\_Count INT
- Below\_18\_Years\_Count INT
- Literacy\_Rate DECIMAL(5, 2)
- Birth\_Rate DECIMAL(5, 2)
- Death\_Rate DECIMAL(5, 2)

## Expenses

- Expenditure\_ID INT PRIMARY KEY
- Purpose VARCHAR(100)
- Amount\_Spent DECIMAL(15, 2)
- Description TEXT
- Date DATE

## Services

- Service\_ID INT PRIMARY KEY
- Service\_Type VARCHAR(50)
- Application\_Date DATE
- Status VARCHAR(20)
- Aadhar\_ID VARCHAR(20) FOREIGN KEY REFERENCES Citizen(Aadhar\_ID)
- Description TEXT

## Panchayat\_Office

- Panchayat\_ID INT PRIMARY KEY
- Name VARCHAR(100)
- Location VARCHAR(100)
- Total\_Members INT
- Village\_Name VARCHAR(100)
- Description TEXT
- Budget\_Amount DECIMAL(15, 2)

## Budget

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- Panchayat\_ID INT FOREIGN KEY REFERENCES Panchayat\_Office(Panchayat\_ID)
  - Year INT
  - Amount DECIMAL(15, 2)

### **Relationships:**

- Citizen can have multiple income records.
- Citizen can pay tax.
- Citizen can hold multiple certificates.
- Citizen can be a farmer in Agricultural Data.
- Citizen can own assets, or they can be owned by the Panchayat.
- Citizen can enroll in welfare schemes.
- Citizen can be a Panchayat Member.
- Panchayat Office manages The detail of a Panchayat.
- Panchayat member can regulate all the records like issuing the certificate , regulate assets , keep all info about other programms.
- The panchayat office has a budget for each year.