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Census Database

**About Census:**

A **census** is the procedure of systematically acquiring and recording information about the members of a given population. It is a regularly occurring and official count of a particular population. The term is used mostly in connection with national population and housing censuses. Considering scenario of huge population India, there are people with different religion, speaking different languages, with different income levels, The Indian Census is the most credible source of information on Demography (Population characteristics), Economic Activity, Literacy and Education, Housing & Household Amenities, Urbanization, Fertility and Mortality, Scheduled Castes and Scheduled Tribes, Language, Religion, Migration, Disability and many other socio-cultural and demographic data. For such a large data there is always a need of a good database.

Scope of Census database:

It involves keeping records of all the details of people living in India. For eg. Full Name, sex, marital status occupation, family details, residential address, date of birth, placed of birth, educational qualifications, religion, caste, types of facilities people have in their home. It also covers types of energy source, light source, fuel source, electronic equipment and vehicle people use. It also keeps track of usage of all houses.

Using this database we can have following useful information,

* All families which are below poverty line
* Average salary of person state, city, district or taluk.
* Literacy rate in any state, city, district or taluk.
* Population of any state, city, district or taluk.
* Gender ratio of India or of any particular region.
* Average Family size.
* How many citizens are graduated in India?
* Total population of India
* Population density
* Sex ratio
* Child sex ratio

And many more……………

Database Schema:

**Terms Used**

home\_id , : unique home id

pid : unique person id

tno: unique taluk no

**Home**

(home\_id , ownership\_status(Owned ,Rented ,Other), no\_of\_dwelling\_rooms, no\_of\_married\_couples, drinking\_water\_within\_premices (Y or N), **water\_source\_typeno**, **light\_source\_typeno**, latrine\_within\_premises (Y or N or null), **fuel\_typeno,** bathing\_facility, availability\_of\_kitchen(Y or N),, **use\_of\_house\_typeno**, **material\_no,head\_pid** )

Foreign Keys:-

**water\_source\_typeno** references to water\_source,

**light\_source\_typeno** references to light\_source,

use\_of\_house\_typeno references to use\_of\_house,

material\_no references to material

head\_pid references to pid of person.

**light\_source**

**(**light\_source\_typeno, light\_source\_type**)**

**Fuel**

(fuel\_typeno, fuel\_type)

w**ater\_source**

(water\_source\_type\_no , water\_source\_type)

**use\_of\_house**

(use\_of\_house\_typeno, use\_of\_house\_type)

**taluk**

(tno, tname, dname, **sname**)

Foreign Keys:-

**sname** references to state\_code in state\_codes ,

**address**

(**home\_id** , home\_no, name\_of\_society., ward\_no, town\_or\_village\_name**, tno**)

Foreign Keys:-

**home\_id** references to home,

**tno** references to taluk

**el\_items\_type**

(item\_type\_no**,** item\_name)

**electronic\_items\_of\_house**

(**home\_id ,Item\_type\_no**);

Foreign Keys:-

**home\_id** references to home,

**item\_type\_no** references to electronic\_items\_of\_house,

**vehicle\_name**

**(**vehicle\_typeno,vehicle\_type**)**

**vehicle**

(**home\_id**,, **vehicle\_typeno)**

Foreign Keys:-

**home\_id** references to home,

**vehicle\_typeno** references to vehicle\_name.

**material**

(material\_no, **roof\_no**, **wall\_no**, **floor\_no**)

Foreign Keys:-

**roof\_no** references to roof\_material,

**wall\_no** references to wall\_material

**floor\_no** references to floor\_material

**roof\_material** (roof\_no,roof\_type)

**wall\_material** (wall\_no,wall\_type)

**floor\_material** (floor\_no,floor\_type)

**KnownLanguages**

(**pid** , language\_name)

Foreign Keys:-

**pid** references to person,

**person**

(pid, **home\_id**, fname, lname, occupation, **non\_economic\_activity\_no**, mode\_of\_travel\_to\_work, **attendance\_no**, DOB, edu\_level, **marital\_status\_no**, caste (sc ,st ,obc, other), religion, **disability\_no**, mother\_tongue, literacy\_status(literate Illiterate), sex(Male Female Other), no\_of\_children (0,1,2 etc.))

Foreign Keys:-

**home\_id** references to home,

**non\_economic\_activity\_no** references to non\_economic\_activity

**marital\_status\_no** references to marital\_status

**disability\_no** references to disability

**non\_ecomonic\_activity**

(non\_economic\_activityno, non\_economic\_activity\_type)

**marital\_status**

(marital\_status\_no,marital\_status\_type)

**Disability**

(disability\_no,disability\_type)

**State\_Of\_Attendance**

**(**attencance\_no,attendance\_type**)**

**Relation with Head**

(**pid**, relationship)

Foregn Keys:-

**pid** references to person.

**State\_codes**

**(**state\_code,state\_name,area**);**

**FDs**

home\_id 🡪 ownership\_status, no\_of\_dwelling\_rooms, no\_of\_married\_couples, drinking\_water\_within\_premices, water\_source\_typeno, light\_source\_typeno, latrine\_within\_premises , fuel\_typeno, bathing\_facility, availability\_of\_kitchen,, use\_of\_house\_typeno, material\_no,head\_pid

light\_source\_typeno 🡪 light\_source\_type

fuel\_typeno🡪fuel\_type

water\_source\_type\_no 🡪 water\_source\_type

use\_of\_house\_typeno🡪use\_of\_house\_type

tno🡪tname, dname, sname

home\_id🡪home\_no, name\_of\_society., ward\_no, town\_or\_village\_name, tno

item\_type\_no🡪item\_name

home\_id🡪Item\_type\_no

vehicle\_typeno🡪vehicle\_type

home\_id🡪vehicle\_typeno

material\_no🡪roof\_no, wall\_no, floor\_no)

roof\_no🡪roof\_type

floor\_no🡪floor\_type pid 🡪language\_name

***Here in all relations only PK determines all other attributes. So, Closure of PK in every relation contains all attributes of that relation. So, all relations are in BCNF.***

Queries:

**/\*1. Retrieve all homes which are below poverty line \*/**

SET SEARCH\_PATH TO census;

select (person.fname) as Head\_fname ,(person.lname) as Head\_fname,t1.home\_id,t1.total\_income

from

(SELECT home.home\_id,home.head\_pid , (sum(salary)) AS total\_income

FROM person NATURAL JOIN home

GROUP BY home.home\_id

HAVING sum(salary)<=100000) as t1 join person on(t1.head\_pid=person.pid)

**/\*2.Retrieve average salary of person in Gujarat \*/**

SET SEARCH\_PATH TO census;

SELECT (avg(salary))As avg\_salary\_per\_person\_of\_Gujarat

FROM address NATURAL JOIN taluk NATURAL JOIN person

WHERE taluk.sname='GJ';

**/\*3. • Retrieve literacy rate in say rajkot gujarat \*/**

SET SEARCH\_PATH TO census;

SELECT ((e1.literate\_of\_rajkot1::decimal(5,2)) /(e2.total\_of\_rajkot :: decimal(5,2))\*100)::decimal(5,2) AS "Literacy rate of Rajkot"

FROM(SELECT (count(person.pid))As literate\_of\_rajkot1

FROM address NATURAL JOIN taluk NATURAL JOIN person

WHERE taluk.dname='Rajkot' and taluk.sname='GJ'

and person.edu\_level is NOT NULL)As e1,

(SELECT (count(person.pid))As total\_of\_rajkot

FROM address NATURAL JOIN taluk NATURAL JOIN person

WHERE taluk.dname='Rajkot' and taluk.sname='GJ' )As e2;

**/\*4. • Find population of Vododara \*/**

SET SEARCH\_PATH TO census;

SELECT (count(person.pid))As "Population of Vadodara"

FROM address NATURAL JOIN taluk NATURAL JOIN person

WHERE taluk.dname='Vadodara';

**/\*5. • What is gender ratio in India state wise \*/**

SET SEARCH\_PATH TO census;

select r1.sname,(((fno::decimal(5,2)/tno::decimal(5,2))::decimal(5,2)\*1000)::decimal(5,0)) as "Sex Ratio"

from (select count(person.pid) as fno,taluk.sname

from person natural join address natural join taluk

where person.sex ='F'

group by taluk.sname) as r1 natural join

(select count(person.pid) as tno,taluk.sname

from person natural join address natural join taluk

where person.sex ='M'

group by taluk.sname) as r2;

**/\*6. • List down all citizens who are Hindu and had salary more than 1 lakhs. \*/**

SET SEARCH\_PATH TO census;

select \*

from person

where religion='Hindu' and salary>=100000;

**/\*7.• Average no of persons living in a home DONE BY STORED PROCEDURE\*/**

select find\_ratio() AS "person per Home";

**/\*8. • Retrieve all senior citizen of vadodara city \*/**

SET SEARCH\_PATH TO census;

select person.\*

from person natural join address natural join taluk

where (current\_date-person.dob)::integer /365 > 60 and taluk.tname='Vadodara'

**/\*9. • Retrieve all citizen who are student \*/**

SET SEARCH\_PATH TO census;

select \*

from person

where person.occupation = 'student';

**/\*10. • • Find Total population of India \*/**

SET SEARCH\_PATH TO census;

select count(pid)

from person

**/\*11. •• Density of population per sq. km \*/**

SET SEARCH\_PATH TO census;

select sname, count(pid)as population, area ,(count(pid)/area)as "Populaton Density"

from person natural join address natural join taluk natural join state\_codes

group by sname ,area

**/\*12. • • • Child sex ratio of india\*/**

SET SEARCH\_PATH TO census;

select((fno::decimal(5,2)/tno::decimal(5,2))::decimal(5,2)\*1000)::decimal(5,0) as child\_sex\_ratio

from (select count(person.pid) as fno from person where person.sex ='F' and (current\_date-person.dob)::integer /365 < 12) as r1,

(select count(person.pid) as tno from person where person.sex ='M' and (current\_date-person.dob)::integer /365 < 12) as r2;

Trigger’s description:

1. Update\_material\_trigger1

Whenever there comes a new entry in Roof table, it updates material table making new combinations of different materials.

1. Update\_material\_trigger2

Whenever there comes a new entry in Wall table, it updates material table making new combinations of different materials.

1. Update\_material\_trigger3

Whenever there comes a new entry in Floor table, it updates material table making new combinations of different materials.

1. Update\_stat

Updates statistics relation whenever update is made in person.

Stored Procedures’ Description:

1. Find\_info

Using this stored procedure, we can get specific info of specific state like, population, area, literacy rate, sex ratio.

Ex.

select find\_info('RJ','population');

select find\_info('GJ','area');

select find\_info('GJ','literacy\_rate');

select find\_info('GJ','sex\_ratio');

1. Find\_ratio

this function is to find average no of person living in a home.