

# Election Database

The word "vote" means to choose from a list, to elect or to determine. The main goal of voting is to come up with leaders of the people's choice. Most countries, India not an exception have problems when it comes to voting the problems can't be totally removed but can be minimized by using proper facilities one of them is to use a well-made database. The objective of the project is to make a database which caters the need for the latter.



DBMS PROJECT  
DELHI  
TECHNOLOGICAL  
UNIVERSITY

# DATABASE MANAGEMENT SYSTEM PROJECT, ELECTIONS AND VOTING

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**SOFTWARE ENGINEERING (A2)**

Submitted to:

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WHEN WE ALL  
**VOTE**

## ACKNOWLEDGEMENT

It is my pleasure to acknowledge you that I have received a project on election system from my teacher.

My first sincere appreciation and gratitude goes to Mr. Manoj Sethi for his guidance, constructive comments, valuable suggestions and inspirations.

All the work done in coming up with this system is dedicated to my family for being with/part of me in the whole process.

## PROBLEM STATEMENT

Design a database model and related tables depicting all the relations between entities as well as prepare ER model, diagram for the database. Input appropriate data in those tables as well as run different meticulous queries on them.

## DESCRIPTION

The basic rules of presidential elections are great guidelines to organize SQL tables and understand the concept of keys. Keys are the most important tool for setting up scalable and efficient SQL databases.

You have just left your voting booth with paper ballot in hand. You head over to the processing machine and put it in the slot.

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YOU CAN SEE THAT THERE ARE FIVE KEY IDENTIFIERS THAT WE NEED TO TRACK ON THE BALLOT:

1. *Election*
2. *Voter*
3. *Candidate*
4. *Vote*
5. *Inspector*

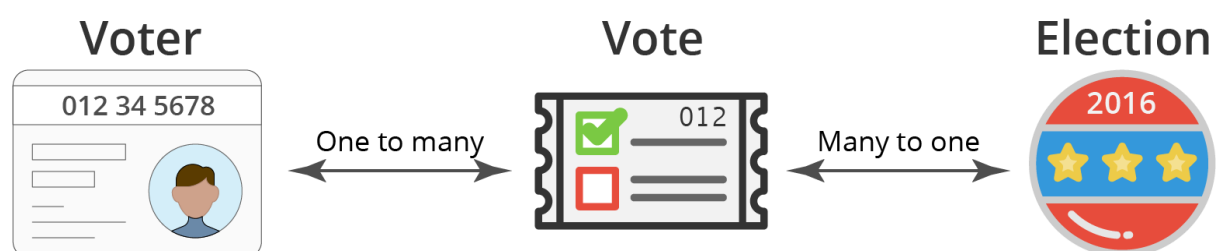
Your initial thought might be to store this whole thing as one entry.

But let's think this through, considering that there are over 100 million other voters! Do we really need to store every piece of information on the ballot in every entry in the database? For example, do we really need to list "candidate A" and "candidate B" as the two choices 100 million times? Surely not!

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LET'S TAKE A STEP BACK AND CONSIDER SOME BASIC PRINCIPLES OF THE VOTING SYSTEM.

1. One **election** has many **votes** (100 million+).
2. One **election** has many **candidates**.
3. One **voter** has many **votes** over the course of their lifetime.
4. One **voter** can participate in many elections (as many as 20).
5. One **election** has only one **inspector**.



# PROCEDURE TO VOTE

## REGISTERING AS A VOTER

Whenever an election occurs a voter will register, and a unique voter id is generated, and following is added in a voter table in election databases.

- Name
- Voter id
- Date of birth
- Age

## REGISTERING AS A CANDIDATE

A list of candidates is made, and entry is done in a separate table of candidates with entries

- Registration no
- Party Name
- Candidate Name
- Gender
- Age

## PROCEDURE OF VOTING

Whenever a vote is casted following data is updated in vote table

- voter id
- casted to (candidate registration no.)
- election id.

## ASSIGNING OF ELECTION INSPECTOR

In each election an inspector is assigned following data is entered in a separate table in the database

- Name
- Gender
- inspector id
- election id

# ASSUMPTIONS

The following assumptions were made while creation of the database

THE ELECTION IS HAPPENING ONCE IN A PERIOD OF FOUR YEARS

THERE ARE TOTAL OF SEVEN POLITICAL PARTIES

THERE ARE TOTAL OF 10 VOTERS

VOTER ID REMAINS THE SAME

EVERY ELECTION NEW REGISTRATION ID IS GENERATED FOR CANDIDATES

ONLY ONE CANDIDATE CAN COMPETE FROM EACH PARTY IN ELECTION

# CONSTRAINTS

There are some constraints that are put on the data that is entered in the tables

AGE OF THE VOTER SHOULD BE GREATER THAN 18

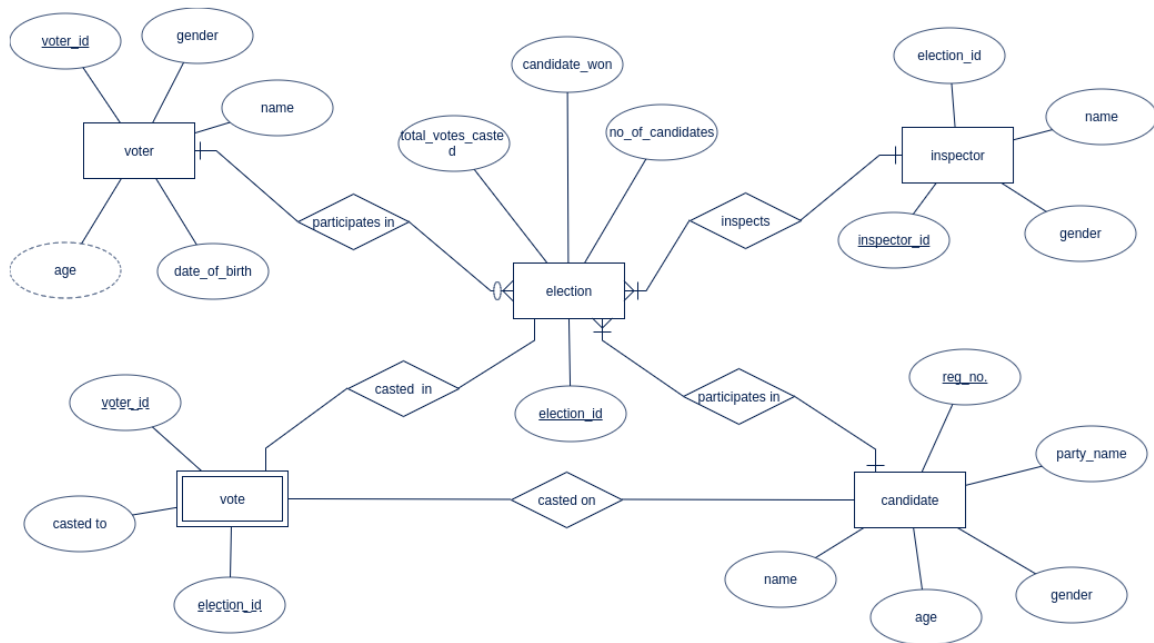
ONLY ONE CANDIDATE CAN PARTICIPATE FROM ONE PARTY IN AN ELECTION

DATE SHOULD BE IN THE FOLLOWING FORMAT(YYYY-MM-DD)

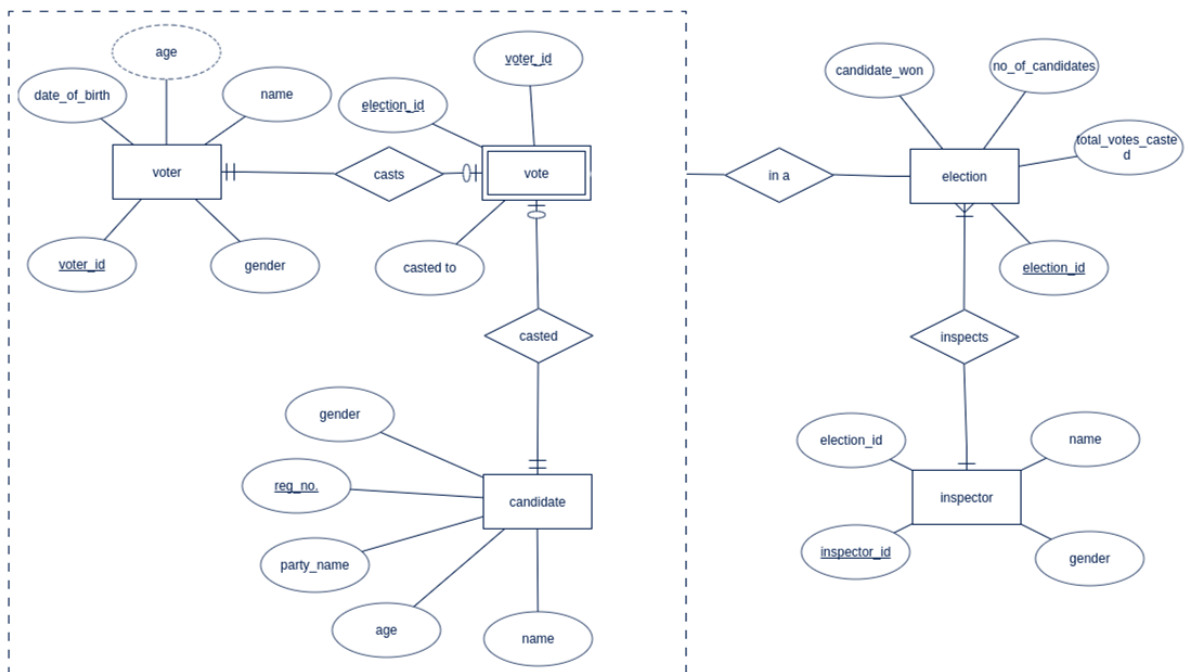
AGE OF THE CANDIDATE SHOULD BE GREATER THAN 21

VALUE OF NAME SHOULD BE LESS THAN 20 CHARACTERS

## ENTITY RELATIONSHIP DIAGRAM



## EXTENDED ENTITY RELATIONSHIP



# RELATIONAL MODEL

Field	Type	Null	Key	Default	Extra
election_id	int(10)	NO	PRI	NULL	
total_votes_casted	int(50)	YES		NULL	
no_of_candidates	int(20)	YES		NULL	
candidate_won	int(3)	YES		NULL	

```
CREATE TABLE `ELECTIONS` (
  `ELECTION_ID` INT(10) NOT NULL,
  `TOTAL_VOTES_CASTED` INT(50) DEFAULT NULL,
  `NO_OF_CANDIDATES` INT(20) DEFAULT NULL,
  `CANDIDATE_WON` INT(3) DEFAULT NULL,
  PRIMARY KEY (`ELECTION_ID`)
)
```

Field	Type	Null	Key	Default	Extra
gender	varchar(1)	YES		NULL	
voter_id	int(2)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
date_of_birth	date	YES		NULL	
curdate	date	YES		NULL	
age	int(3)	YES		NULL	

```
CREATE TABLE `VOTER` (
  `GENDER` VARCHAR(1) DEFAULT NULL,
  `VOTER_ID` INT(2) NOT NULL,
  `NAME` VARCHAR(20) DEFAULT NULL,
  `DATE_OF_BIRTH` DATE DEFAULT NULL,
  `CURDATE` DATE DEFAULT NULL,
  `AGE` INT(3) DEFAULT NULL,
)
```

PRIMARY KEY (`VOTER\_ID`)

)

Field	Type	Null	Key	Default	Extra
voter_id	int(30)	NO	PRI	NULL	
election_id	int(10)	NO	PRI	NULL	
casted_to	int(20)	YES		NULL	

CREATE TABLE `VOTE` (

`VOTER\_ID` INT(30) NOT NULL,

`ELECTION\_ID` INT(10) NOT NULL,

`CASTED\_TO` INT(20) DEFAULT NULL,

PRIMARY KEY (`VOTER\_ID`,`ELECTION\_ID`)

)

Field	Type	Null	Key	Default	Extra
party_name	varchar(20)	YES		NULL	
gender	varchar(1)	YES		NULL	
age	int(100)	YES		NULL	
reg_no	int(3)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	

CREATE TABLE `CANDIDATE` (

`PARTY\_NAME` VARCHAR(20) DEFAULT NULL,

`GENDER` VARCHAR(1) DEFAULT NULL,

`AGE` INT(100) DEFAULT NULL,

`REG\_NO` INT(3) NOT NULL,

`NAME` VARCHAR(20) DEFAULT NULL,

PRIMARY KEY (`REG\_NO`)

)



Field	Type	Null	Key	Default	Extra
election_id	int(10)	YES		NULL	
name	varchar(20)	YES		NULL	
gender	varchar(1)	YES		NULL	
inspector_id	int(10)	NO	PRI	NULL	

```
CREATE TABLE `INSPECTOR` (
  `ELECTION_ID` INT(10) DEFAULT NULL,
  `NAME` VARCHAR(20) DEFAULT NULL,
  `GENDER` VARCHAR(1) DEFAULT NULL,
  `INSPECTOR_ID` INT(10) NOT NULL,
  PRIMARY KEY (`INSPECTOR_ID`)
)
```

## Queries

GET THE NAMES OF INSPECTOR WHO WERE AT DUTY WHEN VAIBHAV WON THE ELECTION

```
mysql> select name from elections , inspector where elections.election_id = insp
ector.election_id and elections.candidate_won = 403;
+-----+
| name          |
+-----+
| AK malik      |
| shivani pandey |
+-----+
```

## PARTY NAMES OF CANDIDATES WHO WON IN THE ELECTIONS

```
mysql> select party_name from elections , candidate where elections.candidate_won = candidate.reg_no;
+-----+
| party_name |
+-----+
| Kongress   |
| Yuva Josh  |
| aaj ki     |
| Yuva Josh  |
| lok kalyan |
| navsoch    |
+-----+
| u9Λ20Cp   |
| lok kəɽlən |
+-----+
```

## THOSE VOTERS WHO ELECTED CANDIDATES WHO WON IN THE ELECTIONS

```
mysql> select voter_id from elections , vote where elections.candidate_won = vote.voter_id;
+-----+
| voter_id |
+-----+
| 10       |
| 10       |
| 11       |
| 11       |
| 12       |
| 13       |
| 13       |
| 14       |
| 15       |
| 15       |
| 16       |
| 17       |
| 18       |
| 19       |
| 19       |
+-----+
| 10       |
| 10       |
| 18       |
| 19       |
+-----+
```

### NO OF TIMES INSPECTOR VG KESARI WAS ASSIGNED

```
mysql> select count(name) as count_vg_kesari from inspector where name = 'vg kesari';
```

count_vg_kesari
2

### NAMES OF ALL THE CANDIDATES WHO PARTICIPATED IN ANY ELECTION

```
mysql> select distinct name from candidate,
```

name
pahul gandhi
rudra kumar
rajan sri
rehan ali
ved chaturvedi
cb pant
vaibhav verma
aarsh verdhan
aadhar tyagi
bc pant
mayur jain
rahul balout
ayush mailk
harshit yadav

IN WHICH ELECTION MAXIMUM NO OF VOTES WERE CASTED

```

+-----+
| maximum_votes |
+-----+
|          10 |
+-----+
1 row in set (0.00 sec)

mysql> select election_id, candidate_won from elections where total_votes_casted
= 10;
+-----+-----+
| election_id | candidate_won |
+-----+-----+
|          4 |          403 |
+-----+-----+
1 row in set (0.00 sec)

```

THOSE VOTERS WHO HAVE NOT VOTED IN ATLEAST ONE ELECTION

```

mysql> select distinct voter_id from vote where casted_to is NULL;
+-----+
| voter_id |
+-----+
|        10 |
|        12 |
|        13 |
|        14 |
|        15 |
|        16 |
|        18 |
+-----+

```

CANDIDATES WON WHEN NO OF CANDIDATES IN ELECTION WERE MAXIMUM

```
mysql> select max(no_of_candidates) as max_candidates from elections;
+-----+
| max_candidates |
+-----+
| 7 |
+-----+
1 row in set (0.01 sec)

mysql> select name,no_of_candidates from elections,candidate where elections.candidate_won = candidate.reg_no and elections.no_of_candidates = 7;
+-----+-----+
| name          | no_of_candidates |
+-----+-----+
| vaibhav verma | 7 |
| harshit yadav | 7 |
+-----+-----+
2 rows in set (0.00 sec)
```

HOW MANY TIMES PARTY YUVA JOSH WON

```
mysql> select count(candidate_won) as yuva_josh_winnings from elections,candidate where elections.candidate_won = candidate.reg_no and party_name = 'yuva josh';
+-----+
| yuva_josh_winnings |
+-----+
| 2 |
+-----+
1 row in set (0.01 sec)
```

WHAT IS AVG AGE OF CANDIDATES THAT COMPETED IN ELECTION 3

```
mysql> select avg(age) as average_age from candidate ,vote where candidate.reg_no = vote.casted_to and election_id = 3;
+-----+
| average_age |
+-----+
| 41.7143 |
+-----+
1 row in set (0.00 sec)
```