

**Database Management System-IT2040**

**Election and election center information management System**

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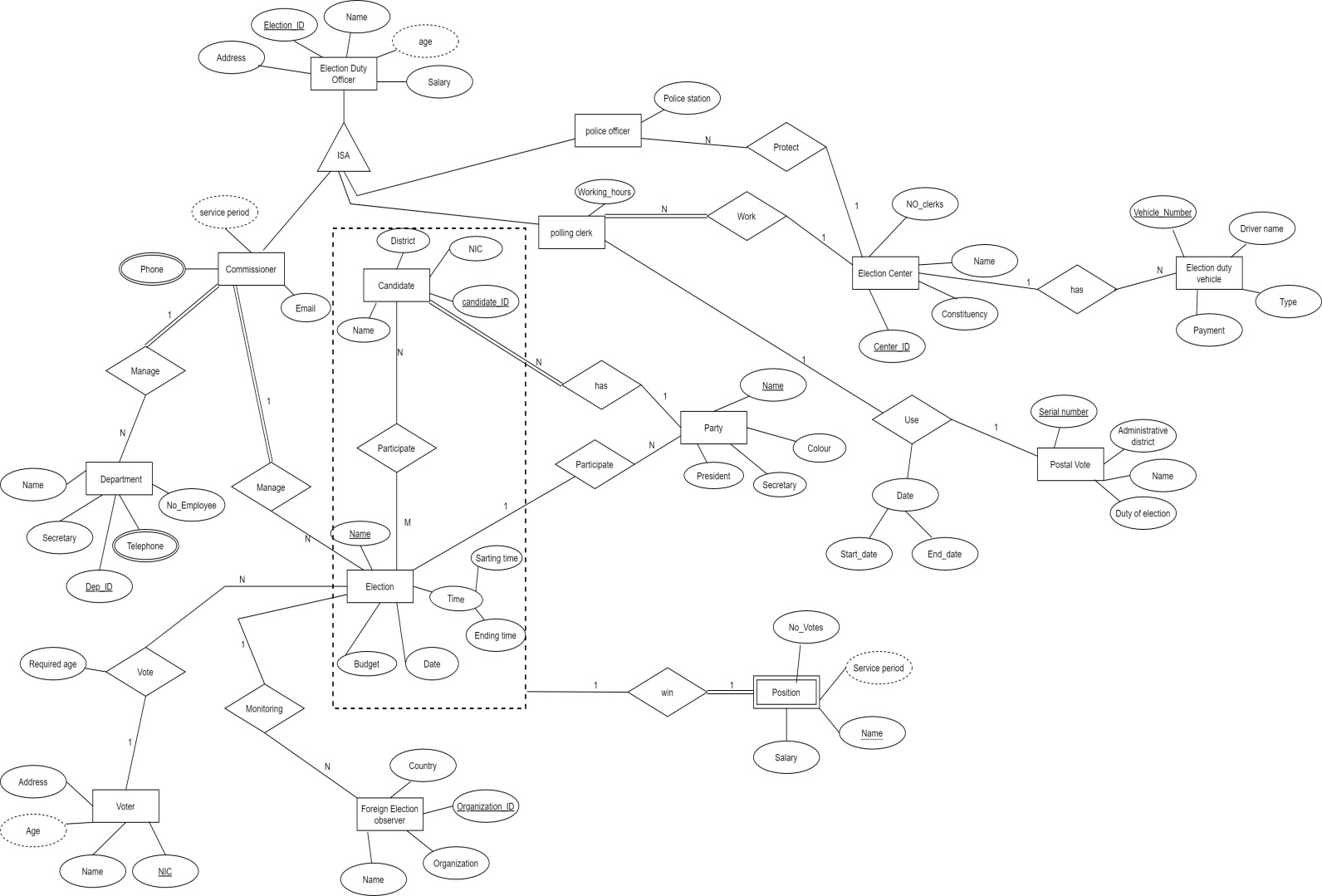
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**1.Requirements**

* Election duty officer has a :Election\_ID(unique) , name , age , salary and address
* Commissioner of election is a Election duty officer with the following attributes: service\_period , email and Telephone.
* Polling clerks are also Election duty officer they have: working hours.
* Election duty Police officers are also Election duty officer they have following attributes: police station.
* Candidates have candidate\_ID(unique) , District , NIC and Name .
* Election is an Entity with following attributes: name , starting time , ending time , date and budget
* Election centers have a center\_ID(unique), Constituency, Name(e.g.”counting or voting”) and No of clerks.
* One election has a one commissioner and one commissioner can manage on multiple elections
* One candidate can participate a many election and one election has a many candidates , It is must for a candidate has a party.
* Many polling clerks work on a one election center and one polling clerk can work in one election center
* One candidate has a one party and one party has a many candidates.
* Parties have a color , name(unique) , secretary and president.
* Many parties participant an one election .
* If a candidate wins , he will be given a position, position is weak entity it has Salary , Name , service period and No of votes.
* Foreign Election observers monitoring the election , many observer can monitoring the one elections and observer has following attributes :Name , Organization(e.g.”PAFFREL”) , Organization\_ID (unique) and Country.
* Polling clerk use a postal vote during the relevant period , postal vote has following attributes:Name , Duty of election, Administrative district and Serial number(unique).
* Voter is an entity it has :Name , NIC(unique) , Age and Address . One Voter can vote a many Elections after reaching the required age.
* Election commission has a departments ,department has a Dep\_ID(unique),secretary,name,telephone and No\_employee .
* One commissioner can manage many departments
* One election centers has many vehicles ,election duty vehicle has following attributes: Vehicle number(unique),type,payment and driver name.

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**2.EER Diagram**

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**3.Relational model**

I selected **option 1** to draw the relational table for ISA hierarchy Because of that Election duty officer is a super class and commissioner , polling clerk and police officer are subclasses . These 3 subclasses not totally cover the super class .And these subclasses has many relations . option 3 and 4 are not suitable because these superclass has 3 subclasses and the have many attributes .

* Election\_duty\_officer(Election\_ID, Address, Name, Age, Salary)
* Commissioner(Election\_CID, Service period, Email)

foreign key(Election\_CID) references Election\_duty\_officer(Election\_ID)

* Commissioner\_Phone(Election\_CID, Phone)

foreign key(Election\_CID,Phone) references Commissioner(Election\_CID)

* Polling\_clerk(Election\_PCID, Work hours, Center\_ID)

foreign key(Election\_PCID) references Election\_duty\_officer(Election\_ID)

foreign key(Center\_ID) references Election\_center(Center\_ID)

* Police\_officer(Election\_POID, Center\_ID, Police station)

foreign key(Election\_POID) references Election\_duty\_officer(Election\_ID)

foreign key(Center\_ID) references Election\_ceter(Center\_ID)

* Election\_center(Center\_ID, No\_clerks, Name, Constituency)
* Postal\_vote(Serial number, Administrative district, Name, Duty of election, Start\_date, End\_date, Election\_PCID)

foreign key(Election\_PCID) references polling\_clerk(Election\_PCID)

* Department(Dep\_ID, Secretary, No\_Employee, Name, Election\_CID)

Foreign key(Election\_CID) references Commissioner(Election\_CID)

* Department\_Phone( Dep\_ID, Phone)

foreign key(Dep\_ID,Phone) references Department(Dep\_ID)

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* Candidate(Candidate\_ID, District, NIC, Name, Party name)

foreign key(Party name) references Party(Name)

* Participate(Candidate\_ID, Election Name)

foreign key(Candidate\_ID,Election Name) references Candidate(Candidate\_ID)

foreign key(Candidate\_ID,Election Name) references Election(Name)

* Election(Name, Starting time, Ending time, Date, Budget, NIC, Election\_CID, Required age)

foreign key(Election\_CID) references Commissioner(Election\_CID)

foreign key(NIC) references Voter(NIC)

* Party(Name, Colour, Secretary, President, Election Name)

foreign key(Election Name) references Election(Name)

* Voter(NIC, Age, Name, Address)
* Foreign\_Election\_Observer(Organization\_ID, Name, Organization, Country, Election Name)

foreign key(Election Name) references Election(Name)

* Position (Name, Candidate\_ID, Election Name, Salary, Service period, No\_Votes)

foreign key(Candidate\_ID,Election Name) reference Participate(Candidate\_ID,Election Name)

* Postal\_Vote(Serial Number, Administrative district, Name, Duty of election, Start\_date, End\_date, Election\_PCID)

foreign key(Election\_PCID) references Polling\_clerk(Election\_PCID)

* Election\_duty\_vehicle(Vehicle number, Type, Driver name, Payment, Center\_ID)

Foreign key(Center\_ID) references Election\_center(Center\_ID)

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**4.Queries**

**Query 1**

What are the addresses where more than two officers from the same address of the C12 Election center are serving?

select count(p.election\_POID),e.address

FROM Election\_duty\_officer e,election\_center c,police\_officer p

where e.election\_id=p.election\_POID and p.center\_ID = c.center\_ID and p.center\_ID='C12'

GROUP BY e.address

having count(p.election\_POID)>2

**Query 2**

What are the Election\_POID of police officer who earn more than RS:25000?

select P.election\_POID

from police\_officer p

where exists (select\*

from Election\_duty\_officer e

where e.election\_id=p.election\_POID and e.salary>25000

)

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**5.Function or Procedure**

Function for returns the salary of police officer in a given election\_POID

create function getmysal(@did char(10))returns int

as

begin

declare @sal int

select @sal = e.salary

from Election\_duty\_officer e,police\_officer p

where e.election\_id=@did AND e.election\_id=p.election\_POID

return @sal

end

----Calling the function created previously-------

declare @show int

exec @show =getmysal'E044'

PRINT @show

**6.Trigger**

create trigger center\_idinsert

on police\_officer

for insert,update

as

begin

declare @center\_ID char(10)

declare @election\_POID CHAR(10)

declare @police\_station varchar(10)

select @center\_ID=center\_ID ,@election\_POID= election\_POID, @police\_station =police\_station from inserted;

if @center\_ID is null set @center\_ID = @police\_station;

if @police\_station is null set @police\_station = @center\_ID;

insert into police\_officer(election\_POID,center\_ID,police\_station)

values(@center\_ID,@election\_POID,@police\_station);

end

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