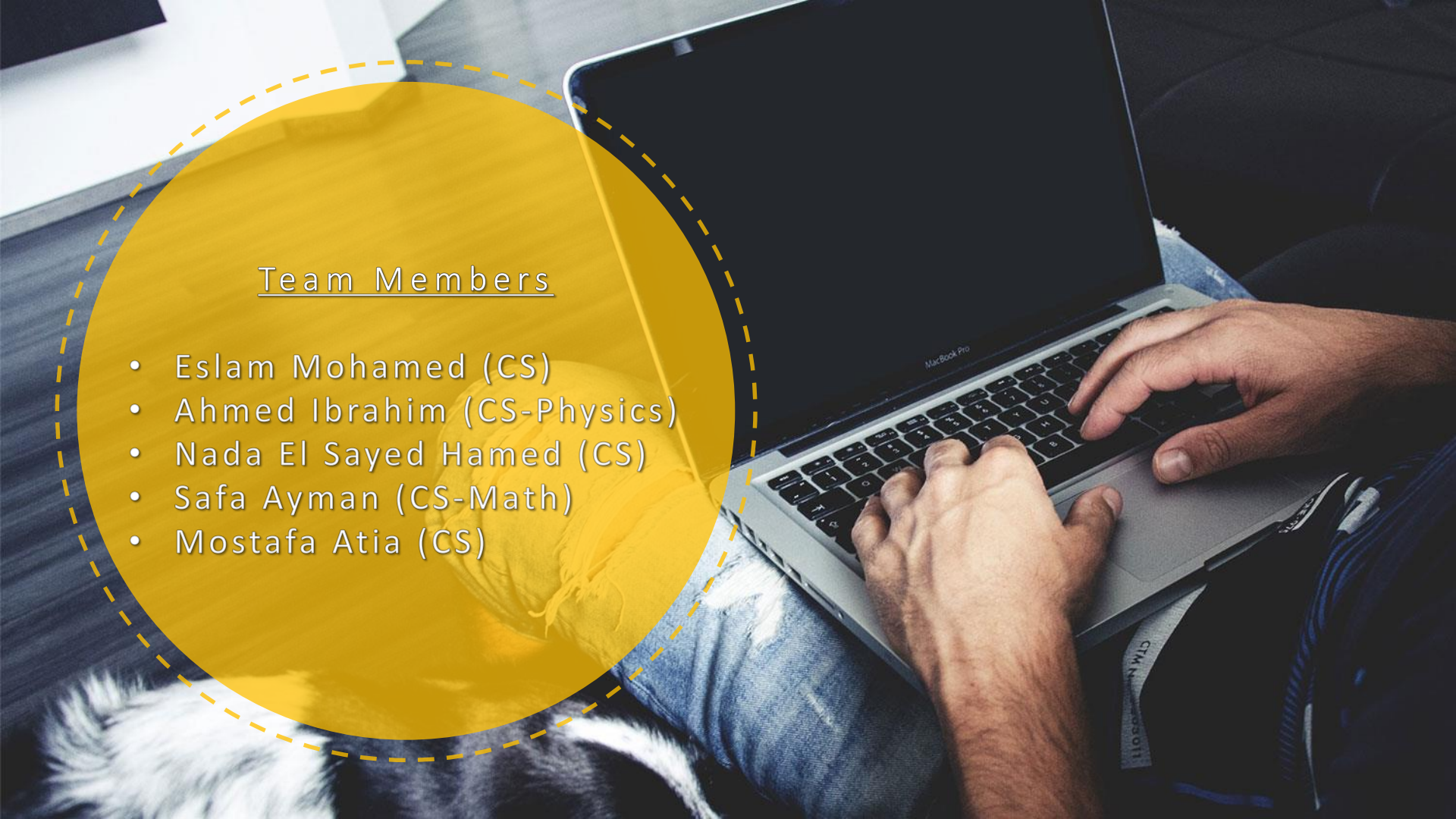

WELCOME
To Our Database Project
National Authority of Metro



Team Members

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DESCRIPTION

Let database application called "National Authority of Metro" That keeps track of The metro's staff which we interested to record their (SSn "PK" , Fname,Lname,Salary,Bdate,Age,sex,phone)

- each staff member can have more than one mobile number
- each staff member has the ability to insure on members of his family as Dependants who have attributes (Name,Relativity)
- each staff member can have many dependants but the dependant can belong to only one staff member
- it's not necessary to the staff member to have dependants but it's nessesary for dependants to have relativity to staff member .
- Staff splits into 3 subclasses {Manager, Employee,Security }
- The subclass Employee represents a less rank staff member
- The subclass Manager represents the [line masters, Station masters,Commision Masters]
- The subclass Security reperesents the normal security member which it's necessary to be found at any station
- at any time if an employee is doing good he can be pormoted to be manager
- for the Security member we keeps track of his (position,Station number) which he is working in
- for the managers we keep track of (type) of the manager as we mentioned before

DESCRIPTION

- for the Employees we keep track of his (place) which refer to his specific working section
- - station Employees have a supervisor who work at the same station and belongs to the same subclass "Employee"
- We also keeps track of the station as a main entity in our authority which have attributes as station (Number "PK" ,Name, Line)
- For a single station there is a Station master Managing it
- not all managers will manages stations as there is a line masters and Comission master but all stations should have a station master
- At each station there is a number of employees working in it , all employees should work in a specefic station , one employee can't work in several stations
- for each station there are many security members who overseeing different positions at the station
- all security members should be at a station, there is no station without security members
- As a categorization for the station we are interested to be keeping track of specefic parts of the station as important parts of it .{Ticket window ,Service section , Maintenance workshop}
- each service section,ticket window,maintenance workshop have a unique number "PK“
- each station can have only one service section , there is no station without service section
- each station may have more than one ticket window

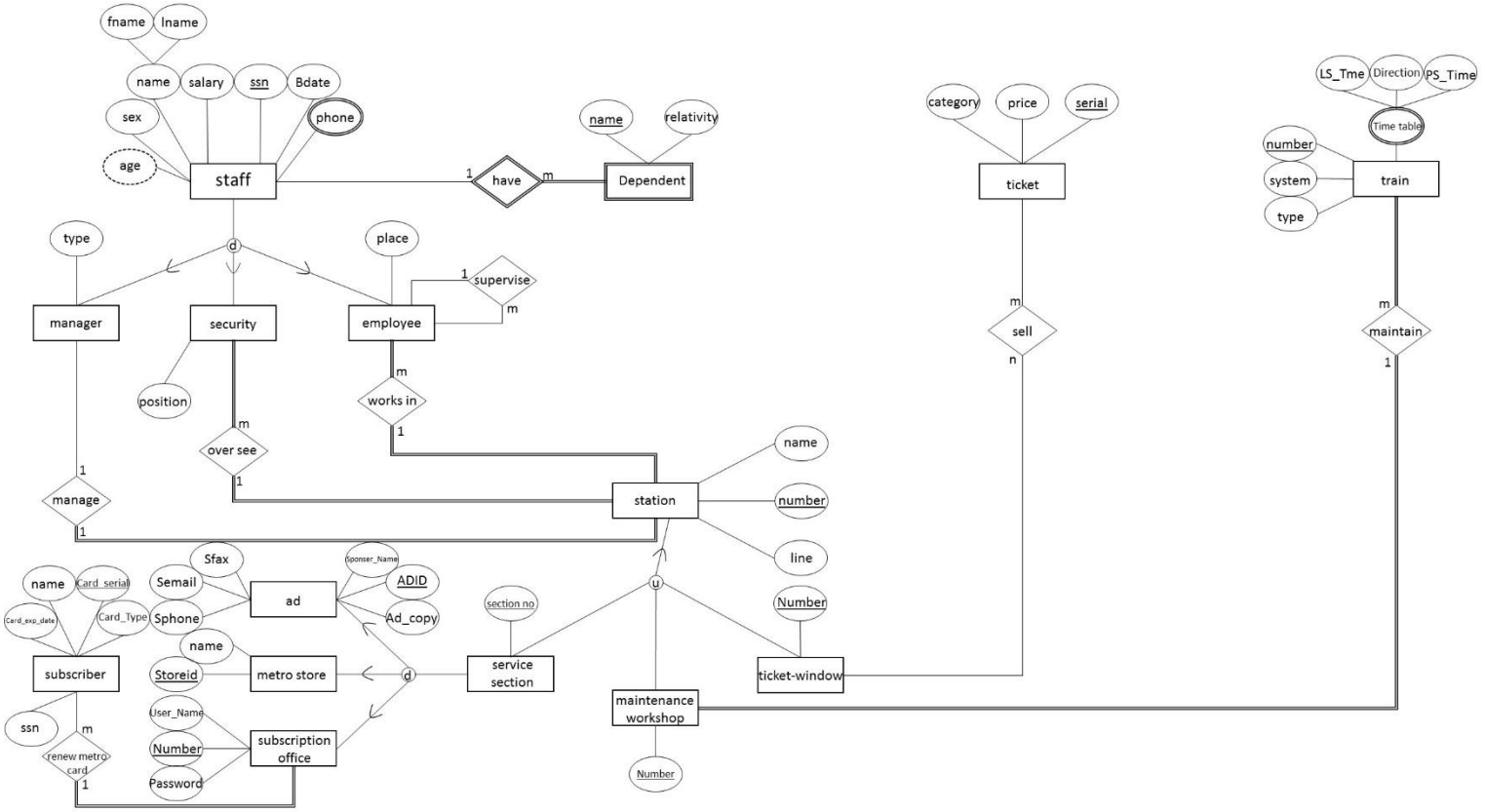
DESCRIPTION

- it's not necessary for each stations to have maintenance workshop , there can't be found two maintenance workshops at the same station
- As a database application of Metro we can't forget keeping track of the Trains which have attributes such as(Number "PK" , System,Type, Time table)
- the time table is a complex attribute which record the values of (Last&First station arriving time , Train direction at the line)
- the trains maintained regurarly by the Maintenance workshops
- each train have a specific maintenance workshop "MWS" which is responsible of maintaining this train
- We also keeping track of the tickets which can be sold by the ticket windows , each ticket have attributes like (Serial"PK", price, category)
- each window sold many tickets and the passenger can buy more than one ticket
- As we said each station have a service section each service section can present different services as {Metro Store, Subscribtion office, Ad}the first two services are presented to normal passenger and generally to the people, the third one is presented to the companies or the organizations or Sponsers specially
- each metro store has a (unique storeid "PK",Name) ,each service section may have more than one store

DESCRIPTION

- each subscribtion office has a (unique number "PK", user name, password) , it’s not necessary to each service section to have a subscribtion office
- each Ad has a (AD ID "PK",Sponser name,Sponser phone number, sponser email, sponser fax, Ad copy number) each service section can handle many ads for many sponsers or the same sponser
- We also keeping track of the Subscriber and it's attributes (Name, Ssn,Card Serial "PK",Card Type,Card exp date)
- each subscriber can renew his card from one subscribtion office which his card belongs to
- At the same time subscribtion office renew the card of many subscribers daily

EER DIAGRAM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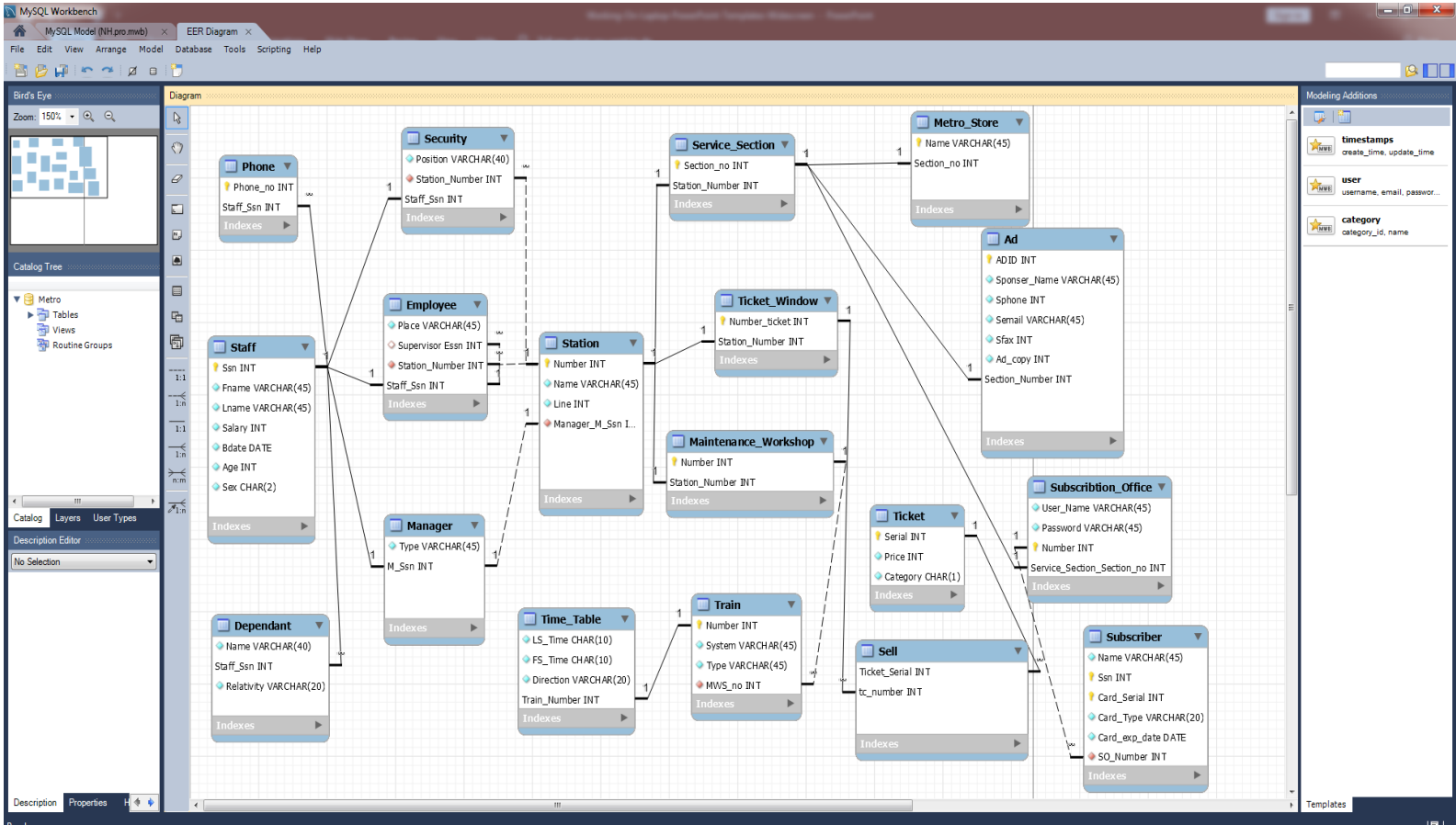
EER DIAGRAM ON WORKBENCH



RELATIONAL SCHEMA

Staff
Sex | Fname | Lname | Salary | Bdate | Age | Ssn

Phone
Phone_no | Staff_Ssn

Dependent
Name | Relativity | Staff_Ssn

Security
Position | Station_Number | Staff_Ssn

Employee
Place | Supervisor Essn | Station_Number | Staff_Ssn

Manager
Type | M_Ssn

Station
Line | Name | Number | Manager_M_Ssn

Service_Section
Section_no | Station_Number

Maintenance_Workshop
Number | Station_Number

Ticket_Window
Number | Station_Number

train
Type | System | Number | MWS_no

Time_Table
LS_Time | PS_Time | Direction | Train_Number

sell
Ticket_Serial | tc_number

Ticket
Serial | Price | Category

Ad
ADID | Sponser_Name | Sphone | Semail | Sfax | Ad_copy | Section_Number

Subscriber
Name | Ssn | Card_Serial | Card_Type | Card_exp_date | SO_Number

Subscribtion_Office
User_Name | Password | Number | Service_Section_no

Metro_Store
Name | Storeid | Section_no

QUERIES

Retrieve the total number of stations in the Metro.

```
select count(name) from station;
```

Retrieve the first name, last name and age of the staff.

```
select Fname,Lname,Age from Staff;
```

Retrieve the Birth Date, sex of the staff members whose first name is Nader and last name is Hussien.

```
select Bdate, sex from Staff
Where Fname='Nader' AND Lname ='Hussien' ;
```

Retrieve all the details of the manager.

```
Select * From Manager;
```

Retrieve the first name and salary of the staff where salary is greater than 30000.

```
select Fname, salary from Staff where Salary > 30000 ;
```

QUERIES

Retrieve the birth date labled "Date of Birth" and salary of the staff member whose first name is 'John' .

```
select Bdate as 'Date of Birth', salary from staff
where Fname='John' and sex = 'M';
```

Retrieve the first name and salary of all staff whose salary is greater than 30000 and less than 70000.

```
select Fname, salary from staff
where salary between 30000 and 70000;
```

Retrieve the name of stations whose line is 1 and name contain the character 'N'.

```
select name from station
where line=1 and name like '%N%'
```

Retrieve the minimum price of the tickets.

```
select min(price) from ticket;
```

QUERIES

Retrieve the names of relatives who is related to the staff members as sons.

```
select Name , Relativity from dependant
where Relativity='Son';
```

Retrieve all the sponsors email labled as 'sponsor_email'.

```
select semail as 'sponsor_email' from Ad;
```

Retrieve the last name labled as 'last name' , the first name labled as 'first name' , Salary and ssn of staff members whose salary greater than the staff member whose ssn is '987654328'.

```
select Lname as 'last name' , Fname as 'first name' , salary , ssn
from staff S where salary > all (
                                    select salary from staff S
                                    where Ssn = 987654328);
```

Retrieve the name of every staff member who has a dependant with the same name.

```
select S.Fname , S.Lname from staff as S where S.ssn in
                        (select S.ssn from dependant as D where S.Fname = D.Name);
```

QUERIES

Retrieve the distinct salary values of the managers.

```
select distinct salary from manager
where M.M_ssn=S.ssn;

select M.M_ssn,M.type,S.Number,S.Name
 from manager M  inner join station S on M.M_Ssn=S.Manager;
```

Make a list of station numbers that involve an employee whose ssn is 987654322 and place is in the IT unit.

```
Select distinct station_number from employee
where staff_Ssn=987654322)
union
(select distinct station_number from employee
where place = 'IT');
```

QUERIES

```
select S.Fname,S.Lname,E.Station_Number,E.Place,E.staff_Ssn,S.Ssn
from staff as S inner join employee as E
on E.staff_Ssn=S.Ssn and E.Station_Number=1
```

```
create view sam as(
select Fname,Lname,ssn,A.Number
from staff S, employee E, station A,ticket window T
where S.Ssn=E.staff_ssn and E.station_Number=A.Number and
A.Number=T.Station_Number and A.number=1);
```

Retrieve the sum of salaries of all the staff members

```
select sum(distinct salary)
from staff;
```

QUERIES

Retrieve the categories of the ticket.

```
select distinct category
from ticket;
```