20th July 2018.

ഓം നമഃ ശിവായ

Day- 4

Organization Integr Manager: It'll check the authorization of accessing the view.

2 types of architecture are present:

(i) 2 tier architecture (ii) 3 tier architecture.

Super key:- It's a combination of ~~one or~~ more than one attributes which forms a super key.

Candidate key:-

Part of superkey needn't be superkey.

ALTER TABLE belongs to DDL (related to schema)

21st July 2018.

ഓം നമഃ ശിവായ

Day -5

Attribute types:-

(i) Domain of attribute (set of values the datatype can take)

(ii) Atomic (while entering)

(iii) null is a member of every domain.

Super Key:- A set of attributes which we are using ~~the~~ for unique identification.

id + name → super key

The candidate key is a sub key of super key which ~~the~~ shouldn't be uniquely identifying.

One of the candidate key will be the primary key.

1 Primary key for a table with one / more attribute pairs.

Composite candidate key: A candidate key with ~~m~~ more than one attribute

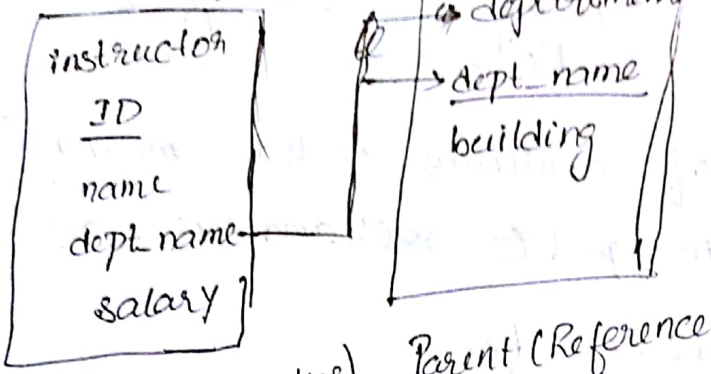
Simple candidate key: A candidate key with only one ~~attribute~~ attribute

Attributes in Foreign key: Attributes in Primary key.

The primary key is underlined in the table.

We should n't have a dept in child table if there's no attribute in the dept table (parent)

Schema Diagram



Child (Referencing) Parent (Referenced)

dept_name → Foreign key.

95th July, 2018.

Day-6

SELECT * From grades

Select max(marks) - min(marks) as range from grades → Aggregate fn.

Groupby → Application of on a group of rows

Select cols1 from tables group by cols2

Relational Database

Projection

$\Pi_{A,C}(r)$

A	B	C
α	10	1
α	20	1
β	30	1
β	40	2

Rel^{n} r

Proj

A	C
α	1
α	1
β	1
β	2

=

A	C
α	1
β	1
β	2

Cartesian product of relations leads to meaningless data.

Eg A student is mapped to each and every dept.

Natural join is the remedy.

25th July.

45, 40, 20, 57, 23,

26th July, 2018.

ഇന്നത്തെ ക്ലാസ്സ്

Day - 6

28th July, 2018.

ഇന്നത്തെ ക്ലാസ്സ്

Day - 7

Relational Algebra

Selection σ (selects an entire tuple)

Projection Π (selects an attribute / more than one attributes)

Union

Intersection

Cartesian Product

Natural Join $\bowtie$

Student

student id	name
1234	joe
4000	hector
2000	ling

enrollment

id	code
1234	cs1500
"	cs1200
"	cs2001
4000	cs3010
"	ma3000

subject

subject code	lecturer
cs1500	curtis
cs2001	doug
cs3010	curtis
cs2001	Olivier
ma3000	roger

1) Name of all students

π student name

π name (student)

2) name — What is the relational algebra applied on the data
joe
hector
ling

Ans:- π

3) Name of all lecturers

π lecturer

4) To get the subject codes taught by lecturer curtis

σ lecturer (subject) where lecturer = 'curtis' (subject)

π code

5)

cs1500
cs3000

curtis
curtis

~~σ lecturer where lecturer = 'curtis' (subject)~~

σ lecturer = 'curtis' (subject)

π subject code σ lecturer = curtis (subject)

σ subjectcode = cs1500 OR subjectcode = cs3010 (subject)

c) ~~All the~~ Name and id of all the students enrolled in,

~~$\Pi_{(name}$ (student $\bowtie$ enrollment)~~

$\Pi_{id,name}$ (student $\bowtie$ enrollment in)

8th August, 2018.

Day-8

Π_{course_id} ($\sigma_{sem = "Fall" \wedge year = 2009}$ (section)) $\cup$ Π_{course_id} ($\sigma_{sem = "Spring" \wedge year = 2009}$ (section)).

$\sigma_{dept\_name = "Physics"}$ (instructor)

$\sigma_{salary > 90000}$ (instructor)

$\sigma_{dept\_name = "Physics" \wedge salary > 90000}$

Π Projection operation selects only attributes.

Π_{name} ($\sigma_{dept\_name = "Physics"}$ (instructor))

$\sigma_{deptname = "Physics"}$ (instructor x teaches)

$\bowtie$ → Natural join

$\bowtie$ → Left Outer join

$\bowtie$ → Right Outer join

Student (id , name)
Enrollment in(id ,

Based on the above relational schema give relation.
in relational algebra?

(i) What are the name of the stds enrolled in cs3010.
(ii) Which subjects are taken by hector
(iii) Who teaches cs1500
(iv) Who teaches cs1500 or cs3010
(v) What are the name of students in cs1500 or cs3010.
(vi) Name of the std
(vii) what are the codes of all subjects taught
(viii) Name of all students in cs1500
(ix) name (stds) taking a subj. taught by roger.
(x) " not "
(xi)

(i) student ⋈ ~~student name~~ .

(i) $\Pi_{\text{Students name}} (\sigma_{\text{code}} = \text{CS3010} (\text{student} \bowtie \text{enrollment}))$

(ii) $\Pi_{\text{Subj\_code}} (\sigma_{\text{id}} = 4000 (\text{student} \bowtie \text{enrollment}))$

(iii) 1234 cs1500 curtis

Scanned by CamScanner

Any object which is distinguishable from other is an entity

2nd August, 2018.

Day - 9

ER (Entity Relationship) Model :-

An entity will have an entity name, attributes.

ER model → conceptual design

Entity set :- Entity is a thing or an object in the real world ie. distinguishable from all the other objects.

Eg :- Student,

An entity is represented by a set of attributes

Attributes are descriptive properties possessed by each member of entity set.

Entity set :- It's a set of entities of the same type.

Relationship :- It's an association among several entities.

(i) Simple attribute

Std id

Composite attribute

Name

↙ ↓

Firstname Lastname.

(ii) Single valued attribute

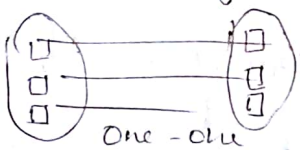
Multivalued attribute

email ids

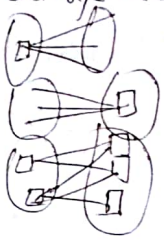
telephone no.

Mapping Cardinality

Mapping Cardinality:- The no. of entities to which another entity can be associated.



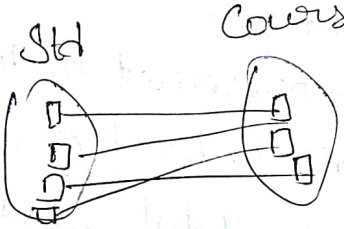
One - many
many - one
many - many.



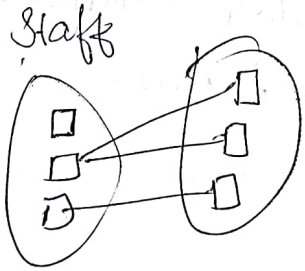
1: M → one - many
M: 1 → many - one
M: M → many - many

Participation constraint:-

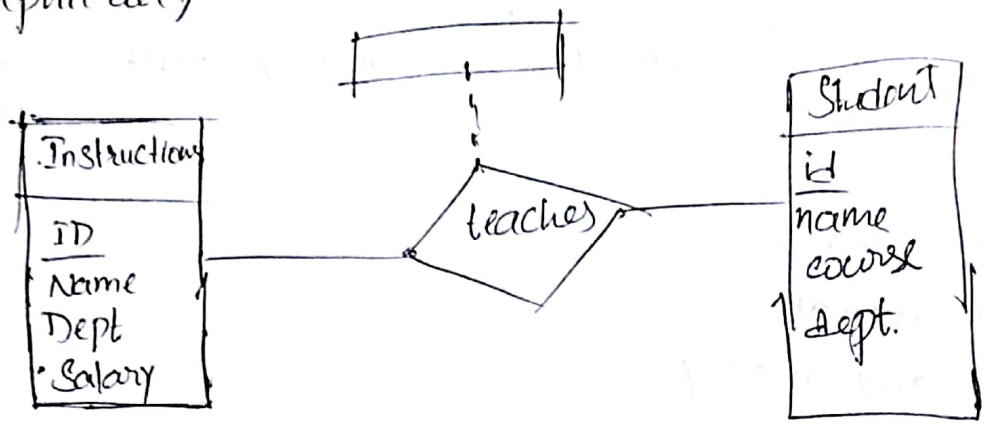
Total participation:- All the entities are participating in the relationship



Partial participation:- All entities aren't participating in the relationship



ER diagram represents the overall logical structure of a database graphically. Basic structure of an ER diagram.



Major components of ER Diagram:

Rectangle divided into 2 parts → Entityset

Diamond → Relationship set.

Undivided rectangle → represented by dotted line.

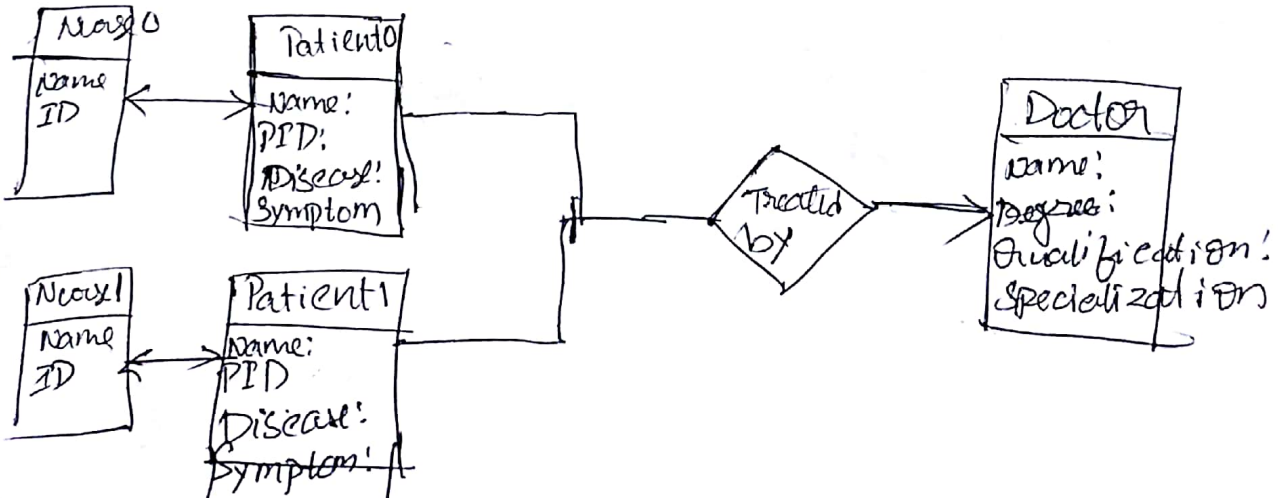
The dotted line will link attributes of a relationship

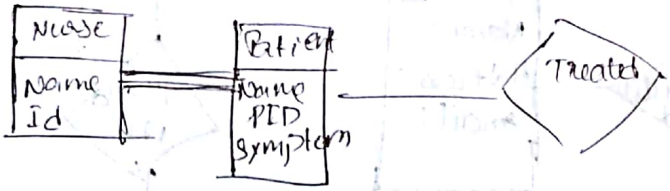
Double line will be used for total participation.

Double diamond represents a weak entity.

The arrow mark in a particular relationship, the cardinality of a particular entity is one.

Hospital

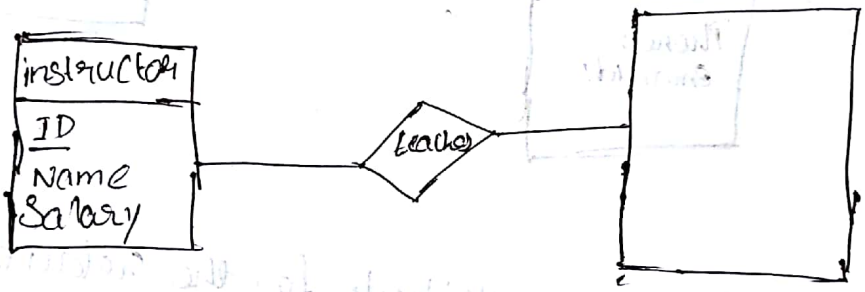




4th August, 2018. ഓഗസ്റ്റ് 4 2018

Day - 10

Related to schema diagram tables construct a table



1) Draw the E R diagram as per the requirements given below

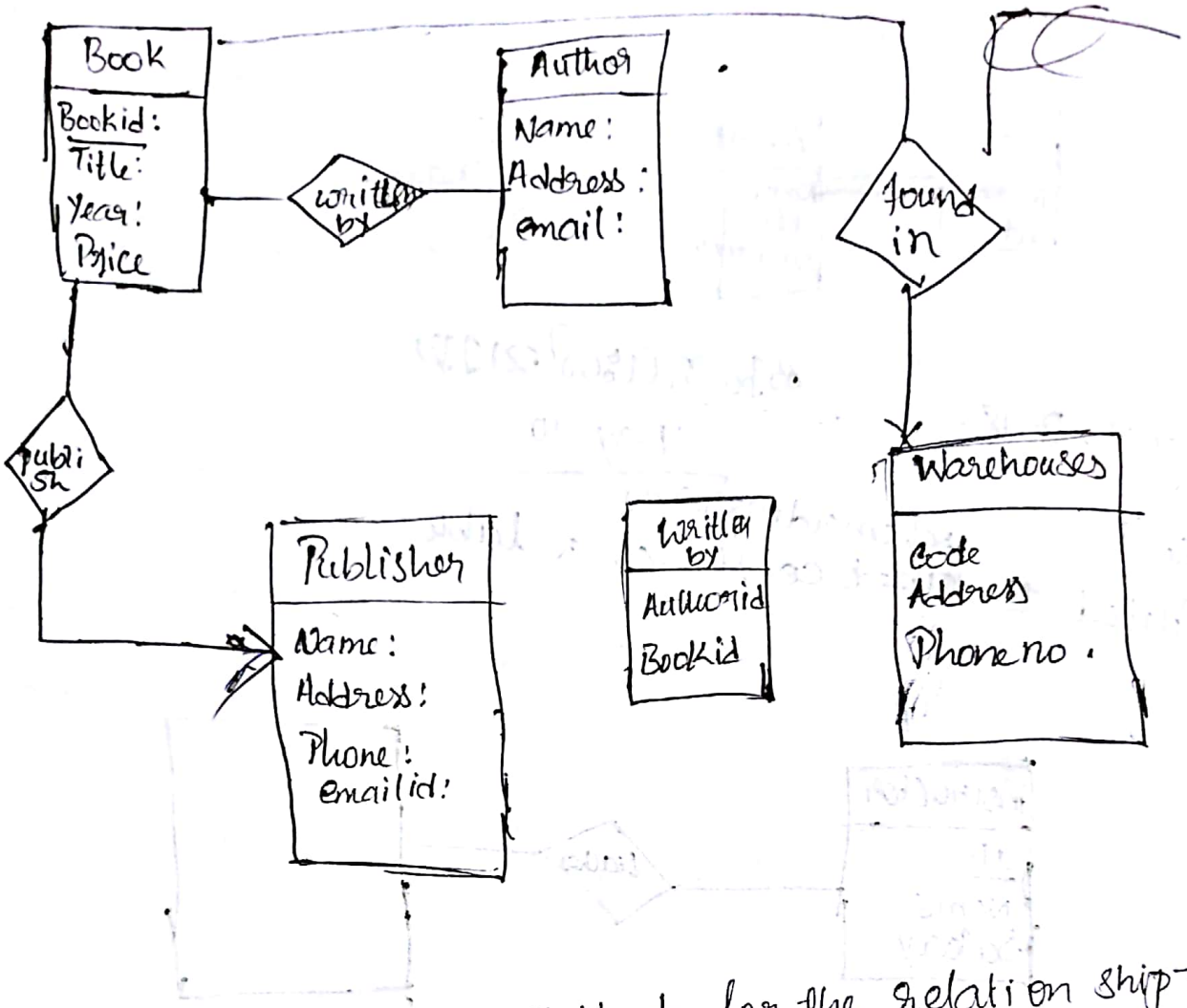
A book is identified by book id.

and also contain info like. title, year, price

The author of the book identified by an address and an email id.

A book has many authors and an author can write many books.

A book can be published by a publisher identified by name address, phone, mail id.



Note:- If you find an attribute for the relation ship then create a separate table for the attribute.

To the above

the books are stocked in warehouses identified by code, address, phone no.

A book is found only in one warehouse.

The warehouse keeps copies of each book.

When a many-many relation exists we can't add author id to book or book id to author as it will lead to data redundancy.

∴ Create a separate table for the many

to many relationship.

30th August, 2018.

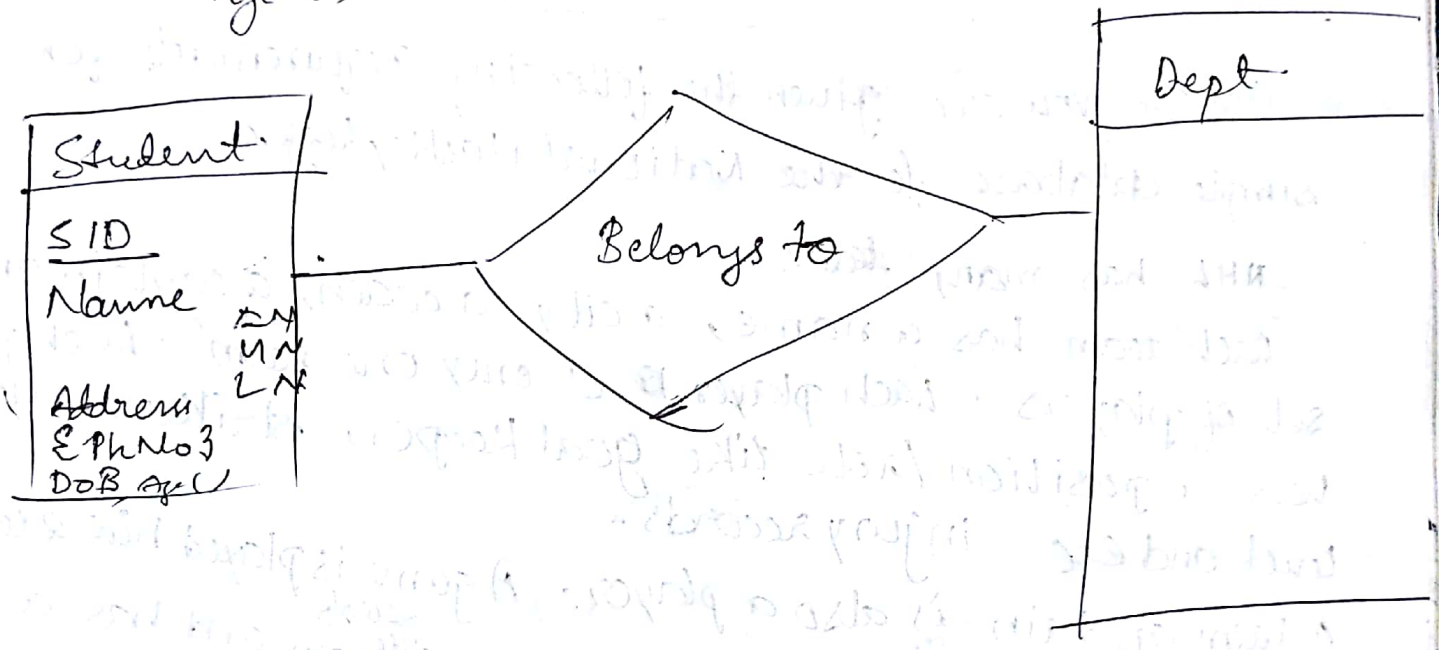
Bloom Taxonomy

Day - 10

Multi valued attributes are represented by '{ }' brackets.

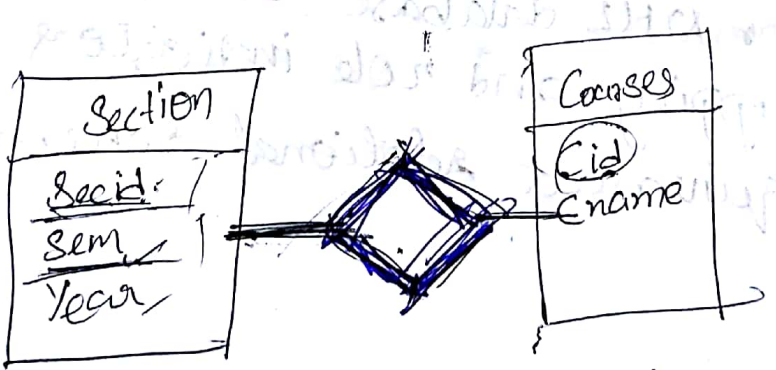
Derived attributes are represented by ( )

Eg:- DOB
Age ( ) Age is a derived attribute from DOB

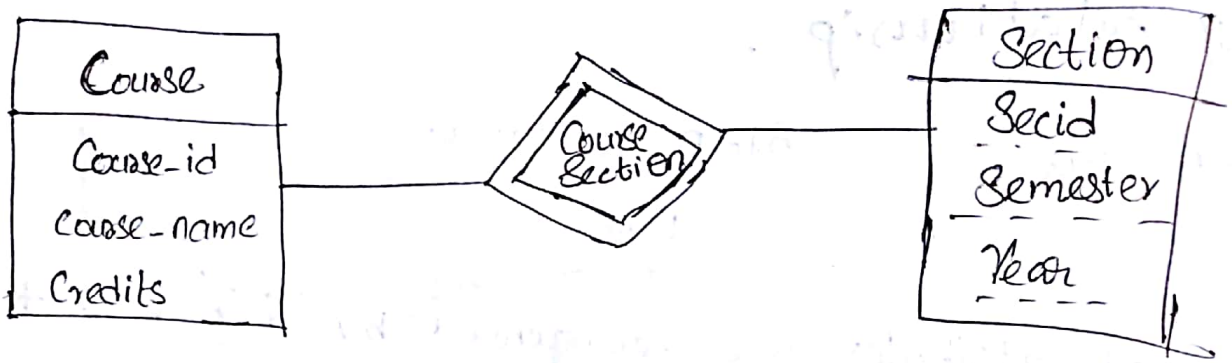


= — Full Participation
— — Partial Participation.

moustache



How to represent courses offered.



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Day - 10

Suppose you are given the following requirements for a simple database for the National Hockey League

NHL has many ~~teams~~

Each team has a name, a city, a coach, a captain and set of players. Each player belongs to only one team. Each player has a position/role like goal keeper, striker, a skill level and etc. injury records.

A team captain is also a player. A game is played b/w 2 teams referred to as host team and ~~guest~~ guests team and has a date such as Sep 1, 2018 and score such as Each game is identified by a host & guest team.

ER diagram for NHL database clearly indicating cardinality mapping and role indicators

Reduce into equivalent relational schema

5th September, 2018.

Day-11

Nested Queries / Sub Queries:-

Inner query either return a single or multiple records

Select pid, pname from product where (select pid.
on

A subquery is a SQL query within a query (nested queries)

Inner query is first executed then the outer query.

Inner query is independent or stand alone w.r.t. outerquery.

Sub query must be enclosed in parenthesis

~~SELECT empno, name FROM~~

SELECT column names(col1, col2, ...) from Table-name1
~~where~~ WHERE values in (SELECT column_name (col1, col2)..
FROM Table-name2 ~~where~~ WHERE condn)

(i) Independent Subquery (ii). Correlated Subquery.

It's independent or stand alone w.r.t. outer query

Innerquery depends on the execution of outer query.

return
either single record
or multiple records

SELECT empno, name FROM
Employee where salary
(SELECT MAX(salary) FROM Employee);

Suppose we have 2 tables

Product (Pid, Pname, supid, unitprice)

Order (oid, pid, date, quantity)

Give the details of product pid, pname where order quantity > 500

SELECT pid, pname from Product WHERE (SELECT Pid, from Order where quantity > 500)

~~Challenges~~

(i) ~~we faced~~ fet

Correlated Query:-

SELECT empid, empname, designation, salary FROM employee e1 WHERE salary >= (SELECT AVG(salary) FROM employee e2 WHERE e1.designation = e2.design

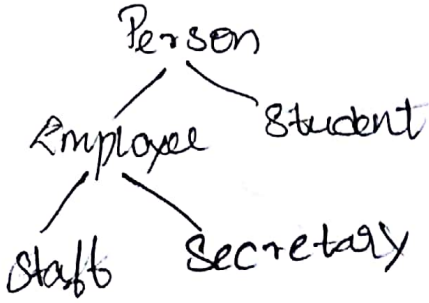
Exists

SELECT col_name(s) FROM WHERE EXISTS(SELECT --)

we faced challenge in choosing nice career options because as 10th std is crucial for so

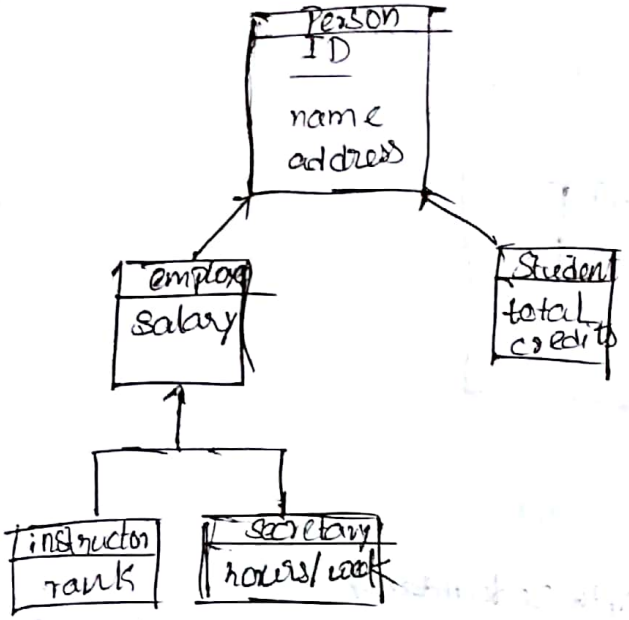
6th September, 2018.

Day-12



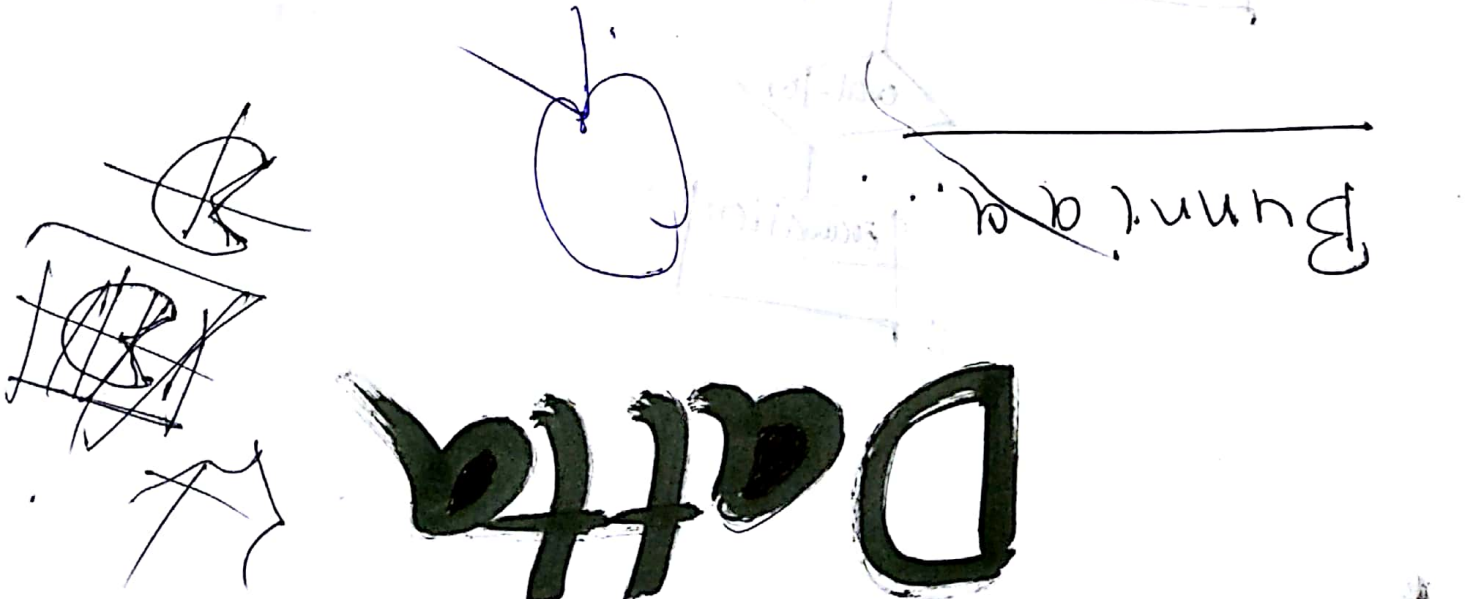
Emp, St are special instr of Person.

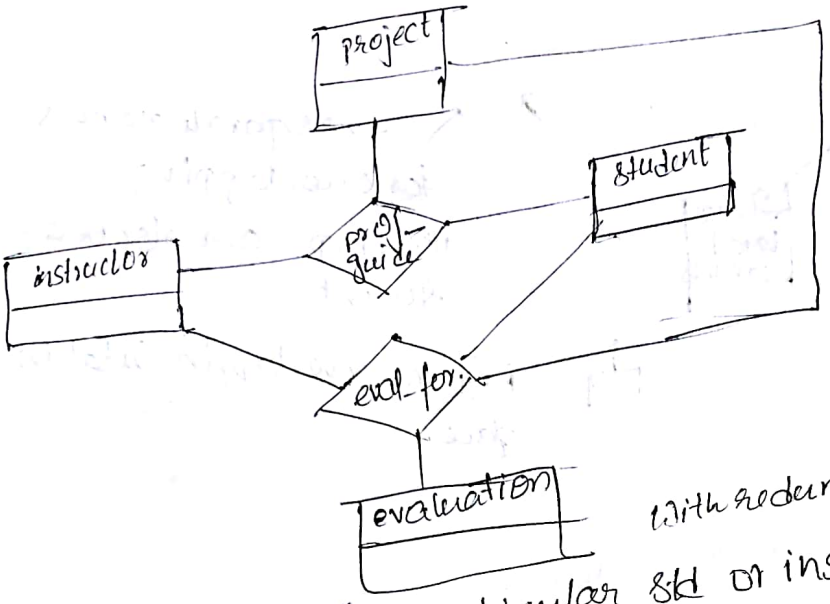
ID of the person is the only P_KEY for the above table.



→ 2 separate arrows for overlapping i.e. emp. can also be a student

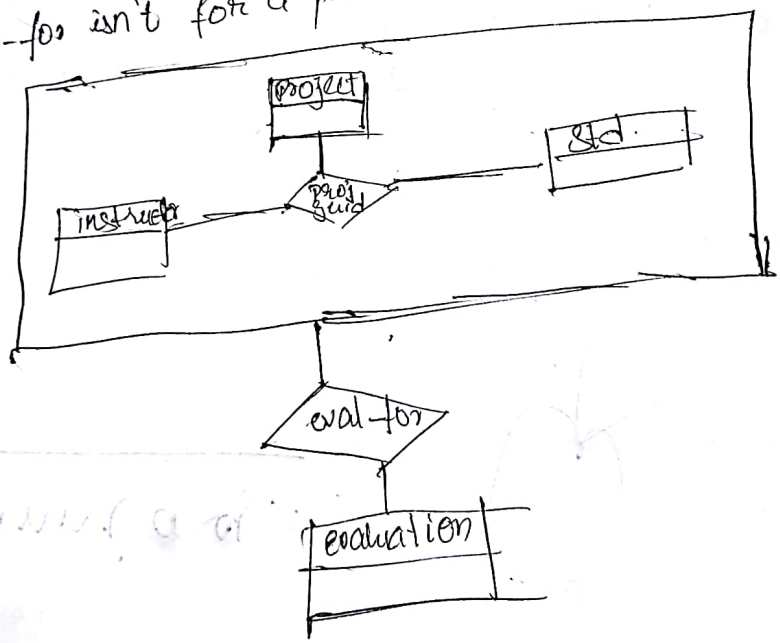
But no overlapping is taking place.

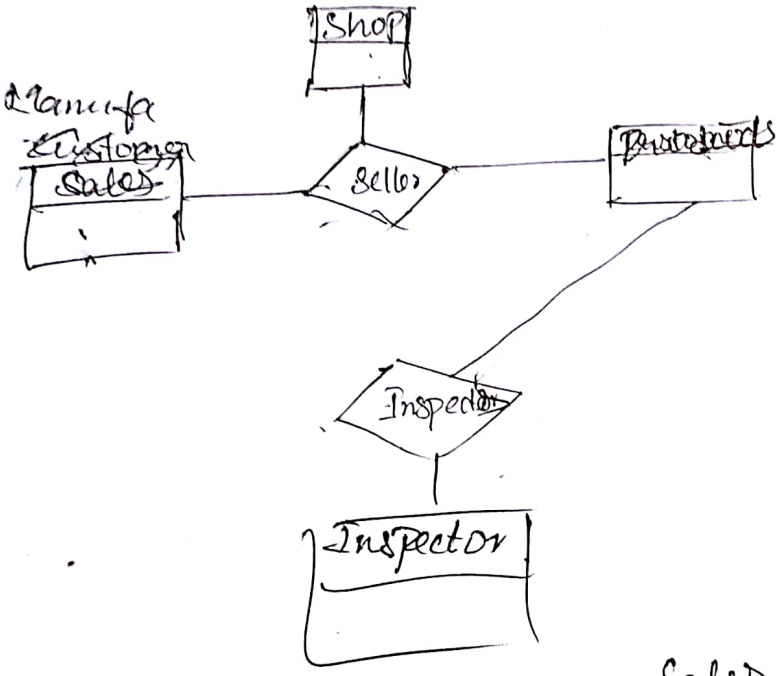




with redundancy

eval_for isn't for a particular std or instructor - but for a project.





a pro.