requirement of data

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1. data integraty : Data should be accurate e.g. my facebook profile should contain valid country name.

2. data availability : I should be able to access facebook and see my data at all times.

3. data security : Only my friends should be able to see my posts and no one else.

4. concurrent : All my friends should be able to see my posts at the same time.

Data is stored in flat files and can be accessed using any programming language. The file based approach suffers following problems:

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1. Dependency of program on physical structure of data

2. Complex process to retrieve data

3. Loss of data on concurrent access

4. Inability to give access based on record (Security)

5. Data redundancy

function of DBMS

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1. utility : data import/export, data management, user login ,

2. integrity : data accuracy

3. security : access data to authenticated user

4. data management : modifucation, store, retrive

5. recovery : recovery of data no data lose

6. tracsaction support : ensure of notification to databases must either be successful or not to be done

7. concurrency control : simulteneously all user access the data

Terminology

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row == tuples == records =========> employee(id, name, dob)

attribute == columns == fields ========> employee(id, name, dob)

no of records == rows == tuples =======> cardinality of relations

The set of permitted values of an attribute is called =====>Domain

candidate key:

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A candidate key are used to uniquely identify the single tuple in columns.

for example:

right candidate key

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1. employee\_id

2. name and bob

3. aadharNo

not right candidate key for columns

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1. salary

2. name

primary key

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A primary key are used to uniquely identify the typle in a relation

mendatory ===> must uniquely identify the tuple and not allows null values

When two or more columns together identify the unique row then

it's referred to as Composite Primary Key.

The combination of Name and DateOfBirth if selected as a primary key would be a composite primary key.

foreign key

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foreign key are the set of one or more table in child table that required to match with parent table

foreign key are used to stablish the relationship between two table. here the parent class should be unique and primary and child table can be null

for example:

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Computer is the parent table with CompId as the primary key.

Employee is the child table with Id as the primary key.

If we want to allocate a maximum of one computer to an employee then CompId must be made the foreign key in the Employee table.

It can only contain values that are present in Computer table or no values at all.

We cannot allocate a computer that does not exist to an employee.

Additionally multiple rows in the child table can link to the same row of the parent table dependening upon the type of relationship.

relationship

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1. realtionship are assiciated with one entity to another entity====> for example: computer is associated with employee

2. A relationship can be also exist between instance of entity =====> for example: employee report to another employee

3. There can be more than one relationship between entities===> for example: an Employee works in a Department while the head of department

(also an employee) manages a Department.

cardinality of relationship

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cardinality of relationship is the number of instance in one entity to the number of instance in another.

for example

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The relationship between computer and employee.

which help us to ans that is how many computer are shared between employee. can employee exist without being allocated a computer etc.

e.g.

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if 0 or 1 computer can be allocated to 0 or 1 employee then the cardinality of relationship between these two entities will be 1:1.

Cardinality of relationships are of three types: 1:1, 1:N and M:N.

A relationship with cardinality 1:1 is also called as one-to-one relationship or 1:1 relationship.

Some entites in the context of Infosys are Employee, Computer, Project, Salaried Account.

Can you identify relationships and cardinality for these relationships?

Crow foot notation

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Crow foot notationis one of the ways to represent cardinality of relationship in an ER Model.

The notation comprises of four symbols and one of them need to be used for each entity in a relationship.

--||------ ====> Exactly one

--|O------ ====> zero or one

-> ------- ====> zero one or more

->|------- ====> one or More

Let us say the relationship between employee and

computer is such that a computer must be allocated to one and only one employee but an employee can be allocated zero or any number of computers.

Such a relationship is represented by the diagram below:





