CIS 530
Lab Assignment 2
SS chung

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Object: Creating an E-R diagram by identifying Entities, Attributes and Relationships between any two entities to create a Company Database Scheme.

1. **Identify all the attributes for each Entity**

   EMPLOYEE:
   For employee, the attributes are NAME, SSN, BDATE, ADDRESS, SEX, SALARY, SUPERSSN

   DEPARTMENT:
   For department, the attributes are DNAME, DNUMBER, MGRSSN, MGRSTARTDATE, DLOCATION

   DEPENDENT:
   For dependent, the attributes are ESSN, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP

   PROJECT:
   For project, the attributes are PNAME, PNUMBER, PLOCATION, DNUM

2. **Identify the Attribute Type of each attribute per Entity**
   Multi-Valued Attribute, Composite Attributes, Derived Attributes.
   Key attribute: ♣ If there are more than one key attribute, mark all as a possible key attribute. ♣ If there is no key attribute in an Entity, identify multiple attributes as a composite key attribute.

   EMPLOYEE:

   NAME - Composite Attribute(Fname, Mname, Lname)
   SSN- Key Attribute
   BDATE- Attribute
   ADDRESS- Composite Attribute(street, Apartment, city, zip code)
   SEX- Attribute
   SALARY- Attribute
   SUPERSSN- derived Attribute(as it depends on the ssn value of supervisor)

   DEPARTMENT:

   DNAME – Key Attribute (primary key)
   DNUMBER- Key Attribute (primary key)
   MGRSSN- derived Attribute (Foreign key and it depends on the value of ssn of an employee)
   MGRSTARTDATE- Attribute
   DLOCATION- Multivalued Attribute

DEPENDENT:

ESSN- derived Attribute (Foreign key and it depends on the value of ssn of an employee)
DEPENDENT_NAME- Attribute
SEX- Attribute
BDATE- Attribute
RELATIONSHIP- Attribute

PROJECT:
PNAME- Key Attribute
PNUMBER- Key Attribute
PLOCATION- Attribute
DNUM- derived Attribute (Foreign key and it depends on the value of DNumber of department table)

3. Relationship Name:

i) **works for:** It is a relationship between employee and department
cardinality ratio is N – 1
Participant Type: Participation is total for employee entity
Participation is total for department entity

ii) **Manages:** It is a relationship between employee and department
cardinality ratio is 1 – 1
Participant Type: Participation is partial for employee entity
Participation is total for department entity

iii) **controls:** It is a relationship between department and project
cardinality ratio is 1 – N
Participant Type: Participation is partial for department entity
Participation is total for project entity

iv) **supervises:** It is a relationship with in employee
cardinality ratio is 1 – N
Participant Type: participation is partial for employee entity on both sides

v) **works on:** It is a relationship between employee and project
cardinality ratio is M – N
Participant Type: Participation is total for employee entity
Participation is total for project entity

vi) **Dependents of:** It is a relationship between employee and dependent(weak entity)
cardinality ratio is 1 – N
Participant Type: Participation is partial for employee entity
Participation is total for dependent entity