

2.1P: Database Modelling Tools

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- a. How many Entities are there and what are they?

There are four entities in total. DEPARTMENT, EMPLOYEE, JOB, DEPENDENT.

- b. For the EMPLOYEE Entity: (i) List all attributes; (ii) What is the Primary Key and how do you know that? and (iii) Are there any Foreign Key(s)? If yes, what are they and what are they referring to?

EMP_NUM

EMP_FIRSTNAME

EMP_LASTNAME

EMP_STREET

EMP_STATE

EMP_POSITION

EMP_POB

DEPT_CODE

JOB_CODE

The primary Key (PK) is PK EMP_NUM, one of the candidate keys and chosen to be the unique row identifier.

Attribute(s) whose values match a candidate key (such as primary key) values in the related table. FK1 DEPT_CODE, FK2 JOB_CODE.

- c. Explain the relationship between EMPLOYEE and DEPENDENT. Your explanation should include how is EMPLOYEE related to DEPENDENT and vice-versa in terms of whether the relationship is Optional/Mandatory and their cardinalities. Also, discuss how is the relationship maintained in the ERD [Hint: Primary and Foreign Keys].

First they are defined as the occurrence of an entity does not require the corresponding entity to be present in a particular relationship. Then it can be understood that the occurrence of DEPENDENT is not mandatory to appear inside EMPLOYEE again, that is, it is optional. The foreign key and the primary key must be of the same data type and

- d. What is the Primary Key of DEPENDENT? What type of key is it?

The primary key of DEPENDENT is PK DEP_NUM

PK DEP_NUM is Primary Key, because the primary key is a candidate key that is selected by the database designer to be used as an identifying mechanism for the whole entity set.