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. DEPAPRTMENT, 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 DEPENDTENT 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
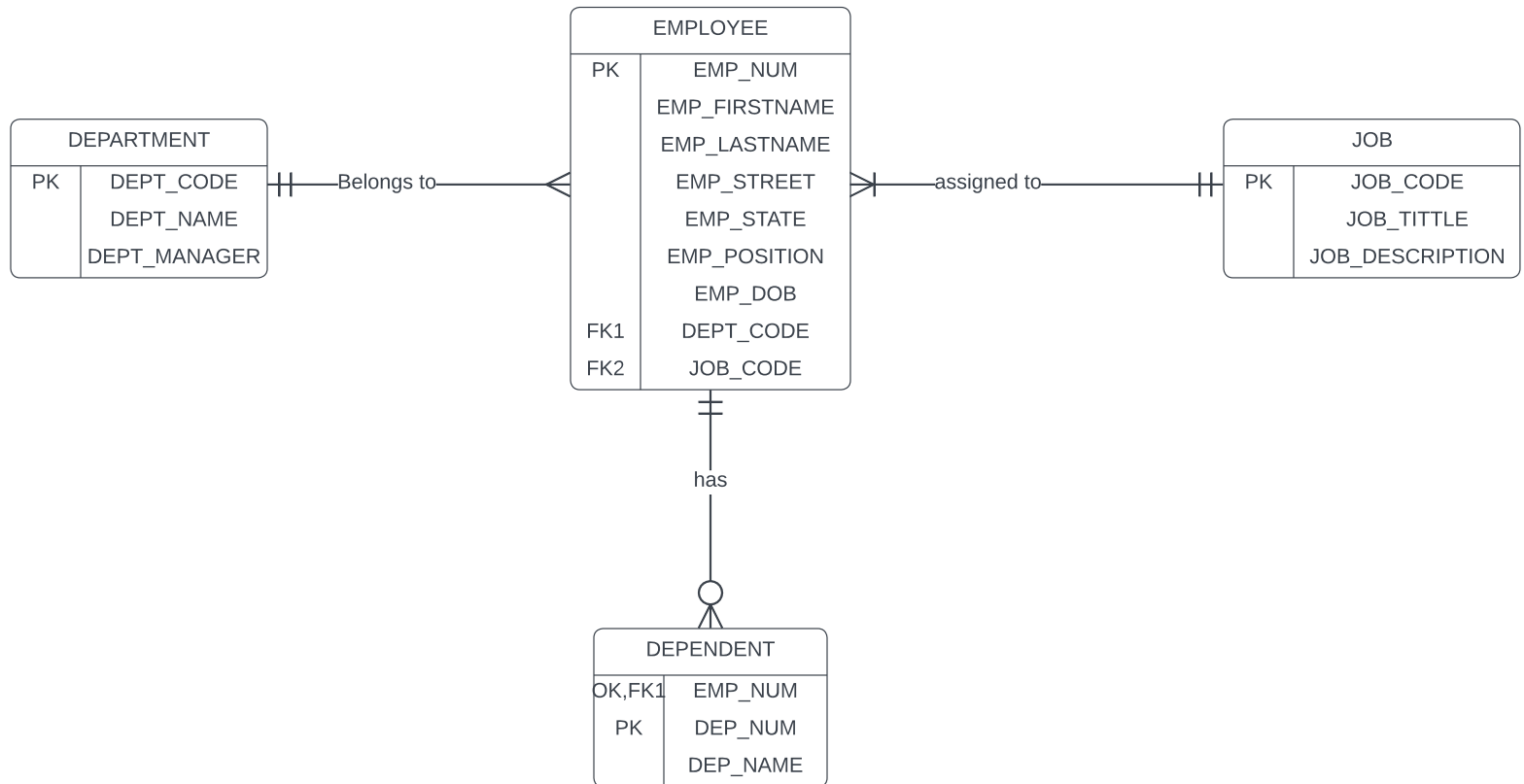
d. What is the Primary Key of DEPENDENT? What type of key is it?
The primary key of DEPENDENT is PK DEP_NUM
PK DEP_NUM is Primary Key, because the primary key is a candidate key that is selected by the database designer to be used as an identifying mechanism for the whole entity set.

Database ER diagram part1

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DEPARTMENT

PK	DEPT_CODE
	DEPT_NAME
	DEPT_MANAGER

EMPLOYEE

PK	EMP_NUM
	EMP_FIRSTNAME
	EMP_LASTNAME
	EMP_STREET
	EMP_STATE
	EMP_POSITION
	EMP_DOB
FK1	DEPT_CODE
FK2	JOB_CODE

JOB

PK	JOB_CODE
	JOB_TITTLE
	JOB_DESCRIPTION

Belongs to

assigned to

has

DEPENDENT

PK,FK1	EMP_NUM
PK	DEP_NUM
	DEP_NAME

Database ER diagram (crow's foot)

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- Menbership details
- Rental Confimation
- Customer information verification request → Store Assistant
- Customer verfication response
- New video information
- Menbership request
- video rental request
- Payment request
- ABC video renal system
- Payment detail
- Overdue videos report
- New video report → Store Manager
- Customer
- Store Manager