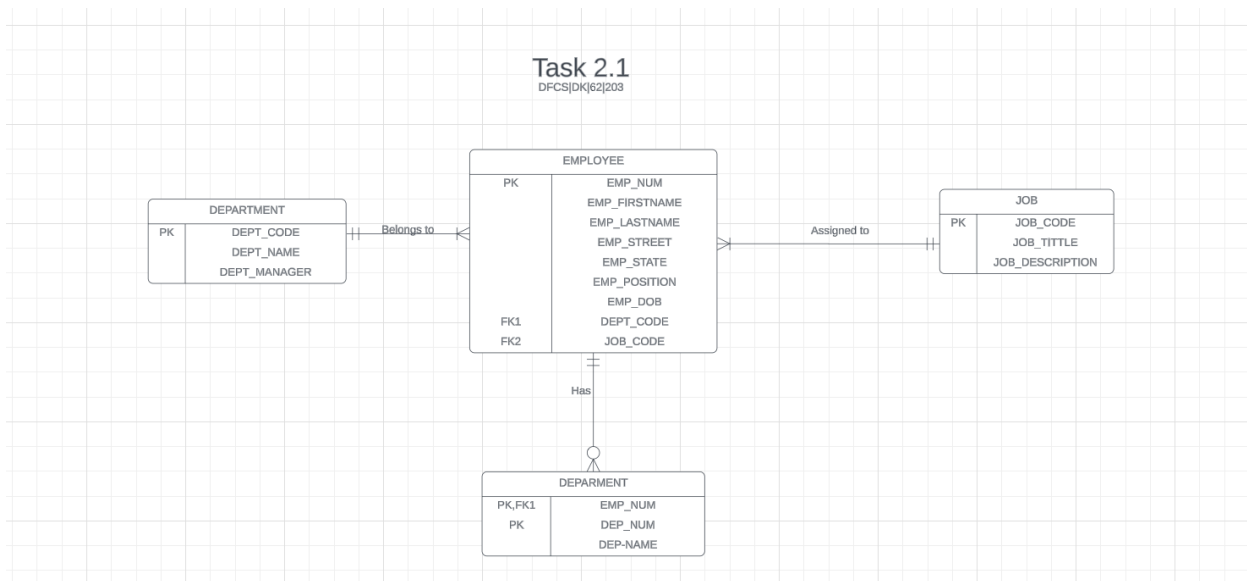


Data & Information Management 2.1P: Database Modelling Tools



1. Answer the following questions based on the ERD you have drawn.
 - a. How many Entities are there and what are they?
 - 4 Entities
 - EMPLOYEE
 - JOB
 - DEPARTMENT
 - 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?
 - i. Attributes
 - EMP_NUM
 - EMP_FIRSTNAME
 - EMP_LASTNAME
 - EMP_STREET
 - EMP_STATE
 - EMP_POSITION
 - EMP_DOB
 - EMP_CODE
 - JOB_CODE

- ii. The EMP_NUM property is the primary key. This is evident in the ER diagram above, where the EMPLOYEE table's key field refers to it as the PK (primary key).
- iii. 2 Foreign Key
 - DEPT_CODE is referring to the DEPARTEMENT table
 - JOB_CODE is referring to the JOB table
- c. Explain the relationship between EMPLOYEE and DEPENDENT. Your explanation should include how is EMPLOYEE related to DEPENDENT an vice-versa in terms of whether the relationship is Optional/Mandatory and their cardinalities. Also, discuss how the relationship is maintained in the ERD [Hint: Primary and Foreign Keys].
 - Taking into account the relationship between the Department and the Employee, we could defend that as,
 - An employee's cardinality is indicated as (one to many) if they have zero or more dependents. However, keeping in mind that it is a dependant, it is imperative that there be one employee for every dependent; this is known as many to one cardinality. By doing this, we may argue that although the relationship between the DEPENDENT and the EMPLOYEE is required, the relationship between the EMPLOYEE and the DEPENDENT is optional.
EMP NUM serves as both the foreign key (FK) in DEPENDENT and the primary key (PK) in EMPLOYEE, maintaining the relationship between the two parties.
- d. What is the Primary Key of DEPENDENT? What type of key is it?
 - The primary key of the DEPENDENT table is a composite key that combines the unique identifier primary key of DEPENDENT, which is derived from the primary key of the EMPLOYEE table, with the foreign key of the DEPENDENT table. This combination of keys is known as the composite key.