

(1) For Table Department:

The following functional dependencies are valid in the schema:

$DName \rightarrow Manager, MSDate, E\#$

The minimal key is (DName)

The relational schema is in BCNF because $DName \rightarrow Manager, MSDate, E\#$, i.e. left hand side of the functional dependency is a superkey.

(2) For Table DeptLocation:

The following functional dependencies are valid in the schema:

$DName, Address \rightarrow Manager$

$DName \rightarrow Manager$

The minimal key is (DName, Address)

The relational schema is not in 2NF because a nonprime attribute Manager depends on a subset of a minimal key.

So it can transform the relational schema to DeptLocation(DName,Address)

The minimal key is (Address, DName)

Now the relational schema is in BCNF because Address and DName are all prime attribute.

(3) For Table Employee:

The following functional dependencies are valid in the schema:

$E\# \rightarrow Name, DOB, Supervisor\#, DName$

The minimal key is (E#)

The relational schema is in BCNF because $E\# \rightarrow Name, DOB, Supervisor\#, DName$, i.e. left hand side of the functional dependency is a superkey.