Explain why the addition of NOT NULL constraints to the SQL definition of the Manages relation (in Section 3.5.3) does not enforce the constraint that each department must have a manager. What, if anything, is achieved by requiring that the ssn field of Manages be non-null?

Step 1:

SQL uses the IS NOT NULL condition to check for a non-NULL value. If a non-NULL value is detected, it returns TRUE; otherwise, it returns FALSE. It is applicable to statements that SELECT, INSERT, UPDATE, or DELETE data.

A column must not accept NULL values according to the NOT NULL constraint. This forces a field to always have a value, so you can't add a new record or update an existing record without giving this field a value.

Step 2:

The requirement that Manages' ssn field not be null indicates that there must be a Manager for each tuple that is contained there. This, however, does not guarantee that each department has an entry (or tuple) in the Manages relation.