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CSCE A360
HW #3

Use the database shown in Figure P3.17 to answer Problems 17–20 and 22.

FIGURE P3.17 THE CH03_TRANSCO DATABASE TABLES

Database name: Ch03_TransCo

Table name: TRUCK
Primary key: TRUCK_NUM
Foreign key: BASE_CODE, TYPE_CODE

TRUCK_NUM	BASE_CODE	TYPE_CODE	TRUCK_MILES	TRUCK_SERIAL_NUM
1001	501	1	32123.5	AA-322-12212-W11
1002	502	1	76984.3	AC-342-22134-Q23
1003	501	2	12346.6	AC-445-78656-Z99
1004		1	2894.3	WQ-112-23144-T34
1005	503	2	45673.1	FR-998-32245-W12
1006	501	2	193245.7	AD-456-00845-R45
1007	502	3	32012.3	AA-341-96573-Z84
1008	502	3	44213.6	DR-559-22189-D33
1009	503	2	10932.9	DE-887-98456-E94

Table name: BASE
Primary key: BASE_CODE
Foreign key: none

BASE_CODE	BASE_CITY	BASE_STATE	BASE_AREA_CODE	BASE_PHONE	BASE_MANAGER
501	Murfreesboro	TN	615	123-4567	Andrea D. Gallager
502	Lexington	KY	568	234-5678	George H. Delarosa
503	Cape Girardeau	MO	456	345-6789	Maria J. Talindo
504	Dalton	GA	901	456-7890	Peter F. McAvee

Table name: TYPE
Primary key: TYPE_CODE
Foreign key: none

TYPE_CODE	TYPE_DESCRIPTION
1	Single box, double-axle
2	Single box, single-axle
3	Tandem trailer, single-axle

17. For each table, identify the primary key and the foreign key(s). If a table does not have a foreign key, write None.
    - TRUCK:
        - Primary: TRUCK_NUM
        - Foreign: BASE_CODE, TYPE_CODE
    - BASE:
        - Primary: BASE_CODE
        - Foreign: None
    - TYPE:
        - Primary: TYPE_CODE
        - Foreign: None

18. Do the tables exhibit entity integrity? Answer yes or no, and then explain your answer.
    Yes. Each table has a primary key with each entity's key being unique.

19. Do the tables exhibit referential integrity? Answer yes or no, and then explain your answer. Write NA (Not Applicable) if the table does not have a foreign key.
    Yes. The TRUCK table is the only table with foreign keys, and those foreign keys point to the unique primary keys of the other tables. Additionally, every foreign key is a reference to a valid, existing entity in the other tables.

20. Identify the TRUCK table's candidate key(s).
    - TRUCK_NUM, TRUCK_SERIAL_NUM

22. Create the ERD for this database.
    - Each truck has an optional base.
    - Each base may have many trucks.
    - A base might not have any trucks.
    - Each truck must have a type.
    - Each type may be associated with multiple trucks.
    - Some types might not have any associated trucks (assumed).