THE FOLLOWING DEFINITIONS WILL BE PROVIDED ON TESTS

Functional Dependency Inference Rules:

if Y is a subset of X then X->Y //reflexive rule
if X->YZ then X->Y and X->Z //decomposition rule
if X->Y and Y->Z then X->Z //transitive rule
if X->Y, and X->Z, then X->YZ //union rule
if X->Y then WX->WY //augmentation rule
if X->Y and WY->Z then WX->Z //pseudo transitive rule

Trivial Dependency: A functional dependency X->Y is **trivial** if Y is a subset of X.

Closure of Functional Dependencies: The closure F^+ of a set of functional dependencies F is {X->Y| F logically implies X->Y}.

Closure of Attributes: Given a set of Attributes A and functional dependencies F, the closure A^+ of A with respect to F is {X | A->X is in F^+}.

Keys:
If R is a set of attributes and F a set of functional dependencies pertaining to R then:
An attribute set $S \subseteq R$ is a **superkey** of R if the closure S^+ with respect to F contains all attributes of R.
A superkey S is **minimal** if no proper subset of S is a superkey.
A **candidate key** is any minimal superkey.
A **primary key** a chosen candidate key (identified by underlining it in models).

Prime Attribute: An attribute A_i of $R = (A_1, A_2, \ldots A_n)$ is **prime** if any minimal key of R contains A_i.
An **non-prime** attribute is one that is not prime.

Partial Dependency: If Y is a proper subset of a key or R and A is an attribute of R not in Y. Then Y->A is a **partial dependency**. (i.e. A depends on only a part of a key.)

2nd Normal Form: A table R with associated functional dependencies F is in 2nd normal form if F^+ contains no partial dependencies Y->A where A is non-prime.

Transitive Dependency: Let Y be a set of attributes from table R and A be an attribute not contained in Y. The functional dependency Y->A is a **transitive dependency** if Y is neither a superkey of R nor a proper subset of a key of R.

3rd Normal Form: A table, with dependencies F, is in 3rd normal form if it is in 2nd normal form and if F^+ contains no transitive dependencies Y->A where A is non-prime. (Equivalently, a table is in 3rd normal form if, for each non-trivial dependency Y->A, Y is a superkey or A is prime.)

Boyce-Codd Normal Form: A table, with dependencies F, is in BCNF if F^+ contains no partial or transitive dependencies. (Equivalently, a table is in BCNF if the left side of each non-trivial dependency in F^+ is a superkey.)