Introduction to Data Base
Assignment 5
Submission Date: Monday, 28/06/2020 Time: 11:50 PM

Problem – 1: Give Super Keys and Candidate Keys.

a. R(A,B,C,D,E,F,G,H,I)
   FD: {AB→ C, BD → EF, AD → GH, A→ I}
b. R(V,W,X,Y,Z)
   FD: {X→ YV, Y → Z, Z → Y, VW→ X}
c. R(A,B,C,D,E,F)
   FD: {ABC→ D, ABD → E, CD → F, CDF→ B, BF→ D}
d. R(A,B,C)
   FD: {A→ B, B → C, C → A}
e. R(A,B,C,D,E,H)
   FD: {A→ B, BC → D, E → C, D→ A}

Practice Question:

- Question 2: Consider the universal relation R = {A, B, C, D, E, F, G, H, I, J} and the set of functional dependencies F = {{A, B}→{C}, {A}→{D, E}, {B}→{F}, {F}→{G, H}, {D}→{I, J}}. What is the key for R? Decompose R into 2NF and then 3NF relations.
- Question 3: Consider the universal relation R = {A, B, C, D, E, F, G, H, I, J} and the set of functional dependencies F = {{A, B}→{C}, {B, D}→{E, F}, {A, D}→{G, H}, {A}→{I}, {H}→{J}}. What is the key for R? Decompose R into 2NF and then 3NF relations.
- Consider the following database schema and functional dependencies:

R(StaffId, StaffName, CustomerId, CustomerName, CustomerAddress, CustomerPhone, OrderId, OrderDate, TotalPrice, DiscountAmount, TaxAmount, PaidAmount, FoodDishId, FoodDishName, UnitPrice, Quantity, QuantityPrice)

StaffId	⟶	StaffName
CustomerId	⟶	CustomerName, CustomerAddress
CustomerAddress	⟶	CustomerPhone
OrderId	⟶	OrderDate, CustomerId, StaffId, TotalPrice, DiscountAmount, TaxAmount, PaidAmount
FoodDishId	⟶	FoodDishName, UnitPrice
OrderId FoodDishId	⟶	Quantity, QuantityPrice

a) Find all possible candidate keys.
b) Identify current normal form.
c) Normalize this schema to the highest normal form discussed in your class.