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CS 360

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Assignment #4 Work

1)

SELECT Pets.PetID, Pets.Name, Pets.TypeofPet

FROM Pets

INNER JOIN Owns ON Pets.PetID = Owns.PetID

INNER JOIN Owners ON Owns.OID = Owners.OID

WHERE Owners.AnnualIncome = 0

AND Owners.Age < 18

AND Pets.City = 'Moscow'

AND Pets.State = 'Idaho';

∏(PetID,Name,TypeofPet)(σ(City="Moscow"∧State="Idaho")((Pets)⋈((Owns)⋈(∏(OID)(σ(AnnualIncome=0)(Owners))))))

2)

SELECT Owners.OID, Owners.LastName, Pets.PetID, Pets.Name

FROM Pets

INNER JOIN Owns ON Pets.PetID = Owns.PetID

INNER JOIN Owners ON Owns.OID = Owners.OID

WHERE "Pets.`Street#`" != "Owners.`Street#`"

OR Pets.City != Owners.City

OR Pets.State != Owners.State

OR Pets.ZipCode != Owners.ZipCode;

∏(OID,LastName,PetID,Name)(((Pets)⋈(Owns)⋈(∏(OID,LastName)(Owners)))-((Pets)⋈(Owns)⋈(∏(OID,LastName,Street,City,ZipCode,State)(Owners))))

Doesn’t work:

∏(Owners.OID, Owners.LastName, Pets.PetID, Pets.Name)((Owners)⋈((σ(Pets.Street = Owners.Street)(Pets))((σ(Pets.City = Owners.City)(Pets))⋈((σ(Pets.State = Owners.State)(Pets))⋈(σ(Pets.ZipCode = Owners.ZipCode)(Pets))))))

∏(OID, LastName, PetID, Name)((Owners)Χ((σ(Street)(Pets))((σ(City)(Pets))Χ((σ(State)(Pets))Χ(σ(ZipCode)(Pets))))))

(((∏(Street)(Pets))-(∏(Street)(Owners)))⋈((∏(City)(Pets))-(∏(City)(Owners)))⋈((∏(ZipCode)(Pets))-(∏(ZipCode)(Owners)))⋈((∏(State)(Pets))-(∏(State)(Owners))))

3)

SELECT Pets.PetID, Pets.Name

FROM Pets

LEFT JOIN Purchases

ON Pets.PetID = Purchases.PetID

LEFT JOIN Foods

ON Purchases.FoodID = Foods.FoodID

LEFT JOIN Likes

ON Pets.PetID = Likes.PetID

AND Foods.TypeofFood = Likes.TypeofFood

WHERE Likes.TypeofFood IS NULL;

(∏(PetID,Name)(Pets))-(∏(PetID,Name)((Pets)⋈(Likes)⋈(Purchases)⋈(∏(FoodID,TypeofFood)(Foods))))

Or Nathan’s:

(∏(PetID,Name)(Pets))-(∏(PetID,Name)((Pets)⋈(Purchases)⋈(∏(FoodID,TypeofFood)(Foods))⋈(Likes)))

4)

SELECT Pets.PetID, Pets.Name AS "Pets.Name", Foods.FoodID, Foods.Name AS "Foods.Name", Foods.Brand

FROM Pets

INNER JOIN Owns ON Pets.PetID = Owns.PetID

INNER JOIN Purchases ON Owns.OID = Purchases.OID

INNER JOIN Foods ON Purchases.FoodID = Foods.FoodID;

∏(PetID,`Pets.Name`,FoodID,`Foods.Name`,Brand)((ρ(Pets)(PetID,`Pets.Name`,p3,p4,p5,p6,p7,p8)(Pets))⋈((∏(PetID,OID)(Owns))⋈((∏(OID,FoodID)(Purchases))⋈(ρ(Foods)(FoodID,`Foods.Name`,Brand,f4,f5,f6,f7)(Foods)))))

Or Nathan’s:

∏(PetID,`Pets.Name`,FoodID,`Foods.Name`,Brand)((ρ(Pets)(PetID,`Pets.Name`,pc,pd,pe,pf,pg,ph)(Pets))⋈(∏(PetID,OID)(Owns))⋈(∏(OID,FoodID)(Purchases))⋈(ρ(Foods)(FoodID,`Foods.Name`,Brand,fd,fe,ff,fg)(Foods)))

5)

SELECT f1.FoodID, f1.Brand, f1.Price

FROM Foods f1

LEFT JOIN Foods f2 ON f1.Brand = f2.Brand

AND f1.Price < f2.Price

WHERE f2.FoodID IS NULL;

∏(FoodID,Brand,Price)((Foods)-(Foods)⋈(∏(FoodID)(σ(Brand=f3∧Price<f5)((Foods)⋈(ρ(Foods)(f1,f2,f3,f4,f5,f6,f7)(Foods))))))

Or Nathan’s:

(∏(FoodID,Brand,Price)(Foods))-(∏(FoodID,Brand,Price)(σ((Brand=gBrand)∧(Price<gPrice))((Foods)Χ(ρ(Goods)(ga,gb,gBrand,gd,gPrice,gf,gg)(Foods)))))