Grant Nakashima
Assignment #3
Date Due: 2/28/16

1)
SELECT f.CommonName, ft.Name FROM Fish f
INNER JOIN FishDiet fd ON fd.Fish = f.FishId
INNER JOIN FoodTypes ft ON ft.FoodId = fd.Food;

$\prod$ f.CommonName , ft.Name $((\text{Fish} \bowtie \text{Fish.FishId = Fish.id } \text{FishDiet})$
$\bowtie \text{ft.Food\_id=fd.Food } \text{FoodTypes}))$

2)
SELECT f.CommonName, f.ScientificName FROM Fish f
INNER JOIN FishInstance fi ON f.FishId = fi FishType
INNER JOIN TankInstance ti ON ti.TankInstanceId = fi.TankInstance
WHERE ti.TankSize = 40;

$\prod$ f.CommonName , f.ScientificName $(\sigma \text{ TankInstatance.TankSize = 40 } ((\text{Fish} \bowtie \text{Fish.FishId = fi.FishType}$
$\text{FishInstance}) \bowtie \text{ ti.TankInstanceId = fi.TankInstance } \text{TankInstance}))$

3)
SELECT ft.Name FROM Fish f
INNER JOIN FishInstance fi ON f.FishId = fi.FishType
INNER JOIN FishDiet fd ON f.FishId = fd.Fish
INNER JOIN FoodTypes ft ON fd.Food = ft.FoodId
INNER JOIN TankInstance ti ON fi.TankInstance = ti.TankInstanceId
WHERE ti.TankInstanceId = 55;

$\prod$ ft.Name $(\sigma \text{ ti.TankId = 55 } ((((\text{Fish} \bowtie \text{Fish.FishId = fi.FishType } \text{FishInstance}) \bowtie \text{ (f.FishId = fd.Fish}$
$\text{FishDiet}) \bowtie \text{ (fd.Food = ft.FoodId } \text{FoodTypes}) \bowtie \text{ (ti.TankInstanceId = fi.TankInstance}$
$\text{TankInstance}))))$

4)
SELECT ifi.FishInstanceId FROM FishInstance ifi
WHERE ifi.FishInstance NOT IN (
SELECT fi.FishInstanceId FROM Fish f
INNER JOIN FishInstance fi ON f.FishId = fi.FishType
INNER JOIN TankInstance ti ON fi.TankInstance = ti.TankInstanceId
WHERE f.TankType = ti.TankType);

$\prod$ ifi.FishInstanceId (σ ifi.FishInstance (FishInstance)) $-$ ($\prod$ fi.FishInstanceId

σ f.TankType=ti.TankType (Fish $\bowtie$ f.FishId=fi.FishType FishInstance)

$\bowtie$ fi.TankInstance=ti.TankInstanceId TankInstance)

5) $\prod$ Player.id, Team.name, City.name (σ Player.score = 30((Player $\bowtie$ Player.team_id = Team.id
Team) $\bowtie$ Team.city_id=City.id City))