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Assignment 3

Summer 2015

Questions

1. Select the make_name and model_name of all vehicles which have a first production year of 1976

ΠMake.make_name, Model.model_name $\left(\sigma\right.$ Model.first_production_year = "1976" $\left((Vehicle \bowtie\right.$ Vehicle.fk_make_id=Make.make_id $Make)$ $\bowtie$ Vehicle.fk_model_id=Model.model_id $\left.Model\right))$

2. Select the make_name and model_name of all vehicles with the color name Blue

Π Make.make_name, Model.model_name $\left(\sigma\right.$ color.name = "blue" $\left(\left(\left(\left(\bowtie Vehicle\right.\right.\right.\right.$ Vehicle.vehicle_id = Inventory.fk_vehicle_id $Inventory)$ Inventory.fk_color_id=Color.color_id $Color)$ $\bowtie$ Vehicle.fk_make_id=Make.make_id $Make)$ $\bowtie$ Vehicle.fk_model_id=Model.model_id $\left.Model\right))$

3. Select the make_name, model_name and incentive amount for all vehicles with a dealer type incentive

Π Make.make_name, Model.model_name, Incentive.amount $\left(\sigma\right.$ Incentive.type = "dealer" $\left(\left(\left(\left(\bowtie\right.\right.\right.\right.$ Vehicle Vehicle.fk_make_id=Make.make_id $Make)$ $\bowtie$ Vehicle.fk_model_id=Model.model_id $Model)\bowtie$ Vehicle.vehicle_id=Vehicle_Incentive.fk_vehicle_id $Vehicle\_Incentive)$ $\bowtie$ Vehicle_Incentive.fk_incentive_id=Incentive.incentive_id $\left.Incentive\right))$

4. Convert the following query to relational algebra

SELECT Player.id, Team.name, City.name FROM Player

INNER JOIN Team ON Player.team_id = Team.id

INNER JOIN City ON Team.city_id = City.id WHERE Player.score = 100;

$$\Pi_{Player.id, Team.name, City.name} \left(\sigma_{Player.score= \text{"100"}} \left(\left(Player \bowtie_{Player.team\_id=Team.team\_id} Team \right) \bowtie_{Team.city\_id=City.id} City \right) \right)$$

5. For problem 3 above, convert your relational algebra query into a SQL query.

SELECT Make.make_name, Model.model_name, Incentive.amount FROM vehicle

INNER JOIN Make ON Vehicle.fk_make_id = Make.make_id

INNER JOIN Model ON Vehicle.fk_model_id = Model.model_id

INNER JOIN Vehicle_Incentive ON Vehicle.vehicle_id = Vehicle_Incentive.fk_vehicle_id

INNER JOIN Incentive ON Vehicle_Incentive.fk_incentive_id = Incentive.incentive_id

WHERE Incentive.type = "dealer"