Assignment 3: Relational Algebra

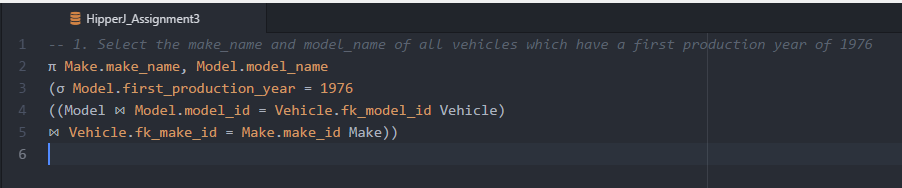
1. **Select the make\_name and model\_name of all vehicles which have a first production year of 1976**

π Make.make\_name, Model.model\_name

(σ Model.first\_production\_year = 1976

((Model ⋈ Model.model\_id = Vehicle.fk\_model\_id Vehicle)

⋈ Vehicle.fk\_make\_id = Make.make\_id Make))



1. **Select the make\_name and model\_name of all vehicles with the color name Blue**

π Make.make\_name, Model.model\_name

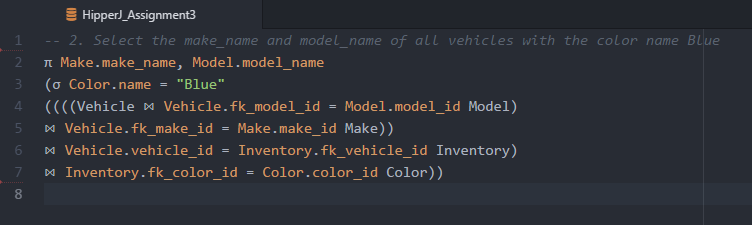
(σ Color.name = "Blue"

((((Vehicle ⋈ Vehicle.fk\_model\_id = Model.model\_id Model)

⋈ Vehicle.fk\_make\_id = Make.make\_id Make))

⋈ Vehicle.vehicle\_id = Inventory.fk\_vehicle\_id Inventory)

⋈ Inventory.fk\_color\_id = Color.color\_id Color))



1. **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

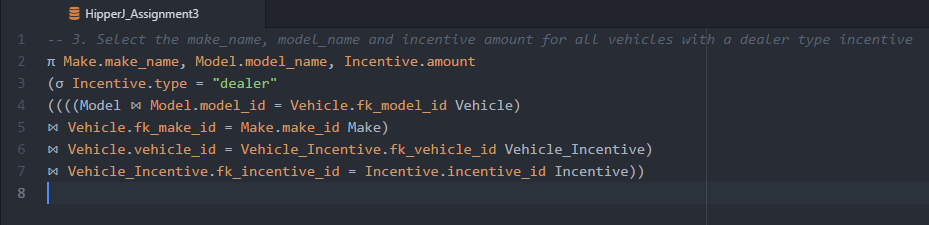
(σ Incentive.type = "dealer"

((((Model ⋈ Model.model\_id = Vehicle.fk\_model\_id Vehicle)

⋈ Vehicle.fk\_make\_id = Make.make\_id Make)

⋈ Vehicle.vehicle\_id = Vehicle\_Incentive.fk\_vehicle\_id Vehicle\_Incentive)

⋈ Vehicle\_Incentive.fk\_incentive\_id = Incentive.incentive\_id Incentive))



1. **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**

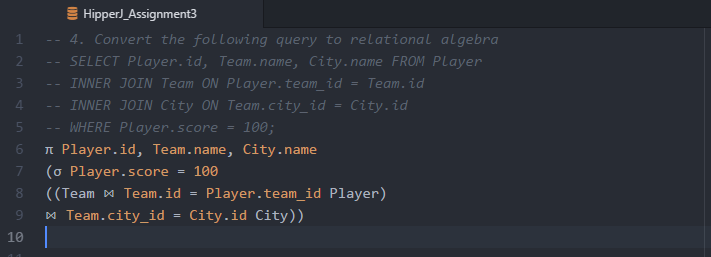
**WHERE Player.score = 100;**

π Player.id, Team.name, City.name

(σ Player.score = 100

((Team ⋈ Team.id = Player.team\_id Player)

⋈ Team.city\_id = City.id City))



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

SELECT Make.make\_name, Model.model\_name, Incentive.amount

FROM Model

INNER JOIN Vehicle ON Vehicle.fk\_model\_id = Model.model\_id

INNER JOIN Make ON Make.make\_id = Vehicle.fk\_make\_id

INNER JOIN Vehicle\_Incentive ON Vehicle\_Incentive.fk\_vehicle\_id = Vehicle.vehicle\_id

INNER JOIN Incentive ON Incentive.incentive\_id = Vehicle\_Incentive.fk\_incentive\_id

WHERE Incentive.type = "dealer";

