

## CS 143 Homework 2

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1. (a) SELECT company-name FROM Company  
WHERE NOT EXISTS  
(SELECT \* FROM Work  
WHERE Work.company-name = Company.company-name AND salary < 150000);  
(b)  $\Pi_{company-name}(Company) - \Pi_{company-name}(\sigma_{salary < 150000}(Work))$   
(c) The results should be identical because the logic is essentially the same.
2. (a) SELECT person-name FROM Work  
WHERE NOT EXISTS (SELECT \* FROM Work AS wcopy  
WHERE Work.salary < wcopy.salary);  
(b) SELECT DISTINCT Work.person-name FROM Work, Manage  
WHERE Work.person-name = Manage.manager-name  
AND SOME (SELECT \* FROM Work AS wcopy, Manage AS mcopy  
WHERE Work.person-name = Manage.person-name AND Work.salary > wcopy.salary);
3. (a) i. SELECT name, address FROM MovieStar WHERE gender = 'F'  
INTERSECT  
SELECT name, address FROM MovieExec WHERE netWorth > 1000000;  
ii. SELECT MovieStar.name, MovieStar.address  
FROM MovieStar, MovieExec  
WHERE MovieStar.name = MovieExec.name AND netWorth > 1000000;  
(b) i. SELECT name FROM MovieStar  
EXCEPT  
SELECT name FROM MovieExec;  
ii. SELECT name FROM MovieStar  
WHERE name NOT IN (SELECT name FROM MovieExec);
4. (a) SELECT AVG(speed)  
FROM Desktop;  
(b) SELECT AVG(price)  
FROM ComputerProduct  
WHERE manufacturer = "Dell";

- (c) `SELECT AVG(price)`  
`FROM ComputerProduct, Laptop`  
`WHERE ComputerProduct.model = Laptop.model AND weight>3;`
  - (d) `SELECT speed, AVG(price)`  
`FROM ComputerProduct, (SELECT model, speed FROM Desktop UNION ALL SELECT model,`  
`speed FROM Laptop) AS Computer`  
`WHERE ComputerProduct.model = Computer.model`  
`GROUP BY speed;`
  - (e) `SELECT manufacturer`  
`FROM ComputerProduct`  
`GROUP BY manufacturer`  
`HAVING COUNT(model)>=3;`
5. (a) `INSERT INTO ComputerProduct VALUES("HP", 1100, 1000);`  
`INSERT INTO Desktop VALUES(1100, 1.2, 256, 40);`
- (b) `DELETE FROM Desktop`  
`WHERE model IN (SELECT model FROM ComputerProduct`  
`WHERE manufacturer="IBM" AND price<1000);`  
`DELETE FROM ComputerProduct`  
`WHERE manufacturer="IBM" AND price<1000;`
  - (c) `UPDATE Laptop SET hdd=hdd-1`  
`WHERE model IN (SELECT model FROM ComputerProduct`  
`WHERE manufacturer="Gateway");`