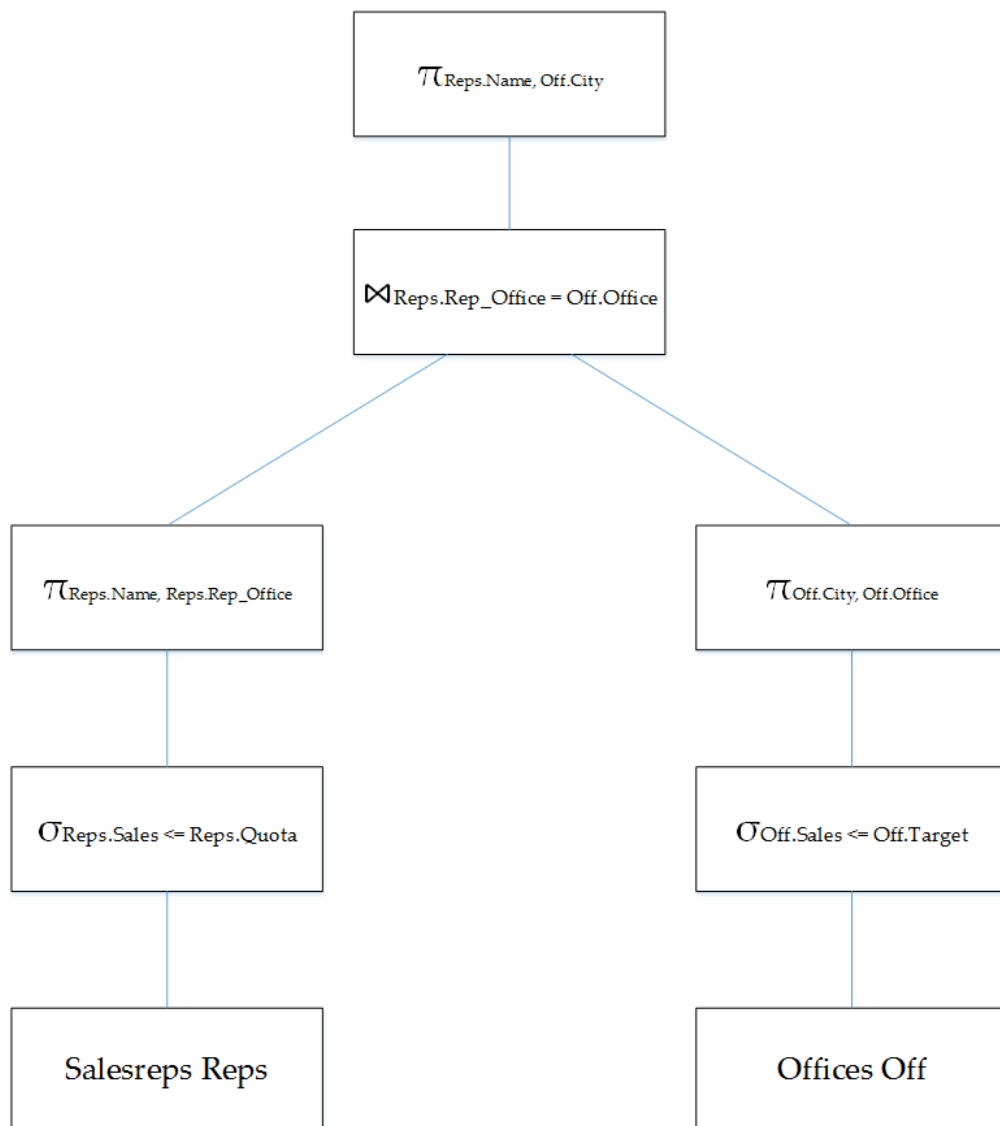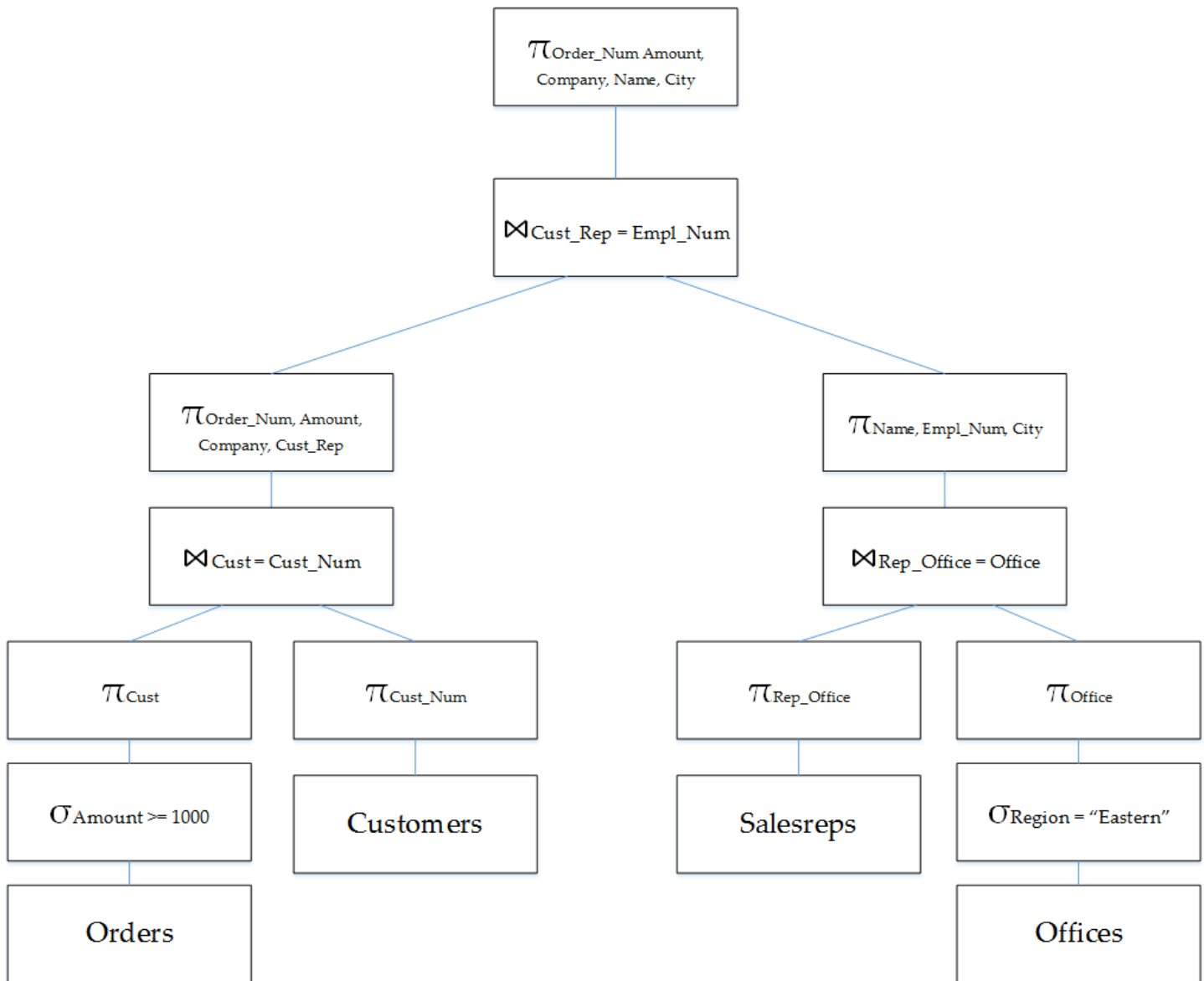CS 443

LAB 6

Malialosa Taupule

4 May 2017

1) Use query tree to optimize the following query

```
SELECT reps.name, off.city
FROM salesreps reps, offices off
WHERE reps.rep_office=off.office
AND reps.sales<=reps.quota
AND off.sales<=off.target;
```

$\pi_{\text{Reps.Name, Off.City}}$

$\bowtie_{\text{Reps.Rep\_Office = Off.Office}}$

$\pi_{\text{Reps.Name, Reps.Rep\_Office}}$

$\pi_{\text{Off.City, Off.Office}}$

$\sigma_{\text{Reps.Sales <= Reps.Quota}}$

$\sigma_{\text{Off.Sales <= Off.Target}}$

Salesreps Reps

Offices Off

2.) Use query tree to optimize the following query

```
SELECT Order_Num, Amount, Company, Name, City
FROM Orders, Customers, Salesreps, Offices
WHERE Cust = Cust_Num
AND Cust_Rep = Empl_Num
AND Rep_Office = Office
AND Amount >= 10000
AND Region = "Eastern"
```

π Order_Num Amount, Company, Name, City

$\bowtie$ Cust_Rep = Empl_Num

π Order_Num, Amount, Company, Cust_Rep

π Name, Empl_Num, City

$\bowtie$ Cust = Cust_Num

$\bowtie$ Rep_Office = Office

π Cust

π Cust_Num

π Rep_Office

π Office

σ Amount >= 1000

Customers

Salesreps

σ Region = "Eastern"

Orders

Offices

3.) Use query tree to optimize the following query

```
SELECT product_id, description, cust_num, company
FROM ORDERS, CUSTOMERS, PRODUCTS
WHERE cust=cust_num
AND MFR=MFR_ID
AND Product=Product_Id
AND Amount <= 1500
```

$\pi_{Product\_ID,\ Description,\ Cust\_Num,\ Company}$

$\bowtie_{Cust\ =\ Cust\_Num}$

$\pi_{Cust,\ Description}$

$\pi_{Cust\_Num,\ Company}$

$\bowtie_{Mfr\ =\ Mfr\_ID\ AND\ Product\ =\ Product\_ID}$

Customers

$\pi_{Mfr,\ Product}$

$\pi_{Product\_ID,\ Mfr\_ID}$

$\sigma_{Amount\ >=\ 1500}$

Products

Orders

4