1) Use query tree to optimize the following query. Use the tables that was provided in previous Assignment

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 > 20000 $\pi_{ t Order_Num, Amount, Company, Name, City}$ Cust_Rep = Empl_Num $\pi_{_{\text{Name, City, Empl_Num}}}$ $\pi_{\mathtt{Order_Num},\ \mathtt{Amount},\ \mathtt{Company},\ \mathtt{Cust_Rep}}$ Rep Office = Office Cust = Cust Num $\pi_{_{\text{City, Office}}}$ $\pi_{_{\text{Name, Empl_Num, Rep_Office}}}$ $\pi_{\texttt{Company}, \ \texttt{Cust_Num}, \ \texttt{Cust_Rep}}$ $\pi_{\tt Order_Num,\ Amount,\ Cust}$ Amount > 20000 Salesreps Offices

Orders

Customers

2) Use query tree to optimize the following query. *Use the tables that was provided in previous assignment*

SELECT cust num, cust rep, name, rep office, city FROM Customers, Salesreps, Offices WHERE empl num = cust rep, and rep office = office AND credit_limit >= 7000 And region = "western" And office in (12, 13) $\pi_{\, \texttt{Cust_Num}, \, \, \texttt{Cust_Rep}, \, \, \texttt{Name}, \, \, \texttt{Rep_Office}, \, \, \texttt{City}}$ Rep_Office = Office $\pi_{\text{City, Office}}$ $\pi_{\texttt{Cust_Num}, \ \texttt{Cust_Rep}, \ \texttt{Name}, \ \texttt{Rep_Office}}$ Empl_Num = Cust_Rep $\pi_{\texttt{Cust_Num}, \ \texttt{Cust_Rep}}$ $\pi_{\, \text{Name} \,, \,\, \text{Rep_Office} \,, \,\, \text{Empl_Num}}$ Region = "Western" $\sigma_{\text{Credit_Limit}} >= 7000$ \bigcirc Office in (12, 13) Offices Salesreps Customers

3) Use query tree to optimize the following query. *Use the tables that was provided in previous assignment*

SELECT Order Num, Name, City FROM Orders, Customers, Salesreps, Offices WHERE Cust = Cust_Num AND Cust_Rep = Empl_Num AND Rep_Office = Office $\pi_{\, \tt Order_Num, \ Name, \ City}$ AND Amount > 10500 AND region = "Eastern" Cust Rep = Empl_Num $\pi_{\texttt{Order_Num, Cust_Rep}}$ $\pi_{_{\texttt{Name}, \texttt{City}, \texttt{Empl}_{\texttt{Num}}}}$ Cust = Cust Num Rep_Office = Office $\pi_{\tt Order_Num, Cust}$ $\pi_{\texttt{Cust_Num, Cust_Rep}}$ $\pi_{\text{Name, Empl_Num, Rep_Office}}$ $\pi_{\,\text{City, Office}}$ $\sigma_{\text{Amount}} > 10500$ σ Region = "Eastern" Orders Offices Salesreps Customers

4) Use query tree to optimize the following query. *Use the tables that was provided in previous assignment*

Select order num, Company, Name, City, Region from orders, Products, Customers, Salesreps, Offices where order_rate > "Jan-20-2023" and City in ("New York", 'Los Angles') Name like ('P%') and office. Sales > \$340,000 and Company like 'S%' and product=product ID and mfr = mfr id and cust = cust-Rep and cust rep = empl-num and rep office = office); $\pi_{\text{Order_Num, Company, Name, City, Region}}$ Cust = Cust_Rep $\pi_{\text{Order_Num, Cust}}$ $\pi_{\texttt{Cust_Rep, Company, Name, City, Region}}$ Cust_Rep = Empl_Num $\pi_{_{\text{Name, Empl_Num, City, Region}}}$ $\pi_{\texttt{Cust_Rep}, \texttt{Company}}$ M Product = Product_ID and MFR = MFR_ID Rep_Office = Office $\pi_{\tt Product_ID, MFR_ID}$ $\pi_{\text{City, Region, Office}}$ $\pi_{\tt Name, \; Rep_Office, \; Empl_Num}$ $\pi_{\text{ Order_Num, Product, MFR, Cust}}$ $\sigma_{ ext{City in ("New York", 'Los Angles')}}$ O Company like 'S%' $\sigma_{\tt Name\ like\ ('P\%')}$ Order_Date > "Jan-20-2023" Office.Sales > \$340,000 Customers Orders Products Salesreps Offices