Juan Villa Larry Delgado Nicholas Wong CECS323 Section 04 25 February 2021 - 11:00AM

Relational Algebra 2

1	I ist the names	of all Customers	that are in the	cama ctata ac o	ne of our Offices.
1.	List the names	of all Customers	mai are in me	Same State as 0.	ne of our Offices.

```
\pi_{customername} \sigma_{customers.state} = Offices.state and customers.state \neq null and Offices.state \neq null (customers \bowtie customers.state = Offices.state)
```

2. List the names of all Customers who have ordered Products where the vendor is "Classic Metal Creations".

```
\pi_{customername} \ \sigma_{products.productVendor = 'Classic\ Metal\ Creations'} \ (\ (\ (\ customers\ \bowtie_{customers.customerNumber} = orders.customerNumber\ orders\ )\ \bowtie_{orders.orderNumber} = OrderDetails.orderNumber\ OrderDetails\ )\ \bowtie_{orderDetails.productCode} \ products\ )
```

3. List the names of all Customers whose Order was shipped within three days of being ordered. Assume that you can subtract one date from another to get the number of days between two dates in Relational Algebra.

```
\pi_{customername} \ \sigma_{day(ShippedDate) \ - \ day(orderDate) \ <= \ 3} \ (\ customers \bowtie_{customers.customerNumber} = orders.customerNumber \ orders)
```

4. List the names of all Customers, their service rep and the Office that the service rep for that customer works in.

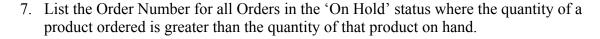
```
\pi_{\text{ customername, Employees.lastName, Employees.firstName, Offices.city, Offices.state, Offices.country} \ (\ (\ customers \bowtie customers.salesRepEmployeeNumber = Employees.employeeNumber Employees ) \bowtie Employees.officeCode = Offices.officeCode Offices )
```

5. List the Employee first and last name, and their Customer's name **even if** the Employee is **not** working with a Customer.

```
\tau_{\text{ customers.customername desc}} \pi_{\text{ firstName, lastName, customers.customername}} (\text{ Employees} \Longrightarrow_{\text{ Employees.employeeNumber}} = \text{ customers.salesRepEmployeeNumber} \text{ customers})
```

6. List all the possible statuses for an order.

 π_{status} orders



```
\pi_{\text{OrderDetails.orderNumber}} \sigma_{\text{OrderDetails.quantityOrdered} > \text{products.quantityInStock and orders.status} = \text{'On Hold'} (\text{OrderDetails}) \\ \bowtie_{\text{OrderDetails.orderNumber}} \sigma_{\text{OrderDetails.productCode}} = \text{products.productS.productS})
```

8. List the Employee LastName and FirstName that work in Japan.

```
\pi_{\text{ Employees.lastName, Employees.firstName}} \sigma_{\text{ country = 'Japan'}} (\text{ Employees } \bowtie_{\text{ Employees.officeCode = Offices.officeCode = Offices.office
```

9. List the productLine, the ProductName and the quantityOrdered for all products ordered during the month of July. You will need a sigma that checks for month(orderDate) = 'July'.

```
\pi_{productLine, productName, quantityOrdered} \sigma_{month(orderDate) = 7} ( (products \bowtie_{products.productCode} = 0 ) ) ( (products \bowtie_{productS.productCode} = 0) ) (productS.productCode) ) (productS.productCode) (productS.productCode) (productS.productCode) (productS.productCode) (productS.productCode) (productS.productCode) (productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.productS.p
```

10. List the customerName, the paymentDate, and the amount on all payments that exceeded \$1000.

```
\pi_{customername, paymentDate, amount} \sigma_{amount > 1000} ( customers \bowtie_{customers.customerNumber = payments.customerNumber} payments )
```

11. List the productLine for all products ordered by customers from the State of 'Louisiana'.

```
\pi_{productLine} \sigma_{customers.state = 'Louisiana'} ( ( ( products \bowtie_{products.productCode = OrderDetails.productCode} OrderDetails ) \bowtie_{OrderDetails.orderNumber = orders.orderNumber} customers ) \bowtie_{OrderDetails.orderNumber = customers.customerNumber} customers )
```