

PROBLEMS

1. Get monthly customer count, only those who ordered at 1997.

```
SELECT
    MONTH(OrderDate) as MonthID,
    COUNT(DISTINCT CustomerID) as DistinctCustomer
FROM dbo.Orders
WHERE YEAR(OrderDate) = 1997
GROUP BY MONTH(OrderDate)
```

	MonthID	DistinctCustomer
1	1	27
2	2	21
3	3	24
4	4	27
5	5	26
6	6	25
7	7	25
8	8	30
9	9	27
10	10	28
11	11	27
12	12	37

2. Get employee full names which can be considered as Sales Representative.

```
SELECT TitleOfCourtesy + ' ' + FirstName + ' ' + LastName as FullName
FROM dbo.Employees
WHERE Title = 'Sales Representative'
```

	FullName
1	Ms. Nancy Davolio
2	Ms. Janet Leverling
3	Mrs. Margaret Peacock
4	Mr. Michael Suyama
5	Mr. Robert King
6	Ms. Anne Dodsworth

3. Get top 5 product names that have the most total quantity sold during January 1997.

```
SELECT
    TOP 5
    Products.ProductName,
    SUM(OrdDetails.Quantity) as TotalQty
FROM dbo.Orders as Orders
LEFT JOIN dbo.[Order Details] as OrdDetails
    ON Orders.OrderID = OrdDetails.OrderID
LEFT JOIN dbo.Products as Products
    ON OrdDetails.ProductID = Products.ProductID
WHERE YEAR(OrderDate) = 1997 AND MONTH(OrderDate) = 1
GROUP BY ProductName
ORDER BY TotalQty DESC
```

	ProductName	TotalQty
1	Geitost	119
2	Raclette Courdavault	115
3	Gnocchi di nonna Alice	105
4	Vegie-spread	100
5	Côte de Blaye	99

4. Get company name that ordered Chai on June 1997.

```
SELECT
    DISTINCT CompanyName
FROM dbo.Orders as Orders
LEFT JOIN dbo.[Order Details] as OrdDetails
    ON Orders.OrderID = OrdDetails.OrderID
LEFT JOIN dbo.Products as Products
    ON OrdDetails.ProductID = Products.ProductID
LEFT JOIN dbo.Customers as Customers
    ON Orders.CustomerID = Customers.CustomerID
WHERE ProductName = 'Chai' AND
    YEAR(OrderDate) = 1997 AND MONTH(OrderDate) = 6
```

	CompanyName
1	Tortuga Restaurante

5. Get the number of Order ID with non-discounted sales (unit price*quantity) according to these bucket :

≤ 100, 100 < sales ≤ 250, 250 < sales ≤ 500, > 500

```
WITH OrdDetAgg as (  
    SELECT  
        OrderID,  
        SUM(Quantity) as TotalQty,  
        ROUND(SUM(Quantity*UnitPrice), 2) as TotalSales  
    FROM dbo.[Order Details]  
    GROUP BY OrderID  
)  
SELECT  
    PurchaseCategory,  
    COUNT(OrderID) as OrderCount  
FROM(  
    SELECT  
        OrderID,  
        CASE  
            WHEN TotalSales <= 100 THEN '1. <=100'  
            WHEN TotalSales <= 250 THEN '2. 100<X<=250'  
            WHEN TotalSales <= 500 THEN '3. 250<X<=500'  
            WHEN TotalSales > 500 THEN '4. >500'  
        END as PurchaseCategory  
    FROM OrdDetAgg  
) as Subq1  
GROUP BY PurchaseCategory  
ORDER BY PurchaseCategory
```

	PurchaseCategory	OrderCount
1	1. <=100	37
2	2. 100<X<=250	64
3	3. 250<X<=500	118
4	4. >500	611

6. Get company name that have done purchase with non-discounted sales above 500 at 1997.

```
WITH OrdDetAgg as (  
    SELECT  
        OrderID,  
        SUM(Quantity) as TotalQty,  
        ROUND(SUM(Quantity*UnitPrice), 2) as TotalSales  
    FROM dbo.[Order Details]  
    GROUP BY OrderID  
)  
SELECT  
    DISTINCT Customers.CompanyName  
FROM dbo.Orders as Orders  
LEFT JOIN OrdDetAgg  
    ON Orders.OrderID = OrdDetAgg.OrderID  
LEFT JOIN dbo.Customers as Customers  
    ON Orders.CustomerID = Customers.CustomerID  
WHERE YEAR(OrderDate) = 1997  
    AND TotalSales > 500  
ORDER BY CompanyName
```

	CompanyName
1	Alfreds Futterkiste
2	Antonio Moreno Taquería
3	Around the Horn
4	Berglunds snabbköp
5	Blondesddsl père et fils
6	Bólido Comidas preparadas
7	Bon app'
8	Bottom-Dollar Markets
9	B's Beverages
10	Chop-suey Chinese
11	Comércio Mineiro
12	Consolidated Holdings
13	Die Wandernde Kuh
14	Eastern Connection
15	Ernst Handel
16	Familia Arquibaldo
17	Folies gourmandes
18	Folk och fä HB

7. Get product name which gotten top 5 according to sales () by month at 1997.

```
WITH SalesByMonth as (
    SELECT
        MONTH(OrderDate) as MonthID,
        ProductName,
        SUM(OrdDetails.UnitPrice*Quantity) as Sales
    FROM dbo.Orders as Orders
    LEFT JOIN dbo.[Order Details] as OrdDetails
        ON Orders.OrderID = OrdDetails.OrderID
    LEFT JOIN dbo.Products as Products
        ON OrdDetails.ProductID = Products.ProductID
    WHERE YEAR(OrderDate) = 1997
    GROUP BY MONTH(OrderDate), ProductName
)
SELECT
    *
FROM(
    SELECT
        *,
        RANK() OVER(PARTITION BY MonthID ORDER BY Sales DESC) as
        MonthlyRank
    FROM SalesByMonth
) as Subq1
WHERE MonthlyRank <= 5
```

	MonthID	ProductName	Sales	MonthlyRank
1	1	Côte de Blaye	20869.20	1
2	1	Raclette Courdavault	5060.00	2
3	1	Vegie-spread	3510.00	3
4	1	Gnocchi di nonna Alice	3192.00	4
5	1	Alice Mutton	3026.40	5
6	2	Pâté chinois	3456.00	1
7	2	Sirop d'érable	2622.00	2
8	2	Gnocchi di nonna Alice	2523.20	3
9	2	Thüringer Rostbratwurst	2376.00	4
10	2	Rössle Sauerkraut	2074.80	5
11	3	Raclette Courdavault	7128.00	1
12	3	Côte de Blaye	6324.00	2
13	3	Manjimup Dried Apples	1950.40	3
14	3	Thüringer Rostbratwurst	1782.00	4
15	3	Camembert Pierrot	1632.00	5
16	4	Gnocchi di nonna Alice	5517.60	1
17	4	Schoggi Schokolade	5268.00	2
18	4	Thüringer Rostbratwurst	4456.44	3

8. Create a view which contains OrderID, ProductID, ProductName, UnitPrice, Quantity, Discount, and discounted Sales from Order Details table.

```
CREATE OR ALTER VIEW dbo.FinalPrice AS
SELECT
    dbo.[Order Details].OrderID,
    dbo.[Order Details].ProductID,
    dbo.Products.ProductName,
    dbo.[Order Details].UnitPrice,
    dbo.[Order Details].Quantity,
    dbo.[Order Details].Discount,
    dbo.[Order Details].UnitPrice*dbo.[Order Details].Quantity*(1-
    dbo.[Order Details].Discount) as FinalPrice
FROM dbo.[Order Details]
INNER JOIN dbo.Products
    ON dbo.[Order Details].ProductID = dbo.Products.ProductID
```

	OrderID	ProductID	ProductName	UnitPrice	Quantity	Discount	FinalPrice
1	10248	11	Queso Cabrales	14.00	12	0	168
2	10248	42	Singaporean Hokkien Fried Mee	9.80	10	0	98
3	10248	72	Mozzarella di Giovanni	34.80	5	0	174
4	10249	14	Tofu	18.60	9	0	167.4
5	10249	51	Manjimup Dried Apples	42.40	40	0	1696
6	10250	41	Jack's New England Clam Chowder	7.70	10	0	77
7	10250	51	Manjimup Dried Apples	42.40	35	0.15	1261.4
8	10250	65	Louisiana Fiery Hot Pepper Sauce	16.80	15	0.15	214.2
9	10251	22	Gustaf's Knäckebröd	16.80	6	0.05	95.76
10	10251	57	Ravioli Angelo	15.60	15	0.05	222.3
11	10251	65	Louisiana Fiery Hot Pepper Sauce	16.80	20	0	336
12	10252	20	Sir Rodney's Marmalade	64.80	40	0.05	2462.4
13	10252	33	Geitost	2.00	25	0.05	47.5
14	10252	60	Camembert Pierrot	27.20	40	0	1088
15	10253	31	Gorgonzola Telino	10.00	20	0	200
16	10253	39	Chartreuse verte	14.40	42	0	604.8
17	10253	49	Maxilaku	16.00	40	0	640
18	10254	24	Guaraná Fantástica	3.60	15	0.15	45.9
19	10254	55	Pâté chinois	19.20	21	0.15	342.72
20	10254	74	Longlife Tofu	8.00	21	0	168
21	10255	2	Chang	15.20	20	0	304
22	10255	16	Pavlova	13.90	35	0	486.5
23	10255	36	Inlagd Sill	15.20	25	0	380
24	10255	59	Raclette Courdavault	44.00	30	0	1320
25	10256	53	Perth Pasties	26.20	15	0	393
26	10256	77	Original Frankfurter grüne Soße	10.40	12	0	124.8

9. Create a procedure called Invoice to get CustomerID, CustomerName/company name, OrderID, OrderDate, RequiredDate, ShippedDate using CustomerID as an input.

```
CREATE PROCEDURE Invoice(
    @customer_id AS VARCHAR(max))
AS
BEGIN
    SELECT
        Orders.CustomerID,
        CompanyName,
        ContactName as CustomerName,
        OrderID,
        OrderDate,
        RequiredDate,
        ShippedDate
    FROM dbo.Orders as Orders
    LEFT JOIN dbo.Customers as Customers
        ON Orders.CustomerID = Customers.CustomerID
    WHERE Orders.CustomerID = @customer_id
END;

-- Test Run
EXECUTE dbo.Invoice 'LAMAI'
```

	CustomerID	CompanyName	CustomerName	OrderID	OrderDate	RequiredDate	ShippedDate
1	LAMAI	La maison d'Asie	Annette Roulet	10350	1996-11-11 00:00:00.000	1996-12-09 00:00:00.000	1996-12-03 00:00:00.000
2	LAMAI	La maison d'Asie	Annette Roulet	10358	1996-11-20 00:00:00.000	1996-12-18 00:00:00.000	1996-11-27 00:00:00.000
3	LAMAI	La maison d'Asie	Annette Roulet	10371	1996-12-03 00:00:00.000	1996-12-31 00:00:00.000	1996-12-24 00:00:00.000
4	LAMAI	La maison d'Asie	Annette Roulet	10413	1997-01-14 00:00:00.000	1997-02-11 00:00:00.000	1997-01-16 00:00:00.000
5	LAMAI	La maison d'Asie	Annette Roulet	10425	1997-01-24 00:00:00.000	1997-02-21 00:00:00.000	1997-02-14 00:00:00.000
6	LAMAI	La maison d'Asie	Annette Roulet	10454	1997-02-21 00:00:00.000	1997-03-21 00:00:00.000	1997-02-25 00:00:00.000
7	LAMAI	La maison d'Asie	Annette Roulet	10493	1997-04-02 00:00:00.000	1997-04-30 00:00:00.000	1997-04-10 00:00:00.000
8	LAMAI	La maison d'Asie	Annette Roulet	10500	1997-04-09 00:00:00.000	1997-05-07 00:00:00.000	1997-04-17 00:00:00.000
9	LAMAI	La maison d'Asie	Annette Roulet	10610	1997-07-25 00:00:00.000	1997-08-22 00:00:00.000	1997-08-06 00:00:00.000
10	LAMAI	La maison d'Asie	Annette Roulet	10631	1997-08-14 00:00:00.000	1997-09-11 00:00:00.000	1997-08-15 00:00:00.000
11	LAMAI	La maison d'Asie	Annette Roulet	10787	1997-12-19 00:00:00.000	1998-01-02 00:00:00.000	1997-12-26 00:00:00.000
12	LAMAI	La maison d'Asie	Annette Roulet	10832	1998-01-14 00:00:00.000	1998-02-11 00:00:00.000	1998-01-19 00:00:00.000
13	LAMAI	La maison d'Asie	Annette Roulet	10923	1998-03-03 00:00:00.000	1998-04-14 00:00:00.000	1998-03-13 00:00:00.000
14	LAMAI	La maison d'Asie	Annette Roulet	11051	1998-04-27 00:00:00.000	1998-05-25 00:00:00.000	NULL