Заявки от 9 занятие

```
SELECT
    t1.customer_code
,   (SELECT COUNT(*)
        FROM
            orders ns
        WHERE
            ns.customer_id = t1.customer_id
            AND
            EXTRACT(YEAR FROM ns.order_date) = 2014) "2014"
,   (SELECT COUNT(*)
        FROM
            orders ns
        WHERE
            ns.customer_id = t1.customer_id
            AND
            EXTRACT(YEAR FROM ns.order_date) = 2015) "2015"
,   (SELECT COUNT(*)
        FROM
            orders ns
        WHERE
            ns.customer_id = t1.customer_id
            AND
            EXTRACT(YEAR FROM ns.order_date) = 2016) "2016"
,   (SELECT COUNT(*)
        FROM
            orders ns
        WHERE
            ns.customer_id = t1.customer_id ) Total
FROM
    customers t1
UNION
SELECT
    NULL
,   (SELECT COUNT(*)
        FROM
            orders ns
        WHERE
            EXTRACT(YEAR FROM ns.order_date) = 2014)
,   (SELECT COUNT(*)
        FROM
            orders ns
        WHERE
            EXTRACT(YEAR FROM ns.order_date) = 2015)
,   (SELECT COUNT(*)
        FROM
            orders ns
        WHERE
            EXTRACT(YEAR FROM ns.order_date) = 2016)
,   (SELECT COUNT(*)
```

```
        FROM
            orders ns) Total
FROM
    DUAL
ORDER BY
    1
```

Задача

От коя държава колко поръчки има в следните диапазони:

```
| Държава | до 1000 $ | от 1000 до 4000 $ | над 4000 $ |
| ------- | --------- | ----------------- | ---------- |
|         |           |                   |            |
```

```
--1
SELECT
    t1.country
,   t2.order_id
,   SUM(t3.unit_price * t3.quantity) sum_order
FROM
    customers t1
        INNER JOIN
    orders t2
        ON t2.customer_id = t1.customer_id
        INNER JOIN
    order_details t3
        ON t3.order_id = t2.order_id
GROUP BY
    t1.country
,   t2.order_id
ORDER BY
    1
,   3 DESC
```

```
CASE
    израз
    WHEN стойност1 THEN израз1
    WHEN стойност2 THEN израз2
    WHEN стойност3 THEN израз3
    ...
    ELSE
        изразN
END
```

```
CASE
  WHEN условие1 THEN израз1
  WHEN условие2 THEN израз2
  WHEN условие3 THEN израз3
  ...
  ELSE
    изразN
END
```

```
--2
WITH
    sales
    AS (SELECT
            t1.country
        ,   t2.order_id
        ,   SUM(t3.unit_price * t3.quantity) sum_order
        FROM
            customers t1
                INNER JOIN
            orders t2
                ON t2.customer_id = t1.customer_id
                INNER JOIN
            order_details t3
                ON t3.order_id = t2.order_id
        GROUP BY
            t1.country
        ,   t2.order_id)
SELECT
    s.country
,   SUM(CASE WHEN s.sum_order < 1000 THEN 1 ELSE 0 END) lt_1k
,   SUM(CASE WHEN s.sum_order BETWEEN 1000 AND 4000 THEN 1 ELSE 0 END) btw_1k4k
,   SUM(CASE WHEN s.sum_order > 4000 THEN 1 ELSE 0 END) gt_4k
,   COUNT(*) n_orders
FROM
    sales s
GROUP BY
    s.country
ORDER BY
    1
,   3 DESC
```

```
-- допълнително
WITH
    sales
    AS (SELECT
            t1.country
        ,   t2.order_id
        ,   SUM(t3.unit_price * t3.quantity) sum_order
        FROM
```

```
            customers t1
                INNER JOIN
            orders t2
                ON t2.customer_id = t1.customer_id
                INNER JOIN
            order_details t3
                ON t3.order_id = t2.order_id
        GROUP BY
            t1.country
        ,   t2.order_id)
,   stats
    AS (SELECT
            s.country
        --    less than 1000 $ ---
        ,   SUM(CASE WHEN s.sum_order < 1000 THEN 1 ELSE 0 END)
lt_1k
        ,   SUM(CASE WHEN s.sum_order < 1000 THEN s.sum_order ELSE 0 END)
total_lt_1k
        ,   AVG(CASE WHEN s.sum_order < 1000 THEN 1 ELSE 0 END)
perc_lt_1k
        --    betweem 1000$ and 4000 $ --
        ,   SUM(CASE WHEN s.sum_order BETWEEN 1000 AND 4000 THEN 1 ELSE 0 END)
btw_1k4k
        ,   SUM(CASE WHEN s.sum_order > 4000 THEN 1 ELSE 0 END)
gt_4k
        ,   COUNT(*)
n_orders
        ,   SUM(s.sum_order)
total
        FROM
            sales s
        GROUP BY
            s.country)
SELECT
     st.country
,    st.lt_1k
,    st.total_lt_1k
,    ROUND(st.perc_lt_1k, 2) perc_lt_1k
,    st.btw_1k4k
,    st.gt_4k
,    st.n_orders
,    st.total
FROM
    stats st
UNION
SELECT
     NULL
,    SUM(st.lt_1k)
,    SUM(st.total_lt_1k)
,    NULL
,    SUM(st.btw_1k4k)
,    SUM(st.gt_4k)
,    SUM(st.n_orders)
,    SUM(st.total    )
FROM
```

```
    stats st
ORDER BY
    1
,   3 DESC
```

(1 + 0 + 1 + 1 + 0 + 0)/6 = 0.5

Задача

От коя държава по колко поръчки има и по колко артикула са продадени?

```
--1
SELECT
    t1.country
,   COUNT(*) n_orders
FROM
    customers t1
        INNER JOIN
    orders t2
        ON t2.customer_id = t1.customer_id
GROUP BY
    t1.country
ORDER BY
    1
```

```
--2
SELECT
    t1.country
,   COUNT(*) n_items
,   SUM(t3.unit_price * t3.quantity) sum_sales
FROM
    customers t1
        INNER JOIN
    orders t2
        ON t2.customer_id = t1.customer_id
        INNER JOIN
    order_details t3
        ON t3.order_id = t2.order_id
GROUP BY
    t1.country
ORDER BY
    1
```

```
-- 3
WITH
    sales
    AS (SELECT
            t1.country
```

```
        ,   COUNT(*) n_orders
        ,   NULL     n_items
        ,   NULL     sum_sales
        FROM
            customers t1
                INNER JOIN
            orders t2
                ON t2.customer_id = t1.customer_id
        GROUP BY
            t1.country
        UNION
        SELECT
            t1.country
        ,   NULL     n_orders
        ,   COUNT(*) n_items
        ,   SUM(t3.unit_price * t3.quantity) sum_sales
        FROM
            customers t1
                INNER JOIN
            orders t2
                ON t2.customer_id = t1.customer_id
                INNER JOIN
            order_details t3
                ON t3.order_id = t2.order_id
        GROUP BY
            t1.country)
SELECT
    s.country
,   SUM(s.n_orders)  n_orders
,   SUM(s.n_items)   n_items
,   SUM(s.sum_sales) sum_sales
FROM
    sales s
GROUP BY
    s.country
ORDER BY
    1
```

```
-- допълнително
SELECT
    country
,   LISTAGG(customer_code,'|' ) WITHIN GROUP (ORDER BY customer_code)
cust_codes
FROM
    customers
GROUP BY
    country
ORDER BY
    1
```

MySQL: GROUP_CONCAT()

Задача

Кой служител колко поръчки е обслужил и какъв % от общият брой представлява това?

```
-- 1
SELECT
    t1.firstname || ' ' || t1.lastname employee
,   COUNT(*) n_orders
FROM
    employees t1
        INNER JOIN
    orders t2
        ON t2.employee_id = t1.employee_id
WHERE
    t2.shipped_date IS NOT NULL
GROUP BY
    t1.firstname || ' ' || t1.lastname
ORDER BY
    2 DESC
```

CROSS JOIN: Декартовото произведение на редовете в таблиците т.е. всеки ред от едната таблица се комбинира с всички редове на другата таблица.

```
   Users                Countries

| first_name|            | country   |
|-----------|            |-----------|
| Anna      | CROSS JOIN | Germany   |
| Markus    |            | France    |
                         | Argentina |
```

```
| first_name | country   |
| ---------- | --------- |
| Anna       | Germany   |
| Anna       | France    |
| Anna       | Argentina |
| Markus     | Germany   |
| Markus     | France    |
| Markus     | Argentina |
```

```
WITH
    emp_sales
    AS (SELECT
            t1.firstname || ' ' || t1.lastname employee
        ,   COUNT(*) n_orders
        FROM
```

```
            employees t1
                INNER JOIN
            orders t2
                ON t2.employee_id = t1.employee_id
        WHERE
            t2.shipped_date IS NOT NULL
        GROUP BY
            t1.firstname || ' ' || t1.lastname)
,   all_orders
    AS (SELECT
            SUM(es.n_orders) total_orders
        FROM
            emp_sales es)
SELECT
    es.employee
,   es.n_orders
,   ROUND(es.n_orders / rd.total_orders * 100,2) perc_all
FROM
    emp_sales es
        CROSS JOIN
    all_orders rd
ORDER BY
    2 DESC
```

```
WITH
    emp_sales
    AS (SELECT
            t1.firstname || ' ' || t1.lastname employee
        ,   COUNT(*) n_orders
        FROM
            employees t1
                INNER JOIN
            orders t2
                ON t2.employee_id = t1.employee_id
        WHERE
            t2.shipped_date IS NOT NULL
        GROUP BY
            t1.firstname || ' ' || t1.lastname)
,   all_orders
    AS (SELECT
            SUM(es.n_orders) total_orders
        FROM
            emp_sales es)
SELECT
    es.employee
,   es.n_orders
,   ROUND(es.n_orders / rd.total_orders * 100,2) perc_all
FROM
--  също е CROSS JOIN --
    emp_sales es
,   all_orders rd
```

```
ORDER BY
    2 DESC
```

```
WHERE
    (1) -- връзки м/у таблиците
    AND
    (2)
    AND
    (3) -- PK, FK
```

Изпълняват се (3) => (2) => (1)

```
SELECT
    t1.firstname || ' ' || t1.lastname employee
,   COUNT(*) n_orders
FROM
-- АЛТЕРНАТИВЕН INNER JOIN --
    employees t1
,   orders t2
WHERE
--  свързване на таблиците --
    t2.employee_id = t1.employee_id
    AND
    t2.shipped_date IS NOT NULL
GROUP BY
    t1.firstname || ' ' || t1.lastname
ORDER BY
    2 DESC
```