-- Зависимость выданного кредита от возраста, пола, клиентского сегмента, флага проживания в Москве и флага "наличие номера мобильного телефона"

```
select
  amt_loan
, age
, case when gender = 'M' then 1 else 0 end gender
, cl_segm
, case when id_city = 1 then 1 else 0 end city
, case when cellphone is not null then 1 else  0 end phone

from skybank.late_collection_clients
where age is not null and gender is not null and cl_segm is not null and amt_loan is not null
```

-- Напишите SQL код, который для тарифов эконом и комфорт (отдельно) будет вычислять темпы цепного и базисного роста и прироста для показателя o2r

```
select
  o2r1/lagO2R1*100 "Цеп рост Эко"
, o2r1/qq_s1*100 "Баз рост Эко"
, (o2r1-lagO2R1)/lagO2R1*100 "Цеп прирост Эко"
, (o2r1-lagO2R1)/qq_s1*100 "Баз прирост Эко"
, o2r10/lagO2R10*100 "Цеп рост Ком"
, o2r10/qq_s10*100 "Баз рост Ком"
, (o2r10-lagO2R10)/lagO2R10*100 "Цеп прирост Ком"
, (o2r10-lagO2R10)/qq_s10*100 "Баз прирост Ком"
   from (select *
   ,lag (o2r1) over (order by dd) lagO2R1
   ,lag (o2r10) over (order by dd) lagO2R10

      from ( select
      date_trunc('day',order_time) dd
      , count (*) cnt
      , sum (case when id_tariff = '1' and order_finish_time is not null then 1 end)::float / count (*)  as
o2r1
      , sum (case when id_tariff = '10' and order_finish_time is not null then 1 end)::float / count (*)  as
o2r10
      , 0.28 as qq_s1
      , 0.12 as qq_s10

      from skytaxi.order_list
      where order_time is not null
      group by dd
      order by dd
      ) z
      order by dd
      ) z1
```

-- Какая доля облигаций имеет срок окончания в будущем относительно 06.10.2021?

```
select
sum (qw)::float / count (qq)

from (select
qq
, case when qq::date > '2021-10-06' then 1 end qw
```

```
   from (
   select
   issue_date,
   date_trunc ('month', issue_date) + interval '1 month'* length_month qq

   from skyfinance.obligation
   where issue_date is not null
   ) t
   ) tt
```

-- Объединение двух таблиц и сортировка по параметрам.

```
select
region_bin
, case when dolg_day <= 90 then 1  when dolg_day between 91 and 180 then 2 when dolg_day between
181 and 270 then 3 else 4 end as qvart_pros
, gender_bin
, sum (cnt_credit_bin) as cnt_credit
, sum (kredit) as sum_credit

from (select
   -- id_client,
   case when name_region = 'Центр' then 'Центр' when name_region = 'Север' then 'Север' else
'Другой' end as region_bin
   , current_date - last_paid_inst as dolg_day
   , '0' as gender_bin
   , case when amt_credit is not null then 1 else 0 end as cnt_credit_bin
   , amt_credit as kredit
   from skybank.early_collection_clients a
   left join skybank.region_dict b
   on a.id_city = b.id_city
   where name_region not like '%Сибирь%'

union all

   select

   case when name_region = 'Центр' then 'Центр' when name_region = 'Север' then 'Север' else
'Другой' end as region_bin
   , 720 as dolg_day
   , case when gender is null then '0' when gender = 'M' then 'm' else 'f' end as gender_bin
   , case when amt_loan is not null then 1 else 0 end as cnt_credit_bin
   , amt_loan as kredit
      from skybank.late_collection_clients a
      join skybank.region_dict b on
      a.id_city = b.id_city
     where name_region not like '%Сибирь%'
     ) q

group by region_bin, qvart_pros, gender_bin
order by region_bin, qvart_pros, gender_bin
```

-- оконные функции

```
 select
    name_city
   , мес
```

```
   , cnt_amt
   , avg (cnt_amt) over (partition by name_city rows between 2 preceding and current row) as amt_3
   , avg (cnt_amt) over (partition by name_city rows between 9 preceding and current row) as amt_10
   , avg (cnt_amt) over (partition by name_city rows between 19 preceding and current row) as amt_20
from (select
   name_city
   , date_trunc('month',date_loan::date) as мес
   , count (amt_loan) as cnt_amt

   from skybank.late_collection_clients a
   left join skybank.region_dict b
         on a.id_city = b.id_city
   group by name_city, мес
   ) q
   group by name_city, мес, cnt_amt
   order by name_city, мес, cnt_amt
```

-- Использование временных таблиц для агрегации разных видов данных.

```
with doli_f as (select
            user_id
            , sum (case when genre like '%драма%' then 1 else 0 end)::float / count(date_watch) as dram
            , sum (case when genre like '%комедия%' then 1 else 0 end)::float / count(date_watch) as kom
            , sum (case when genre like '%боевик%' then 1 else 0 end)::float / count(date_watch) as boev
            , sum (case when genre like '%триллер%' then 1 else 0 end)::float / count(date_watch) as tril
               from skycinema.content_list a
               left join skycinema.watch_client b
               on a.id = b.content_id
               where 1=1
                  and date_watch is not null
               group by user_id
               )

      , flag as (select
                  user_id
                  , trial
                  , case when no_trial_1  > 0 then 1 else 0 end as no_trial
                  from (select
                     user_id
                     , sum (case when is_trial = '1' then 1 else 0 end ) as trial
                     , sum (case when is_trial = '1' then 0 else 1 end) as no_trial_1
                    from skycinema.client_sign_up c
                  where 1=1
                   and is_trial is not null
                group by user_id
                order by user_id )y
                )
      , cnt_w as (select
                user_id
                , count (*) as cnt_look
               from skycinema.watch_client
               group by user_id
               order by user_id
            )

      , podpiska as ( select
                  user_id
```

```
        , case when current_date > m30 then long + 30 else long + cur_pur end as long_podpiska
        from (select
        user_id
        , current_date - max (date_purchase) as cur_pur
        , max (date_purchase) + 30 as m30
        , max (date_purchase) - min (date_purchase) as long
        from skycinema.client_sign_up
        group by user_id
        -- order by long desc
        )yyy
        )


    select
    a.user_id
    , long_podpiska
    , trial
    , no_trial
    , cnt_look
    , dram
    , kom
    , boev
    , tril


    from podpiska a
       join cnt_w b
    on a.user_id = b.user_id
       join flag c
    on a.user_id = c.user_id
       join doli_f d
    on a.user_id = d.user_id
    order by a.user_id
```

==========

-- Рост банковских резервов

```
SELECT sum (Резервы) as Резервы_сегодня
, sum (Резервы_08) as Резервы_в_августе
, sum (Резервы) - sum (Резервы_08) as Прирост

from (SELECT id_client
, amt_credit
, c.coeff
, amt_credit * c.coeff AS Резервы

FROM (SELECT id_client
        , amt_credit
        , CASE WHEN CURRENT_DATE - last_paid_inst BETWEEN 0 AND 15 THEN 1
WHEN CURRENT_DATE - last_paid_inst BETWEEN 16 AND 30 THEN 2
WHEN CURRENT_DATE - last_paid_inst BETWEEN 31 AND 60 THEN 3
```

```
WHEN CURRENT_DATE - last_paid_inst BETWEEN 61 AND 90 THEN 4
WHEN CURRENT_DATE - last_paid_inst BETWEEN 91 AND 120 THEN 5
WHEN CURRENT_DATE - last_paid_inst BETWEEN 121 AND 150 THEN 6
WHEN CURRENT_DATE - last_paid_inst BETWEEN 151 AND 180 THEN 7
WHEN CURRENT_DATE - last_paid_inst >= 181 THEN 8
ELSE 0 END AS id_bucket
FROM skybank.early_collection_clients a
WHERE 1 = 1
AND last_paid_inst IS NOT NULL
AND amt_credit IS NOT NULL
UNION
SELECT id_client
        , amt_loan AS amt_credit
        , 8 AS id_bucket
FROM skybank.late_collection_clients b
) t2
LEFT JOIN skybank.bucket_coeff c
          ON t2.id_bucket = c.id_bucket
WHERE valid_to = '3000-01-01' )yy

LEFT JOIN (SELECT id_client
, amt_credit
, c.coeff
, amt_credit * c.coeff AS Резервы_08

FROM (SELECT id_client
        , amt_credit
        , CASE WHEN '2021-08-01' - last_paid_inst BETWEEN 0 AND 15 THEN 1
WHEN '2021-08-01' - last_paid_inst BETWEEN 16 AND 30 THEN 2
WHEN '2021-08-01' - last_paid_inst BETWEEN 31 AND 60 THEN 3
WHEN '2021-08-01' - last_paid_inst BETWEEN 61 AND 90 THEN 4
WHEN '2021-08-01' - last_paid_inst BETWEEN 91 AND 120 THEN 5
WHEN '2021-08-01' - last_paid_inst BETWEEN 121 AND 150 THEN 6
WHEN '2021-08-01' - last_paid_inst BETWEEN 151 AND 180 THEN 7
WHEN '2021-08-01' - last_paid_inst >= 181 THEN 8
ELSE 0 END AS id_bucket
FROM skybank.early_collection_clients a
WHERE 1 = 1
AND last_paid_inst IS NOT NULL
AND amt_credit IS NOT NULL
UNION
SELECT id_client
        , amt_loan AS amt_credit
        , 8 AS id_bucket
FROM skybank.late_collection_clients b
) t2
LEFT JOIN skybank.bucket_coeff c
          ON t2.id_bucket = c.id_bucket
WHERE valid_to = '3000-01-01' ) yyy
on yy.id_client = yyy.id_client
```

-- Ранжирование по регионам задержек платежей.

```
SELECT
```

```
	name_region
	, name_city
	, row_number() over (partition by name_region order by AVG(CURRENT_DATE - last_paid_inst)
DESC) as Range_debt
	FROM skybank.early_collection_clients a
		LEFT JOIN skybank.region_dict b
				ON a.id_city = b.id_city
	GROUP BY name_region, name_city
```

-- Среднее время стояния такси в аэропортах с учетом получения или неполучения заказа.

```
select
	id_port as Аэропорт
    , Zakaz
    , (r1 + r_3 + r_6 + (r_9/2)) LV
	from (select    id_port
		, case when left_w_order = 1 then 'yes' else 'no' end as Zakaz
		, 1.0/2.0 r1
		, cnt_3/cnt as r_3
		, cnt_6/cnt as r_6
		, cnt_9/cnt as r_9

	from (select   id_port
			, left_w_order
			, count(*) cnt
			, sum(case when time_left - time_came > '3 hour' then 1 else 0 end)::float cnt_3
			, sum(case when time_left - time_came > '6 hour' then 1 else 0 end)::float cnt_6
			, sum(case when time_left - time_came > '9 hour' then 1 else 0 end)::float cnt_9

		from skytaxi.airport_visit
		where time_left - time_came < '12 hour' -- убираем выбросы
		group by id_port, left_w_order
		order by id_port, left_w_order
	  ) t
	 ) q
```

-- Когортный анализ в банке.

```
select   qq
    , case when qq+interval '90 day'<=current_date then cnt_90/cnt_all else null end r_90
    , case when qq+interval '180 day'<=current_date then cnt_180/cnt_all else null end r_180
    , case when qq+interval '270 day'<=current_date then cnt_270/cnt_all else null end r_270
    , case when qq+interval '360 day'<=current_date then cnt_360/cnt_all else null end r_360
    , case when qq+interval '450 day'<=current_date then cnt_450/cnt_all else null end r_450
    , case when qq+interval '540 day'<=current_date then cnt_540/cnt_all else null end r_540
    , case when qq+interval '630 day'<=current_date then cnt_630/cnt_all else null end r_630
    , case when qq+interval '720 day'<=current_date then cnt_720/cnt_all else null end r_720
    , case when qq+interval '810 day'<=current_date then cnt_810/cnt_all else null end r_810
    , case when qq+interval '900 day'<=current_date then cnt_900/cnt_all else null end r_900
    , case when qq+interval '990 day'<=current_date then cnt_990/cnt_all else null end r_990
    , case when qq+interval '1080 day'<=current_date then cnt_1080/cnt_all else null end r_1080

from
(select date_trunc('quarter',date_loan::date) qq
    , count(*) cnt_all
    , sum(case when date_rassrochka-date_loan::date>90 or date_rassrochka is null then 1 else 0
end)::float cnt_90
```

```
    , sum(case when date_rassrochka-date_loan::date>180 or date_rassrochka is null then 1 else 0
end)::float cnt_180
    , sum(case when date_rassrochka-date_loan::date>270 or date_rassrochka is null then 1 else 0
end)::float cnt_270
    , sum(case when date_rassrochka-date_loan::date>360 or date_rassrochka is null then 1 else 0
end)::float cnt_360
    , sum(case when date_rassrochka-date_loan::date>450 or date_rassrochka is null then 1 else 0
end)::float cnt_450
    , sum(case when date_rassrochka-date_loan::date>540 or date_rassrochka is null then 1 else 0
end)::float cnt_540
    , sum(case when date_rassrochka-date_loan::date>630 or date_rassrochka is null then 1 else 0
end)::float cnt_630
    , sum(case when date_rassrochka-date_loan::date>720 or date_rassrochka is null then 1 else 0
end)::float cnt_720
    , sum(case when date_rassrochka-date_loan::date>810 or date_rassrochka is null then 1 else 0
end)::float cnt_810
    , sum(case when date_rassrochka-date_loan::date>900 or date_rassrochka is null then 1 else 0
end)::float cnt_900
    , sum(case when date_rassrochka-date_loan::date>990 or date_rassrochka is null then 1 else 0
end)::float cnt_990
    , sum(case when date_rassrochka-date_loan::date>1080 or date_rassrochka is null then 1 else 0
end)::float cnt_1080
from skybank.late_collection_clients a
   left join skybank.rassrochka b
      on a.id_client = b.id_client
where 1=1
  and (date_rassrochka > date_loan::date or date_rassrochka is null)
  and date_loan::date<='2021-03-01'
group by qq
order by qq
) t
```