

EXERCISE 101



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PENDAHULUAN

Data yang digunakan adalah penjualan pada E-Commerce Tokopedia yang telah diubah dengan beberapa perubahan untuk dapat memudahkan dalam praktik dengan menggunakan sql.

Dataset yang digunakan

- Order Detail
- SKU Detail
- Customer Detail
- Payment Detail



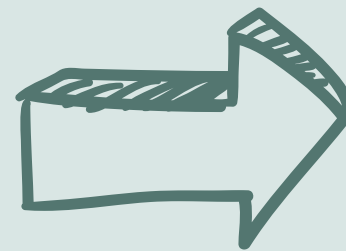
Nomor 1



- Selama transaksi yang terjadi selama 2021, pada bulan apa total nilai transaksi (after_discount) paling besar? Gunakan is_valid = 1 untuk memfilter data transaksi. Source table: order_detail

INPUT

```
select
  extract (month from order_date) as bulan,
  sum (after_discount) as nilai_transaksi
from order_detail
where extract(year from order_date) = 2021
and is_valid = 1
group by bulan
order by nilai_transaksi desc
limit 1;
```



OUTPUT

| | bulan numeric | nilai_transaksi double precision |
|---|------------------|-------------------------------------|
| 1 | 11 | 4783379762.459998 |



- Bulan November menjadi bulan dengan total nilai transaksi paling besar selama kurun waktu tahun 2021 yaitu mencapai sebesar 4783379762.459998.

Nomor 2

Q

Selama transaksi yang terjadi selama 2021, pada bulan apa total jumlah pelanggan (unique), total order (unique) dan total jumlah kuantitas produk paling banyak? Gunakan `is_valid = 1` untuk memfilter data transaksi. Source table: `order_detail`

A

Bulan November menjadi bulan dengan total jumlah pelanggan (unique), total order (unique) dan total jumlah kuantitas produk paling banyak dimana terdapat 13.885 pelanggan dengan 22.414 order dan 47.385 kuantitas produk.

INPUT

```
select
  extract (month from order_date) as bulan,
  count (distinct customer_id) as jumlah_pelanggan,
  count (distinct id) as total_order,
  sum (qty_ordered) as total_jumlah_kuantitas_produk
from order_detail
where extract(year from order_date) = 2021
and is_valid = 1
group by bulan
order by jumlah_pelanggan desc, total_order desc, total_jumlah_kuantitas_produk desc
limit 1;
```



OUTPUT

| | bulan numeric | jumlah_pelanggan bigint | total_order bigint | total_jumlah_kuantitas_produk bigint |
|---|------------------|----------------------------|-----------------------|---|
| 1 | 11 | 13885 | 22414 | 47385 |

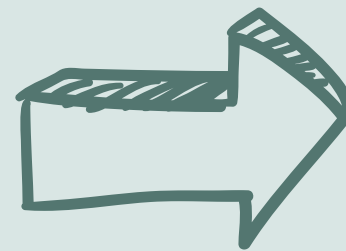
Nomor 3



- Selama transaksi yang terjadi selama 2022, kategori apa yang menghasilkan nilai transaksi paling besar? Gunakan is_valid = 1 untuk memfilter data transaksi. Source table: order_detail, sku_detail

INPUT

```
select
  category as kategori,
  sum(after_discount) as nilai_transaksi
from order_detail as od
join sku_detail as sd on od.sku_id = sd.id
where extract(year from order_date) = 2022
and is_valid = 1
group by kategori
order by nilai_transaksi desc
limit 1;
```



OUTPUT

| | kategori text | nilai_transaksi double precision |
|---|-------------------|-------------------------------------|
| 1 | Mobiles & Tablets | 8556323756.620008 |



- Kategori dengan total nilai transaksi paling besar selama kurun waktu tahun 2021 adalah kategori Mobiles & Tablets yaitu mencapai sebesar 8556323756.620008.

Nomor 4

INPUT

```
select
  category as category,
  sum(case when extract(year from order_date) = 2021 then after_discount end)
  as nilai_transaksi_2021,
  sum(case when extract(year from order_date) = 2022 then after_discount end)
  as nilai_transaksi_2022,
  (sum(case when extract(year from order_date) = 2022 then after_discount end)) -
  (sum(case when extract(year from order_date) = 2021 then after_discount end))selisih
from order_detail as od
join sku_detail as sd on od.sku_id = sd.id
where is_valid = 1
group by category;
```

OUTPUT

| | kategori text | nilai_transaksi_2021 double precision | nilai_transaksi_2022 double precision | selisih double precision |
|----|--------------------|--|--|-----------------------------|
| 1 | Appliances | 1971541230.4400015 | 2265213374.5800004 | 293672144.1399989 |
| 2 | Beauty & Grooming | 353969384.9399996 | 394193739.24 | 40224354.30000043 |
| 3 | Books | 21991530.56 | 11255821.620000001 | -10735708.939999998 |
| 4 | Computing | 487602682.39999986 | 547579973.7400001 | 59977291.34000027 |
| 5 | Entertainment | 1224956504.3399994 | 1688656686.0999994 | 463700181.76 |
| 6 | Health & Sports | 187743235.71999997 | 224672234.18 | 36928998.46000004 |
| 7 | Home & Living | 306034894.0199999 | 313040277.86 | 7005383.840000093 |
| 8 | Kids & Baby | 101165297.07999998 | 142530947.54000002 | 41365650.46000004 |
| 9 | Men Fashion | 991653116.7400004 | 990800832.8400013 | -852283.8999990225 |
| 10 | Mobiles & Tablets | 6309553768.400005 | 8556323756.620024 | 2246769988.2200184 |
| 11 | Others | 171613711.80000013 | 74523561.99999999 | -97090149.80000015 |
| 12 | School & Education | 28808674.819999997 | 32458049.320000004 | 3649374.5000000075 |
| 13 | Soghaat | 225961732.52000022 | 153669297.7 | -72292434.82000023 |
| 14 | Superstore | 220967051.49999908 | 435047343.07999957 | 214080291.5800005 |
| 15 | Women Fashion | 621113391.64 | 1676060313.379999 | 1054946921.7399989 |

Q : Bandingkan nilai transaksi dari masing-masing kategori pada tahun 2021 dengan 2022. Sebutkan kategori apa saja yang mengalami peningkatan dan kategori apa yang mengalami penurunan nilai transaksi dari tahun 2021 ke 2022. Gunakan is_valid = 1 untuk memfilter data transaksi. Source table: order_detail, sku_detail.

A : Kategori yang mengalami peningkatan nilai transaksi dari tahun 2021 ke 2022 adalah Appliances, Beauty & Grooming, Computing, Entertainment, Health & Sports, Home & Living, Kids & Baby, Mobiles & Tablets, School & Education, Superstore dan Women Fashion. Sedangkan ktegori yang mengalami penurunan nilai transaksi dari tahun 2021 ke 2022 adalah Books, Men Fashion, Others dan Soghaat.

Nomor 5

INPUT

```
select
  sku_name as sku,
  category as kategori,
  sum(after_discount) as total_transaksi,
  count(distinct customer_id) as total_pelanggan,
  count(distinct od.id) total_order,
  sum(qty_ordered) total_jumlah_kuantitas
from order_detail as od
join sku_detail as sd on od.sku_id = sd.id
where extract(year from order_date) = 2022
and is_valid = 1
group by sku, kategori
order by total_transaksi desc
limit 10;
```

OUTPUT

| | sku text | kategori text | total_transaksi double precision | total_pelanggan bigint | total_order bigint | total_jumlah_kuantitas bigint |
|----|------------------------------|-------------------|-------------------------------------|---------------------------|-----------------------|----------------------------------|
| 1 | IDROID_BALRX7-Gold | Mobiles & Tablets | 865224543.9 | 286 | 490 | 1632 |
| 2 | IDROID_BALRX7-Jet black | Mobiles & Tablets | 525626251.059 | 14 | 15 | 1014 |
| 3 | infinix_Zero 4-Grey | Mobiles & Tablets | 443381130.5 | 158 | 233 | 334 |
| 4 | IDROID_BALRX7-Jet black | Mobiles & Tablets | 298041331.7 | 306 | 427 | 542 |
| 5 | iphone-7-32gb-wof-Matt Black | Mobiles & Tablets | 289575962 | 33 | 48 | 60 |
| 6 | Infinix Hot 4-Black | Mobiles & Tablets | 278470817.419 | 212 | 266 | 396 |
| 7 | Infinix Hot 4-Gold | Mobiles & Tablets | 272945142.919 | 173 | 244 | 391 |
| 8 | AYS_32B8500-32-Inches | Entertainment | 192536626 | 170 | 188 | 199 |
| 9 | closecomfort_PC8 | Appliances | 169312440 | 81 | 103 | 105 |
| 10 | Haier_HSU-18-HNF | Appliances | 149577215 | 44 | 46 | 49 |



Tampilkan Top 10 sku_name (beserta kategorinya) berdasarkan nilai transaksi yang terjadi selama tahun 2022. Tampilkan juga total jumlah pelanggan (unique), total order (unique) dan total jumlah kuantitas. Gunakan is_valid = 1 untuk memfilter data transaksi. Source table: order_detail, sku_detail.



Top 10 sku berdasarkan nilai transaksi selama tahun 2022 adalah IDROID_BALRX7-Gold, IDROID_BALRX7-Jet black, infinix_Zero 4-Grey, IDROID_BALRX7-Jet black , iphone-7-32gb-wof-Matt Black, Infinix Hot 4-Black, Infinix Hot 4-Gold, AYS_32B8500-32-Inches, closecomfort_PC8 dan Haier_HSU-18-HNF. Dimana 7 sku berkategori Mobiles & Tablets, 2 sku berkategori Appliances dan satu sku berkategori Entertainment.

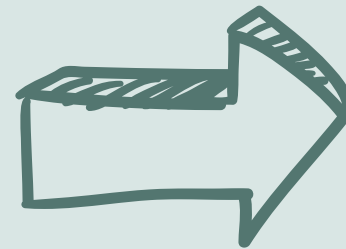
Nomor 6



Tampilkan top 5 metode pembayaran yang paling populer digunakan selama 2022 (berdasarkan total unique order). Gunakan `is_valid = 1` untuk memfilter data transaksi. Source table: `order_detail`, `payment_method`

INPUT

```
select
  payment_method,
  count(distinct od.id) total_order
from order_detail as od
join payment_detail as pd on od.payment_id = pd.id
where extract(year from order_date) = 2022
and is_valid = 1
group by payment_method
order by total_order desc
limit 5
```



OUTPUT

| | payment_method text | total_order bigint |
|---|------------------------|-----------------------|
| 1 | cod | 42609 |
| 2 | Payaxis | 5341 |
| 3 | Easypay | 1443 |
| 4 | customercredit | 1378 |
| 5 | jazzwallet | 1368 |



Berdasarkan total unique order, top 5 metode pembayaran paling populer yang digunakan selama tahun 2022 secara berurutan dari yang terbesar total ordernya adalah COD, Payaxis, Easypay, Customercredit dan Jazzwallet.

Nomor 1

INPUT

```
with cte as(  
  select  
    case  
      when lower(sku_name) like '%samsung%' then 'Samsung'  
      when lower(sku_name) like '%apple%' then 'Apple'  
      when lower(sku_name) like '%sony%' then 'Sony'  
      when lower(sku_name) like '%huawei%' then 'Huawei'  
      when lower(sku_name) like '%lenovo%' then 'Lenovo'  
    end as nama_brand,  
    sum(after_discount) nilai_transaksi  
  from order_detail as od  
  join sku_detail as sd on od.sku_id = sd.id  
  where is_valid = 1  
  group by nama_brand  
  order by nilai_transaksi desc  
)  
select * from cte where nama_brand is not null
```



Urutkan dari ke-5 produk ini berdasarkan nilai transaksinya, yaitu Samsung, Apple, Sony, Huawei, dan Lenovo. Gunakan is_valid = 1 untuk memfilter data transaksi. Source table: order_detail, sku_detail



OUTPUT

| | nama_brand text | nilai_transaksi double precision |
|---|--------------------|-------------------------------------|
| 1 | Samsung | 3757776955.300000 |
| 2 | Huawei | 1012497391.639999 |
| 3 | Apple | 684101018.119999 |
| 4 | Lenovo | 393545796.88 |
| 5 | Sony | 190611120.540000 |



Berdasarkan nilai transaksinya, produk dengan nilai transaksi paling besar adalah Samsung dengan nilai transaksi sebesar 3757776955.30, diikuti oleh Huawei di posisi ke-2 sebesar 1012497391.64, di posisi ke-3 Apple sebesar 684101018.12, Lenovo di posisi ke-4 sebesar 393545796.88 dan di posisi ke-5 yaitu Sony sebesar 190611120.54.

Nomor 8

INPUT

```
with cte as (  
  select  
    category,  
    sum(case when extract(year from order_date) = 2021 then after_discount -  
      (cogs*qty_ordered) end) as profit_2021,  
    sum(case when extract(year from order_date) = 2022 then after_discount -  
      (cogs*qty_ordered) end) as profit_2022  
  from order_detail as od  
  join sku_detail as sd on od.sku_id = sd.id  
  where is_valid = 1  
  group by category  
)  
select  
  *,  
  ((profit_2022 - profit_2021)/profit_2021)*100 as growth  
from cte  
order by growth desc;
```

Q

Seperti pertanyaan no. 3, buatlah perbandingan dari nilai profit tahun 2021 dan 2022 pada tiap kategori. Kemudian buatlah selisih % perbedaan profit antara 2021 dengan 2022 (profit = after_discount - (cogs*qty_ordered)) Gunakan is_valid = 1 untuk memfilter data transaksi. Source table: order_detail, sku_detail

OUTPUT

| | category text | profit_2021 double precision | profit_2022 double precision | growth double precision |
|----|--------------------|---------------------------------|---------------------------------|----------------------------|
| 1 | Women Fashion | 129540655.63999999 | 345456561.3800003 | 166.6781016919055 |
| 2 | Superstore | 28866179.499999966 | 71091137.08000006 | 146.27830323025648 |
| 3 | Computing | 81856374.40000002 | 117411141.73999998 | 43.43555111084904 |
| 4 | Entertainment | 185811916.34000003 | 265278570.09999996 | 42.767253750610514 |
| 5 | Appliances | 355859880.4399999 | 431194678.57999957 | 21.16979246068779 |
| 6 | Mobiles & Tablets | 1396877440.3999996 | 1652332906.619994 | 18.28760769068215 |
| 7 | Health & Sports | 40445159.719999984 | 47521558.18000001 | 17.49628017045701 |
| 8 | School & Education | 7210286.820000002 | 7934837.319999998 | 10.048844353739538 |
| 9 | Home & Living | 55279202.01999999 | 59669887.86 | 7.94274461199976 |
| 10 | Beauty & Grooming | 70582138.94000006 | 75062659.24000002 | 6.347951999313501 |
| 11 | Kids & Baby | 23428535.080000002 | 19504769.540000003 | -16.747805727510297 |
| 12 | Men Fashion | 226619892.74 | 182533480.83999968 | -19.453902023764734 |
| 13 | Others | 17792955.79999996 | 13834450.000000002 | -22.247600929801482 |
| 14 | Soghaat | 44221632.519999966 | 31300607.699999988 | -29.218787465967544 |
| 15 | Books | 6102372.56 | 2651115.62 | -56.555985496893356 |

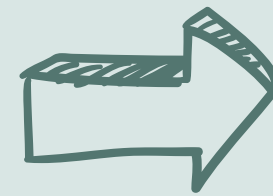
A

Berdasarkan selisih % perbedaan profit antara 2021 dengan 2022, kategori Women Fashion menjadi kategori dengan selisih positif terbesar yaitu mencapai 166.6781016919055. Sedangkan kategori Books menjadi kategori dengan selisih negatif terbesar yaitu sebesar -56.555985496893356.

Nomor 9

INPUT

```
with cte as (  
  select  
    od.id,  
    sd.sku_name,  
    od.after_discount - (sd.cogs*od.qty_ordered) profit  
  from order_detail od  
  left join sku_detail sd on sd.id = od.sku_id  
  where extract(year from order_date) = 2022  
  and is_valid = 1  
  and category = 'Women Fashion')  
select  
  sku_name,  
  sum(profit) total_profit  
from cte  
group by 1  
order by 2 desc  
limit 5
```



OUTPUT

| | sku_name text | total_profit double precision |
|---|--------------------|----------------------------------|
| 1 | sanasafinaz_SS-3A | 3498908 |
| 2 | sanasafinaz_SS-9B | 3153692 |
| 3 | sanasafinaz_SS-13A | 3013622 |
| 4 | sanasafinaz_SS-5B | 2902320 |
| 5 | sanasafinaz_SS-10A | 2871696 |



- Tampilkan top 5 SKU dengan kontribusi profit paling tinggi di tahun 2022 berdasarkan kategori paling besar pertumbuhan profit dari 2021 ke 2022 (berdasarkan hasil no 8). Gunakan is_valid = 1 untuk memfilter data transaksi. Source table: order_detail, sku_detail



- Berdasarkan kategori paling besar pertumbuhan profit dari tahun 2021 ke 2022, SKU dengan kontribusi profit paling tinggi di tahun 2022 secara berurutan adalah sanasafinaz_SS-3A, sanasafinaz_SS-9B, sanasafinaz_SS-13A, sanasafinaz_SS-5B dan sanasafinaz_SS-10A.

Nomor 10



Tampilkan jumlah unique order yang menggunakan top 5 metode pembayaran (soal no 6) berdasarkan kategori produk selama tahun 2022. Gunakan is_valid = 1 untuk memfilter data transaksi. Source table: order_detail, sku_detail

INPUT

```
select
  category,
  count(distinct case when payment_method = 'cod' then od.id end) as cod,
  count(distinct case when payment_method = 'Payaxis' then od.id end) as Payaxis,
  count(distinct case when payment_method = 'Easypay' then od.id end) as Easypay,
  count(distinct case when payment_method = 'customercredit' then od.id end) as Customercredit,
  count(distinct case when payment_method = 'jazzwallet' then od.id end) as Jazzwallet
from order_detail as od
join payment_detail as pd on od.payment_id = pd.id
join sku_detail as sd on od.sku_id = sd.id
where extract(year from order_date) = 2022
and is_valid = 1
group by category
```


OUTPUT

| | category text | cod bigint | payaxis bigint | easypay bigint | customercredit bigint | jazzwallet bigint |
|----|--------------------|---------------|-------------------|-------------------|--------------------------|----------------------|
| 1 | Appliances | 2808 | 893 | 175 | 131 | 58 |
| 2 | Beauty & Grooming | 4125 | 301 | 85 | 108 | 89 |
| 3 | Books | 336 | 10 | 4 | 4 | 4 |
| 4 | Computing | 1287 | 344 | 82 | 44 | 29 |
| 5 | Entertainment | 1152 | 547 | 129 | 45 | 35 |
| 6 | Health & Sports | 2440 | 268 | 41 | 67 | 40 |
| 7 | Home & Living | 3314 | 295 | 74 | 97 | 60 |
| 8 | Kids & Baby | 2635 | 306 | 81 | 66 | 85 |
| 9 | Men Fashion | 10510 | 928 | 186 | 300 | 195 |
| 10 | Mobiles & Tablets | 9853 | 1804 | 618 | 369 | 208 |
| 11 | Others | 1066 | 103 | 35 | 34 | 41 |
| 12 | School & Education | 457 | 40 | 11 | 9 | 9 |
| 13 | Soghaat | 3065 | 236 | 63 | 111 | 109 |
| 14 | Superstore | 2138 | 531 | 81 | 77 | 700 |
| 15 | Women Fashion | 7599 | 843 | 201 | 176 | 89 |



Berdasarkan kategori produk selama tahun 2022, jumlah unique order terbesar adalah metode pembayaran COD dengan kategori Men Fashion. Sedangkan jumlah unique terendah adalah metode pembayaran Easypay, Customercredit dan Jazzwallet dengan kategori Books.



Terima Kasih

