9

TO‘QQIZINCHI MA’RUZA

Korxona ilovalarini dasturlash · 9-mavzu

Hisobotlar va analitika

Hisobot va KPI · SQL agregatsiya · Eloquent aggregate · materiallashtirilgan ko‘rinishlar · PDF, Excel, dashboard

Agregatsiya | GROUP BY | Materialized view | PDF | Dashboard

ISINISH

Direktor so‘radi: “O‘tgan oy qancha sotdik va mijozlar bizga qancha qarz?” Javobni qayerdan olasiz?

Hozircha javob bermang. “Sotdik” so‘zini qanday tushunish mumkinligini o‘ylab ko‘ring.

1

Savdo — yaratilgan buyurtmalarmi, hisob-fakturalarmi yoki jo‘natilgan tovarmi?

2

10 000 ta hisob-fakturani PHP ga yuklab, `foreach` bilan qo‘shish yaxshi g‘oyami?

3

Agar hisobot har safar 8 soniya hisoblansa va uni 30 kishi ochsa, nima bo‘ladi?

O‘QUV MAQSADLARI

Bu ma’ruza oxirida siz quyidagilarni bajara olasiz…

1. **Ta’riflash** — rollar uchun hisobotlar va KPI larni: savdo, QQS, o‘rtacha chek, debitorlik, kam qoldiq
2. **Yozish** — PostgreSQL agregatsiya so‘rovlarini: `SUM`, `COUNT`, `GROUP BY`, `HAVING`, `FILTER`, `date_trunc`
3. **Qo‘llash** — oyna funksiyalarini (`SUM() OVER`, `LAG`, `RANK`) yig‘ma va o‘sish ko‘rsatkichlari uchun
4. **Qo‘llash** — Eloquent aggregate (`sum`, `withSum`, `withCount`) va Query Builder (`selectRaw`, `groupBy`)
5. **Farqlash** — oddiy va materiallashtirilgan ko‘rinish (VIEW / MATERIALIZED VIEW) hamda ularni yangilash usullarini
6. **Yaratish** — `barryvdh/laravel-dompdf` bilan PDF va `maatwebsite/excel` bilan ko‘p varaqli Excel hisobotlarini
7. **Loyihalash** — Chart.js diagrammali dashboard va uning ma’lumot endpointini

01

Korxonada hisobotlar va KPI

Kim nimani koʻradi · koʻrsatkich taʼrifi · OLTP va analitika · hisoblash bazada

KPI | Taʼrif | OLTP | Rollar

Kim qaysi hisobotni ko‘radi

Rol	Hisobot	Manba jadvallar
omborchi	qoldiqlar, kam qoldiq ro‘yxati	`stocks`, `products`, `warehouses`
omborchi	ombor harakatlari jurnali	`stock_movements`
menejer	davr bo‘yicha savdo, top mahsulotlar	`invoices`, `order_items`
menejer	mijozlar reytingi	`invoices`, `counterparties`
buxgalter	debitorlik va muddati (aging)	`invoices` (`total – paid_amount`, `due_at`)
buxgalter	to‘lovlar usullar bo‘yicha	`payments`
admin / rahbar	dashboard: KPI va trendlar	yuqoridagilarning yig‘masi

Har bir hisobot — `ReportService` dagi bitta metod; ekran, PDF, Excel va API shuni chaqiradi.

KPI TA’RIFLARI

OmborPro ko‘rsatkichlari (kelishuv)

1 Savdo (jami)

Davr ichida `issued_at` bo‘yicha berilgan hisob-fakturalar `total` yig‘indisi (QQS bilan).

2 Sof savdo va QQS

`subtotal` va `vat_amount` yig‘indilari; QQS stavkasi 12 %.

3 O‘rtacha chek

Jami savdo / hisob-fakturalar soni (butun so‘mgacha).

4 Debitorlik

`status ≠ paid` hisob-fakturalar bo‘yicha `total − paid_amount` yig‘indisi.

5 Muddati o‘tgan qarz

Debitorlikning `due_at < bugun` qismi; 1–30, 31–60, 61–90, 90+ kun guruhlari.

6 Kam qoldiq

`quantity − reserved < min_stock` bo‘lgan mahsulot–ombor juftliklari soni.

Sanalar Asia/Tashkent vaqt zonasida: oy 1-kuni 00:00 dan keyingi oy 1-kuni 00:00 gacha.

KPI larni butun sonlarda hisoblash

```php
$inv = [   // so‘mda, butun son
    ['subtotal' => 1250000, 'vat' => 150000, 'paid' => 1400000],
    ['subtotal' => 3100000, 'vat' => 372000, 'paid' => 0],
    ['subtotal' => 820000, 'vat' => 98400, 'paid' => 500000],
];
$sum = fn (string $k) => array_sum(array_column($inv, $k));
$total = $sum('subtotal') + $sum('vat');
$fmt = fn (int $x) => number_format($x, 0, ',', ' ') . ' so‘m';

echo 'Hisob-fakturalar: ', count($inv), PHP_EOL;
echo 'Sof savdo: ', $fmt($sum('subtotal')), PHP_EOL;
echo 'QQS (12 %): ', $fmt($sum('vat')), PHP_EOL;
echo 'Jami: ', $fmt($total), PHP_EOL;
echo 'O‘rtacha chek: ', $fmt(intdiv($total, count($inv))), PHP_EOL;
echo 'Debitorlik: ', $fmt($total - $sum('paid')), PHP_EOL;
```

▶ NATIJA

```
Hisob-fakturalar: 3
Sof savdo: 5 170 000 so‘m
QQS (12 %): 620 400 so‘m
Jami: 5 790 400 so‘m
O‘rtacha chek: 1 930 133 so‘m
Debitorlik: 3 890 400 so‘m
```

`array_column + array_sum`

PHP dagi `SUM(col)` — kichik massivlar uchun

`'vat' har qatorda`

QQS har bir hisob-fakturada yaxlitlanadi, yig‘mada qayta hisoblanmaydi

`intdiv()`

o‘rtacha chek butun so‘mgacha — float yo‘q

`number_format($x, 0, ',', ' ')`

o‘zbekcha ko‘rinish: minglik ajratuvchi — bo‘sh joy

TUSHUNISHNI TEKSHIRISH

O‘ylang – Juftlikda – Bo‘lishing · 3 daqiqa

1-bo‘lim yakuni: Korxonada hisobotlar va KPI

1

Nima uchun hisobotlar uchun ko‘rsatkich ta’rifi oldindan yozib qo‘yilishi kerak?

Savol 1

2

OLTP so‘rovlari va hisobot so‘rovlarining farqi nimada?

Savol 2

3

Nima uchun savdo summasini PHP `foreach` da emas, bazada hisoblaymiz?

Savol 3

MA’RUZADAGI MASHQ

Har kim o‘z qurilmasida · 10 daqiqa · Oson · 10 ball

1-topshiriq: KPI kartochkalari

Hisob-fakturalar ro‘yxati berilgan, har biri `['subtotal' => int, 'vat' => int, 'paid' => int]` (so‘mda). Dashboard uchun ko‘rsatkichlarni hisoblang: soni, sof savdo, QQS, jami (`subtotal + vat`), o‘rtacha chek (`intdiv(jami, soni)`, ro‘yxat bo‘sh bo‘lsa 0), debitorlik (`jami − to‘langan`) va to‘langan ulush foizda (`round(to‘langan * 100 / jami, 1)`, jami 0 bo‘lsa `0.0`). Biror qiymat manfiy bo‘lsa — `InvalidArgumentException`; biror hisob-fakturada `paid > subtotal + vat` bo‘lsa — `DomainException`.

Imzo: `function kpi_hisobot(array $inv): array`

Qaytaradi: `['count' => int, 'subtotal' => int, 'vat' => int, 'total' => int, 'avg_check' => int, 'receivable' => int, 'paid_share' => float]` — shu tartibda.

MISOL · CHAQIRUV

```
kpi_hisobot([['subtotal' => 1250000, 'vat' => 150000, 'paid' => 1400000], ['subtotal' => 3100000, 'vat' => 372000, 'paid' => 0], ['subtotal' => 820000, 'vat' => 98400, 'paid' => 500000]])
```

MISOL · NATIJA

```
{"count":3,"subtotal":5170000,"vat":620400,"total":5790400,"avg_check":1930133,"receivable":3890400,"paid_share":32.8}
```

Telefon kamerasi bilan skanerlang

1. Saytga kiring (login va parol)
2. PHP kodni yozing va sinab ko‘ring
3. ✓ Topshirish — natija o‘qituvchiga

02

SQL agregatsiya so‘rovlari

SUM, COUNT, AVG · GROUP BY va HAVING · date_trunc · FILTER · oyna funksiyalari · NULL tuzoqlari

GROUP BY | HAVING | FILTER | Window

SQL

Oylar bo‘yicha savdo

```sql
SELECT date_trunc('month', issued_at)::date AS oy,
       COUNT(*)          AS soni,
       SUM(subtotal)     AS sof_savdo,
       SUM(vat_amount)   AS qqs,
       SUM(total)        AS jami
FROM invoices
WHERE issued_at >= '2026-07-01' AND issued_at < '2026-11-01'
GROUP BY 1
ORDER BY 1;
```

▶ NATIJA

oy	soni	sof_savdo	qqs	jami
2026-07-01	118	1 204 500 000	144 540 000	1 349 040 000
2026-08-01	131	1 356 200 000	162 744 000	1 518 944 000
2026-09-01	127	1 298 750 000	155 850 000	1 454 600 000
2026-10-01	142	1 511 000 000	181 320 000	1 692 320 000

`date_trunc('month', ...)`

sanani oy boshiga keltiradi — guruh kaliti

GROUP BY 1

SELECT dagi 1-ustun bo‘yicha (qisqa yozuv)

`>= ... AND < ...`

yarim ochiq oraliq: oy oxiridagi vaqtli yozuvlar yo‘qolmaydi

`SUM(subtotal), SUM(vat_amount)`

QQS har bir hujjatdagi qiymatdan yig‘iladi

FILTER, HAVING va COALESCE

```sql
SELECT c.name AS mijoz,
       SUM(i.total)                                        AS jami,
       SUM(i.total) FILTER (WHERE i.status = 'paid')       AS tolangan,
       COALESCE(SUM(i.total - i.paid_amount)
                FILTER (WHERE i.status <> 'paid'), 0)      AS qarz
FROM invoices i
JOIN counterparties c ON c.id = i.counterparty_id
WHERE i.issued_at >= '2026-10-01' AND i.issued_at < '2026-11-01'
GROUP BY c.id, c.name
HAVING SUM(i.total) > 10000000
ORDER BY jami DESC;
```

▶ NATIJA

mijoz	jami	tolangan	qarz
“Baraka Savdo” MChJ	184 800 000	120 000 000	64 800 000
“Nur Market” XK	56 000 000	56 000 000	0
“Sharq Ulgurji” MChJ	12 320 000		12 320 000

`FILTER (WHERE ...)`

bitta o‘tishda bir nechta shartli yig‘indi

`COALESCE(..., 0)`

mos qator bo‘lmasa `SUM` `NULL` beradi — 0 ga almashtiramiz

HAVING

guruhdan keyingi filtr: faqat 10 mln dan katta mijozlar

`GROUP BY c.id, c.name`

agregat bo‘lmagan ustunlar guruh kalitida

GROUP BY va yig‘ma summa — PHP da qanday ishlaydi

```php
$rows = [
    ['2026-09-28', 1400000], ['2026-10-02', 3472000],
    ['2026-10-15', 918400], ['2026-11-01', 560000],
];
$byMonth = [];
foreach ($rows as [$date, $total]) {
    $m = substr($date, 0, 7);             // date_trunc('month')
    $byMonth[$m] ??= ['count' => 0, 'sum' => 0];
    $byMonth[$m]['count']++;              // COUNT(*)
    $byMonth[$m]['sum'] += $total;        // SUM(total)
}
ksort($byMonth);                          // ORDER BY oy
$run = 0;
foreach ($byMonth as $m => $g) {
    $run += $g['sum'];                    // SUM(...) OVER (ORDER BY oy)
    printf("%s | %d | %7d | %7d\n", $m, $g['count'], $g['sum'], $run);
}
```

▶ NATIJA

```
2026-09 | 1 | 1400000 | 1400000
2026-10 | 2 | 4390400 | 5790400
2026-11 | 1 |  560000 | 6350400
```

`$byMonth[$m] ??= ...`

guruh birinchi uchraganda yaratiladi

`ksort()`

kalitlar `YYYY-MM` — matn tartibi xronologik tartib bilan bir xil

`$run`

oyna funksiyasining yig‘ma summasi (running total)

Faqat namuna

real hisobotda bu ishni baza bajaradi — PHP ga 3 qator keladi

▶ INTERAKTIV

SQL natijasini oldindan ayting

Agregatsiya so‘rovlari haqidagi savollar. (Interaktiv slaydlarda bosib bajariladi.)

1 **Oktabrda birorta ham hisob-faktura yo‘q. Natija nima?**

```
SELECT SUM(total) FROM invoices
WHERE issued_at >= '2026-10-01' AND issued_at < '2026-11-01';
```

A) 0
B) NULL
C) Xato
D) Bo‘sh natija (0 qator)

2 **“Oylik xaridi 10 mln dan katta mijozlar” sharti qayerga yoziladi?**

A) WHERE
B) ORDER BY
C) HAVING
D) GROUP BY

3 **Har bir oy uchun yil boshidan yig‘ma summani qaysi ifoda beradi?**

A) SUM(jami) OVER (ORDER BY oy)
B) SUM(jami) GROUP BY oy
C) LAG(jami)
D) COUNT(*) OVER ()

4 **`COUNT(*)` va `COUNT(paid_at)` qachon farq qiladi?**

A) Hech qachon
B) Jadval bo‘sh bo‘lsa
C) `paid_at` da NULL lar bo‘lsa
D) Indeks bo‘lmasa

TUSHUNISHNI TEKSHIRISH

O‘ylang – Juftlikda – Bo‘lishing · 3 daqiqa

2-bo‘lim yakuni: SQL agregatsiya so‘rovlari

1

`WHERE` va `HAVING` ning farqi nimada?

Savol 1

2

Nima uchun davr filtri `BETWEEN` emas, `>= ... AND < ...` ko‘rinishida yoziladi?

Savol 2

3

`FILTER (WHERE ...)` qanday vazifani bajaradi?

Savol 3

MA’RUZADAGI MASHQ

Har kim o‘z qurilmasida · 10 daqiqa · O‘rta · 20 ball

2-topshiriq: Oylar bo‘yicha savdo va yig‘ma summa

`GROUP BY date_trunc('month', issued_at)` va `SUM(...) OVER (ORDER BY oy)` ning PHP dagi modelini yozing. Har bir hisob-faktura `['issued_at' => 'YYYY-MM-DD' yoki 'YYYY-MM-DD HH:MM:SS', 'total' => int]`. Sana `YYYY-MM-DD` bilan boshlanmasa — `InvalidArgumentException`. Natija — oylar o‘sish tartibida, har bir oy uchun hujjatlar soni, summa va yil boshidan emas, **ro‘yxat boshidan** yig‘ma summa.

Imzo: `function oylik_savdo(array $invoices): array`

Qaytaradi: `[['month' => 'YYYY-MM', 'count' => int, 'sum' => int, 'running' => int], ...]`; bo‘sh kirishda `[]`.

MISOL · CHAQIRUV

```
oylik_savdo([['issued_at' => '2026-10-02', 'total' => 3472000], ['issued_at' => '2026-09-28', 'total' => 1400000], ['issued_at' => '2026-10-15 18:40:00', 'total' => 918400]])
```

MISOL · NATIJA

```
[{"month":"2026-09","count":1,"sum":1400000,"running":1400000},{"month":"2026-10","count":2,"sum":4390400,"running":5790400}]
```

Telefon kamerasi bilan skanerlang

1. Saytga kiring (login va parol)
2. PHP kodni yozing va sinab ko‘ring
3. ✓ Topshirish — natija o‘qituvchiga

03

Eloquent va Query Builder bilan agregatsiya

sum, count, avg · withSum va withCount · selectRaw va groupBy · ReportService

withSum

selectRaw

groupBy

ReportService

REPORTSERVICE

Davr bo‘yicha savdo — Query Builder

```php
public function salesByPeriod(
    CarbonImmutable $from, CarbonImmutable $to, string $group = 'month'
): Collection {
    $unit = match ($group) {
        'day', 'week', 'month' => $group,
        default => throw new InvalidArgumentException($group),
    };

    return DB::table('invoices')
        ->selectRaw("date_trunc('$unit', issued_at)::date AS period")
        ->selectRaw('COUNT(*) AS invoices, SUM(subtotal) AS subtotal')
        ->selectRaw('SUM(vat_amount) AS vat, SUM(total) AS total')
        ->where('issued_at', '>=', $from->startOfDay())
        ->where('issued_at', '<', $to->addDay()->startOfDay())
        ->groupBy('period')
        ->orderBy('period')
        ->get();
}
```

▶ NATIJA

```
[{"period": "2026-10-01", "invoices": 142, "subtotal":
"1511000000.00",
  "vat": "181320000.00", "total": "1692320000.00"}, ...]
```

`match ($group)`

SQL ga qo‘yiladigan qism faqat oq ro‘yxatdan — injection yo‘q

`$to->addDay()->startOfDay()`

yarim ochiq oraliq: `to` kuni to‘liq kiradi

`groupBy('period')`

PostgreSQL `GROUP BY` da SELECT taxallusini qabul qiladi

Collection

natija — `stdClass` qatorlar; summalar satr (numeric)

ELOQUENT AGGREGATE

Mijozlar reytingi: withCount va withSum

```php
$customers = Counterparty::query()
    ->whereIn('type', ['customer', 'both'])
    ->withCount('invoices')
    ->withSum('invoices', 'total')
    ->withSum(['invoices as paid_total' => fn ($q) =>
        $q->where('status', 'paid')], 'total')
    ->orderByDesc('invoices_sum_total')
    ->limit(10)
    ->get();

foreach ($customers as $c) {
    echo $c->name, ': ', $c->invoices_count, ' ta, ',
        $c->invoices_sum_total, ' / ', $c->paid_total ?? 0, PHP_EOL;
}
```

▶ NATIJA

```
“Baraka Savdo” MChJ: 37 ta, 184800000.00 / 120000000.00
“Nur Market” XK: 12 ta, 56000000.00 / 56000000.00
...
(SQL: select counterparties.*, (select count(*) ...), (select
sum(...)) ...)
```

`withCount('invoices')`

`invoices_count` atributi — subquery

`withSum('invoices', 'total')`

`invoices_sum_total` — nom avtomatik

`'invoices as paid_total' => fn`

shartli agregat va o‘z nomi

`?? 0`

hisob-fakturasi yo‘q mijozda yig‘indi `null`

QOLDIQLAR

Ombor qoldiqlari hisoboti

```php
public function stockBalances(?int $warehouseId = null): Collection
{
    return DB::table('stocks as s')
        ->join('products as p', 'p.id', '=', 's.product_id')
        ->join('warehouses as w', 'w.id', '=', 's.warehouse_id')
        ->whereNull('p.deleted_at')
        ->when($warehouseId, fn ($q, $id) => $q->where('w.id', $id))
        ->select('w.code', 'p.sku', 'p.name', 's.quantity')
        ->addSelect('s.reserved')
        ->selectRaw('s.quantity - s.reserved AS available')
        ->selectRaw('s.quantity * p.price AS value')
        ->selectRaw('s.quantity - s.reserved < p.min_stock AS is_low')
        ->orderBy('w.code')->orderBy('p.sku')
        ->get();
}
```

▶ NATIJA

```
 code  |  sku   |       name        | quantity | reserved |
available |    value     | is_low
 TSH-1 | SH-010 | Shakar, 1 kg      |      420 |      100 |
320 |  6090000.00  | f
 TSH-1 | UN-001 | Un oliy nav, 50 kg|       35 |       20 |
15 | 13475000.00  | t
```

`quantity - reserved`

mavjud qoldiq — spetsifikatsiyadagi invariant

`quantity * price`

ombor qiymati (rezerv ham ombor ichida)

`AS is_low`

PostgreSQL mantiqiy natija — kam qoldiq belgisi

`whereNull('p.deleted_at')`

Query Builder soft delete ni o‘zi hisobga olmaydi

QAYERDA HISOBLAYMIZ

PHP sikli va baza agregati

✗ Noto‘g‘ri

- `Invoice::all()->sum('total')` — hamma qator xotirada
- `foreach ($customers as $c) $c->invoices->sum(...)` — N+1
- `(float) $row->total` bilan yig‘ish — yaxlitlash xatosi
- `selectRaw("... '$sana'")` — SQL injection

✓ To‘g‘ri

- `Invoice::where(...)->sum('total')` — bitta `SELECT SUM`
- `withSum('invoices', 'total')` — subquery, bitta so‘rov
- summa bazada `numeric`, PHP da satr yoki tiyin
- `selectRaw('... ?', [$sana])` — bog‘langan qiymat

TUSHUNISHNI TEKSHIRISH

O‘ylang – Juftlikda – Bo‘lishing · 3 daqiqa

3-bo‘lim yakuni: Eloquent va Query Builder bilan agregatsiya

1

`Invoice::where(...)->sum('total')` va `Invoice::all()->sum('total')` ning farqi nimada?

Savol 1

2

`withSum('invoices', 'total')` natijasi qaysi atributda bo‘ladi va nechta so‘rov bajariladi?

Savol 2

3

`selectRaw` ga sana qiymatini qanday xavfsiz beramiz?

Savol 3

04

Materiallashtirilgan ko‘rinishlar (PostgreSQL)

VIEW va MATERIALIZED VIEW · migratsiyada yaratish · REFRESH CONCURRENTLY · Eloquent modeli

VIEW | MATERIALIZED VIEW | REFRESH | Unique index

Saqlangan so‘rov va saqlangan natija

VIEW — so‘rovning nomi; MATERIALIZED VIEW — so‘rov natijasining nusxasi. Birinchisi doim yangi, ikkinchisi doim tez.

VIEW

Ma’lumot saqlamaydi; har murojaatda `SELECT` bajariladi. Murakkab `JOIN` larni yashirish uchun.

MATERIALIZED VIEW

Natija diskda; indeks qurish mumkin; `REFRESH` gacha eskiradi.

REFRESH … CONCURRENTLY

O‘qishni bloklamay yangilaydi; UNIQUE indeks shart.

Yig‘ma jadval

Kod bilan har hujjatda yangilanadi — doim aniq, lekin murakkabroq.

Hisobot ekranida ma’lumot sanasini ko‘rsating: “27.10.2026 03:00 holatiga”.

MIGRATSIYA

mv_sales_monthly yaratish

```php
public function up(): void
{
    DB::statement(<<<'SQL'
        CREATE MATERIALIZED VIEW mv_sales_monthly AS
        SELECT date_trunc('month', issued_at)::date AS month,
               counterparty_id, COUNT(*) AS invoices_count,
               SUM(subtotal) AS subtotal, SUM(vat_amount) AS vat,
               SUM(total) AS total
        FROM invoices
        GROUP BY 1, 2
        SQL);
    DB::statement('CREATE UNIQUE INDEX mv_sales_monthly_uq
        ON mv_sales_monthly (month, counterparty_id)');
}
public function down(): void
{
    DB::statement('DROP MATERIALIZED VIEW IF EXISTS mv_sales_monthly');
}
```

▶ NATIJA

```
$ php artisan migrate
  2026_10_27_090000_create_mv_sales_monthly ......... 41ms DONE

omborpro=# SELECT count(*) FROM mv_sales_monthly;
 count
-------
  1874
```

<<<'SQL' ... SQL

nowdoc — ko‘p qatorli SQL, `$` almashtirilmaydi

GROUP BY 1, 2

oy va mijoz — dashboard va mijoz kartochkasi uchun

CREATE UNIQUE INDEX

`REFRESH ... CONCURRENTLY` uchun shart

DROP ... IF EXISTS

migratsiyani orqaga qaytarish xavfsiz

Faqat o‘qiladigan model va yangilash buyrug‘i

```php
class SalesMonthly extends Model
{
    protected $table = 'mv_sales_monthly';
    public $timestamps = false;
    protected $casts = ['month' => 'date', 'total' => 'decimal:2'];
}
class RefreshReportViews extends Command
{
    protected $signature = 'reports:refresh';
    protected $description = 'Hisobot ko‘rinishlarini yangilash';

    public function handle(): int
    {
        DB::statement('REFRESH MATERIALIZED VIEW CONCURRENTLY '
            . 'mv_sales_monthly');
        return self::SUCCESS;
    }
}
```

▶ NATIJA

```
$ php artisan reports:refresh   (0.4 s)

SalesMonthly::where('month', '>=', '2024-01-01')
    ->selectRaw('month, SUM(total) AS total')->groupBy('month')-
>get();
→ 34 qator, 3 ms
```

`$table = 'mv_sales_monthly'`

model ko‘rinishga ulanadi — faqat o‘qish

`$timestamps = false`

ko‘rinishda `created_at`/`updated_at` yo‘q

`reports:refresh`

import yoki tunda ishga tushadi (rejalashtirish — 10-mavzu)

CONCURRENTLY

yangilash paytida dashboard ishlashda davom etadi

TANLOV

Og‘ir hisobotni qanday tezlashtiramiz

Usul	Yangilik	Tezlik	Murakkablik
Oddiy so‘rov + indeks	doim aniq	o‘rtacha	past
VIEW	doim aniq	so‘rov bilan bir xil	past
MATERIALIZED VIEW	REFRESH gacha eskiradi	juda tez	o‘rtacha
Yig‘ma jadval	doim aniq (kod to‘g‘ri bo‘lsa)	juda tez	yuqori
Kesh (Redis, 13-mavzu)	TTL gacha eskiradi	juda tez	past–o‘rtacha

Avval indeks va to‘g‘ri so‘rov; yetmasa — materiallashtirilgan ko‘rinish yoki kesh.

TUSHUNISHNI TEKSHIRISH

O‘ylang – Juftlikda – Bo‘lishing · 3 daqiqa

4-bo‘lim yakuni: Materiallashtirilgan ko‘rinishlar (PostgreSQL)

1

VIEW va MATERIALIZED VIEW ning asosiy farqi nimada?

Savol 1

2

`REFRESH MATERIALIZED VIEW CONCURRENTLY` uchun qanday shart bor?

Savol 2

3

Materiallashtirilgan ko‘rinishga ulangan Eloquent modelida nimalar o‘ziga xos?

Savol 3

05

PDF va Excel hisobotlari, dashboard

laravel-dompdf · DejaVu Sans · ko‘p varaqli Excel · Chart.js va @json · dashboard KPI

dompdf | Excel | Chart.js | Dashboard

PDF

Qoldiqlar hisobotini PDF ga

```php
use Barryvdh\DomPDF\Facade\Pdf;

public function stockPdf(Request $request, ReportService $reports)
{
    $this->authorize('viewStockReport');          // Gate
    $rows = $reports->stockBalances($request->integer('warehouse_id'));

    $pdf = Pdf::loadView('reports.pdf.stock', [
        'rows' => $rows,
        'date' => now('Asia/Tashkent'),
        'totalValue' => $rows->sum('value'),
    ])->setPaper('a4', 'landscape');

    return $pdf->download('qoldiq-' . now()->format('Y-m-d') . '.pdf');
}
```

▶ NATIJA

```
$ composer require barryvdh/laravel-dompdf

GET /reports/stock.pdf?warehouse_id=1
→ 200, Content-Type: application/pdf
  Content-Disposition: attachment; filename=qoldiq-2026-10-27.pdf
```

`Pdf::loadView()`

Blade shablon → HTML → PDF

`setPaper('a4', 'landscape')`

keng jadval uchun albom yo‘nalishi

`download() / stream()`

yuklab olish yoki brauzerda ochish

`$reports->stockBalances()`

ekran, PDF va Excel — bitta servis metodi

PDF shabloni: shrift va jadval

```blade
<style>
    body { font-family: 'DejaVu Sans', sans-serif; font-size: 10px; }
    table { width: 100%; border-collapse: collapse; }
    th, td { border: 1px solid #999; padding: 3px 5px; }
    .num { text-align: right; } tr { page-break-inside: avoid; }
</style>
<h3>Ombor qoldiqlari — {{ $date->format('d.m.Y H:i') }}</h3>
<table>
    <tr><th>Ombor</th><th>SKU</th><th>Nomi</th>
        <th>Mavjud</th><th>Qiymati</th></tr>
    @foreach ($rows as $r)
        <tr><td>{{ $r->code }}</td><td>{{ $r->sku }}</td>
            <td>{{ $r->name }}</td>
            <td class="num">{{ $r->available }}</td>
            <td class="num">@money($r->value)</td></tr>
    @endforeach
</table>
<p>Jami qiymat: @money($totalValue) so‘m</p>
```

▶ NATIJA

```
Ombor qoldiqlari — 27.10.2026 14:05
| TSH-1 | SH-010 | Shakar, 1 kg       | 320 |  6 090 000,00 |
| TSH-1 | UN-001 | Un oliy nav, 50 kg |  15 | 13 475 000,00 |
Jami qiymat: 19 565 000,00 so‘m
```

'DejaVu Sans'

dompdf bilan keladigan Unicode shrift — o‘, g‘ to‘g‘ri chiqadi

border-collapse

dompdf CSS 2.1 ni qo‘llaydi — maket jadval bilan

page-break-inside: avoid

qator ikki sahifaga bo‘linmaydi

@money(...)

`Blade::directive('money', ...)` — `number_format($x, 2, ',', ' ')` bitta joyda

EXCEL

Ko‘p varaqli savdo hisoboti

```php
class SalesReportExport implements WithMultipleSheets
{
    public function __construct(
        private CarbonImmutable $from,
        private CarbonImmutable $to,
    ) {
    }

    public function sheets(): array
    {
        return [
            new SalesByMonthSheet($this->from, $this->to),
            new TopProductsSheet($this->from, $this->to),
            new ReceivablesSheet($this->to),
        ];
    }
}
```

▶ NATIJA

```
Excel::download(new SalesReportExport($from, $to), 'savdo-
2026.xlsx')
→ varaqlar: [Oylar bo‘yicha] [Top mahsulotlar] [Debitorlik]
   SalesByMonthSheet: FromQuery, WithTitle, WithHeadings,
   WithColumnFormatting → 'C' => '#,##0.00'
```

WithMultipleSheets

`sheets()` — har bir element alohida varaq sinfi

WithTitle

varaq nomi: `title(): string`

WithColumnFormatting

`NumberFormat::FORMAT_NUMBER_COMMA_SEPARATED1` — pul son sifatida

`$from, $to`

barcha varaqlar bir xil davr uchun — ziddiyat yo‘q

DASHBOARD

Chart.js diagrammasi Blade da

```
<canvas id="salesChart" height="110"></canvas>
<script src="https://cdn.jsdelivr.net/npm/chart.js@4.4.1"></script>
<script>
    new Chart(document.getElementById('salesChart'), {
        type: 'bar',
        data: {
            labels: @json($chart['labels']),
            datasets: [{
                label: 'Savdo, mln so‘m',
                data: @json($chart['data']),
            }],
        },
        options: { responsive: true },
    });
</script>
```

▶ NATIJA

```
$chart = ['labels' => ['2026-05', ..., '2026-10'],
          'data' => [1210.4, 1302.7, 1349.0, 1518.9, 1454.6,
1692.3]]
→ 6 ustunli diagramma; bo‘sh oy — 0
```

`@json(...)`

PHP massivi → JSON, HTML uchun xavfsiz ekranlangan

`$chart['labels']`

barcha oylar, ma’lumotsizlari ham — `ReportService` to‘ldiradi

mln so‘m

diagrammada katta sonlarni masshtablash — o‘qilishi oson

`wire:poll.60s`

Livewire bilan KPI va diagrammani davriy yangilash

TUSHUNISHNI TEKSHIRISH

O‘ylang – Juftlikda – Bo‘lishing · 3 daqiqa

5-bo‘lim yakuni: PDF va Excel hisobotlari, dashboard

1

dompdf da o‘zbek harflari to‘g‘ri chiqishi uchun nima qilinadi?

Savol 1

2

Excel hisobotda pul summasini nima uchun matn emas, son sifatida yozamiz?

Savol 2

3

Blade da PHP massivini Chart.js ga qanday xavfsiz uzatamiz?

Savol 3

MA’RUZADAGI MASHQ

Har kim o‘z qurilmasida · 10 daqiqa · Oson · 10 ball

3-topshiriq: Summani hisobot formatida yozish

PDF va Excel hisobotlarida summa o‘zbekcha ko‘rinishda chiqadi: minglik guruhlar bo‘sh joy bilan, o‘nli ajratuvchi vergul, oxirida “ so‘m”. Kirish — tiyinlarda butun son (100 tiyin = 1 so‘m). Manfiy summa oldida `-` belgisi bo‘ladi. Float ishlatmang: so‘m va tiyin qismini `intdiv` va `%` bilan ajrating.

Imzo: `function summa_format(int $tiyin): string`

Qaytaradi: Masalan, `123456789` → `1 234 567,89 so‘m`; `-150000` → `-1 500,00 so‘m`.

MISOL · CHAQIRUV	MISOL · NATIJA
`summa_format(123456789)`	`"1 234 567,89 so‘m"`

Telefon kamerasi bilan skanerlang

1. Saytga kiring (login va parol)
2. PHP kodni yozing va sinab ko‘ring
3. ✓ Topshirish — natija o‘qituvchiga

XULOSA

Asosiy xulosalar

1 Avval ta’rif

Savdo, debitorlik, kam qoldiq — aniq ta’rif va bitta `ReportService`; ekran, PDF, Excel bir xil raqam beradi.

2 Agregatsiya bazada

`SUM`, `COUNT`, `GROUP BY`, `HAVING`, `FILTER`, `date_trunc`; davr — yarim ochiq oraliq.

3 Oyna funksiyalari

`SUM() OVER`, `LAG`, `RANK` — yig‘ma summa, o‘sish, reyting PHP siz.

4 Eloquent aggregate

`sum()`, `withCount`, `withSum` — bitta so‘rov; `selectRaw` faqat bog‘langan qiymatlar bilan.

5 Materiallashtirilgan ko‘rinish

Og‘ir hisobot natijasi saqlanadi; `REFRESH ... CONCURRENTLY` uchun UNIQUE indeks.

6 PDF, Excel, dashboard

dompdf + DejaVu Sans; ko‘p varaqli Excel, pul son sifatida; Chart.js + `@json`.

TAKRORLASH

Yakunlashdan oldin sakkizta savol

1. `COUNT(*)` va `COUNT(col)` farqi?
2. Bo‘sh to‘plamning `SUM` i nima?
3. Oylar bo‘yicha guruhlash PostgreSQL da?
4. `withSum('invoices', 'total')` atributi?
5. Yig‘ma summa uchun SQL?
6. MATERIALIZED VIEW qachon yangilanadi?
7. dompdf da qaysi shrift o‘zbek harflari uchun?
8. Blade dan Chart.js ga ma’lumot?

AMALIY MASHG‘ULOT

9-amaliy mashg‘ulot: 5 ta PHP topshiriq va loyiha bosqichi

4 **Ombor qoldiqlari hisoboti**
Oson · 10 ball

5 **Davr bo‘yicha savdo (kun / hafta / oy)**
O‘rta · 20 ball

6 **Debitorlik qarzining muddati (aging)**
O‘rta · 20 ball

7 **Ombor × mahsulot pivot jadvali**
Qiyin · 30 ball

8 **Diagramma uchun oylik qator**
Qiyin · 30 ball

Telefon kamerasi bilan skanerlang

PHP kod saytda yoziladi va server tomonidan avtomatik tekshiriladi.

Loyiha havolasini ham shu sahifada topshirasiz; o‘qituvchi baho qo‘yadi.

CHIQISH CHIPTASI

Darsni tark etishdan oldin

Javoblaringizni qog‘ozga yozing va o‘qituvchiga topshiring.

1

Jamoangiz loyihasida “savdo” ko‘rsatkichini bir gap bilan ta’riflang (qaysi hujjat, qaysi sana, QQS bilan/siz).

2

Debitorlikni mijozlar bo‘yicha chiqaradigan SQL so‘rovning `SELECT`, `WHERE`, `GROUP BY` qismlarini yozing.

3

Qaysi hisobotingiz uchun materiallashtirilgan ko‘rinish kerak bo‘lishi mumkin va nima uchun?