13.

```sql
SELECT
    TPL.TP_ID,
    TPL.first_name || ' ' || TPL.last_name AS Name, -- to connect
fullname
    strftime('%w', O.order_date) AS DayOfWeek, -- to get days of the week
from timestamp
    Round(AVG(C.selling_price - C.manufacturing_cost) , 2) AS AvgProfit
FROM
    Orders O
JOIN
    OrdersCatalogJoin OCJ ON O.order_ID = OCJ.order_ID
JOIN
    Catalog C ON OCJ.catalog_ID = C.catalog_ID
JOIN
    TPL ON O.TP_ID = TPL.TP_ID
GROUP BY
    TPL.TP_ID,
    Name,
    DayOfWeek
ORDER BY
    TPL.TP_ID,
    DayOfWeek;
```

TP_ID	Name	DayOfWeek	AvgProfit
3	nkJul MjMDJUo	5	128.88
5	MCeOS MwwYHlp	1	55.41
9	epwip pdcNtrc	5	90.47
10	XfFOe GTLPSZo	1	54.76
10	XfFOe GTLPSZo	3	54.76
17	DGXJK QjRhwtM	2	59.75
19	yGpcs HtNBcdn	4	52.09
20	uaiXC CJqzPyJ	3	40.88
22	Cxtsn IVBsdLO	5	72.86
24	kjFiQ yeQLjlU	2	42.51
26	XgZmN orctKnT	5	126.09
29	aiWFV JJHxBok	5	95.63
29	aiWFV JJHxBok	6	95.63
36	NRSsF xdsBlxq	2	28.41
38	IHQby PrxscEU	3	80.64
38	IHQby PrxscEU	6	132.79

14.

```sql
SELECT
    P1.product_name AS Product1,
    P2.product_name AS Product2,
    P3.product_name AS Product3,
    COUNT(*) AS TripletCount
FROM
    OrdersCatalogJoin OCJ1
JOIN
    OrdersCatalogJoin OCJ2 ON OCJ1.order_ID = OCJ2.order_ID AND
OCJ1.catalog_ID < OCJ2.catalog_ID
JOIN
    OrdersCatalogJoin OCJ3 ON OCJ1.order_ID = OCJ3.order_ID AND
OCJ2.catalog_ID < OCJ3.catalog_ID
```

```
JOIN
    Catalog P1 ON OCJ1.catalog_ID = P1.catalog_ID
JOIN
    Catalog P2 ON OCJ2.catalog_ID = P2.catalog_ID
JOIN
    Catalog P3 ON OCJ3.catalog_ID = P3.catalog_ID
GROUP BY
    P1.product_name,
    P2.product_name,
    P3.product_name
ORDER BY
    TripletCount DESC
LIMIT 3;
```

Product1	Product2	Product3	TripletCount
VvAtMERjaX	rgwLkCcETw	zRvbTJmLLN	4
ivBwsyslSZ	BxlZMLUNbN	TtOfimXdzl	4
jlPaAivstz	OqGFotQDFF	VlOOnlXRAQ	4

15.

```
--in case we mean warehouse country
SELECT
    W.country,
    SUM(C.selling_price - C.manufacturing_cost) AS TotalProfit
FROM
    Orders O
JOIN
    OrdersCatalogJoin OCJ ON O.order_ID = OCJ.order_ID
JOIN
    Catalog C ON OCJ.catalog_ID = C.catalog_ID
JOIN
    Warehouse W ON O.warehouse_ID = W.warehouse_ID
GROUP BY
    W.country
ORDER BY
    TotalProfit DESC
LIMIT 3;
```
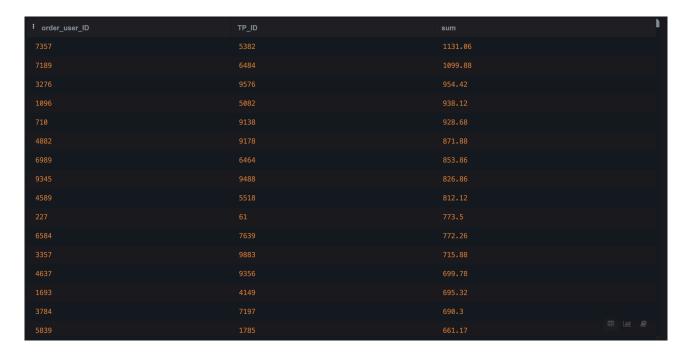
country	TotalProfit
Germany	26500.4
China	26340.48
Australia	26078.46

```
--in case of country origin
SELECT
    C.country_origin,
    SUM(C.selling_price - C.manufacturing_cost) AS TotalProfit
FROM
    Orders O
JOIN
    OrdersCatalogJoin OCJ ON O.order_ID = OCJ.order_ID
JOIN
    Catalog C ON OCJ.catalog_ID = C.catalog_ID
GROUP BY
    C.country_origin
ORDER BY
    TotalProfit DESC
LIMIT 3;
```

country_origin	TotalProfit
Russia	26922.88
France	26831.82
Spain	26115.9

16.

```
SELECT o.order_user_ID
        , o.TP_ID
        , Round(Sum(c.selling_price-c.manufacturing_cost),2) aS sum
from
     Orders o
join
     OrdersCatalogJoin ocj on o.order_ID=ocj.order_ID
join
     catalog c on c.catalog_id=ocj.catalog_ID
```

order_user_ID	TP_ID	sum
7357	5382	1131.06
7189	6484	1099.88
3276	9576	954.42
1096	5082	938.12
710	9138	928.68
4882	9178	871.88
6989	6464	853.86
9345	9488	826.86
4589	5518	812.12
227	61	773.5
6584	7639	772.26
3357	9883	715.88
4637	9356	699.78
1693	4149	695.32
3784	7197	690.3
5839	1785	661.17

```
GROUP by
     o.order_user_ID , o.TP_ID
order by sum DESC
```

17.

```
SELECT ocjall.country_origin , COUNT(*) as numbersAvailable from
(SELECT *
from
     Catalog C
LEFT join
     OrdersCatalogJoin ocj on c.catalog_ID=ocj.catalog_ID
LEFT JOIN
     Orders o on o.order_ID=ocj.order_ID) As ocjall
WHERE ocjall.order_ID is NULL
GROUP by ocjall.country_origin
order by numbersAvailable DESC;
```

country_origin	numbersAvailable
France	483
Mexico	481
Japan	476
India	475
Russia	459
Argentina	459
Australia	458
United States	453
Spain	453
United Kingdom	452
Germany	452
Brazil	441
China	439
Italy	433
Canada	417

18.

```
SELECT
    TPL.TP_ID,
    TPL.first_name,
    TPL.last_name,
    COUNT(Orders.order_ID) AS total_orders,
    (COUNT(Orders.order_ID) * 100.0 / (SELECT COUNT(*) FROM Orders)) AS
activity_percentage
FROM
    TPL
LEFT JOIN
    Orders ON TPL.TP_ID = Orders.TP_ID
GROUP BY
    TPL.TP_ID, TPL.first_name, TPL.last_name
ORDER BY
    activity_percentage DESC;
```

TP_ID	first_name	last_name	total_orders	activity_percentage
6425	DJcLZ	exdBShH	13	0.13
941	zutZd	LeSCyhj	10	0.1
9539	AhwRg	ZzwKEYv	10	0.1
61	SSKsz	PvNlzwv	9	0.09
1785	vxZYw	SwTKQBD	9	0.09
2211	JQpXD	tFVlDRh	9	0.09
2786	Caixx	MPJRNcX	9	0.09
3629	iQuNb	klMDkLV	9	0.09
6254	qjSCf	UgGPICH	9	0.09
676	aRedN	JDUXYNE	8	0.08
1159	YXjbe	ZoDHNFb	8	0.08
1675	lTmfO	JIeZBvT	8	0.08
3264	zaFgF	cpJOAZw	8	0.08
3695	naEIQ	gdwLPJn	8	0.08
3962	UwnWq	FPYoYNv	8	0.08
4530	GYwGK	PgoXNCQ	8	0.08

19.
```sql
SELECT
    TPL.TP_ID,
    TPL.first_name,
    TPL.last_name,
    STRFTIME('%Y-%m', Orders.order_date) AS order_month,
    AVG(Catalog.selling_price - Catalog.manufacturing_cost) AS
avg_monthly_profit
FROM
    TPL
INNER JOIN
    Orders ON TPL.TP_ID = Orders.TP_ID
INNER JOIN
    OrdersCatalogJoin ON OrdersCatalogJoin.order_ID = Orders.order_ID
join
    Catalog on Catalog.catalog_ID=OrdersCatalogJoin.catalog_ID
WHERE
    Orders.order_date >= DATE('now', '-1 year')   -- بازه زمانی یک سال قبل
تا اکنون
GROUP BY
    TPL.TP_ID, TPL.first_name, TPL.last_name, STRFTIME('%Y-%m',
Orders.order_date)
ORDER BY
    TPL.TP_ID, order_month;
```

TP_ID	first_name	last_name	order_month	avg_monthly_profit
99	xKUCq	XkUsdET	2023-11	145.70999999999998
132	goNsG	vROOgda	2023-12	120.03
250	wIEEs	CHpeNpZ	2023-09	108.21
269	KAtcZ	BULtQaY	2023-08	115.79
292	yGOCO	RrlWedu	2023-10	104.07000000000001
323	maQEJ	sBueygs	2023-08	74.895
552	SvXWg	pPEbjef	2023-08	107.58333333333333
643	MoUNn	jhqaGeD	2023-08	97.26999999999998
664	Ssdrr	XOtnLXI	2023-09	52.230000000000004
782	IIwCg	fcwhGdh	2023-09	11.400000000000006
1049	HvQmZ	EgLJhJB	2023-11	114.17999999999999
1058	tzviY	LtXdQPa	2023-07	150.65
1063	fsXKC	JqmsnaZ	2023-10	57.330000000000005
1091	KzQFS	YxfTZyE	2023-12	89.93999999999998
1198	dwjKM	HOwqqBu	2023-11	133.12
1231	CKTpR	rPPKKCW	2023-12	61.44

20.
```sql
with orderProfits as (
  select o.order_ID, sum(c.selling_price - c.manufacturing_cost) as
profit,
  case
      when STRFTIME('%w', o.order_date) in ('5', '6') then 'weekend'
      else 'week'
  end as dayGroup
  from Orders o
  join OrdersCatalogJoin oc on o.order_ID = oc.catalog_ID
  join Catalog c on c.catalog_ID = oc.catalog_ID
  GROUP by o.order_ID
```

```
),
averageProfit as (
  select dayGroup, AVG(profit) as averageProfit
  from orderProfits
  group by dayGroup
)
select ap1.dayGroup, ap1.averageProfit, ap2.dayGroup, ap2.averageProfit,
     case
     when ap1.averageProfit > ap2.averageProfit then ap1.dayGroup || 'is
more profitable'
       else ap2.dayGroup || 'is more profitable'
    end as comparison
from averageProfit ap1, averageProfit ap2
where ap1.dayGroup = 'week' and ap2.dayGroup = 'weekend';
```

dayGroup	averageProfit	dayGroup	averageProfit	comparison
week	114.2919230769…	weekend	121.4702383654…	weekendis more profitable

21.
```
WITH UserOrderCounts AS (
    SELECT
        u.user_ID,
        u.first_name,
        u.last_name,
        COUNT(o.order_ID) AS num_purchases
    FROM
        User u
    JOIN
        Orders o ON u.user_ID = o.order_user_ID
    GROUP BY
        u.user_ID, u.first_name, u.last_name
)
SELECT
    user_ID,
    first_name,
    last_name,
    num_purchases
FROM
    UserOrderCounts
WHERE num_purchases = (
    SELECT
        MAX(num_purchases) AS max_purchases
    FROM
        UserOrderCounts
);
```

user_ID	first_name	last_name	num_purchases
129	KbpDv	clqhYfW	7
227	wRZFK	HJSzMPq	7

22.
```
SELECT
    w.country,
    COUNT(o.order_ID) AS total_orders,
    SUM(o.Total_cost) AS total_sales
FROM
```

```
    Orders o
JOIN
    Warehouse w ON o.warehouse_ID = w.warehouse_ID
GROUP BY
    w.country
ORDER BY
    total_sales DESC;
```

country	total_orders	total_sales
Australia	722	394454.04
United States	696	366081
France	710	364316.87
Germany	690	362573.7
China	671	354478.62
Mexico	675	351218.37
India	675	349990.94
Canada	663	349799.55
Argentina	643	345665.12
Japan	642	338874.73
Brazil	652	338794.98
Spain	661	338081.31
Russia	648	336343.14
Italy	633	330663.83
United Kingdom	619	321687.1

23.
```
wITH OrderProfits AS (
    SELECT
        o.order_ID,
        u.Age,
        SUM(c.selling_price - c.manufacturing_cost) AS profit
    FROM
        Orders o
    JOIN
        User u ON o.order_user_ID = u.user_ID
    JOIN
        Catalog c ON o.order_user_ID = c.ordered_by_user_ID
    GROUP BY
        o.order_ID
),
AgeGroups AS (
    SELECT
        CASE
            WHEN Age BETWEEN 0 AND 18 THEN '0-18'
            WHEN Age BETWEEN 19 AND 30 THEN '19-30'
            WHEN Age BETWEEN 31 AND 40 THEN '31-40'
            WHEN Age BETWEEN 41 AND 50 THEN '41-50'
            WHEN Age BETWEEN 51 AND 60 THEN '51-60'
            ELSE '60+'
        END AS age_group,
        profit
    FROM
        OrderProfits
)
```

```sql
SELECT
    age_group,
    AVG(profit) AS average_profit
FROM
    AgeGroups
GROUP BY
    age_group
ORDER BY
    age_group;
```

age_group	average_profit
19-30	93.05063553826199
31-40	93.74621768707483
41-50	94.6673826458037
51-60	87.82004531722055
60+	91.88036509349955

24.

```sql
WITH CustomerOrderCounts AS (
    SELECT
        o.order_user_ID AS customer_ID,
        c.TP_ID AS store_ID,
        COUNT(o.order_ID) AS order_count
    FROM
        Orders o,Catalog c
    WHERE
        o.order_user_ID = c.ordered_by_user_ID AND o.TP_ID = c.TP_ID
    GROUP BY
        o.order_user_ID, c.TP_ID
),
RepeatCustomers AS (
    SELECT
        store_ID,
        COUNT(*) AS repeat_customers
    FROM
        CustomerOrderCounts
    WHERE
        order_count > 1
    GROUP BY
        store_ID
)
SELECT
    T.first_name,
    T.last_name,
    T.TP_ID,
    rc.repeat_customers
FROM
    RepeatCustomers rc
JOIN
    TPL T ON rc.store_ID = T.TP_ID
ORDER BY
    rc.repeat_customers DESC;
```

first_name	last_name	TP_ID	repeat_customers
DJcLZ	exdBShH	6425	4
axvnD	vLwwlcl	4777	3
qejlc	sGaqugj	8494	3
AhwRg	ZzwKEYv	9539	3
xLBrx	kHhyvvU	9685	3
FDxwg	IUMTUXW	79	2
goNsG	vROOgda	132	2
kubFP	FjbhfXh	192	2
Wcvql	cECldZb	226	2
hICOl	bYZaqhR	367	2
HOfMX	jECAKly	422	2
DqNDE	LzrGQxC	489	2
xnbuT	ltCFgVB	626	2
dcnbp	QlyJkSO	970	2
pHIIC	ozDGwlX	1021	2
XPsbm	GBlcAUn	1041	2

25.