

Database SQL Challenge

1. Calculate profits of the platform monthly in the 2020 year.

```
5-- DROP TABLE public."transaction";
6
7CREATE TABLE public."transaction" (
8  transaction_id varchar(20) NOT NULL, -- id of transaction
9  payment_method varchar NOT NULL, -- VISA|MASTERCARD|DINERS
10 value numeric(10) NOT NULL, -- transaction value
11 client_id numeric(5) NOT NULL, -- id of client
12 state varchar(20) NOT NULL, -- APPROVED/DECLINED/ERROR
13 currency_value varchar(3) NOT NULL, -- currency of transaction value
14 transaction_date date NOT NULL, -- date of transaction
15 CONSTRAINT transaction_pk PRIMARY KEY (transaction_id)
16);
17
18-- Column comments
19
20COMMENT ON COLUMN public."transaction".transaction_id IS 'id of transaction';
21COMMENT ON COLUMN public."transaction".payment_method IS 'VISA|MASTERCARD|DINERS';
22COMMENT ON COLUMN public."transaction".value IS 'transaction value';
23COMMENT ON COLUMN public."transaction".client_id IS 'id of client';
24COMMENT ON COLUMN public."transaction".state IS 'APPROVED/DECLINED/ERROR';
25COMMENT ON COLUMN public."transaction".currency_value IS 'currency of transaction value';
26COMMENT ON COLUMN public."transaction".transaction_date IS 'date of transaction';
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28
29-- public.client definition
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8 SELECT to_char(t.transaction_date, 'YYYY-MM') AS date, SUM(m.value) AS profit
9 FROM movement m JOIN transaction t ON m.transaction_id = t.transaction_id
10 WHERE t.state = 'APPROVED'
11 AND t.transaction_date BETWEEN '2020-01-01 00:00:00' AND '2020-12-31 23:59:59'
12 AND m.movement_type = 'COMMISSION'
13 GROUP BY date
14 ORDER BY date;
```

date	profit
2020-01	80
2020-02	250
2020-06	70
2020-07	150
2020-08	160
2020-09	120
2020-10	100

2. Calculate total taxes for each client.

```
36
37 "name" varchar(20) NOT NULL, -- name of client
38 email varchar(20) NOT NULL, -- email of client
39 address varchar(20) NULL, -- address of client
40 phone varchar(20) NULL, -- phone client
41 register_date date NOT NULL, -- date of client register
42 enabled bool NOT NULL DEFAULT true, -- client is enabled
43 client_balance numeric NOT NULL, -- balance of account in a moment
44 client_currency varchar(20) NOT NULL, -- currency of client
45 CONSTRAINT client_pk PRIMARY KEY (client_id)
46 );
47
48 -- Column comments
49
50 COMMENT ON COLUMN public.client.client_id IS 'id of client';
51 COMMENT ON COLUMN public.client."name" IS 'name of client';
52 COMMENT ON COLUMN public.client.email IS 'email of client';
53 COMMENT ON COLUMN public.client.address IS 'address of client';
54 COMMENT ON COLUMN public.client.phone IS 'phone client';
55 COMMENT ON COLUMN public.client.register_date IS 'date of client register';
56 COMMENT ON COLUMN public.client.enabled IS 'client is enabled';
57 COMMENT ON COLUMN public.client.client_balance IS 'balance of account in a moment';
58 COMMENT ON COLUMN public.client.client_currency IS 'currency of client';
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61 -- public.movement definition
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11 SELECT t.client_id, c.name, SUM(m.value) total_taxes
12 FROM movement m
13 JOIN transaction t ON m.transaction_id = t.transaction_id
14 JOIN client c ON t.client_id = c.client_id
15 WHERE t.state = 'APPROVED' AND m.movement_type = 'TAX'
16 group by t.client_id, c.name;
```

client_id	name	total_taxes
1	Chris Newton	640
2	Maria Charles	150
4	Ann Newton	180

3. Find for each client:
 - a. Total taxes.
 - b. Commissions.
 - c. Transaction values.

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37 "name" varchar(20) NOT NULL, -- name of client
38 email varchar(20) NOT NULL, -- email of client
39 address varchar(20) NULL, -- address of client
40 phone varchar(20) NULL, -- phone client
41 register_date date NOT NULL, -- date of client register
42 enabled bool NOT NULL DEFAULT true, -- client is enabled
43 client_balance numeric NOT NULL, -- balance of account in a moment
44 client_currency varchar(20) NOT NULL, -- currency of client
45 CONSTRAINT client_pk PRIMARY KEY (client_id)
46 );
47
48 -- Column comments
49
50 COMMENT ON COLUMN public.client.client_id IS 'id of client';
51 COMMENT ON COLUMN public.client."name" IS 'name of client';
52 COMMENT ON COLUMN public.client.email IS 'email of client';
53 COMMENT ON COLUMN public.client.address IS 'address of client';
54 COMMENT ON COLUMN public.client.phone IS 'phone client';
55 COMMENT ON COLUMN public.client.register_date IS 'date of client register';
56 COMMENT ON COLUMN public.client.enabled IS 'client is enabled';
57 COMMENT ON COLUMN public.client.client_balance IS 'balance of account in a moment';
58 COMMENT ON COLUMN public.client.client_currency IS 'currency of client';
59
60
61 -- public.movement definition

```

Build Schema Edit Fullscreen Browser [;]

client_id	name	movement_type	total
1	Chris Newton	COMISSION	680
1	Chris Newton	TAX	640
1	Chris Newton	VALUE	5350
2	Maria Charles	COMISSION	200
2	Maria Charles	TAX	150
2	Maria Charles	VALUE	2550
4	Ann Newton	COMISSION	210
4	Ann Newton	TAX	180
4	Ann Newton	VALUE	1850

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8 SELECT c.client_id, c.name, m.movement_type, SUM(m.value) as total
9 FROM movement m
10 JOIN transaction t ON m.transaction_id = t.transaction_id
11 JOIN client c ON t.client_id = c.client_id
12 WHERE t.state = 'APPROVED'
13 GROUP BY c.client_id, m.movement_type
14 ORDER BY c.client_id;

```

Run SQL Edit Fullscreen [;]

4. Find approval rates by payment method.

```

36 client_id numeric(5) NOT NULL, -- id of client
37 "name" varchar(20) NOT NULL, -- name of client
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39 address varchar(20) NULL, -- address of client
40 phone varchar(20) NULL, -- phone client
41 register_date date NOT NULL, -- date of client register
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53 COMMENT ON COLUMN public.client.address IS 'address of client';
54 COMMENT ON COLUMN public.client.phone IS 'phone client';
55 COMMENT ON COLUMN public.client.register_date IS 'date of client register';
56 COMMENT ON COLUMN public.client.enabled IS 'client is enabled';
57 COMMENT ON COLUMN public.client.client_balance IS 'balance of account in a moment';
58 COMMENT ON COLUMN public.client.client_currency IS 'currency of client';
59
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61 -- public.movement definition

```

Build Schema Edit Fullscreen Browser [;]

payment_method	approval_rate
AMEX	100
VISA	85
MASTERCARD	40

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8 SELECT table1.payment_method, (table1.approved_txs * 100) / table2.total_txs AS approval_rate
9 FROM (SELECT payment_method, count(*) AS approved_txs
10 FROM transaction
11 WHERE state = 'APPROVED'
12 GROUP BY payment_method) table1 JOIN
13 (SELECT payment_method, count(*) AS total_txs
14 FROM transaction
15 GROUP BY payment_method) table2
16 ON table1.payment_method = table2.payment_method;

```

Run SQL Edit Fullscreen [;]

5. Max transaction amount monthly for each client.

```
37 "name" varchar(20) NOT NULL, -- name of client
38 email varchar(20) NOT NULL, -- email of client
39 address varchar(20) NULL, -- address of client
40 phone varchar(20) NULL, -- phone client
41 register_date date NOT NULL, -- date of client register
42 enabled bool NOT NULL DEFAULT true, -- client is enabled
43 client_balance numeric NOT NULL, -- balance of account in a moment
44 client_currency varchar(20) NOT NULL, -- currency of client
45 CONSTRAINT client_pk PRIMARY KEY (client_id)
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11 SELECT to_char(transaction_date, 'YYYY-MM') AS date, c.name, MAX (value) AS Max_transaction_amount
12 FROM transaction t
13 JOIN client c on t.client_id = c.client_id
14 WHERE state = 'APPROVED'
15 GROUP BY c.name, date
16 ORDER BY date;
```

Build Schema Edit Fullscreen Browser

Run SQL Edit Fullscreen

date	name	max_transaction_amount
2020-01	Maria Charles	1100
2020-02	Ann Newton	1100
2020-02	Chris Newton	1100
2020-06	Ann Newton	1000
2020-07	Chris Newton	2001
2020-08	Chris Newton	1200
2020-09	Maria Charles	1800
2020-10	Chris Newton	1200
2021-01	Chris Newton	1300