SQL Pivot

Input Table

Sales_date	Cust_id	Amount
01-Jan-22	cust_1	50$
02-Jan-22	cust_1	50$
03-Jan-22	cust_1	50$
01-Feb-22	cust_2	100$
02-Feb-22	cust_2	100$
03-Feb-22	cust_2	100$
01-Mar-22	cust_2	-100$
01-Apr-22	cust_2	-100$
01-May-22	cust_2	-100$
01-Jun-22	cust_1	5$
01-Jul-22	cust_3	5$
01-Aug-22	cust_3	5$
01-Sep-22	cust_3	-5$
01-Oct-22	cust_3	-5$
01-Nov-22	cust_3	-5$
01-Dec-22	cust_3	-5$
01-Jan-23	cust_3	-10$
01-Feb-23	cust_3	10$
01-Mar-23	cust_3	100$

We need to convert it to this below format

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
cust_id	Apr-22	Aug-22	Dec-22	Feb-22	Feb-23	Jan-22	Jan-23	Jul-22	Jun-22	Mar-22	Mar-23	May-22	Nov-22	Oct-22	Sep-22	Grand Total
cust_1	0	0	0	0	0	150	0	0	5	0	0	0	0	0	0	155
cust_2	-100	0	0	300	0	0	0	0	0	-100	0	-100	0	0	0	0
cust_3	0	5	-5	0	10	0	-10	5	0	0	100	0	-5	-5	-5	90
Grand	-100	5	-5	300	10	150	-10	5	5	-100	100	-100	-5	-5	-5	

In SQl server:

Syntax:

Select * from (base query) alias

Pivot (aggregation query

For column_name in ([col_1], [col_2], [col_3]) alias

Code for upper Problem:

```
with tx as (
select * from (
        select
               cust_id, format(sales_date, 'MMM-yy') as sales_date,
               cast(replace(amount, '$', '') as int) as amount
               from prac)
        as base_t
pivot(
   sum(amount) for sales_date in(
   [jan-01],
          [jan-22],
          [feb-22],
          [mar-22],
          [apr-22],
          [may-22],
          [jun-22],
          [jul-22],
          [aug-22],
          [sep-22],
          [oct-22],
          [nov-22],
          [dec-22])     ) as piv_t
union
select * from (
        select 'Total' as
               cust_id, format(sales_date, 'MMM-yy') as sales_date,
               cast(replace(amount, '$', '') as int) as amount
               from prac)     as base_t
```

Base Quarry, It will remove $ symbol and extract the date in asked format

Aggregation query

Union with the same quarry to merge the total, here total is hard coded and the alias is given cust_id so Total will come as a value in the same column

cust_id	jan-01	jan-22	feb-22	mar-22	apr-2
NULL	NULL	NULL	NULL	NULL	NUL
cust_1	50	100	NULL	NULL	NUL
cust_2	NULL	NULL	300	-100	-100
cust_3	NULL	NULL	NULL	NULL	NUL
Total	50	100	300	-100	-100

Null values are present need to treat them

```
pivot(
            sum(amount) for sales_date in(
            [jan-01],
                  [jan-22],
                  [feb-22],
                  [mar-22],
                  [apr-22],
                  [may-22],
                  [jun-22],
                  [jul-22],
                  [aug-22],
                  [sep-22],
                  [oct-22],
                  [nov-22],
                  [dec-22])     ) as piv_t),
```

First cte table closed here the alias was tx

```
not_null
as ( select cust_id,
isnull([jan-01], 0) as jan_01,
isnull([jan-22], 0) as jan_22,
coalesce([feb-22], 0) as feb_22,
coalesce([mar-22], 0) as mar_22,
coalesce([apr-22], 0) as apr_22,
coalesce([may-22], 0) as may_22,
coalesce([jun-22], 0) as jun_22,
coalesce([jul-22], 0) as jul_22,
coalesce([aug-22], 0) as aug_22,
coalesce([sep-22], 0) as sep_22,
coalesce([oct-22],0) oct_22,
isnull([nov-22], 0) nov_22,
coalesce([dec-22],0) as dec_22 from tx),
```

This code will replace the null value with 0

	cust_id	jan_01	jan_22	feb_22	mar_22	apr_22	may_22	jun_22	jul_22	aug_22	sep_22	oct_22	nov_22	dec_22
1	cust_1	50	100	0	0	0	0	5	0	0	0	0	0	0
2	cust_2	0	0	300	-100	-100	-100	0	0	0	0	0	0	0
3	cust_3	0	0	0	0	0	0	0	5	5	-5	-5	-5	-5
4	Total	50	100	300	-100	-100	-100	5	5	5	-5	-5	-5	-5

```
grand_total as (
select *,
(jan_01 + feb_22 + jan_22 + mar_22+ apr_22+may_22 + jun_22+jul_22+aug_22 + sep_22
+ oct_22+ nov_22 + dec_22) as Grand_Total
                                    from not_null)
```

This part will add the right side grand total

	cust_id	jan_01	jan_22	feb_22	mar_22	apr_22	may_22	jun_22	jul_22	aug_22	sep_22	oct_22	nov_22	dec_22	Grand_Total
1	cust_1	50	100	0	0	0	0	5	0	0	0	0	0	0	155
2	cust_2	0	0	300	-100	-100	-100	0	0	0	0	0	0	0	0
3	cust_3	0	0	0	0	0	0	0	5	5	-5	-5	-5	-5	-10
4	Total	50	100	300	-100	-100	-100	5	5	5	-5	-5	-5	-5	145

But column level aggregation we need to remove from grand_toal

```
select cust_id, jan_01, feb_22,
jan_22,
mar_22,
apr_22,
may_22,
jun_22,
jul_22,
aug_22,
sep_22,
oct_22,
nov_22,
dec_22, case when cust_id ='Total' then '' else

(jan_01
+ feb_22 + jan_22 + mar_22 + apr_22 + may_22 +
jun_22 + jul_22 + aug_22 + sep_22 + oct_22 +
nov_22 + dec_22)  end Grand_Total

from grand_total
```

This part will stop row level aggregation. And return 0 in last of Grand_total column

	cust_id	jan_01	feb_22	jan_22	mar_22	apr_22	may_22	jun_22	jul_22	aug_22	sep_22	oct_22	nov_22	dec_22	Grand_Total
1	cust_1	50	0	100	0	0	0	5	0	0	0	0	0	0	155
2	cust_2	0	300	0	-100	-100	-100	0	0	0	0	0	0	0	0
3	cust_3	0	0	0	0	0	0	0	5	5	-5	-5	-5	-5	-10
4	Total	50	300	100	-100	-100	-100	5	5	5	-5	-5	-5	-5	0