SQL PROJECT

TITLE- Finance and Supply Chain Analytics of AtliQ Hardwares

BY KHUSHI MALIK

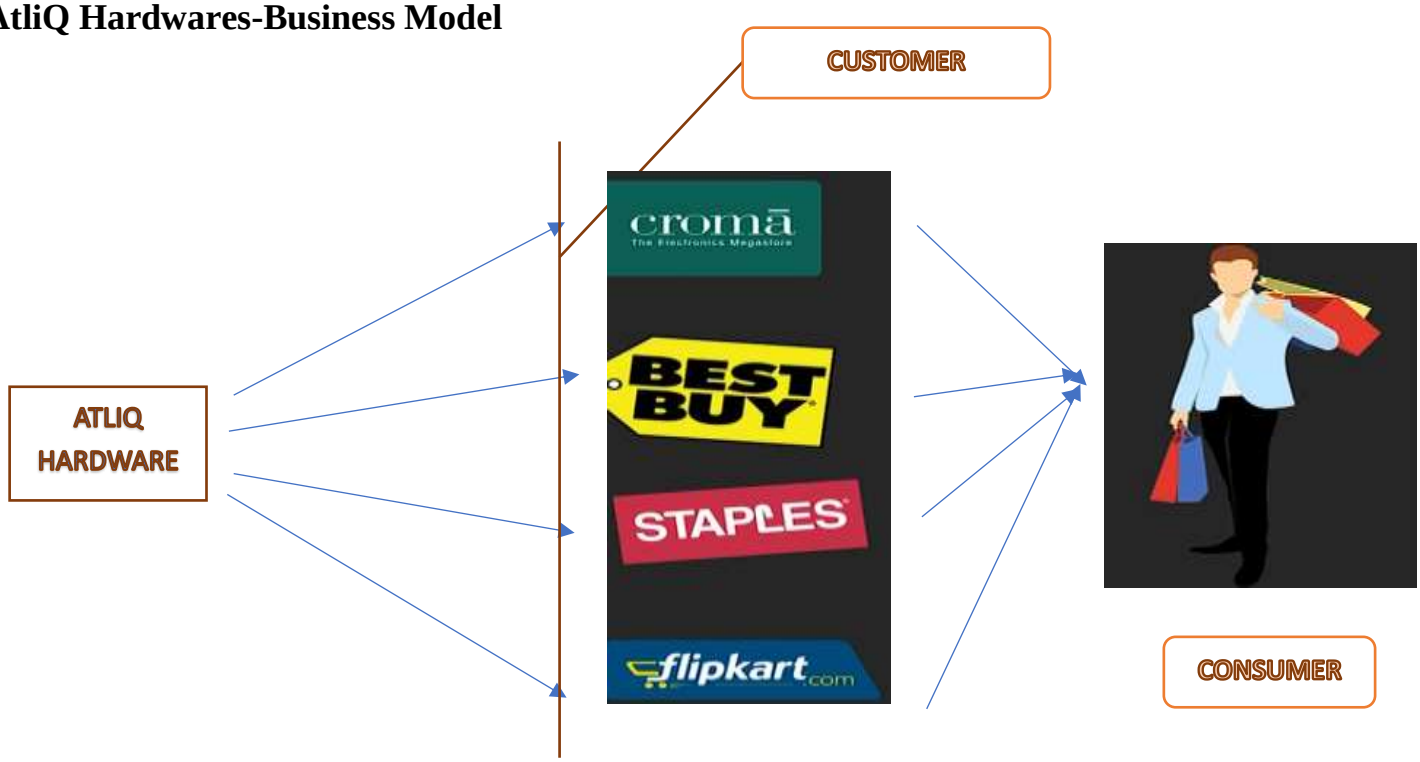
About AtliQ Hardwares and Problem Statement

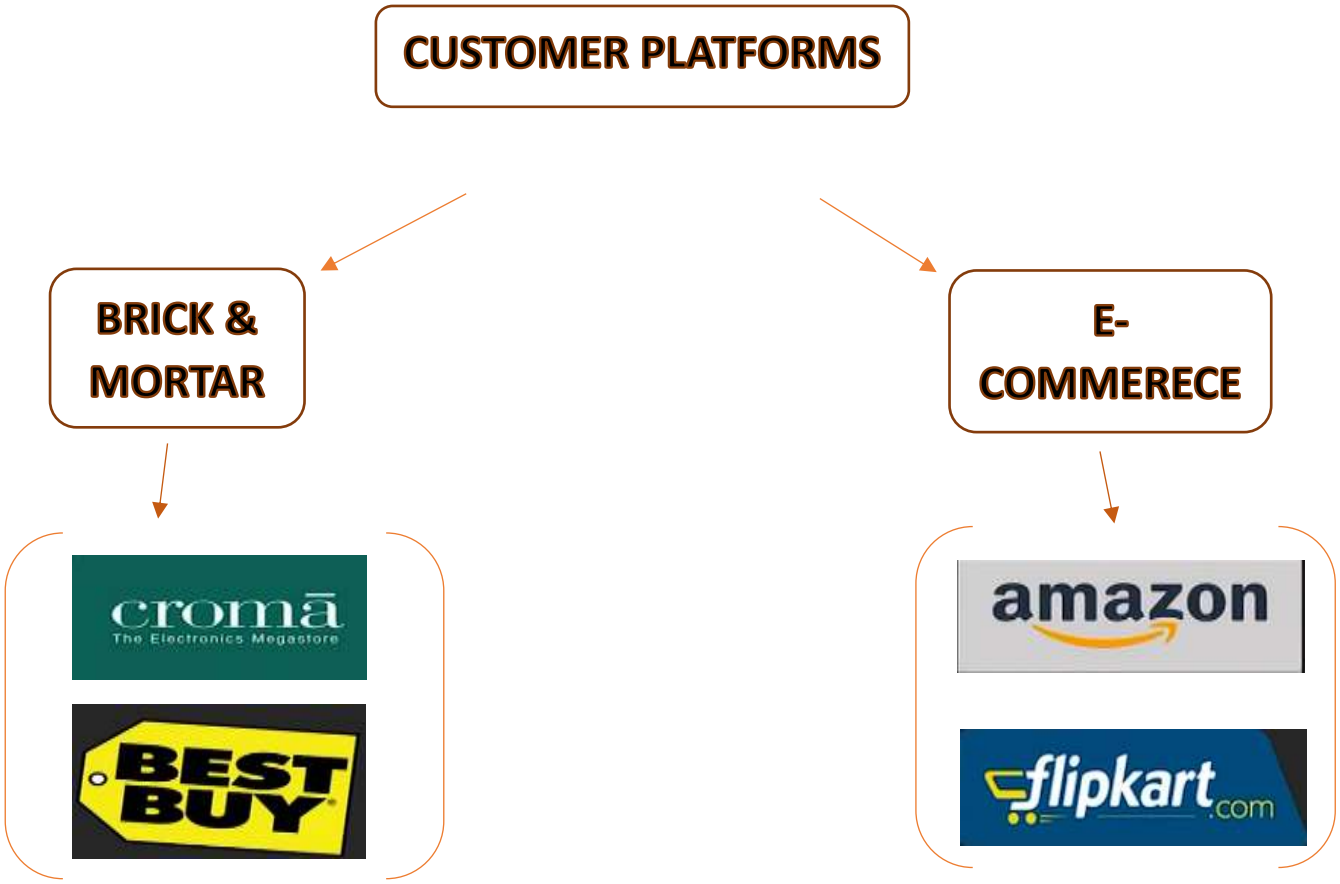
AtliQ Hardwares is a leading global company specializing in PCs, printers, mice, and computers. With its extensive reach, the company has encountered performance challenges due to the increasing size of Excel files, leading to inefficiency and unresponsiveness in data management. To address this issue, AtliQ Hardwares has initiated a project, assembling a team of data analysts to optimize data handling. By leveraging MySQL as the database management system, the team aims to extract meaningful insights, enabling the company to enhance decision-making and streamline operations for improved overall performance.

Project Overview

This project focuses on analyzing and extracting valuable insights from AtliQ Hardwares' database, which encompasses sales, products, customers, and regional data. The objective is to answer critical business questions related to sales performance, market trends, customer behavior, and supply chain forecasting. By efficiently processing and analyzing the data, the project aims to provide actionable insights that will drive strategic decision-making, improve operational efficiency, and support business growth.

AtliQ Hardwares-Business Model




CUSTOMER PLATFORMS
BRICK & MORTAR
E-COMMERECE
croma
The Electronics Megastore
BEST BUY
amazon
flipkart.com

CUSTOMERS CHANNEL

ATLIQ HARDWARE

RETAILER

croma The Electronics Megastore

amazon

DIRECT

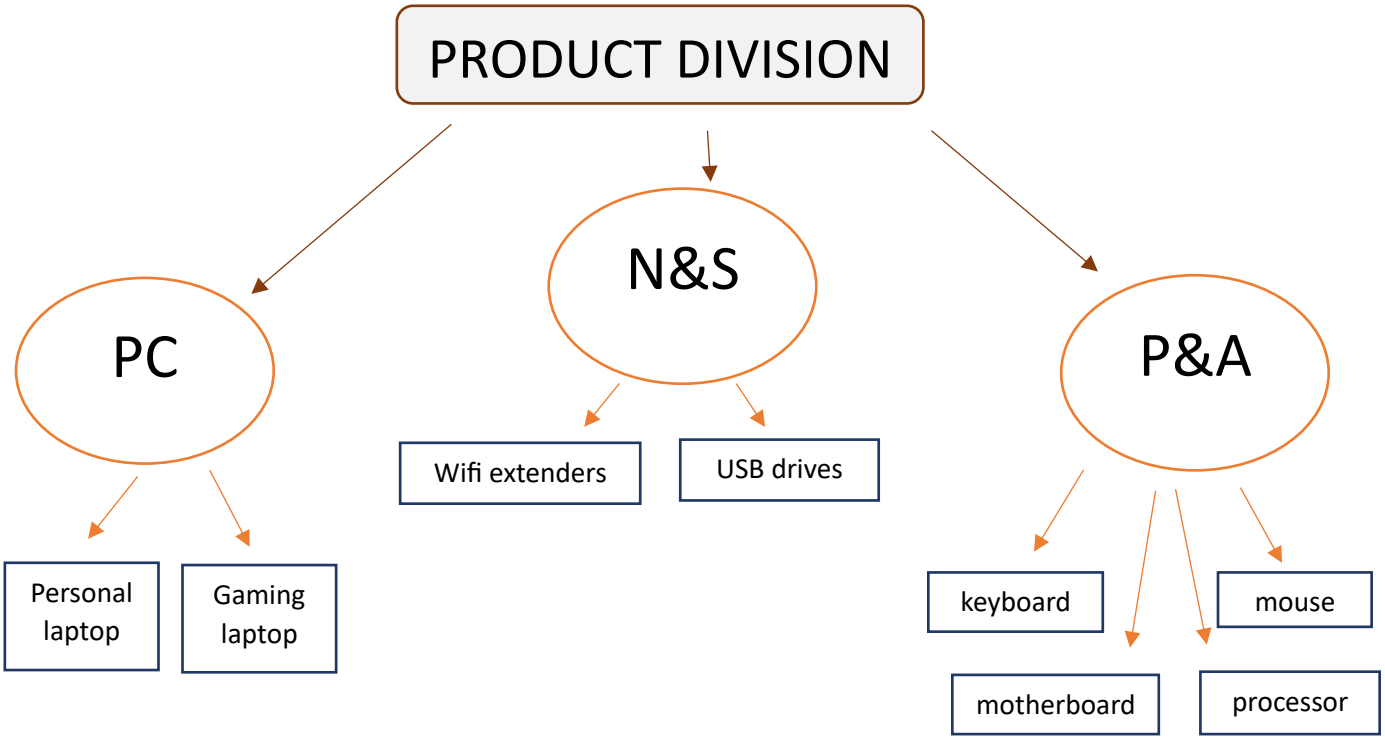
AtliQ HARDWARE e store

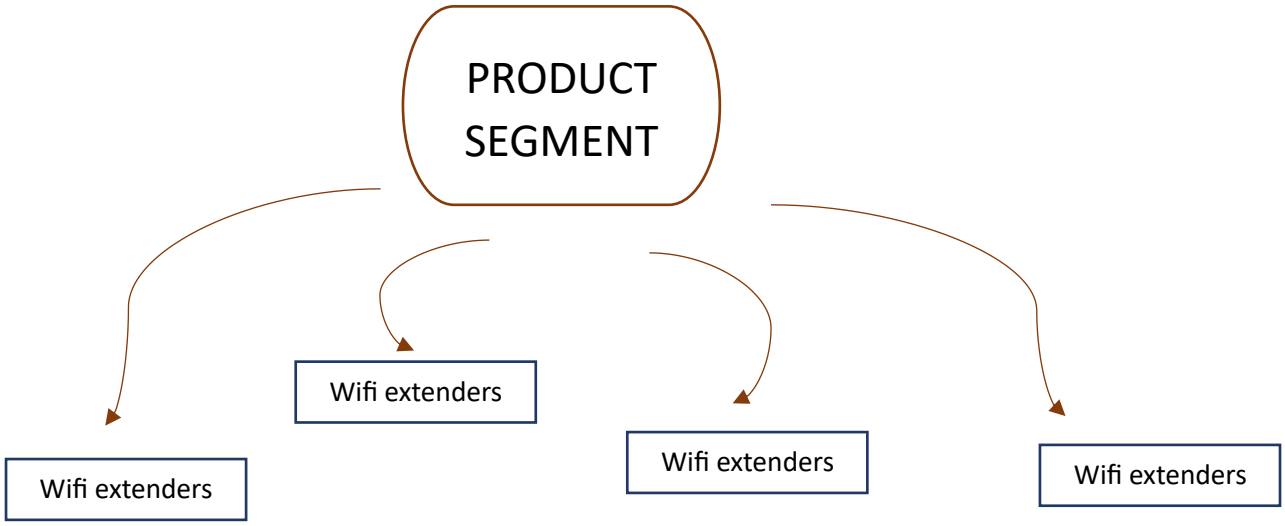
AtliQ HARDWARE exclusive

DISTRIBUTER

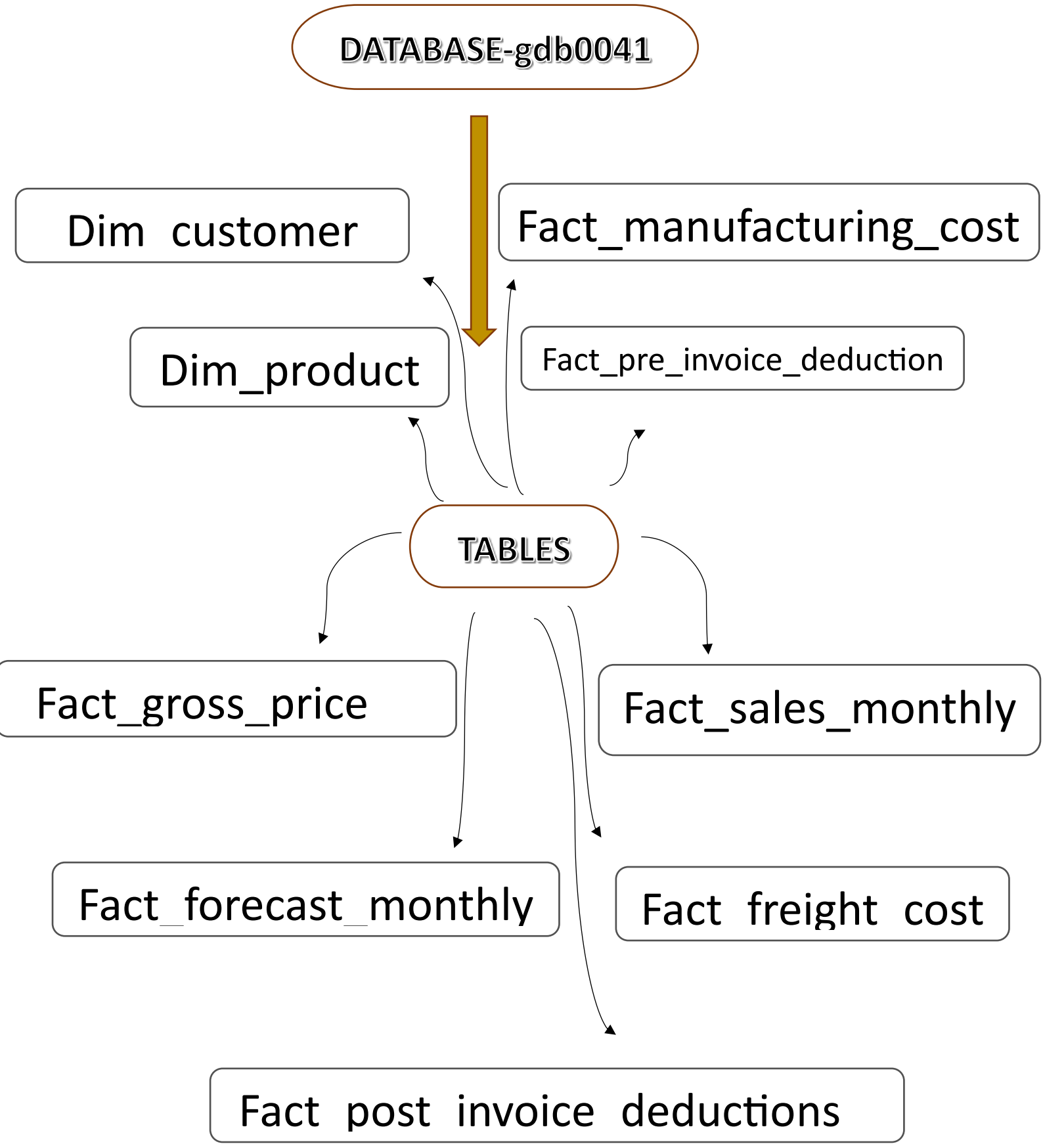
NEPTUNE

CONSUMER


PRODUCT DIVISION
PC
N&S
P&A
Personal laptop
Gaming laptop
Wifi extenders
USB drives
keyboard
mouse
motherboard
processor


PRODUCT SEGMENT
Wifi extenders
Wifi extenders
Wifi extenders
Wifi extenders

datasets


DATABASE-gdb0041
Dim customer
Fact_manufacturing_cost
Dim_product
Fact_pre_invoice_deduction
TABLES
Fact_gross_price
Fact_sales_monthly
Fact_forecast_monthly
Fact freight cost
Fact post invoice deductions

GROSS SALES REPORT: MONTHLY PRODUCT TRANSACTIONS

INPUT

```sql
SELECT
    s.date,
    s.product_code,
    p.product,
    p.variant,
    s.sold_quantity
FROM
    fact_sales_monthly s
JOIN
    dim_product p
ON
    p.product_code = s.product_code
WHERE
    s.customer_code = 90002002
    AND get_fiscal_year(s.date) = 2021
    AND get_fiscal_quarter(s.date) = 'Q4'
ORDER BY
    s.date ASC
LIMIT
    100000;
```

OUTPUT

date	product_cc	product	variant	sold_quant	gross_pric	gross_price_total
01-09-2020	A0118150	AQ Dracul	Standard	202	19.0573	3850
01-09-2020	A0118150	AQ Dracul	Plus	162	21.4565	3476
01-09-2020	A0118150	AQ Dracul	Premium	193	21.7795	4203
01-09-2020	A0118150	AQ Dracul	Premium F	146	22.9729	3354
01-09-2020	A0219150	AQ Were\	Standard	149	23.6987	3531
01-09-2020	A0219150	AQ Were\	Plus	107	24.7312	2646
01-09-2020	A0220150	AQ Were\	Premium	123	23.6154	2905
01-09-2020	A0320150	AQ Zion Sa	Standard	146	23.7223	3463
01-09-2020	A0321150	AQ Zion Sa	Plus	236	27.1027	6396
01-09-2020	A0321150	AQ Zion Sa	Premium	137	28.0059	3837
01-09-2020	A0418150	AQ Mforce	Standard 3	23	19.5235	449
01-09-2020	A0418150	AQ Mforce	Plus 1	82	19.9239	1634
01-09-2020	A0418150	AQ Mforce	Plus 2	86	20.0766	1727
01-09-2020	A0418150	AQ Mforce	Plus 3	48	19.9365	957
01-09-2020	A0519150	AQ Mforce	Standard 1	138	22.3984	3091
01-09-2020	A0519150	AQ Mforce	Standard 2	72	24.9298	1795
01-09-2020	A0519150	AQ Mforce	Standard 3	38	26.5871	1010
01-09-2020	A0519150	AQ Mforce	Plus 1	149	26.1081	3890
01-09-2020	A0519150	AQ Mforce	Plus 2	29	29.7008	861
01-09-2020	A0519150	AQ Mforce	Plus 3	28	31.2439	875
01-09-2020	A0519150	AQ Mforce	Premium 1	171	32.4427	5548
01-09-2020	A0519150	AQ Mforce	Premium 2	118	30.5816	3609
01-09-2020	A0619150	AQ Mforce	Standard 1	51	30.4696	1554
01-09-2020	A0619150	AQ Mforce	Standard 2	191	34.0973	6513
01-09-2020	A0620150	AQ Mforce	Standard 3	167	34.2412	5718
01-09-2020	A0620150	AQ Mforce	Plus 1	122	37.5826	4585
01-09-2020	A0620150	AQ Mforce	Plus 2	173	36.5679	6326
01-09-2020	A0620150	AQ Mforce	Plus 3	182	37.5278	6830
01-09-2020	A0621150	AQ Mforce	Premium 1	177	36.2434	6415
01-09-2020	A0621150	AQ Mforce	Premium 2	166	39.399	6540
01-09-2020	A0721150	AQ GT 21	Standard	22	39.3377	865
01-09-2020	A0721150	AQ GT 21	Plus 1	62	39.1465	2427
01-09-2020	A0721150	AQ GT 21	Plus 2	57	39.299	2240
01-09-2020	A0721150	AQ GT 21	Premium	182	39.1215	7120
01-09-2020	A0821150	AQ Marqu	Standard	120	40.5013	4860
01-09-2020	A0821150	AQ Marqu	Plus 1	106	43.2966	4589
01-09-2020	A0821150	AQ Marqu	Plus 2	172	42.3841	7290
01-09-2020	A0821150	AQ Marqu	Premium	197	44.7044	8807
01-09-2020	A0921150	AQ Marqu	Standard	56	45.0813	2525
01-09-2020	A1018150	AQ 5000 S	Standard	91	111.1036	10110
01-09-2020	A1018150	AQ 5000 S	Plus	51	123.4797	6297
01-09-2020	A1018150	AQ 5000 S	Premium	159	123.9315	19705
01-09-2020	A1118150	AQ 5000 S	Standard	106	124.264	13172
01-09-2020	A1118150	AQ 5000 S	Plus	33	129.5836	4276
01-09-2020	A1119150	AQ 5000 S	Premium	158	139.8962	22104
01-09-2020	A1219150	AQ 5000 S	Standard	114	135.6822	15468

GROSS SALES REPORT: TOTAL SALES AMOUNT

INPUT

```
SELECT s.date,
sum(g.gross_price*s.sold_quantity) as gross_price_total
FROM gdb0041.fact_sales_monthly s
join fact_gross_price g
on g.product_code=s.product_code and
g.fiscal_year=get_fiscal_year(s.date)
where customer_code=90002002
group by s.date
order by  s.date asc
```

OUTPUT

date	gross_price_total
01-09-2017	122407.5582
01-10-2017	162687.5716
01-12-2017	245673.8042
01-01-2018	127574.7372
01-02-2018	144799.5182
01-04-2018	130643.8976
01-05-2018	139165.0975
01-06-2018	125735.3786
01-08-2018	125409.8801
01-09-2018	343337.1651
01-10-2018	440562.0754
01-12-2018	653944.7486
01-01-2019	359025.0186
01-02-2019	356607.1729
01-04-2019	379549.685
01-05-2019	340152.2349
01-06-2019	343792.042
01-08-2019	338108.8774
01-09-2019	808250.4406
01-10-2019	1092622.198
01-12-2019	1488174.016
01-01-2020	812929.7497
01-02-2020	862762.7656
01-04-2020	130520.9209
01-05-2020	145049.0525
01-06-2020	362545.1364
01-08-2020	799327.6345
01-09-2020	2296919.633
01-10-2020	3109316.88
01-12-2020	4078789.918
01-01-2021	2303086.37
01-02-2021	2355170.454
01-04-2021	2253574.913
01-05-2021	2181587.784
01-06-2021	2288587.448
01-08-2021	2349478.822
01-09-2021	11192823.08
01-10-2021	13908229.29
01-12-2021	19537146.56

Generate a yearly report for Croma India where there are two columns

1. Fiscal Year
2. Total Gross Sales amount In that year from Croma

INPUT

```sql
SELECT
    get_fiscal_year(s.date) AS fiscal_year,
    SUM(ROUND(s.sold_quantity * g.gross_price, 2)) AS yearly_sales
FROM
    gdb0041.fact_sales_monthly s
JOIN
    fact_gross_price g
ON
    g.fiscal_year = get_fiscal_year(s.date)
    AND g.product_code = s.product_code
WHERE
    s.customer_code = 90002002
GROUP BY
    get_fiscal_year(s.date)
ORDER BY
    fiscal_year;
```

OUTPUT

Result Grid | Filter Rows: | Export:

fiscal_year	yearly_sales
2018	1324097.48
2019	3555079.19
2020	6502182.12
2021	23216512.73
2022	44638199.11

Snipping Tool

Pre-Invoice Discount Report

INPUT

```sql
SELECT
    s.date,
    s.product_code,
    p.product,
    p.variant,
    s.sold_quantity,
    g.gross_price,
    round(g.gross_price*s.sold_quantity) as gross_price_total
FROM
    fact_sales_monthly s
JOIN
    dim_product p
ON
    p.product_code = s.product_code
JOIN
    fact_gross_price g
ON
    g.product_code = s.product_code
    AND g.fiscal_year = get_fiscal_year(s.date)
WHERE
    s.customer_code = 90002002
    AND get_fiscal_year(s.date) = 2021
ORDER BY
    s.date ASC
LIMIT
```

```sql
LIMIT
    100000;
```

OUTPUT

	date	product_code	product	variant	sold_quantity	gross_price_per_item	gross_price_total	pre_invoice_discount_pct
▶	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	51	15.3952	785.16	0.0824
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	77	15.3952	1185.43	0.2956
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	17	15.3952	261.72	0.0536
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	6	15.3952	92.37	0.2378
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	5	15.3952	76.98	0.1057
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	7	15.3952	107.77	0.1875
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	29	15.3952	446.46	0.0700
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	34	15.3952	523.44	0.2551
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	22	15.3952	338.69	0.0953
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	5	15.3952	76.98	0.1896
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	10	15.3952	153.95	0.0521
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	4	15.3952	61.58	0.2046
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	0	15.3952	0.00	0.0984
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	0	15.3952	0.00	0.2620
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	1	15.3952	15.40	0.0587
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	1	15.3952	15.40	0.2501
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	1	15.3952	15.40	0.1937
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	20	15.3952	307.90	0.2025
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	4	15.3952	61.58	0.1008
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	10	15.3952	153.95	0.2815
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	10	15.3952	153.95	0.2728
	2017-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	28	15.3952	431.07	0.2797

Gross Monthly Total Sales Report For Croma

```sql
SELECT monthname(s.date)  as month,
round(sum(s.sold_quantity*g.gross_price),2) as gross_price_total
 FROM gdb0041.fact_sales_monthly s
 join fact_gross_price g
 on g.product_code=s.product_code
 and  g.fiscal_year=get_fiscal_year(s.date)
 where
 customer_code=90002002
 group by  s.date
 order by date asc ;
```

month	gross_price_total
September	122407.56
October	162687.57
December	245673.8
January	127574.74
February	144799.52
April	130643.9
May	139165.1
June	125735.38
August	125409.88
September	343337.17
October	440562.08
December	653944.75
January	359025.02
February	356607.17
April	379549.69
May	340152.23
June	343792.04
August	338108.88
September	808250.44
October	1092622.2
December	1488174.02
January	812929.75
February	862762.77
April	130520.92
May	145049.05
June	362545.14
August	799327.63
September	2296919.63
October	3109316.88
December	4078789.92
January	2303086.37
February	2355170.45
April	2253574.91
May	2181587.78
June	2288587.45
August	2349478.82
September	11192823.08
October	13908229.29
December	19537146.56

Top Market and Customers for a Financial Year ”2021”

INPUT

```sql
SELECT c.customer,
round(sum(net_sales)/1000000,2) as net_sales_mln
FROM gdb0041.net_sales s
join dim_customer c
using (customer_code)
where fiscal_year = 2021
group by customer
order by net_sales_mln desc
limit 5;
```

```sql
SELECT market,
round(sum(net_sales)/1000000,2) as net_sales_mln
FROM gdb0041.net_sales
where fiscal_year = 2021
group by market
order by net_sales_mln desc
limit 5;
```

OUTPUT

customer	net_sales_mln
Amazon	109.03
Atliq Exclusive	79.92
Atliq e Store	70.31
Sage	27.07
Flipkart	25.25

market	net_sales_mln
India	210.67
USA	132.05
South Korea	64.01
Canada	45.89
United Kingdom	44.73

Net Sales % by Customers

INPUT

```
with cte as (
select c.customer,
round(sum(net_sales)/1000000,2) as net_sales_mln
from gdb0041.net_sales s
join dim_customer c
using (customer_code)
where s.fisical_year= 2021
group by customer
order by net_sales_mln desc
)
select *,
round(net_sales_mln*100/sum(net_sales_mln) over(), 2) as net_sales_perc
from cte
order by net_sales_perc desc
limit 10;
```

OUTPUT

customer	net_sales_mln	net_sales_perc
Amazon	109.03	13.23
Atliq Exclusive	79.92	9.70
Atliq e Store	70.31	8.53
Sage	27.07	3.29
Flipkart	25.25	3.06
Leader	24.52	2.98
Neptune	21.01	2.55
Ebay	19.88	2.41
Electricalsocity	16.25	1.97
Synthetic	16.10	1.95

Net Sales % shared by Region -"APAC"

INPUT

```
with cte as (select customer,sum(net_sales) as net_sales
from net_sales s
join dim_customer c
using(customer_code)
where s.fisicsl_year=2021 and region ="APAC"
group by customer
order by net_sales desc
)
select customer,round(net_sales*100/sum(net_sales) over(),2) as net_sales_perc
from cte
limit 10;
```

OUTPUT

customer	net_sales_perc
Amazon	12.99
Atliq Exclusive	11.67
Atliq e Store	8.36
Leader	5.55
Sage	5.17
Neptune	4.75
Electricalsocity	3.68
Propel	3.20
Synthetic	3.20
Flipkart	2.93

Top 2 Markets in Every Region by their Gross Sales Amount

INPUT

```
with cte1 as(
SELECT c.region , c.market,
sum(g.gross_price_total) as gross_sales_total
FROM gdb0041.`gross sales` g
join dim_customer c
using (customer_code)
group by 1,2
),
cte2 as(
select *, dense_rank() over(partition by region
order by gross_sales_total desc) as rnk
from cte1
)
select * from cte2
where rnk <= 2
;
```

OUTPUT

region	market	gross_sales_total	rnk
APAC	India	1600385171.57	1
APAC	South Korea	489801582.42	2
EU	United Kingdom	266584122.34	1
EU	France	223223400.31	2
LATAM	Brazil	10108873.70	1
LATAM	Mexico	8765894.17	2
NA	USA	906908680.70	1
NA	Canada	304977062.38	2

Supply Chain – Forecast Quantity

INPUT

```
with forecast_err_table as (
select
s.customer_code as customer_code,
c.customer as customer_name,
c.market as  market,
sum(s.sold_quantity) as tatl_sold_qty,
sum(s.forecast_quantity) as total_forecast_qty,
sum(s.forecast_quantity-s.sold_quantity) as net_error,
round(sum(s.forecast_quantity-s.sold_quantity)*100/sum(s.forecast_quantity),1)
as  net_error_pct,
sum(abs(s.forecast_quatity-s.sold_quantity)) as abs_error,
round(sum(abs(s.forecasrt_quantity-sold_quantity))*100/sum(s.forecast_quantity),2)
as  abs_error_pct
from fact_act_est s
join dim_customer c
on s.customer_code=c.costomer_code
where s.fiscal_year=2021
group by customer_code
)
select *,
if (abs_error_pct> 100,0,100.0 - abs_error_pct) as forecast_accuracy
from forecast_err_table
order by forecast_accuracy desc;
```

OUTPUT

customer_code	total_sold_qty	total_forecast_qty	net_err	net_err_pct	abs_err	abs_err_pct
90013120	109547	133532	23985	17.9620	70467	52.7716
70010048	119439	142010	22571	15.8940	75711	53.3139
90023027	236189	279962	43773	15.6353	149303	53.3297
90023026	228988	273492	44504	16.2725	146948	53.7303
90017051	86823	118067	31244	26.4629	63568	53.8406
90017058	86860	110195	23335	21.1761	59473	53.9707
90023028	239081	283323	44242	15.6154	153058	54.0224
90023024	246397	287233	40836	14.2170	155610	54.1755
90013124	110898	136116	25218	18.5268	73826	54.2376
90015146	147152	210507	63355	30.0964	114189	54.2448
90017054	84371	114698	30327	26.4407	62483	54.4761
70027208	33713	47321	13608	28.7568	25784	54.4874

Conclusion

 Net sales of Amazon is highest with 109.03M in fiscal year 2021 followed by AtliQ Exclusive with 79.92M

 Market in India generated maximum net sales with 210.67M in fiscal year 2021 followed by USA with 132.05M

 Amazon generated 13.23% of total net sales among all customers in fiscal year 2021

 In APAC region, Amazon contributed maximum net sales % of 12.99 % among rest customers in 2021.

 In APAC, region India ranks 1 in terms of total gross sales.