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About AtliQ **Technologies and** **Problem Statement**



- AtliQ Hardware, a globally recognized leader in the manufacturing of PCs, printers, mice, and computers, has encountered performance challenges due to the growing size of their Excel files. These issues have caused delays and inefficiencies in their operations.
- In response, AtliQ Hardware has launched a strategic initiative to resolve these challenges by assembling a dedicated team of data analysts. This team will utilize MySQL as their database management system to derive actionable insights from the company's data. These insights are expected to significantly improve decision-making processes and optimize operations, ultimately driving enhanced performance and efficiency across the organization.

Project Overview



This project aims to analyze and derive valuable insights from the provided database, encompassing sales, products, customers, and regions data for AtliQ Hardware. The objective is to address specific inquiries regarding sales reports, market analysis, customer behavior, and supply chain forecasting.



Objects that Store SQL Statements

TABLES

Tables in SQL are database objects that store data in a structured manner. They consist of rows and columns, where each column represents an attribute, and each row contains specific data values.

FUNCTIONS

Functions in SQL are reusable pieces of code that perform a specific operation on the database. They can accept parameters, process data, and return a result. Examples include mathematical operations and date functions.

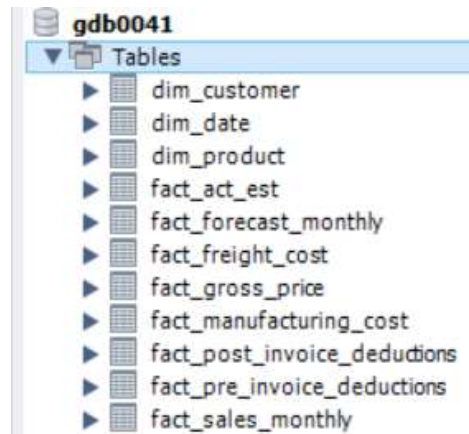
VIEWS

Views in SQL are virtual tables based on the result of a SELECT query. They provide a way to represent specific data subsets or join operations without altering the underlying database structure.

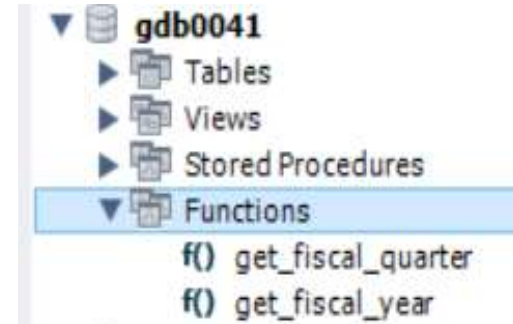
STORED PROCEDURES

Stored Procedures in SQL are precompiled sets of one or more SQL statements that are stored in the database. They can be executed by invoking the procedure's name and are useful for encapsulating complex logic or performing repetitive tasks.

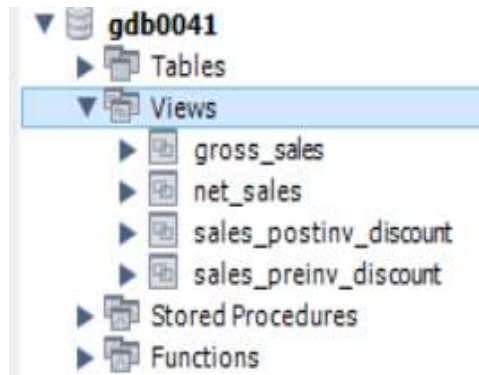
TABLES



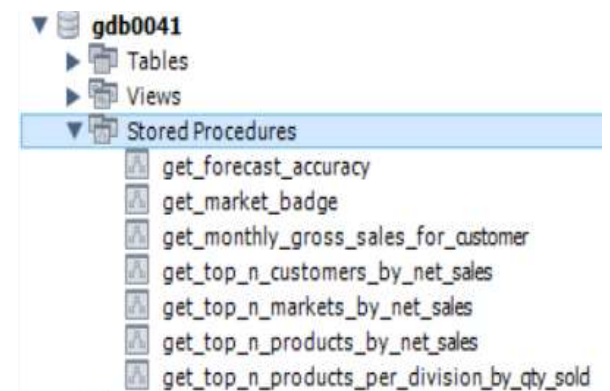
FUNCTIONS



VIEWS



STORED PROCEDURES



2021 SALES REPORT FOR CROMA CATEGORIZED BY PRODUCT

QUERY

```
select
    s.date,s.product_code,
    p.product, p.variant,s.sold_quantity,
    g.gross_price,
    round(g.gross_price*s.sold_quantity,2) as gross_price_total
from fact_sales_monthly s
join dim_product p
on s.product_code = p.product_code
join fact_gross_price g
on s.product_code = g.product_code and
    get_fiscal_year(s.date) = g.fiscal_year
where
    customer_code = 90002002 and
    get_fiscal_year(date) = 2021
order by date asc
limit 1000000
```

OUTPUT

	date	product_code	product	variant	sold_quantity	gross_price	gross_price_total
▶	2020-12-01	A1521150601	AQ Electron 3 3600 Desktop Processor	Standard	297	186.2917	55328.63
	2020-12-01	A1319150401	AQ Electron 5 3600 Desktop Processor	Standard	353	149.1034	52633.50
	2020-12-01	A1219150303	AQ 5000 Series Ultron 8 5900X Desktop Processor	Premium	349	142.9402	49886.13
	2020-10-01	A1521150602	AQ Electron 3 3600 Desktop Processor	Plus	251	185.4599	46550.43
	2020-12-01	A1018150103	AQ 5000 Series Electron 9 5900X Desktop Proce...	Premium	350	123.9315	43376.03
	2020-12-01	A1219150302	AQ 5000 Series Ultron 8 5900X Desktop Processor	Plus	279	145.1474	40496.12
	2020-12-01	A1320150402	AQ Electron 5 3600 Desktop Processor	Plus	262	150.2450	39364.19
	2020-12-01	A1521150602	AQ Electron 3 3600 Desktop Processor	Plus	210	185.4599	38946.58
	2020-12-01	A7220160202	AQ Wi Power Dx2	Plus	1083	35.2053	38127.34
	2020-12-01	A5821110108	AQ BZ Allin1	Premium 2	51	746.7388	38083.68
	2020-10-01	A1219150302	AQ 5000 Series Ultron 8 5900X Desktop Processor	Plus	258	145.1474	37448.03
	2020-12-01	A3421150604	AQ Qwerty	Plus 2	1350	27.4152	37010.52
	2020-12-01	A7118160101	AQ Wi Power Dx1	Standard	1218	29.6712	36139.52
	2020-12-01	A3521150701	AQ Trigger	Standard 1	1188	29.3872	34911.99
	2020-10-01	A7220160203	AQ Wi Power Dx2	Premium	917	37.4784	34367.69
	2021-06-01	A1521150601	AQ Electron 3 3600 Desktop Processor	Standard	184	186.2917	34277.67
	2020-12-01	A3421150605	AQ Qwerty	Premium 1	1128	29.8692	33692.46
	2020-12-01	A1118150201	AQ 5000 Series Electron 8 5900X Desktop Proce...	Standard	264	124.2640	32805.70

MONTHLY TOTAL GROSS SALES REPORT FOR CROMA

QUERY

```
SELECT
    s.date,
    SUM(ROUND(s.sold_quantity*g.gross_price,2)) as monthly_sales
FROM 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 customer_code=90002002
GROUP BY date
ORDER BY s.date asc
```

OUTPUT

	date	monthly_sales
▶	2017-09-01	122407.57
	2017-10-01	162687.56
	2017-12-01	245673.84
	2018-01-01	127574.73
	2018-02-01	144799.54
	2018-04-01	130643.92
	2018-05-01	139165.06
	2018-06-01	125735.36
	2018-08-01	125409.90
	2018-09-01	343337.14
	2018-10-01	440562.10
	2018-12-01	653944.72
	2019-01-01	359025.06
	2019-02-01	356607.19
	2019-04-01	379549.74
	2019-05-01	340152.29
	2019-06-01	343792.08
	2019-08-01	338108.87

ANNUAL GROSS SALES REPORT FOR CROMA

QUERY

```
select
    get_fiscal_year(date) as fiscal_year,
    sum(round(sold_quantity*g.gross_price,2)) as yearly_sales
from 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 customer_code=90002002
group by get_fiscal_year(date)
order by fiscal_year;
```

OUTPUT

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

KEY MARKETS AND PRIME CUSTOMERS IN THE FINANCIAL YEAR-2021'

QUERY

```
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

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

KEY MARKETS AND PRIME CUSTOMERS IN THE FINANCIAL YEAR-2021'

QUERY

```
select
    c.customer,
    round(sum(net_sales)/1000000,2) as net_sales_mln
from gdb0041.net_sales s
join dim_customer c
on s.customer_code=c.customer_code
where s.fiscal_year=2021
group by c.customer
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

% OF NET SALES CONTRIBUTED BY CUSTOMERS IN THE MARKET SHARE

QUERY

```
with cte1 as (  
    select  
        customer,  
        round(sum(net_sales)/1000000,2) as net_sales_mln  
    from net_sales s  
    join dim_customer c  
        on s.customer_code=c.customer_code  
    where s.fiscal_year=2021  
    group by customer)  
select  
    *,  
    net_sales_mln*100/sum(net_sales_mln) over() as pct_net_sales  
from cte1  
order by net_sales_mln desc
```

OUTPUT

	customer	net_sales_mln	pct_net_sales
▶	Amazon	109.03	13.233402
	Atliq Exclusive	79.92	9.700206
	Atliq e Store	70.31	8.533803
	Sage	27.07	3.285593
	Flipkart	25.25	3.064692
	Leader	24.52	2.976089
	Neptune	21.01	2.550067
	Ebay	19.88	2.412914
	Electricalsociety	16.25	1.972327
	Synthetic	16.10	1.954121
	Electricalslytical	15.64	1.898289
	Acclaimed Sto...	14.32	1.738075
	Propel	14.14	1.716228
	Novus	12.91	1.566938
	Expression	12.90	1.565724
	Reliance Digital	12.75	1.547518
	walmart	12.63	1.532953
	Costco	12.19	1.479548
	Staples	11.49	1.394587

% OF MARKET SHARE OF CUSTOMERS BY REGION BASED ON NET SALES

QUERY

```
with cte1 as (  
    select  
        c.customer,  
        c.region,  
        round(sum(net_sales)/1000000,2) as net_sales_mln  
    from gdb0041.net_sales n  
    join dim_customer c  
        on n.customer_code=c.customer_code  
    where fiscal_year=2021  
    group by c.customer, c.region)  
select  
    *,  
    net_sales_mln*100/sum(net_sales_mln) over (partition by region) as pct_share_region  
from cte1  
order by region, pct_share_region desc
```

OUTPUT

customer	region	net_sales_mln	pct_share_region
Amazon	APAC	57.41	12.988688
Atliq Exclusive	APAC	51.58	11.669683
Atliq e Store	APAC	36.97	8.364253
Leader	APAC	24.52	5.547511
Sage	APAC	22.85	5.169683
Neptune	APAC	21.01	4.753394
Electricalsociety	APAC	16.25	3.676471
Propel	APAC	14.14	3.199095
Synthetic	APAC	14.14	3.199095
Flipkart	APAC	12.96	2.932127
Novus	APAC	12.91	2.920814
Expression	APAC	12.90	2.918552
Girias	APAC	11.30	2.556561
Vijay Sales	APAC	11.27	2.549774
Ebay	APAC	11.14	2.520362
Reliance Digital	APAC	11.10	2.511312
Electricalslytical	APAC	11.08	2.506787
Lotus	APAC	10.53	2.382353
Ezone	APAC	10.30	2.330317

HIGHEST GROSS SALES IN EACH REGION'S TOP 2 MARKETS

QUERY

```
with cte1 as (  
    select  
        c.market,  
        c.region,  
        round(sum(gross_price_total)/1000000,2) as gross_sales_mln  
    from gross_sales s  
    join dim_customer c  
    on c.customer_code=s.customer_code  
    where fiscal_year=2021  
    group by market  
    order by gross_sales_mln desc  
,  
cte2 as (  
    select *,  
    dense_rank() over(partition by region order by gross_sales_mln desc) as drnk  
    from cte1  
)  
select * from cte2 where drnk<=2
```

OUTPUT

	market	region	gross_sales_mln	drnk
▶	India	APAC	455.05	1
	South Korea	APAC	131.86	2
	United Kingdom	EU	78.11	1
	France	EU	67.62	2
	Mexico	LATAM	2.30	1
	Brazil	LATAM	2.14	2
	USA	NA	264.46	1
	Canada	NA	89.78	2

TOP 3 PRODUCTS FROM EACH DIVISION BY TOTAL QUANTITY SOLD IN FY 2021

QUERY

```
with cte1 as
(
select
    p.division,
    p.product,
    sum(sold_quantity) as total_qty
from fact_sales_monthly s
join dim_product p
    on p.product_code=s.product_code
where fiscal_year=2021
group by p.product),
cte2 as
(
select
    *,
    dense_rank() over (partition by division order by total_qty desc) as drnk
from cte1)
select * from cte2 where drnk<=3
```

OUTPUT

	division	product	total_qty	drnk
▶	N & S	AQ Pen Drive DRC	2034569	1
	N & S	AQ Digit SSD	1240149	2
	N & S	AQ Clx1	1238683	3
	P & A	AQ Gamers Ms	2477098	1
	P & A	AQ Maxima Ms	2461991	2
	P & A	AQ Master wireless x1 Ms	2448784	3
	PC	AQ Digit	135092	1
	PC	AQ Gen Y	135031	2
	PC	AQ Elite	134431	3

SUPPLY CHAIN - FORECAST QUANTITY -SQL QUERY

```
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 total_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_quantity-s.sold_quantity)) as abs_error,  
        round(sum(abs(s.forecast_quantity-s.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.customer_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;
```

SUPPLY CHAIN - FORECAST QUANTITY -SQL OUTPUT

	customer_code	customer_name	market	total_sold_qty	total_forecast_qty	net_error	net_error_pct	abs_error	abs_error_pct	forecast_accuracy
►	90013120	Coolblue	Italy	109547	133532	23985	18.0	70467	52.77	47.23
	70010048	Atliq e Store	Bangladesh	119439	142010	22571	15.9	75711	53.31	46.69
	90023027	Costco	Canada	236189	279962	43773	15.6	149303	53.33	46.67
	90023026	Relief	Canada	228988	273492	44504	16.3	146948	53.73	46.27
	90017051	Forward Stores	Portugal	86823	118067	31244	26.5	63568	53.84	46.16
	90017058	Mbit	Portugal	86860	110195	23335	21.2	59473	53.97	46.03
	90023028	walmart	Canada	239081	283323	44242	15.6	153058	54.02	45.98
	90023024	Sage	Canada	246397	287233	40836	14.2	155610	54.18	45.82
	90015146	Mbit	Norway	147152	210507	63355	30.1	114189	54.24	45.76
	90013124	Amazon	Italy	110898	136116	25218	18.5	73826	54.24	45.76
	90017054	Flawless Stores	Portugal	84371	114698	30327	26.4	62483	54.48	45.52
	70027208	Atliq e Store	Brazil	33713	47321	13608	28.8	25784	54.49	45.51
	90015147	Chiptec	Norway	154897	223867	68970	30.8	122100	54.54	45.46
	80001019	Neptune	China	1113979	1275248	161269	12.6	695779	54.56	45.44
	90015144	Sound	Norway	160074	225637	65563	29.1	123257	54.63	45.37
	90009130	Logic Stores	Newzealand	103290	110175	6885	6.2	60225	54.66	45.34
	90015149	UniEuro	Norway	142086	212500	70414	33.1	116172	54.67	45.33
	90021088	Electricalslytical	United Kin...	224350	323689	99339	30.7	176975	54.67	45.33
	90017050	Electricalsara S...	Portugal	85272	114688	29416	25.6	62760	54.72	45.28
	70013125	Atliq Exclusive	Italy	101658	123428	21770	17.6	67546	54.73	45.27
	90021094	Coolblue	United Kin...	208512	301367	92855	30.8	165043	54.76	45.24
	70009134	Atliq e Store	Newzealand	103747	110791	7044	6.4	60726	54.81	45.19
	90013118	Fnac-Darty	Italy	101847	126289	24442	19.4	69242	54.83	45.17
	70023031	Atliq Exclusive	Canada	234114	286297	52183	18.2	157171	54.90	45.10
	90023025	Premium Stores	Canada	220808	266351	45543	17.1	146235	54.90	45.10
	70017060	Atliq e Store	Portugal	89925	120744	30819	25.5	66285	54.90	45.10
	90013123	Radio Paradise	Italy	100740	122510	21770	18.4	67546	54.91	45.09