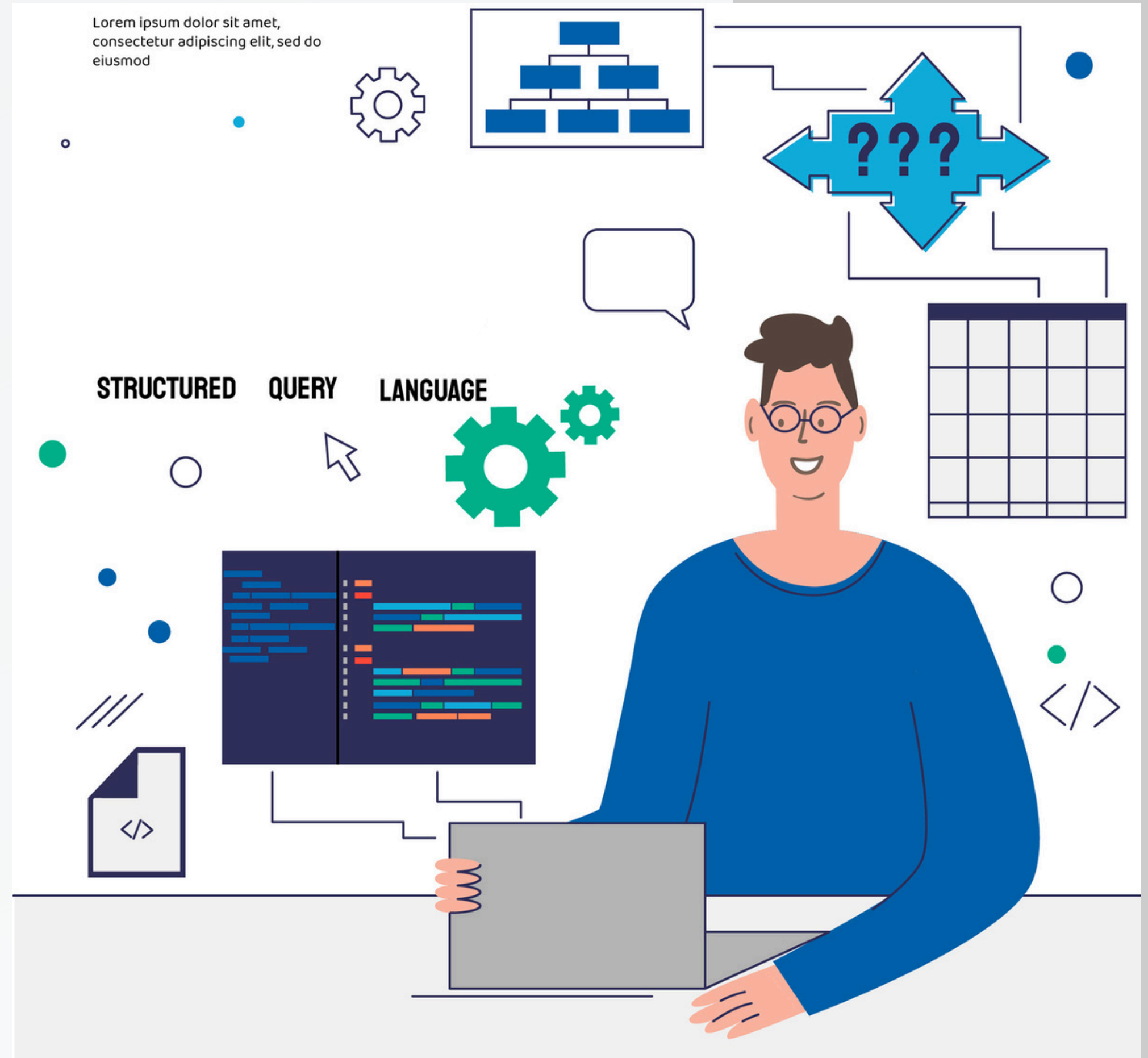




# SQL-FINANCE & SUPPLY CHAIN ANALYTICS

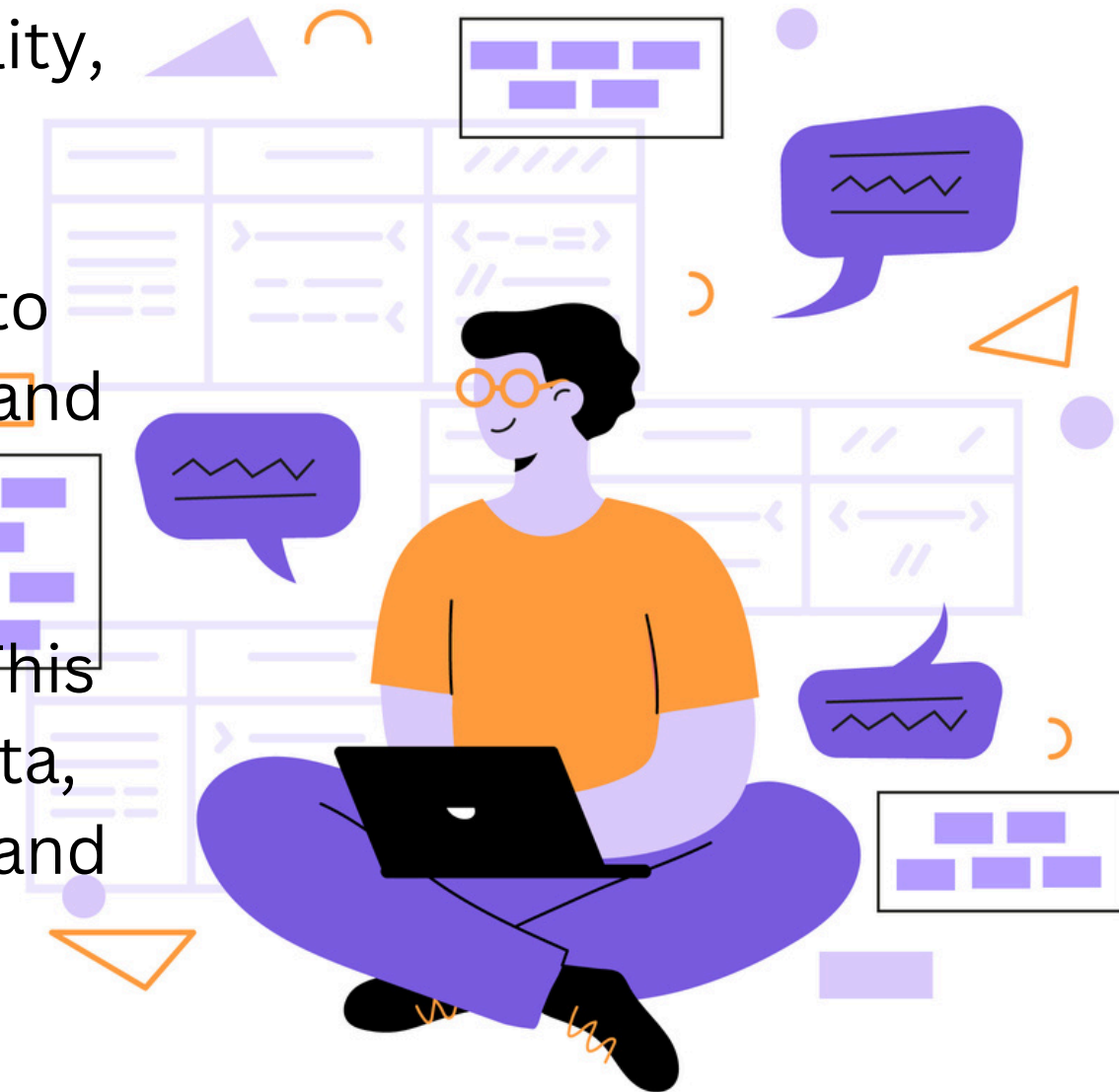
OF ATIQ HARDWARE





# About AtliQ Hardware & Problem Statement

- AtliQ Hardware is a prominent player in the hardware industry known for its printers, mice, and computers. They have a global presence and are trusted for their high-quality, innovative products.
- AtliQ Hardware faces significant performance issues due to the growing size of Excel files, causing unresponsiveness and inefficiency. To address this challenge, the company has initiated a project, assembling a team of data analysts to leverage MySQL as their database management system. This approach aims to extract meaningful insights from the data, empowering AtliQ Hardware to enhance decision-making and improve overall performance.



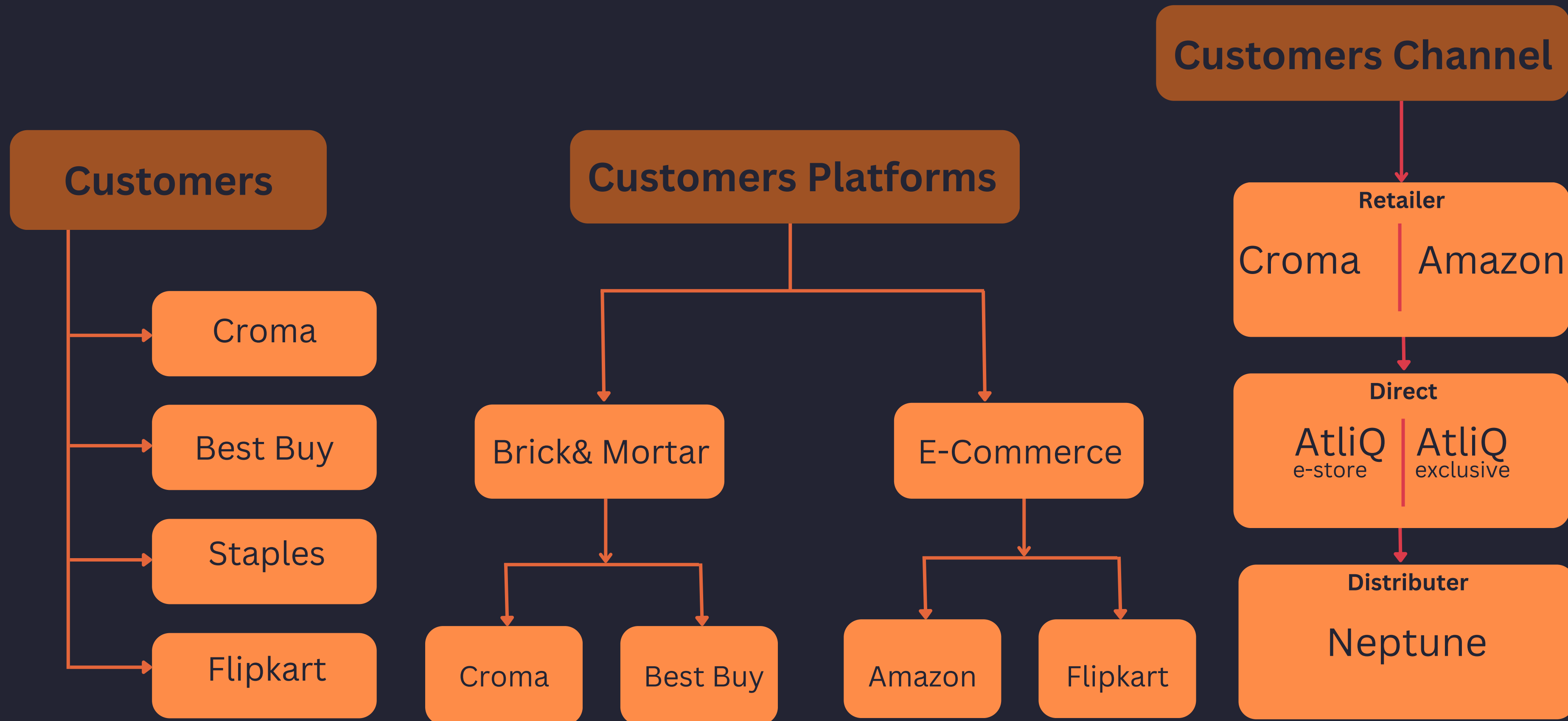


# Project Overview

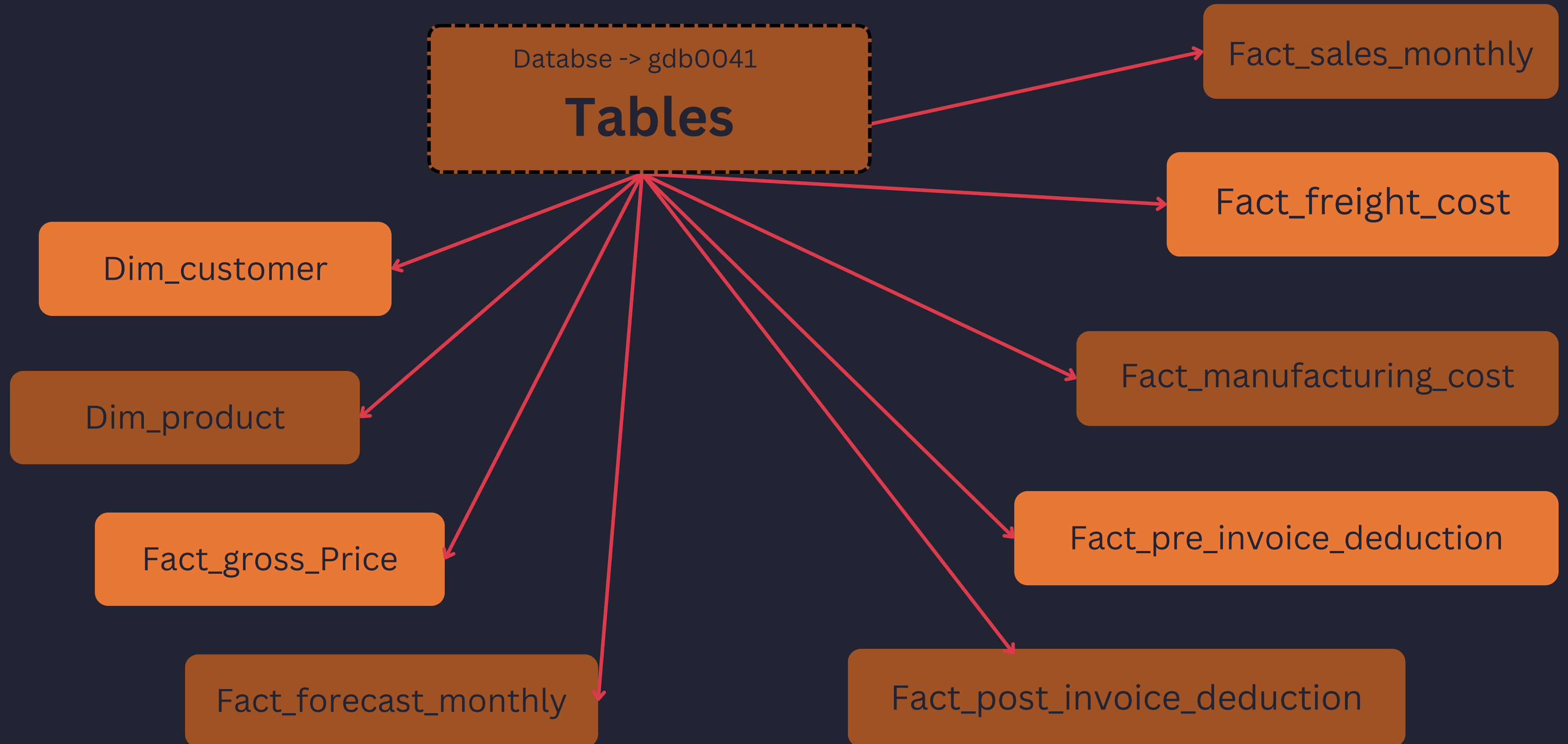
This project aims to analyze and extract valuable insights from Atliq Hardware's comprehensive database, which includes detailed information on sales, products, customers, and regions. The objective is to address key questions related to sales reports, market analysis, customer behavior, and supply chain forecasting. By leveraging this data, we seek to provide in-depth insights that will enhance decision-making, optimize market strategies, and improve overall business performance for Atliq Hardware.



# AtliQ Hardwares- Business Model



# Data Sets





- Croma India product wise sales report Fiscal year - 2021

The screenshot displays a database management interface. On the left, a 'SCHEMAS' panel shows a tree view of database objects, including tables like 'dim\_customer', 'dim\_date', 'dim\_product', and fact tables like 'fact\_sales\_monthly'. The 'sakila' database is selected. The main area shows a SQL query being executed, limited to 1000 rows. The query selects sales data for the fiscal year 2021, including date, product code, product name, variant, sold quantity, gross price, and a calculated gross price total. Below the query, the 'Result Grid' shows the first 10 rows of the query results.

```
29 SELECT
30     s.date,
31     s.product_code,
32     p.product,
33     p.variant,
34     s.sold_quantity,
35     g.gross_price,
36     ROUND(s.sold_quantity*g.gross_price,2) as gross_price_total
37 FROM fact_sales_monthly s
38 JOIN dim_product p
39     ON s.product_code=p.product_code
40 JOIN fact_gross_price g
41     ON g.fiscal_year=get_fiscal_year(s.date)
42     AND g.product_code=s.product_code
43 WHERE
44     customer_code=90002002 AND
45     get_fiscal_year(s.date)=2021
46 LIMIT 1000000;
```

	date	product_code	product	variant	sold_quantity	gross_price	gross_price_total
▶	2020-09-01	A0118150101	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	202	19.0573	3849.57
	2020-09-01	A0118150102	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Plus	162	21.4565	3475.95
	2020-09-01	A0118150103	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Premium	193	21.7795	4203.44
	2020-09-01	A0118150104	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Premium Plus	146	22.9729	3354.04
	2020-09-01	A0219150201	AQ WereWolf NAS Internal Hard Drive HDD – 8....	Standard	149	23.6987	3531.11
	2020-09-01	A0219150202	AQ WereWolf NAS Internal Hard Drive HDD – 8....	Plus	107	24.7312	2646.24

Result 10 x

- Yearly Gross sales report for Croma India

The screenshot shows a database management interface with a SQL editor and a result grid. The SQL query is as follows:

```
1 • SELECT
2     g.fiscal_year,
3     ROUND(SUM(s.sold_quantity*g.gross_price)/1000000,2) as "gross_price_total(in mln)"
4 FROM fact_sales_monthly s
5 JOIN fact_gross_price g
6     ON g.fiscal_year=get_fiscal_year(s.date) AND g.product_code=s.product_code
7 WHERE
8     customer_code=90002002
9 GROUP BY g.fiscal_year;
```

The result grid displays the following data:

	fiscal_year	gross_price_total(in mln)
▶	2018	1.32
	2019	3.56
	2020	6.50
	2021	23.22
	2022	44.64

The interface also shows a Navigator panel on the left with a tree view of schemas and tables, and a top toolbar with various database management icons.

- Top markets and customers for a financial year “2021”

The screenshot shows a database management interface with a left-hand sidebar and a main workspace. The sidebar contains a 'Navigator' pane with a 'SCHEMAS' section. Under 'Tables', a list of tables is shown, including 'dim\_customer', 'dim\_date', 'dim\_product', 'fact\_forecast\_month', 'fact\_freight\_cost', 'fact\_gross\_price', 'fact\_manufacturing\_', 'fact\_post\_invoice\_d', 'fact\_pre\_invoice\_de', and 'fact\_sales\_monthly'. Below the tables are 'Views', 'Stored Procedures', and 'Functions'. At the bottom of the sidebar are database names: 'moviesdb', 'sakila', 'sys', and 'world'. The main workspace has a top toolbar with icons for file operations and a 'Limit to 1000 rows' dropdown. Below the toolbar is a SQL editor with the following query:

```
6 • SELECT
7     market,
8     round(sum(net_sales)/1000000,2) as net_sales_mln
9 FROM gdb0041.net_sales
10 where fiscal_year=2021
11 group by market
12 order by net_sales_mln desc
13 limit 5
14
```

Below the SQL editor is a 'Result Grid' section. It includes a 'Filter Rows' input field, an 'Export' button, a 'Wrap Cell Content' checkbox, and a 'Fetch rows' button. The result grid displays the following data:

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

At the bottom left of the interface, there is a 'No object selected' message.



- Net Sales % share by customers

The screenshot shows a SQL IDE interface. On the left is a 'Navigator' pane with a 'SCHEMAS' section containing a tree view of database objects: Tables (dim\_customer, dim\_date, dim\_product, fact\_forecast\_month, fact\_freight\_cost, fact\_gross\_price, fact\_manufacturing, fact\_post\_invoice\_d, fact\_pre\_invoice\_de, fact\_sales\_monthly), Views, Stored Procedures (get\_market\_badge, get\_top\_n\_customer), and Functions. Below this are 'moviesdb' and 'sakila' databases. The main editor displays a SQL query with line numbers 20 to 33. The query defines a CTE 'cte1' that selects customer information and net sales for the year 2021, grouped by customer. The main query then calculates the percentage of net sales for each customer using an 'over()' window function. Below the query editor is a 'Result Grid' showing the top 10 customers by net sales percentage. The grid has columns for 'customer', 'net\_sales\_mln', and 'pct\_net\_sales'. The data is sorted in descending order of net sales.

```
20 with cte1 as (  
21     select  
22         customer,  
23         round(sum(net_sales)/1000000,2) as net_sales_mln  
24     from net_sales s  
25     join dim_customer c  
26         on s.customer_code=c.customer_code  
27     where s.fiscal_year=2021  
28     group by customer)  
29     select  
30         *,  
31         net_sales_mln*100/sum(net_sales_mln) over() as pct_net_sales  
32     from cte1  
33     order by net sales mln desc
```

	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

Schema: gdb0041

- Net Sales % share by Region - “APAC”

Navigator: fact\_sales\_monthly fact\_pre\_invoice\_deductions fact\_sales\_monthly fact\_sales\_monthly fact\_sales\_monthly fact\_sales\_monthly fact\_sales\_monthly fact\_sales\_monthly

**SCHEMAS**

Filter objects

- Tables
  - dim\_customer
  - dim\_date
  - dim\_product
  - fact\_forecast\_month
  - fact\_freight\_cost
  - fact\_gross\_price
  - fact\_manufacturing\_
  - fact\_post\_invoice\_d
  - fact\_pre\_invoice\_de
  - fact\_sales\_monthly
- Views
  - net\_sales
  - net\_saless
  - sales\_postinv\_discou
  - sales\_preinv\_discour
- Stored Procedures
- Functions

Administration Schemas

Information

Schema: gdb0041

```

1 with cte1 as (
2     select
3         c.customer,
4         c.region,
5         round(sum(net_sales)/1000000,2) as net_sales_mln
6     from gdb0041.net_sales n
7     join dim_customer c
8         on n.customer_code=c.customer_code
9     where fiscal_year=2021
10    group by c.customer, c.region)
11 select
12     *,
13     net_sales_mln*100/sum(net_sales_mln) over (partition by region) as pct_share_region
  
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: [IA](#)

	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
	Synthetic	APAC	14.14	3.199095
	Propel	APAC	14.14	3.199095
	Flipkart	APAC	12.96	2.932127

# • Supply Chain - Forecast Quantity

The screenshot shows a SQL IDE interface with a query editor and a result grid. The query is a complex SQL statement that calculates forecast accuracy for various customers. The result grid displays the output of the query, showing customer details and forecast accuracy metrics.

**Query:**

```
1 WITH forecast_err_table AS (  
2     SELECT  
3         s.customer_code AS customer_code,  
4         c.customer AS customer_name,  
5         c.market AS market,  
6         SUM(s.sold_quantity) AS total_sold_qty,  
7         SUM(s.forecast_quantity) AS total_forecast_qty,  
8         SUM(CAST(s.forecast_quantity AS SIGNED) - CAST(s.sold_quantity AS SIGNED)) AS net_error,  
9         ROUND(SUM(CAST(s.forecast_quantity AS SIGNED) - CAST(s.sold_quantity AS SIGNED)) * 100 / SUM(s.forecast_quantity), 1) AS net_error_pct,  
10        SUM(ABS(CAST(s.forecast_quantity AS SIGNED) - CAST(s.sold_quantity AS SIGNED))) AS abs_error,  
11        ROUND(SUM(ABS(CAST(s.forecast_quantity AS SIGNED) - CAST(s.sold_quantity AS SIGNED))) * 100 / SUM(s.forecast_quantity), 2) AS abs_error_pct  
12    FROM fact_act_est s  
13    JOIN dim_customer c ON s.customer_code = c.customer_code  
14    WHERE s.fiscal_year = 2021  
15    GROUP BY customer_code  
16 )  
17 SELECT  
18     *,  
19     IF (abs_error_pct > 100, 0, 100.0 - abs_error_pct) AS forecast_accuracy  
20 FROM forecast_err_table  
21 ORDER BY forecast_accuracy DESC;
```

**Result Grid:**

	customer_code	customer_name	market	total_sold_qty	total_forecast_qty	net_error	net_error_pct	abs_error	abs_error_pct	forecast_accuracy
▶	90025209	Electricalsbea Stores	Columbia	13178	15428	2065	13.4	8051	52.18	47.82
	90013120	Coolblue	Italy	109547	133532	23944	17.9	70378	52.70	47.30
	70010048	Atliq e Store	Bangladesh	119439	142010	22547	15.9	75645	53.27	46.73
	90023027	Costco	Canada	236189	279962	43760	15.6	149274	53.32	46.68
	70027208	Atliq e Store	Brazil	33713	47321	13342	28.2	25398	53.67	46.33
	90023026	Relief	Canada	228988	273492	44495	16.3	146921	53.72	46.28
	90017051	Electricalsbea Stores	Columbia	13178	15428	2065	13.4	8051	52.18	47.82





# Key Findings:

- Amazon Leads Net Sales: In the fiscal year 2021, Amazon achieved the highest net sales with \$109.03M, followed by Atliq Exclusive with \$79.92M.
- Top Markets: India generated the highest net sales at \$210.67M, followed by the USA with \$132.05M in the fiscal year 2021.
- Amazon's Market Share: Amazon contributed 13.23% of the total net sales among all customers in the fiscal year 2021.
- APAC Region Performance: In the APAC region, Amazon led with the highest net sales percentage, contributing 12.99% among all customers in 2021.
- India's Dominance in APAC: Within the APAC region, India ranked first in terms of total gross sales.