

# SQL for Data Analysis:

a. SELECT, WHERE, ORDER BY, GROUP BY

The screenshot shows a SQL IDE window with a query editor and a result grid. The query editor contains the following SQL statement:

```
1 • SELECT * FROM newdata.`periodic table of elements`;
```

The result grid displays the following data:

	AtomicNumber	Element	Symbol	AtomicMass	NumberofNeutrons	NumberofProtons	N
▶	1	Hydrogen	H	1.007	0	1	1
	2	Helium	He	4.002	2	2	2
	3	Lithium	Li	6.941	4	3	3
	4	Beryllium	Be	9.012	5	4	4
	5	Boron	B	10.811	6	5	5
	7	Nitrogen	N	14.007	7	7	7
	8	Oxygen	O	15.999	8	8	8
	9	Fluorine	F	18.998	10	9	9
	10	Neon	Ne	20.18	10	10	10
	11	Sodium	Na	22.99	12	11	11
	12	Magnesium	Mg	24.305	12	12	12

b. JOINS

INNER

The screenshot shows a SQL IDE window with a query editor and a result grid. The query editor contains the following SQL statement:

```
1 • SELECT e.Element, e.Type, p.Conductivity
2 FROM newdata.`periodic table of elements` e
3 INNER JOIN newdata.element_properties p ON e.AtomicNumber = p.AtomicNumber;
4
5
6
```

The result grid displays the following data:

	Element	Type	Conductivity
▶	Hydrogen	Nonmetal	High
	Helium	Noble Gas	Low
	Lithium	Alkali Metal	High
	Oxygen	Nonmetal	Low
	Neon	Noble Gas	Low
	Sodium	Alkali Metal	High
	Magnesium	Alkaline Earth Metal	High
	Silicon	Metalloid	Medium

# SQL for Data Analysis:

LEFT:

The screenshot shows a SQL IDE window titled "periodic table of elements". The query editor contains the following SQL code:

```
1 • SELECT e.Element, e.Type, p.Conductivity
2 FROM newdata.`periodic table of elements` e
3 LEFT JOIN newdata.element_properties p ON e.AtomicNumber = p.AtomicNumber;
4
5
6
```

Below the query editor is the "Result Grid" tab, which displays the results of the query. The grid has four columns: Element, Type, and Conductivity. The results are as follows:

Element	Type	Conductivity
Hydrogen	Nonmetal	High
Helium	Noble Gas	Low
Lithium	Alkali Metal	High
Beryllium	Alkaline Earth Metal	NULL
Boron	Metalloid	NULL
Nitrogen	Nonmetal	NULL
Oxygen	Nonmetal	Low
Fluorine	Halogen	NULL
Neon	Noble Gas	Low
Sodium	Alkali Metal	High
Magnesium	Alkaline Earth Metal	High
Aluminum	Metal	NULL

The right sidebar contains buttons for "Result Grid", "Form Editor", and "Field Types".

RIGHT:

The screenshot shows a SQL IDE window titled "periodic table of elements". The query editor contains the following SQL code:

```
1 • SELECT e.Element, e.Type, p.Conductivity
2 FROM newdata.`periodic table of elements` e
3 RIGHT JOIN newdata.element_properties p ON e.AtomicNumber = p.AtomicNumber;
4
5
6
```

Below the query editor is the "Result Grid" tab, which displays the results of the query. The grid has four columns: Element, Type, and Conductivity. The results are as follows:

Element	Type	Conductivity
Hydrogen	Nonmetal	High
Helium	Noble Gas	Low
Lithium	Alkali Metal	High
NULL	NULL	Medium
Oxygen	Nonmetal	Low
Neon	Noble Gas	Low
Sodium	Alkali Metal	High
Magnesium	Alkaline Earth Metal	High
Silicon	Metalloid	Medium
NULL	NULL	Low

The right sidebar contains buttons for "Result Grid", "Form Editor", and "Field Types". At the bottom of the window, there is a status bar that says "Result 5" and "Read Only".

# SQL for Data Analysis:

## C.SUBQUERIES:

The screenshot shows a SQL IDE window with a query editor and a result grid. The query editor contains the following SQL code:

```
1 • SELECT Element, AtomicMass
2 FROM newdata.`periodic table of elements`
3 WHERE AtomicMass > (SELECT AVG(AtomicMass) FROM newdata.`periodic table of
4
5
```

The result grid displays the following data:

Element	AtomicMass
Strontium	87.62
Yttrium	88.906
Zirconium	91.224
Niobium	92.906
Molybdenum	95.96
Ruthenium	101.07
Rhodium	102.906
Palladium	106.42
Cadmium	112.411
Indium	114.818
Tellurium	127.6
Iodine	126.904

The result grid is titled "periodic table of elements 6" and is in "Read Only" mode.

## D. Aggregate AVG

The screenshot shows a SQL IDE window with a query editor and a result grid. The query editor contains the following SQL code:

```
1 • SELECT Phase, AVG(NumberOfNeutrons) AS NumberOfProtons
2 FROM newdata.`periodic table of elements`
3 GROUP BY Phase;
4
5
```

The result grid displays the following data:

Phase	NumberOfProtons
gas	30.7273
solid	54.7826
liq	45.0000

The result grid is titled "periodic table of elements 6" and is in "Read Only" mode.

# SQL for Data Analysis:

Aggregate SUM:

The screenshot shows a SQL IDE window titled "periodic table of elements". The SQL editor contains the following query:

```
1 • SELECT SUM(NumberofNeutrons) AS NumberofElectrons
2 FROM newdata.`periodic table of elements`
3
4
```

Below the editor, the "Result Grid" tab is active, displaying a single row of results:

NumberofElectrons
2903

The right sidebar contains icons for "Result Grid", "Form Editor", and "Field Types".

## E. Create views for analysis

The screenshot shows a SQL IDE window titled "periodic table of elements". The SQL editor contains the following query:

```
1 • SELECT * FROM radioactive_elements;
2
3
4
5
```

Below the editor, the "Result Grid" tab is active, displaying a table with the following columns:

Element	Symbol	Type	Radioactive
---------	--------	------	-------------

The right sidebar contains icons for "Result Grid", "Form Editor", and "Field Types".

# SQL for Data Analysis:

## F. Optimize queries with indexes

The screenshot shows a SQL IDE interface. At the top, there are tabs for '- Schema', 'SQL File 1\*', and 'periodic table of elements'. Below the tabs is a toolbar with various icons. The main text area contains the following SQL query:

```
1 • SELECT * FROM radioactive_elements;  
2  
3  
4  
5
```

Below the query editor is a toolbar with 'Result Grid', 'Filter Rows:', 'Export:', and 'Wrap Cell Content:'. Below this toolbar is a table with the following columns: Element, Symbol, Type, and Radioactive. The table is currently empty.

On the right side of the interface, there is a vertical toolbar with icons for 'Result Grid', 'Form Editor', and 'Field Types'.