Dune **Cheatsheet**

Your first wand on the path to Dune wizardry

Query Skeleton

The fundamental structure of every query

Query Execution Order

`SELECT` what to return › `FROM` which table › `WHERE` filter rows › `GROUP BY` aggregate › `HAVING` filter groups › `ORDER BY` sort results › `LIMIT` control size

Core Structure

Every clause has a specific purpose in your query

- `SELECT` — **What to return** — Choose specific columns or calculations
- `FROM` — **Which table to use** — Specify the data source for your query
- `WHERE` — **Filter by condition** — Remove unwanted rows from results
- `GROUP BY` — **Group rows into buckets** — Combine rows for aggregation functions
- `HAVING` — **Filter after grouping** — Keep only groups that meet an aggregate condition
- `ORDER BY` — **Sort the output** — Control the sequence of returned rows
- `LIMIT` — **Control row count** — Limit the number of results returned

Blockchain Example

A real query showing how all components work together

Largest ETH Senders in the Last 7 Days

```
SELECT
  "from" AS sender_wallet,
  SUM(value / 1e18) AS total_eth_sent
FROM ethereum.transactions
WHERE
  block_time >= now() - interval '7' day
GROUP BY
  "from"
HAVING
  SUM(value / 1e18) > 10
ORDER BY
  total_eth_sent DESC
LIMIT 10
```

Functions

Your toolbox for doing math and creating metrics

Aggregation Functions

Summarize data across multiple rows

- `COUNT()` — Number of rows
- `SUM()` — Total value
- `AVG()` — Average value
- `MIN()` `MAX()` — Find extremes in data

Math Helpers

Transform and format numerical data

- `ROUND(x,d)` — Round to d decimals — Control precision display
- `FLOOR(x)` — Round down — Always rounds down
- `CEIL(x)` — Round up — Always rounds up
- `ABS(x)` — Absolute value — Remove negative sign

Text Functions

Transform and manipulate text data

- `LOWER(text)` — Converts to lowercase
- `UPPER(text)` — Converts to uppercase
- `SUBSTR (string, start, length)` — Extract text
- `CONCAT (first text, last text)` — Combine texts

CASE WHEN creates categories →

Small	Medium	Large

```
CASE
  WHEN amount < 10 THEN 'Small'
  WHEN amount < 100 THEN 'Medium'
  ELSE 'Large'
END AS size_group
```

*Time functions covered in next section

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Working With Time

How to turn timestamps into usable time series

3 Step Time Series Recipe

1 Find the Timestamp

The column that shows when events happened

evt_block_time

block_time

Sometimes:

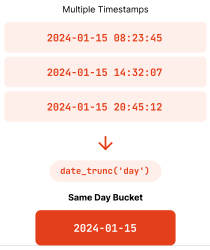
timestamp

updated_at

created_at

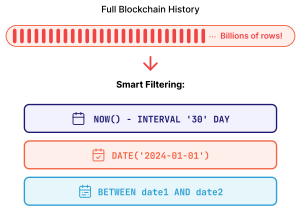
2 Bucket Into Periods

Use date_trunc to group timestamps



3 Filter Time Range

Keep only the time window you want

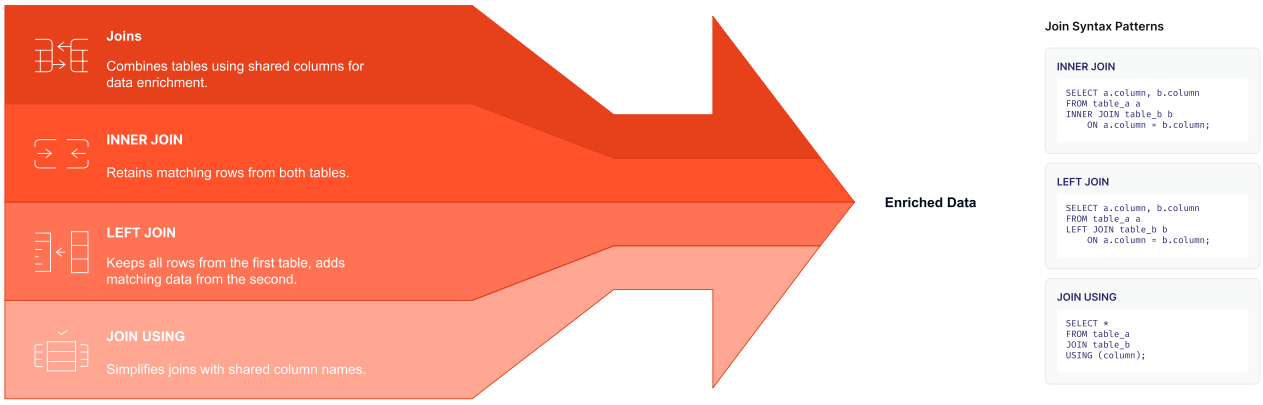


Pro Tip: Filling Empty Days

Use **utils.{{time period}}** with a LEFT JOIN to produce a complete timeline.

Joins

Everything you need to combine tables into more complete datasets



Common Dune Tables to Join

- **Token Metadata**
  - tokens.erc20
  - Join on: contract_address and blockchain
  - Use for: symbol, name, decimals
- **Prices**
  - prices.{{time period}}
  - Join on: contract_address and date_trunc() aligned timestamps
  - Use for: USD values, TVL, volume
- **Labels**
  - labels.addresses
  - Join on: address and blockchain
  - Use for: labeling addresses
- **Transactions**
  - ethereum.transactions
  - Join on: block_time
  - Use for: gas, sender/receiver
- **DEX data**
  - dex.trades
  - Join on: project_contract_address
  - Use for: trading activities

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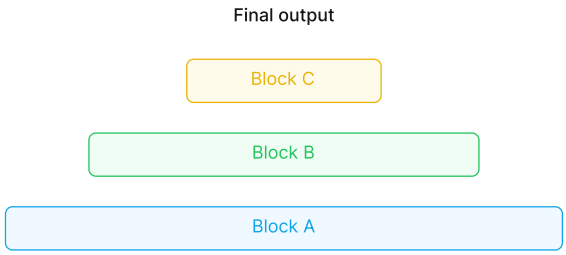
WITH common_table_expression also known AS CTEs

A clean way to break long SQL queries into readable blocks

How CTEs Work

Think of CTEs as building blocks. Each block can do anything: filtering, reshaping, joining, aggregating, or calculating.

- **Block A** — Prepare data: Filter, clean, rename, or reshape raw fields.
- **Block B** — Build logic: Join tables, calculate metrics, or apply transformations.
- **Block C** — Finalize output: Select and sort the final result.



Blockchain Example

A real query showing how all components work together

```
WITH daily_volumes AS (
    SELECT
        block_date as trade_date,
        SUM(amount_usd) as daily_volume
    FROM dex.trades
    WHERE blockchain = 'ethereum'
      AND block_date >= TIMESTAMP '2024-09-01'
      AND block_date < TIMESTAMP '2024-10-01'
    GROUP BY block_date
),
volume_metrics AS (
    SELECT
        trade_date,
        daily_volume,
        AVG(daily_volume) OVER (
            ORDER BY trade_date
            ROWS BETWEEN 6 PRECEDING AND CURRENT
ROW
        ) as rolling_7day_avg
    FROM daily_volumes
)
SELECT * FROM volume_metrics
ORDER BY trade_date DESC
```

{{Parameters}}

Make your queries and dashboards interactive by letting users choose values that your DuneSQL reacts to

{{Text Parameter}} {{Number Parameter}} {{Date Parameter}}

- **List Parameter** — One or more options from a dropdown
- **Manual List** — Create static dropdowns
- **List From Other Query Results** — Build dynamic dropdowns

- **Use in chart titles** — e.g. "Activity in the last {{Days}} days"
- **Shared Parameters** — Use the same parameter across multiple queries by matching name, type, default, and list settings exactly

Window Functions

Lets you add extra columns like ranks or rolling averages without changing the rows you already have

Window Setup

FUNCTION adds a calculation, OVER applies it across rows, PARTITION BY groups them, ORDER BY sets the order inside each group.

Syntax

```
FUNCTION(column) OVER (
    PARTITION BY group_column
    ORDER BY sort_column) AS
column_name
)
```

Ranking

Add row order

- ROW_NUMBER()
- RANK()
- DENSE_RANK()

Time Shifts

See previous or next values

- LAG()
- LEAD()

Rolling Metrics

Create moving totals or averages

- SUM()
- AVG()
- MIN() / MAX()

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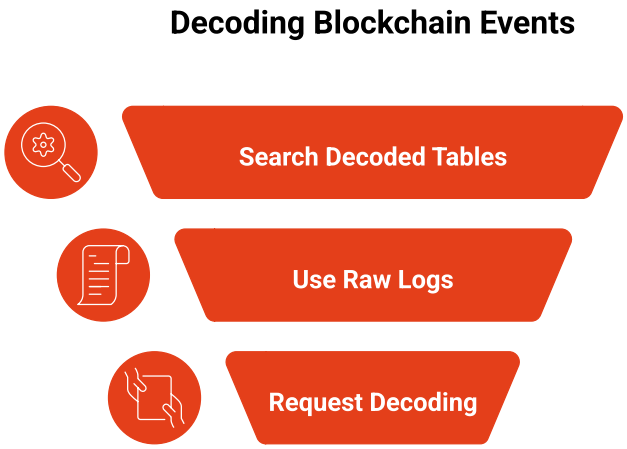
Decoding Blockchain Events

How to find, read, and request decoded contract data on Dune



Search the contract address to find decoded tables.
If decoded event or call tables show up, you can query them directly.

`[projectname_blockchain].[contractName]_evt_[eventName]`

`<chain>.logs`	Raw blockchain event logs Requires manual decoding
`topic0`	Event signature Identifies the event type
`topics[1-3]`	Indexed parameters Searchable event fields
`data`	Non-indexed parameters Additional event data

⚠ You'll need the contract's ABI to decode

`https://dune.com/contracts/new` Submit Contract for Decoding
Upload the contract address and ABI

Working With API, JSON & Array Data

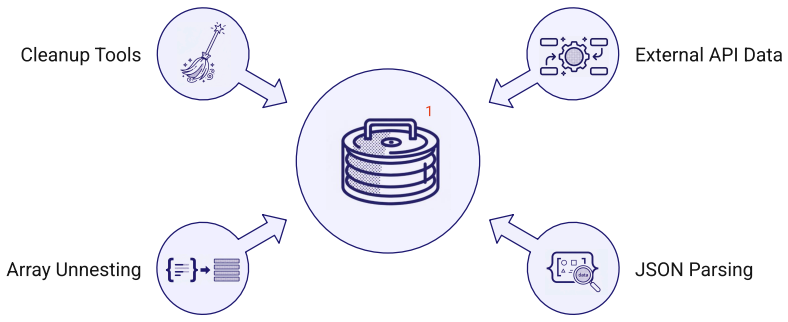
Everything you need to turn messy or external data into usable tables

`from_unixtime()`	Convert Unix timestamps to readable Turn numbers into proper dates
`regexp_extract()`	Extract patterns from unstructured text Pull specific data from messy strings

Use for Unix timestamps, wrong types, unstructured text

`http_get('https://api...')`	Fetch off-chain data directly When blockchain isn't enough
`try_cast()`	Fix messy data formats and types Safely convert without errors

Perfect for TVL data, token prices, governance votes



`UNNEST(array)`	Convert lists into individual rows Transform [a,b,c] into separate rows
`CROSS JOIN UNNEST(...)`	Expand arrays while keeping other columns Standard pattern for array processing

Critical when APIs return arrays or logs contain lists

`json_parse()`	Extract structured data from objects Turn data into usable columns
`json_extract_scalar()`	Get single values from nested JSON Turn response into usable rows

Essential for API responses, metadata fields, event logs

*Not Dune Official

Made by @yotamha1

[1] Fun fact: the Dune data icon is based on vintage disk packs. Early database storage actually looked like this.