Group By with Having

Previously, we have learnt to perform aggregations on all the rows of a table. Now, we shall look at how to split a table into multiple groups and apply aggregation on each group.

The GROUP BY keyword in SQL is used to group rows which have the same values for the mentioned attributes. You can perform aggregations on these groups to get finer analytics.

HAVING keyword is used to further refine the data by filtering the aggregated values. Let's explore more about GROUP BY and HAVING clauses with the following database.

Database

The database consists of

`player_match_details` table which stores name, match, score, year, number of fours and sixes scored.

- Schema

SQL

```sql
CREATE TABLE player_match_details (
   name VARCHAR(250),
   match VARCHAR(250),
   score INTEGER,
   fours INTEGER,
   sixes INTEGER,
   year INTEGER
);
```

GROUP BY

The

`GROUP BY` clause in SQL is used to group rows which have same values for the mentioned attributes.

Syntax

SQL

```sql
SELECT
  c1,
  aggregate_function(c2)
FROM
  table_name
GROUP BY c1;
```

Example

Get the total score of each player in the database.

SQL

```sql
SELECT
  name, SUM(score) as total_score
FROM
  player_match_details
GROUP BY name;
```

Output

name	total_score
David	105
Joseph	116
Lokesh	186
...	...

Try it Yourself!

- Get the maximum score of each player.
- Get the total number of sixes hit by each player.

GROUP BY with WHERE

We use WHERE clause to filter the data before performing aggregation.

Syntax

SQL

```sql
SELECT
  c1,
  aggregate_function(c2)
FROM
  table_name
WHERE
  c3 = v1
GROUP BY c1;
```

Example

Get the number of half-centuries scored by each player

SQL

```sql
SELECT
 name, COUNT(*) AS half_centuries
FROM
 player_match_details
WHERE score >= 50
```

```
6  GROUP BY name;
```

Output

name	half_centuries
David	1
Joseph	2
Lokesh	3
...	...

Try it Yourself!

- Get year wise number of half-centuries scored by each player.

HAVING

`HAVING` clause is used to filter the resultant rows after the application of `GROUP BY` clause.

Syntax

SQL

```sql
SELECT
  c1,
  c2,
  aggregate_function(c1)
FROM
  table_name
GROUP BY
  c1, c2
HAVING
  condition;
```

Example

Get the

`name` and number of `half_centuries` of players who scored more than one half century.

```sql
SELECT
  name,
  count(*) AS half_centuries
FROM
  player_match_details
WHERE
  score >= 50
GROUP BY
  name
HAVING
```

SQL

Expand

Output

name	half_centuries
Lokesh	2
Ram	3

Try it Yourself!

- Get the name and number of half-centuries scored by each player who scored at least a half-century in two matches.

Note

WHERE vs HAVING: WHERE is used to filter rows and this operation is performed before grouping. HAVING is used to filter groups and this operation is performed after grouping.