```
          key: i
      key_len: 5
          ref: NULL
         rows: 2
     filtered: 100.00
        Extra: Using where
1 row in set, 1 warning (0.00 sec)

mysql> SHOW WARNINGS\G
*************************** 1. row ***************************
  Level: Note
   Code: 1003
Message: /* select#1 */ select json_unquote(json_extract(`test`.`jemp`.`c`,'$.name'))
AS `name` from `test`.`jemp` where (`test`.`jemp`.`g` > 2)
1 row in set (0.00 sec)
```

(We have wrapped the output from the last statement in this example to fit the viewing area.)

When you use `EXPLAIN` on a `SELECT` or other SQL statement containing one or more expressions that use the `->` or `->>` operator, these expressions are translated into their equivalents using `JSON_EXTRACT()` and (if needed) `JSON_UNQUOTE()` instead, as shown here in the output from `SHOW WARNINGS` immediately following this `EXPLAIN` statement:

```
mysql> EXPLAIN SELECT c->>"$.name"
     > FROM jemp WHERE g > 2 ORDER BY c->"$.name"\G
*************************** 1. row ***************************
           id: 1
  select_type: SIMPLE
        table: jemp
   partitions: NULL
         type: range
possible_keys: i
          key: i
      key_len: 5
          ref: NULL
         rows: 2
     filtered: 100.00
        Extra: Using where; Using filesort
1 row in set, 1 warning (0.00 sec)

mysql> SHOW WARNINGS\G
*************************** 1. row ***************************
  Level: Note
   Code: 1003
Message: /* select#1 */ select json_unquote(json_extract(`test`.`jemp`.`c`,'$.name')) AS
`c->>"$.name"` from `test`.`jemp` where (`test`.`jemp`.`g` > 2) order by
json_extract(`test`.`jemp`.`c`,'$.name')
1 row in set (0.00 sec)
```

See the descriptions of the `->` and `->>` operators, as well as those of the `JSON_EXTRACT()` and `JSON_UNQUOTE()` functions, for additional information and examples.

This technique also can be used to provide indexes that indirectly reference columns of other types that cannot be indexed directly, such as `GEOMETRY` columns.

In MySQL 8.0.21 and later, it is also possible to create an index on a `JSON` column using the `JSON_VALUE()` function with an expression that can be used to optimize queries employing the expression. See the description of that function for more information and examples.

JSON columns and indirect indexing in NDB Cluster

It is also possible to use indirect indexing of JSON columns in MySQL NDB Cluster, subject to the following conditions: