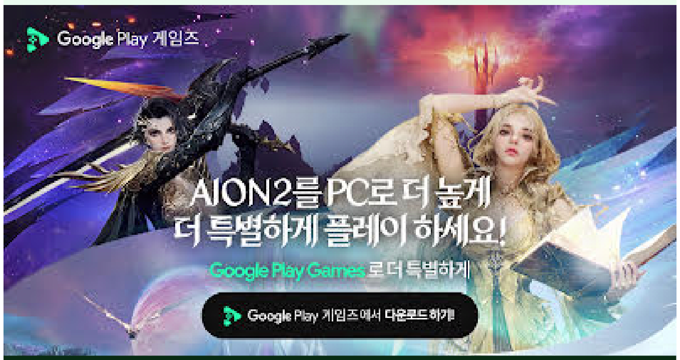
mongoDB TUTORIAL

MongoDB Unique Index


Google Play 게임즈
AION2를 PC로 더 높게
더 특별하게 플레이 하세요!
Google Play Games로 더 특별하게
Google Play 게임즈에서 다운로드하기

Summary: in this tutorial, you'll learn about unique indexes and how to use them to enforce the uniqueness of values for a field across documents in a collection.

Introduction to the MongoDB unique index

Often, you want to ensure that the values of a field are unique across documents in a collection, such as an email or username.

A unique index can help you to enforce this rule. In fact, MongoDB uses a unique index to ensure that the `_id` is a unique primary key.

To create a unique index, you use the `createIndex()` method with the option `{unique: true}` like this:

Let's take some examples of using a unique index.

1) Create a unique index for a field

First, inserts two documents into the `users` collection:

```
db.users.insertMany([
   { email:  "john@test.com", name: "john"},
   { email:  "jane@test.com", name: "jane"},
]);
```

Second, create a unique index for the email field:

```
db.users.createIndex({email:1},{unique:true});
```

Third, attempt to insert a new document with the email that already exists:

```
db.users.insertOne(
   { email:  "john@test.com", name: "johny"}
);
```

MongoDB returned the following error:

```
MongoServerError: E11000 duplicate key error collection: mflix.users index: em
```

2) Create a unique index for collection with duplicate data

First, drop the `users` collection and recreate it by inserting three entries:

```
db.users.drop()

db.users.insertMany([
   { email:  "john@test.com", name: "john"},
   { email:  "john@test.com", name: "johny"},
   { email:  "jane@test.com", name: "jane"},
])
```

Second, attempt to create a unique index for the email field of the `users` collection:

```
db.users.createIndex({email: 1},{unique:true})
```

MongoDB returned the following error:

```
MongoServerError: Index build failed: 95f78956-d5d0-4882-bfe0-2d856df18c61: Co
```

The reason is that the email has duplicate entries `john@test.com`.

Typically, you create a unique index on a collection before inserting any data. By doing this, you ensure uniqueness constraints from the start.

If you create a unique index on a collection that contains data, you run the risk of failure because the collection may have duplicate values. When duplicate values exist, the unique index creation fails as shown in the previous example.

To fix this, you need to review data and remove the duplicate entries manually before creating the unique index. For example:

First, delete the duplicate user:

```
db.users.deleteOne({name:'johny', email: 'john@test.com'});
```

Output:

```
{ acknowledged: true, deletedCount: 1 }
```

Then, create a unique index for the email field:

```
db.users.createIndex({email: 1},{unique:true})
```

Output:

```
email_1
```

Unique compound index

When a unique index contains more than one field, it is called a unique compound index. A unique compound index ensures the uniqueness of the combination of fields.

For example, if you create a unique compound index for the field1 and field2, the following values are unique:

field1	field2	Combination
1	1	(1,1)
1	2	(1,2)
2	1	(2,1)
2	2	(2,2)

However, the following values are duplicate:

field1	field2	Combination
1	1	(1,1)
1	1	(1,1) -> duplicate
2	1	(2,1)
2	1	(2,1) -> duplicate

To create a unique compound index, you specify fields in the index specification like this:

```
db.collection.createIndex({field1: 1, field2: 1}, {unique: true});
```

Let's take the example of using the unique compound index.

First, create a `locations` collection by adding one location to it:

```
db.locations.insertOne({
        address: "Downtown San Jose, CA, USA",
        lat: 37.335480,
        long: -121.893028
})
```

Second, create a unique compound index for the `lat` and `long` fields of the `locations` collection:

```
db.locations.createIndex({
        lat: 1,
        long: 1
},{ unique: true });
```

Output:

```
lat_1_long_1
```

Third, insert a location with the `lat` value that already exists:

```
db.locations.insertOne({
        address: "Dev Bootcamp, San Jose, CA, USA",
        lat: 37.335480,
        long: -122.893028
})
```

It works because the `lat_1_long_1` index only checks the duplicate of the combination of lat and long values.

Finally, attempt to insert a location with the `lat` and `long` that already exists:

```
db.locations.insertOne({
        address: "Central San Jose, CA, USA",
        lat: 37.335480,
        long: -121.893028
})
```

MongoDB issued the following error:

```
MongoServerError: E11000 duplicate key error collection: mflix.locations index
```

Summary

- A unique index enforces the uniqueness of values for a field in a collection.
- A unique compound index enforces the uniqueness of combination of values of multiple fields in a collection.
- Use the `createIndex()` method with the option `{ unique: true }` to create a unique index and compound unique index.

Was this tutorial helpful ?

ADVERTISEMENTS

UP NEXT
MongoDB Tools

PREVIOUSLY
MongoDB Compound index

Search …