

EXPERIMENT 04

Projection Operators

4. Create and demonstrate how projection operators (\$, \$elemmatch and \$slice) would be used in the MongoDB.

Projection operators in MongoDB are used to shape the documents returned in the query results by including, excluding, or manipulating fields. Here are some commonly used projection operators:

1. Include Specific Fields:

- `{ field1: 1, field2: 1 }`: Includes only the specified fields in the result.

2. Exclude Specific Fields:

- `{ field1: 0, field2: 0 }`: Excludes the specified fields from the result.

3. Include the `_id` Field:

- `{ _id: 1 }`: Includes the `_id` field in the result. This is included by default unless explicitly excluded.

4. Exclude the `_id` Field:

- `{ _id: 0 }`: Excludes the `_id` field from the result.

5. Array Projection Operators:

- `$`: Projects the first element of an array.
- `$slice`: Projects a subset of elements of an array.
- `$elemMatch`: Projects only the first element that matches the specified condition in an array.

6. Meta-projection Operators:

- ``$meta``: Projects metadata associated with each matching document, such as the score in text search queries.

7. Computed Fields:

- ``$addFields``: Adds new fields to the documents in the result.
- ``$project``: Reshapes documents by including, excluding, or renaming fields.

Here's an example of using projection operators in MongoDB:

```
// Include only the "name" and "age" fields, excluding "_id"
```

```
db.users.find({}, { name: 1, age: 1, _id: 0 });
```

```
// Exclude the "password" field from the query result
```

```
db.users.find({}, { password: 0 });
```

```
// Project the first three elements of the "scores" array field
```

```
db.students.find({}, { scores: { $slice: 3 } });
```

```
// Include only the first matching element in the "scores" array field greater than 70
```

```
db.students.find({}, { scores: { $elemMatch: { $gt: 70 } } });
```

```
// Include metadata associated with the text search score
```

```
db.articles.find({ $text: { $search: "mongodb" } }, { _id: 0, score: { $meta: "textScore" } });
```

These projection operators provide flexibility in shaping query results according to specific requirements.

