

Name : Rajkumar B L
Reg.No : 2047120
Course : MCS 273 NoSQL (Lab 03)

Indexe Types:

A. Single Index

DB name – binodcarshare

Table/Collection – members

```
> db.members.createIndex({MemId:-1})
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 1,
  "numIndexesAfter" : 2,
  "ok" : 1
}
> db.members.getIndexes();
[
  {
    "v" : 2,
    "key" : {
      "_id" : 1
    },
    "name" : "_id_"
  },
  {
    "v" : 2,
    "key" : {
      "MemId" : -1
    },
    "name" : "MemId_-1"
  }
]
>
```

B. Compound Index

```
> db.members.createIndex({MemId:-1, Age:1});
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 2,
  "numIndexesAfter" : 3,
  "ok" : 1
}
> db.members.getIndexes();
[
  {
    "v" : 2,
    "key" : {
      "_id" : 1
    },
    "name" : "_id_"
  },
  {
    "v" : 2,
    "key" : {
      "MemId" : -1
    },
    "name" : "MemId_-1"
  },
  {
    "v" : 2,
    "key" : {
      "MemId" : -1,
      "Age" : 1
    },
    "name" : "MemId_-1_Age_1"
  }
]
```

C. Muti-Key Index.

```
> db.members.createIndex({"Booking.price":1});
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 3,
  "numIndexesAfter" : 4,
  "ok" : 1
}
> db.members.getIndexes();
[
  {
    "v" : 2,
    "key" : {
      "_id" : 1
    },
    "name" : "_id_"
  },
  {
    "v" : 2,
    "key" : {
      "MemId" : -1
    },
    "name" : "MemId_-1"
  },
  {
    "v" : 2,
    "key" : {
      "MemId" : -1,
      "Age" : 1
    },
    "name" : "MemId_-1_Age_1"
  },
  {
    "v" : 2,
    "key" : {
      "Booking.price" : 1
    },
    "name" : "Booking.price_1"
  }
]
```

D. Text Index.

```
> db.members.createIndex({"title":"text"});
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 4,
  "numIndexesAfter" : 5,
  "ok" : 1
}
```

```
> db.members.dropIndexes();
{
  "nIndexesWas" : 5,
  "msg" : "non-_id indexes dropped for collection",
  "ok" : 1
}
> db.members.getIndexes();
[ { "v" : 2, "key" : { "_id" : 1 }, "name" : "_id_" } ]
>
```

Index properties:

A. Unique

```
> db.members.createIndex( { "MemId": 1 }, { unique: true } )
{
  "ok" : 0,
  "errmsg" : "Index build failed: f19c4630-d0ed-4cfe-857a-39677814350f: Collection binodcarshare.members ( 1bb09c4a-8ecd-41a8-9dad-e0e97ed89f12 ) :: caused by :: E11000 duplicate key error collection: binodcarshare.members index: MemId_1 dup key: { MemId: null }",
  "code" : 11000,
  "codeName" : "DuplicateKey",
  "keyPattern" : {
    "MemId" : 1
  },
  "keyValue" : {
    "MemId" : null
  }
}
```

```
> db.members.createIndex( { "MemId": 1 }, { unique: true } )
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 1,
  "numIndexesAfter" : 2,
  "ok" : 1
}
```

B. Partial

```
> db.members.createIndex( { "MemId":-1 }, { partialFilterExpression: { Age: { $gt:22 } } });
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 2,
  "numIndexesAfter" : 3,
  "ok" : 1
}
```

C. Sparse

```
> db.members.createIndex( { "Age":1 }, { sparse : true});
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 3,
  "numIndexesAfter" : 4,
  "ok" : 1
}
>
```

Collation:

```
> db.members.find({Age:{$gt:30}}).collation({locale:"en_US"}).pretty();
{
  "_id" : ObjectId("601995668ed7c3052bbbedee8"),
  "MemId" : 6,
  "Name" : "Kevin",
  "Age" : 32,
  "title" : "Lawyer",
  "Address" : {
    "city" : "Cbe",
    "State" : "TN"
  },
  "Booking" : {
    "car" : "Inova",
    "body" : "Full",
    "price" : 12000
  },
  "Balance" : 12970,
  "Contact" : [
    9381025018
  ]
}
>
```

Covered Queries:

```
> db.members.createIndex( { "Age":-1});
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 4,
  "numIndexesAfter" : 5,
  "ok" : 1
}
> db.members.find({Age:{$gt:26}},{Age:1});
{ "_id" : ObjectId("601995668ed7c3052bbedee6"), "Age" : 30 }
{ "_id" : ObjectId("601995668ed7c3052bbedee8"), "Age" : 32 }
```