

Lab 2

- Insert document in database.

```
mongosh mongodb+srv://<credentials>@cluster0.7nj7qs7.mongodb.net/myfirstDatabase
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.planets.insertOne(
... {
...   _id: ObjectId("621ff30d2a3e781873fcb65a"),
...   name: 'Pluto',
...   orderFromSun: 9,
...   mainAtmosphere: [ 'N2', 'CO', 'CH4' ],
...   surfaceTemperatureC: { min: null, max: null, mean: -375 }
... }
... )
{
  acknowledged: true,
  insertedId: ObjectId("621ff30d2a3e781873fcb65a")
}
Atlas atlas-jp30ay-shard-0 [primary] sample_guides>
```

- Executing update operations using all update operators (\$set, \$unset, \$push, etc).

```
mongosh mongodb+srv://<credentials>@cluster0.7nj7qs7.mongodb.net/myfirstDatabase
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.planets.updateOne(
... { _id: ObjectId("621ff30d2a3e781873fcb65a") },
... { $set:
... {
...   surfaceTemperatureC: { min: null, max: null, mean: -400 }
... }
... }
... )
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
Atlas atlas-jp30ay-shard-0 [primary] sample_guides>
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.planets.find();
[
  {
    _id: ObjectId("621ff30d2a3e781873fcb65a"),
    name: 'Pluto',
    orderFromSun: 9,
    hasRings: false,
    mainAtmosphere: [ 'N2', 'CO', 'CH4' ],
    surfaceTemperatureC: { min: null, max: null, mean: -400 }
  }
]
Atlas atlas-jp30ay-shard-0 [primary] sample_guides>
```

```
mongosh mongodb+srv://<credentials>@cluster0.7nj7qs7.mongodb.net/myfirstDatabase
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.planets.updateOne(
... { mainAtmosphere: "unknown" },
... { $unset: { surfaceTemperatureC: "" } }
... )
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 0,
  modifiedCount: 0,
  upsertedCount: 0
}
Atlas atlas-jp30ay-shard-0 [primary] sample_guides>
```

```
mongosh mongodb+srv://<credentials>@cluster0.7nj7qs7.mongodb.net/myfirstDatabase
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.planets.find({_id: ObjectId("621ff30d2a3e781873fcb65a")})
[
  {
    _id: ObjectId("621ff30d2a3e781873fcb65a"),
    name: 'Pluto',
    orderFromSun: 9,
    hasRings: false,
    mainAtmosphere: [ 'N2', 'CO', 'CH4', 'H2' ],
    surfaceTemperatureC: { min: null, max: null, mean: -400 }
  }
]
Atlas atlas-jp30ay-shard-0 [primary] sample_guides>
```

- Executing insertion queries with both insertOne and insertMany with ordered flag.

```
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.newColl.insertOne(
... { _id: ObjectId("621ff30d2a3e781873fcb65b"), mainAtmosphere: [ 'H2', 'He', 'CH4', 'H2' ], {ordered : true}}
{
  acknowledged: true,
  insertedId: ObjectId("621ff30d2a3e781873fcb65b")
}
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.newColl.find({_id: ObjectId("621ff30d2a3e781873fcb65b")});
[
  {
    _id: ObjectId("621ff30d2a3e781873fcb65b"),
    mainAtmosphere: [ 'H2', 'He', 'CH4', 'H2' ]
  }
]
Atlas atlas-jp30ay-shard-0 [primary] sample_guides>
```

```
mongosh mongodb+srv://<credentials>@cluster0.7nj7qs7.mongodb.net/myFirstDatabase
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.newColl.insertOne(
... { mainAtmosphere: [ 'H2', 'He', 'CH4', 'H2', 'CO2' ],
... {ordered : false}
... }
{
  acknowledged: true,
  insertedId: ObjectId("6409d108800b3c89ba0bfd1d")
}
Atlas atlas-jp30ay-shard-0 [primary] sample_guides>
```

- Executing deleteOne and deleteMany operations.

```
mongosh mongodb+srv://<credentials>@cluster0.7nj7qs7.mongodb.net/myFirstDatabase
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.planets.deleteOne({_id: ObjectId("621ff30d2a3e781873fcb65a")});
{ acknowledged: true, deletedCount: 1 }
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.planets.find({_id: ObjectId("621ff30d2a3e781873fcb65a")});
Atlas atlas-jp30ay-shard-0 [primary] sample_guides>
```

```
mongosh mongodb+srv://<credentials>@cluster0.7nj7qs7.mongodb.net/myFirstDatabase
Atlas atlas-jp30ay-shard-0 [primary] sample_guides> db.planets.deleteMany({mainAtmosphere: ['H2' ]});
{ acknowledged: true, deletedCount: 0 }
Atlas atlas-jp30ay-shard-0 [primary] sample_guides>
```

- Creating indexes (single field, compound, multi-key and text indexes).

```
mongosh mongodb+srv://<credentials>@cluster0.7nj7qs7.mongodb.net/myFirstDatabase
Atlas atlas-jp30ay-shard-0 [primary] sample_mflix> db.movies.createIndex({runtime : 250});
runtime_250
Atlas atlas-jp30ay-shard-0 [primary] sample_mflix> db.movies.getIndexes();
TypeError: db.movies.getIndexes is not a function
Atlas atlas-jp30ay-shard-0 [primary] sample_mflix> db.movies.getIndexes();
[
  { v: 2, key: { _id: 1 }, name: '_id_' },
  {
    v: 2,
    key: { _fts: 'text', _ftsx: 1 },
    name: 'cast_text_fullplot_text_genres_text_title_text',
    weights: { cast: 1, fullplot: 1, genres: 1, title: 1 },
    default_language: 'english',
    language_override: 'language',
    textIndexVersion: 3
  },
  { v: 2, key: { runtime: 250 }, name: 'runtime_250' }
]
Atlas atlas-jp30ay-shard-0 [primary] sample_mflix>
```

```
mongosh mongodb+srv://<credentials>@cluster0.7nj7qs7.mongodb.net/myFirstDatabase
Atlas atlas-jp30ay-shard-0 [primary] sample_mflix> db.movies.createIndex({year : 2023, type : 700})
year_2023_type_700
Atlas atlas-jp30ay-shard-0 [primary] sample_mflix>
[
  { v: 2, key: { _id: 1 }, name: '_id_' },
  {
    v: 2,
    key: { _fts: 'text', _ftsx: 1 },
    name: 'cast_text_fullplot_text_genres_text_title_text',
    weights: { cast: 1, fullplot: 1, genres: 1, title: 1 },
    default_language: 'english',
    language_override: 'language',
    textIndexVersion: 3
  },
  { v: 2, key: { runtime: 250 }, name: 'runtime_250' },
  { v: 2, key: { year: 2023, type: 700 }, name: 'year_2023_type_700' }
]
Atlas atlas-jp30ay-shard-0 [primary] sample_mflix>
```

```
mongosh mongodb+srv://<credentials>@cluster0.7nj7qs7.mongodb.net/myFirstDatabase
Atlas atlas-jp30ay-shard-0 [primary] sample_mflix> db.movies.createIndex({genres : 345 });
genres_345
Atlas atlas-jp30ay-shard-0 [primary] sample_mflix> db.movies.getIndexes();
[
  { v: 2, key: { _id: 1 }, name: '_id_' },
  {
    key: { _fts: 'text', _ftsx: 1 },
    v: 2, 'cast_text_fullplot_text_genres_text_title_text',
    key: { _fts: 'text', _ftsx: 1 }, genres: 1, title: 1 },
    name: 'cast_text_fullplot_text_genres_text_title_text',
    weights: { cast: 1, fullplot: 1, genres: 1, title: 1 },
    default_language: 'english',
    language_override: 'language',
    textIndexVersion: 3e: 250 }, name: 'runtime_250' },
  { v: 2, key: { year: 2023, type: 700 }, name: 'year_2023_type_700' },
  { v: 2, key: { runtime: 250 }, name: 'runtime_250' },
  { v: 2, key: { year: 2023, type: 700 }, name: 'year_2023_type_700' },
  { v: 2, key: { genres: 345 }, name: 'genres_345' }
]
Atlas atlas-jp30ay-shard-0 [primary] sample_mflix>
```

- Using cursor.explain with different queries and reading and understanding the winningPlan.

```

Atlas atlas-jp30ay-shard-0 [primary] sample_mflix> db.movies.find((runtime : {$gte : 33})).explain();
{
  explainVersion: '1',
  queryPlanner: {
    namespace: 'sample_mflix.movies',
    indexFilterSet: false,
    parsedQuery: { runtime: { '$gte': 33 } },
    maxIndexedOrSolutionsReached: false,
    maxIndexedAndSolutionsReached: false,
    maxScansToExplodeReached: false,
    winningPlan: {
      stage: 'FETCH',
      inputStage: {
        stage: 'IXSCAN',
        keyPattern: { runtime: 250 },
        indexName: 'runtime_250',
        isMultiKey: false,
        multiKeyPaths: { runtime: [] },
        isUnique: false,
        isSparse: false,
        isPartial: false,
        indexVersion: 2,
        direction: 'forward',
        indexBounds: { runtime: [ '[33, inf.0]' ] }
      },
      rejectedPlans: []
    },
    commands: {
      find: 'movies',
      filter: { runtime: { '$gte': 33 } },
      '$db': 'sample_mflix'
    },
    serverInfo: {
      host: 'ac-zgaoe2u-shard-00-02.7nj7qs7.mongodb.net',
      port: 27017,
      version: '5.0.15',
      gitVersion: '935639beed3d0c19c2551c93854b831107c0b118'
    },
    serverParameters: {
      internalQueryFacetBufferSizeBytes: 104857600,
      internalQueryFacetMaxOutputDocSizeBytes: 104857600,
      internalLookupStageIntermediateDocumentMaxSizeBytes: 16793600,
      internalDocumentSourceGroupMaxMemoryBytes: 104857600,
      internalQueryMaxBlockingSortMemoryUsageBytes: 33554432,
      internalQueryProhibitBlockingMergeOnMongoS: 0,
      internalQueryMaxAddToSetBytes: 104857600,
      internalDocumentSourceSetWindowFieldsMaxMemoryBytes: 104857600
    },
    ok: 1,
  }
}

```

```

Atlas atlas-jp30ay-shard-0 [primary] sample_mflix> db.movies.find((year : 2023 , type : "movie")).explain();
{
  explainVersion: '1',
  queryPlanner: {
    namespace: 'sample_mflix.movies',
    indexFilterSet: false,
    parsedQuery: {
      '$and': [ { type: { '$eq': 'movie' } }, { year: { '$eq': 2023 } } ]
    },
    maxIndexedOrSolutionsReached: false,
    maxIndexedAndSolutionsReached: false,
    maxScansToExplodeReached: false,
    winningPlan: {
      stage: 'FETCH',
      inputStage: {
        stage: 'IXSCAN',
        keyPattern: { year: 2023, type: 700 },
        indexName: 'year_2023_type_700',
        isMultiKey: false,
        multiKeyPaths: { year: [], type: [] },
        isUnique: false,
        isSparse: false,
        isPartial: false,
        indexVersion: 2,
        direction: 'forward',
        indexBounds: { year: [ '[2023, 2023]' ], type: [ '["movie", "movie"]' ] }
      },
      rejectedPlans: []
    },
    command: {
      find: 'movies',
      filter: { year: 2023, type: 'movie' },
      '$db': 'sample_mflix'
    },
    serverInfo: {
      host: 'ac-zgaoe2u-shard-00-02.7nj7qs7.mongodb.net',
      port: 27017,
      version: '5.0.15',
      gitVersion: '935639beed3d0c19c2551c93854b831107c0b118'
    },
    serverParameters: {
      internalQueryFacetBufferSizeBytes: 104857600,
      internalQueryFacetMaxOutputDocSizeBytes: 104857600,
      internalLookupStageIntermediateDocumentMaxSizeBytes: 16793600,
      internalDocumentSourceGroupMaxMemoryBytes: 104857600,
      internalQueryMaxBlockingSortMemoryUsageBytes: 33554432,
      internalQueryProhibitBlockingMergeOnMongoS: 0,
      internalQueryMaxAddToSetBytes: 104857600,
      internalDocumentSourceSetWindowFieldsMaxMemoryBytes: 104857600
    },
    ok: 1,
  }
}

```