

Part-2 OLTP Queries

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Github Link - [ashutosh-kumar10/BDS-Assignment \(github.com\)](https://github.com/ashutosh-kumar10/BDS-Assignment)

Loom Video Link - <https://www.loom.com/share/2fd88791aa414995b18de8fb35c64a78>

Query Execution Snapshot:

1) Query to filter and sort by 'track_genre' (alphabetical order)

```
db.spotify.find({ track_genre: 'acoustic' }).sort({ track_genre: 1 });
Atlas atlas-erydsr-shard-0 [primary] spotify> db.spotify.find({ track_genre: 'acoustic' }).sort({ track_genre: 1 });
[
  {
    _id: ObjectId("6587223b8bd7b22648c891c3"),
    track_id: '5SuDikwi8yPMVoIQ0Jug3V',
    artists: 'Gen Hoshino',
    album_name: 'Comedy',
    track_name: 'Comedy',
    popularity: '73',
    duration_ms: '238666',
    explicit: 'FALSE',
  }
]
```

2) Example: Retrieve tracks in the 'acoustic' genre, sorted by popularity in descending order.

```
db.spotify.createIndex({ track_genre: 1 });
db.spotify.createIndex({ popularity: -1 });
// Sorting query using aggregation pipeline
db.spotify.aggregate([
  { $match: { track_genre: 'acoustic' } }, // Filtering
  { $sort: { popularity: -1 } } // Sorting by popularity in descending order
]);
Atlas atlas-erydsr-shard-0 [primary] spotify> db.spotify.createIndex({ track_genre: 1 });
track_genre_1
Atlas atlas-erydsr-shard-0 [primary] spotify> db.spotify.createIndex({ popularity: -1 });
popularity_-1
Atlas atlas-erydsr-shard-0 [primary] spotify> db.spotify.aggregate([
... { $match: { track_genre: 'acoustic' } }, // Filtering
... { $sort: { popularity: -1 } } // Sorting by popularity in descending order
... ]);
[
  {
    _id: ObjectId("6587223d8bd7b22648c891c7"),
    track_id: '5vjLSffim1IP26QG5WcN2K',
    artists: 'Chord Overstreet',
    album_name: 'Hold On',
    track_name: 'Hold On',
    popularity: '87'
  }
]
```

3) Covered Query for Retrieving Acoustic Tracks

// Create an index on 'track_genre'

```
db.spotify.createIndex({ track_genre: 1 });
```

// Covered query using the index

```
db.spotify.find({ track_genre: 'acoustic' }, { track_id: 1, track_genre: 1 });
```

```
Atlas atlas-erydsr-shard-0 [primary] spotify> db.spotify.createIndex({ track_genre: 1 });
track_genre_1
Atlas atlas-erydsr-shard-0 [primary] spotify> db.spotify.find({ track_genre: 'acoustic' }, { track_id: 1, track_genre: 1 });
[
  {
    _id: ObjectId("6587223b8bd7b22648c891c3"),
    track_id: '5SuDikwi8yPMVoIQ0Jug3V',
    track_genre: 'acoustic'
  },
  {
    _id: ObjectId("6587223c8bd7b22648c891c4"),
    track_id: '4qPND0W1i3p13qLct0K13A',
  }
]
```

4) Partitioning (Example using Range-based Partitioning):

// Assuming 'time_signature' is a relevant key for partitioning

```
db.spotify.createIndex({ time_signature: 1 }); // Indexing for better query performance
```

// Query for data within a specific partition (e.g., time_signature = 4)

```
db.spotify.find({ time_signature: "4" });
```

```

Atlas atlas-erydsr-shard-0 [primary] spotify> db.spotify.createIndex({ time_signature: 1 });
time_signature_1
Atlas atlas-erydsr-shard-0 [primary] spotify> db.spotify.find({ time_signature: "4" });
[
  {
    _id: ObjectId("6587223b8bd7b22648c891c3"),
    track_id: '5Su0ikwiRyPMVoIQDJUgSV',
    artists: 'Gen Hoshino',
    album_name: 'Comedy',
    track_name: 'Comedy'
  }
]

```

API Service End Points

FastAPI 0.1.0 OAS 3.1
/openapi.json

Spotify

GET	/spotify/	List Music	⌵
POST	/spotify/	Create Music	⌵
GET	/spotify/{id}	Find Music	⌵
PUT	/spotify/{id}	Update Music	⌵
DELETE	/spotify/{id}	Delete Music	⌵

Response for calling spotify/{id} end point for track id - 4qPNDBW1i3p13qLCt0Ki3A

```

curl -X 'GET' \
  'http://localhost:8000/spotify/4qPNDBW1i3p13qLCt0Ki3A' \
  -H 'accept: application/json'

```

Request URL

http://localhost:8000/spotify/4qPNDBW1i3p13qLCt0Ki3A

Server response

Code Details

200

Response body

```

{
  "track_id": "4qPNDBW1i3p13qLCt0Ki3A",
  "artists": "Ben Woodward",
  "album_name": "Ghost (Acoustic)",
  "track_name": "Ghost - Acoustic",
  "popularity": 55,
  "duration_ms": 149610,
  "explicit": "FALSE",
  "danceability": 0.42,
  "energy": 0.166,

```