

## Example of NoSQL (MongoDb) Queries

Q1: Find the count of total number of records in the collection.

```
> use Laureate
< 'switched to db Laureate'
> db.laureate2.count();
< 955
```

Q2: Find the count of records for each diedCountryCode in descending order of count.

```
> db.laureate2.find().sort({"diedCountryCode": -1})
< { _id: ObjectId("622375569affc1beaed12a48"),
  id: '520',
  firstname: 'Dag',
  surname: 'Hammar skjold',
  born: '1905-07-29',
  died: '1961-09-18',
  bornCountry: 'Sweden',
  bornCountryCode: 'SE',
  bornCity: 'Jonkoping',
  diedCountry: 'Northern Rhodesia (now Zambia)',
  diedCountryCode: 'ZM',
  diedCity: 'Ndola',
  gender: 'male',
  prizes:
    [ { year: '1961',
      category: 'peace',
      share: '1',
      motivation: '"for developing the UN into an effective and constructive international organization, capable of giving life to the principles and aims expressed in the UN Charter"',
      affiliations: [ [ ] ] } ] }
```

```
{ __id: ObjectId("622375569affc1beaed12a47"),
  id: '519',
  firstname: 'Albert',
  surname: 'Luthuli',
  born: '1898-00-00',
  died: '1967-07-21',
  bornCountry: 'Southern Rhodesia (now Zimbabwe)',
  bornCountryCode: 'ZW',
  bornCity: 'Bulawayo',
  diedCountry: 'South Africa',
  diedCountryCode: 'ZA',
  diedCity: 'Stanger',
  gender: 'male',
  prizes:
    [ { year: '1960',
        category: 'peace',
        share: '1',
        motivation: '"for his non-violent struggle against apartheid"',
        affiliations: [ [ ] ] } ] }
{ __id: ObjectId("622375569affc1beaed12a68"),
  id: '555',
  firstname: 'Nelson',
  surname: 'Mandela',
  born: '1918-07-18',
  died: '2013-12-05',
  bornCountry: 'South Africa',
```

```
  diedCountryCode: 'ZA',
  diedCity: 'Johannesburg',
  gender: 'male',
  prizes:
    [ { year: '1993',
        category: 'peace',
        share: '2',
        motivation: '"for their work for the peaceful termination of the apartheid regime, and for laying the foundations for a new democratic South Africa"',
        affiliations: [ [ ] ] } ] }
{ __id: ObjectId("622375569affc1beaed12acd"),
  id: '668',
  firstname: 'Nadine',
  surname: 'Gordimer',
  born: '1923-11-20',
  died: '2014-07-13',
  bornCountry: 'South Africa',
  bornCountryCode: 'ZA',
  bornCity: 'Springs',
  diedCountry: 'South Africa',
  diedCountryCode: 'ZA',
  diedCity: 'Johannesburg',
  gender: 'female',
  prizes:
    [ { year: '1991',
        category: 'literature',
```

Q3: Find the count of records for each prizes.category in descending order of count.

```
> db.laureate2.find({}).sort({"prizes.category" : -1})
< { _id: ObjectId("622375569affc1beaed12848"),
  id: '1',
  firstname: 'Wilhelm Conrad',
  surname: 'Rontgen',
  born: '1845-03-27',
  died: '1923-02-10',
  bornCountry: 'Prussia (now Germany)',
  bornCountryCode: 'DE',
  bornCity: 'Lennep (now Remscheid)',
  diedCountry: 'Germany',
  diedCountryCode: 'DE',
  diedCity: 'Munich',
  gender: 'male',
  prizes:
    [ { year: '1901',
      category: 'physics',
      share: '1',
      motivation: '"in recognition of the extraordinary services he has rendered by the discovery of the remarkable rays subsequently named after him"',
      affiliations: [ { name: 'Munich University', city: 'Munich', country: 'Germany' } ] ] },
  { _id: ObjectId("622375569affc1beaed12849"),
  id: '2',
  firstname: 'Hendrik A.',
  surname: 'Lorentz',
  born: '1853-07-18',
  died: '1928-02-04',
  bornCountry: 'the Netherlands',
  bornCountryCode: 'NL',
  bornCity: 'Arnhem',
  diedCountry: 'the Netherlands',
  diedCountryCode: 'NL',
  gender: 'male',
  prizes:
    [ { year: '1902',
      category: 'physics',
      share: '2',
      motivation: '"in recognition of the extraordinary service they rendered by their researches into the influence of magnetism upon radiation phenomena"',
      affiliations:
        [ { name: 'Leiden University',
            city: 'Leiden',
            country: 'the Netherlands' } ] ] },
  { _id: ObjectId("622375569affc1beaed1284a"),
  id: '3',
  firstname: 'Pieter',
  surname: 'Zeeman',
  born: '1865-05-25',
  died: '1943-10-09',
  bornCountry: 'the Netherlands',
  bornCountryCode: 'NL',
  bornCity: 'Zonnemaire',
```

```

diedCountry: 'the Netherlands',
diedCountryCode: 'NL',
diedCity: 'Amsterdam',
gender: 'male',
prizes:
  [ { year: '1902',
      category: 'physics',
      share: '2',
      motivation: '"in recognition of the extraordinary service they rendered by their researches into the influence of magnetism upon radiation phenomena"',
      affiliations:
        [ { name: 'Amsterdam University',
            city: 'Amsterdam',
            country: 'the Netherlands' } ] ] ]
(
  _id: ObjectId("622375569affc1beaed1284b"),
  id: '4',
  firstname: 'Henri',
  surname: 'Becquerel',
  born: '1852-12-15',
  died: '1908-08-25',
  bornCountry: 'France',
  bornCountryCode: 'FR',
  bornCity: 'Paris',
  diedCountry: 'France',
  diedCountryCode: 'FR',
  gender: 'male',

```

Q4: Find the count of records for each gender, diedCountryCode, prize.category when prize.category is “physics”. Order the output by diedCountryCode.

```

> db.laureate2.find({ "prizes": { $elemMatch: { category : "physics" } } }, { gender: 1, diedCountryCode: 1, "prizes.category": 1 }).sort({"diedCountryCode":-1})
< (
  _id: ObjectId("622375569affc1beaed12851"),
  diedCountryCode: 'US',
  gender: 'male',
  prizes: [ { category: 'physics' } ] ]
(
  _id: ObjectId("622375569affc1beaed12854"),
  diedCountryCode: 'US',
  gender: 'male',
  prizes: [ { category: 'physics' } ] ]
(
  _id: ObjectId("622375569affc1beaed12860"),
  diedCountryCode: 'US',
  gender: 'male',
  prizes: [ { category: 'physics' } ] ]
(
  _id: ObjectId("622375569affc1beaed12862"),
  diedCountryCode: 'US',
  gender: 'male',
  prizes: [ { category: 'physics' } ] ]
(
  _id: ObjectId("622375569affc1beaed12866"),
  diedCountryCode: 'US',
  gender: 'male',
  prizes: [ { category: 'physics' } ] ]
(
  _id: ObjectId("622375569affc1beaed12867"),
  diedCountryCode: 'US',
  gender: 'male',
  prizes: [ { category: 'physics' } ] ]

```

```
{ _id: ObjectId("622375569affc1beaed1286e"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }  
{ _id: ObjectId("622375569affc1beaed12870"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }  
{ _id: ObjectId("622375569affc1beaed12871"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }  
{ _id: ObjectId("622375569affc1beaed12872"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }  
{ _id: ObjectId("622375569affc1beaed12874"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }  
{ _id: ObjectId("622375569affc1beaed12875"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }
```

```
{ _id: ObjectId("622375569affc1beaed12875"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }  
{ _id: ObjectId("622375569affc1beaed12876"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }  
{ _id: ObjectId("622375569affc1beaed12877"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }  
{ _id: ObjectId("622375569affc1beaed12879"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }  
{ _id: ObjectId("622375569affc1beaed12881"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }  
{ _id: ObjectId("622375569affc1beaed12885"),  
  diedCountryCode: 'US',  
  gender: 'male',  
  prizes: [ { category: 'physics' } ] }
```

Q5: Come up with your own query to show any interesting insight. Use at least two fields for match and two fields for group.

### Random Insights:

Query used to find out people who won Nobel prizes on peace sorted in the descending order of year, just to get the idea of who got the latest Nobel Prize in peace category.

```
> db.laureate2.find({'prizes': {'$elemMatch': {'category': 'peace'}}},
                  ['firstname', 'surname', 'prizes.category', 'prizes.year', 'prizes.motivation']).sort({'prizes.year': -1})
< { _id: ObjectId("622375569affc1beaed12c00"),
  firstname: 'World Food Programme',
  prizes:
    [ { year: '2020',
        category: 'peace',
        motivation: '"for its efforts to combat hunger, for its contribution to bettering conditions for peace in conflict-affected areas and for acting as a driving force in efforts to prevent the use of hunger as a weapon of war and conflict"' } ] }
  { _id: ObjectId("622375569affc1beaed12bf3"),
    firstname: 'Abiy',
    surname: 'Ahmed Ali',
    prizes:
      [ { year: '2019',
          category: 'peace',
          motivation: '"for his efforts to achieve peace and international cooperation, and in particular for his decisive initiative to resolve the border conflict with neighbouring Eritrea"' } ] }
```

```
  { _id: ObjectId("622375569affc1beaed12bf3"),
    firstname: 'Abiy',
    surname: 'Ahmed Ali',
    prizes:
      [ { year: '2019',
          category: 'peace',
          motivation: '"for his efforts to achieve peace and international cooperation, and in particular for his decisive initiative to resolve the border conflict with neighbouring Eritrea"' } ] }
  { _id: ObjectId("622375569affc1beaed12be4"),
    firstname: 'Denis',
    surname: 'Mukwege',
    prizes:
      [ { year: '2018',
          category: 'peace',
          motivation: '"for their efforts to end the use of sexual violence as a weapon of war and armed conflict"' } ] }
  { _id: ObjectId("622375569affc1beaed12be5"),
    firstname: 'Nadia',
    surname: 'Murad',
    prizes:
      [ { year: '2018',
          category: 'peace',
          motivation: '"for their efforts to end the use of sexual violence as a weapon of war and armed conflict"' } ] }
```

```
{ _id: ObjectId("622375569affc1beaed12bda"),
  firstname: 'International Campaign to Abolish Nuclear Weapons (ICAN)',
  prizes:
    [ { year: '2017',
        category: 'peace',
        motivation: '"for its work to draw attention to the catastrophic humanitarian consequences of any use of nuclear weapons and for its ground-breaking e
        fforts to achieve a treaty-based prohibition of such weapons"' } ] }
{ _id: ObjectId("622375569affc1beaed12bcc"),
  firstname: 'Juan Manuel',
  surname: 'Santos',
  prizes:
    [ { year: '2016',
        category: 'peace',
        motivation: '"for his resolute efforts to bring the country\'s more than 50-year-long civil war to an end"' } ] }
{ _id: ObjectId("622375569affc1beaed12bc3"),
  firstname: 'National Dialogue Quartet ',
  prizes:
    [ { year: '2015',
        category: 'peace',
        motivation: '"for its decisive contribution to the building of a pluralistic democracy in Tunisia in the wake of the Jasmine Revolution of 2011"' } ]
}
```



## Group queries:

Query to show the number of male and female Nobel laureates counted with birthCountry to see how many males and females got the Nobel prizes for their country.

```
> db.laureate2.aggregate( [
  {
    $group: {
      _id: {gender: "$gender", bornCountry: "$bornCountry"},
      count: { $sum: 1 }
    }
  }
] )
< { _id: { gender: 'male', bornCountry: 'Russian Empire (now Ukraine)' },
  count: 2 }
{ _id: { gender: 'male', bornCountry: 'Russian Empire (now Latvia)' },
  count: 1 }
{ _id: { gender: 'male', bornCountry: 'Bavaria (now Germany)' },
  count: 1 }
{ _id: { gender: 'male', bornCountry: 'Lithuania' }, count: 1 }
{ _id: { gender: 'male', bornCountry: 'South Africa' },
  count: 8 }
{ _id: { gender: 'male', bornCountry: 'Ottoman Empire (now Turkey)' },
  count: 1 }
{ _id: { gender: 'male', bornCountry: 'Trinidad and Tobago' },
  count: 1 }
{ _id: { gender: 'female', bornCountry: 'Kenya' }, count: 1 }
{ _id: { gender: 'male', bornCountry: 'Russian Empire (now Poland)' },
  count: 3 }
```

Query to show the recent deaths (which means in descending order of the death recorded year in the data) of the Nobel laureates to get to know that there were recent Nobel prizes given to people who passed away.

```
> db.laureate2.aggregate({
  $group:{_id:"$diedCountry", count:{$last: "$died"} }
})
< { _id: 'Sweden', count: '2015-03-26' }
{ _id: 'France', count: '2015-01-27' }
{ _id: 'Portugal', count: '1955-12-13' }
{ _id: 'Australia', count: '1990-09-30' }
{ _id: 'Romania', count: '1917-08-13' }
{ _id: 'Barbados', count: '1991-06-15' }
{ _id: 'South Africa', count: '2014-07-13' }
{ _id: 'Israel', count: '1970-02-17' }
{ _id: 'Philippines', count: '2015-10-09' }
{ _id: 'Mexico', count: '1998-04-19' }
{ _id: 'East Germany (now Germany)', count: '1975-10-30' }
{ _id: 'USSR (now Russia)', count: '1990-06-22' }
{ _id: null, count: '0000-00-00' }
{ _id: 'Saint Lucia', count: '2017-03-17' }
{ _id: 'Denmark', count: '1950-11-25' }
{ _id: 'Russia', count: '2019-03-01' }
{ _id: 'USA', count: '2020-09-21' }
{ _id: 'Jamaica', count: '1965-03-30' }
{ _id: 'Hungary', count: '2016-03-31' }
{ _id: 'Tunisia', count: '1936-02-28' }
```

## Match queries:

Query to show people who got the Nobel prizes in peace category who were born in Russia, since the war between Russia and Ukraine is ongoing. There are people in Russia too who got the Nobel peace prizes (quite an irony right now).

```
> db.laureate2.aggregate(
  [ { $match : { "prizes": { $elemMatch: { category : "peace" } }, bornCountry: "Russia" } } ]
)
< { _id: ObjectId("622375569affc1beaed12a54"),
  id: '534',
  firstname: 'Andrei',
  surname: 'Sakharov',
  born: '1921-05-21',
  died: '1989-12-14',
  bornCountry: 'Russia',
  bornCountryCode: 'RU',
  bornCity: 'Moscow',
  diedCountry: 'USSR (now Russia)',
  diedCountryCode: 'RU',
  diedCity: 'Moscow',
  gender: 'male',
  prizes:
  [ { year: '1975',
    category: 'peace',
    share: '1',
    motivation: '"for his struggle for human rights in the Soviet Union, for disarmament and cooperation between all nations"',
    affiliations: [ [ ] ] } ] }
```

Query to show Albert Einstein's Nobel prizes received for his work in the field of physics as he is one of the most famous scientist known by almost every one.

```
> db.laureate2.aggregate(
  [ { $match : { "prizes": { $elemMatch: { category : "physics" } }, firstname: "Albert", surname: "Einstein" } } ]
)
< { _id: ObjectId("622375569affc1beaed12860"),
  id: '26',
  firstname: 'Albert',
  surname: 'Einstein',
  born: '1879-03-14',
  died: '1955-04-18',
  bornCountry: 'Germany',
  bornCountryCode: 'DE',
  bornCity: 'Ulm',
  diedCountry: 'USA',
  diedCountryCode: 'US',
  diedCity: 'Princeton, NJ',
  gender: 'male',
  prizes:
  [ { year: '1921',
    category: 'physics',
    share: '1',
    motivation: '"for his services to Theoretical Physics, and especially for his discovery of the law of the photoelectric effect"',
    affiliations:
    [ { name: 'Kaiser-Wilhelm-Institut (now Max-Planck-Institut) fur Physik',
      city: 'Berlin',
      country: 'Germany' } ] } ] }
```