

GESTIÓN DE BASE DE DATOS

MONGODB

MARÍA JESÚS ALLOZA RODRÍGUEZ.
IES.GONZALO NAZARENO
MAYO 2022

mongo



DB

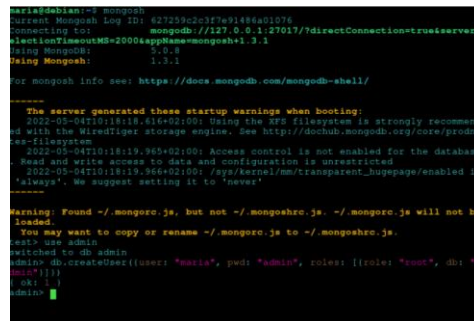
ÍNDICE

Creación de usuario	3
Conexión con el usuario	3
Importar json a mongodb.....	3
Modificaciones	4
Inserción	4
Borrado	5
Actualizar	5
Consultas	7
Consultas sencillas.....	7
Consultas con arrays.....	10
Consultas de datos embebidos.....	11
Consultas de agrupación.....	11

Creación de usuario

Para crear un usuario en mongoDB debemos hacer uso de la base de datos admin.

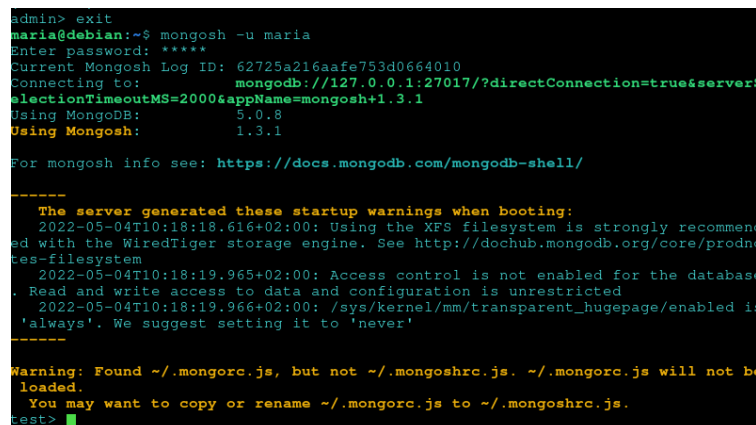
```
mongosh
-----
test> use admin
switched to db admin
db.createUser ({user:"user",pwd:"pwd",roles: [{role: "role",db:"admin"}]})
```



Conexión con el usuario

Para conectarnos, salimos de mongo y a través de la terminal escribimos:

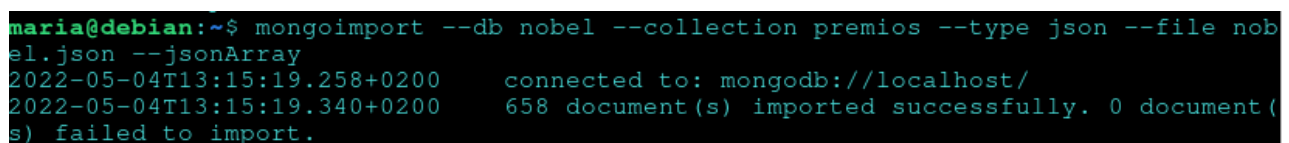
```
mongosh -u maria
```



Importar json a mongodb

Podemos importar un archivo json a una colección en mongodb. Para ello, haremos uso del comando mongoimport.

```
mongoimport --db <nombre-db> --collection <name> --type <type-file> --file <name-file> --jsonArray
```



Modificaciones

Inserción

- Insertar el año 2023.

```
db.nobel.insertOne ({ "year": "2023" })
```

```
nobel> db.nobel.find ({ "year": "2023" })
nobel> db.nobel.insert ({ "year": "2023" })
DeprecationWarning: Collection.insert() is deprecated. Use insertOne, insertMany, or bulkWrite.
{
  acknowledged: true,
  insertedIds: { '0': ObjectId("62837266906120d5427b18de") }
}
nobel> db.nobel.find ({ "year": "2023" })
[ { _id: ObjectId("62837266906120d5427b18de"), year: '2023' } ]
```

- Inserta en el año 2022 los siguientes datos:

- o Categoría: Peace
 - David Attenbourough
 - Sviatlana Tsikhnouskaya
- o Categoría: Economics
 - Dennis Sullivan.

```
db.nobel.insertMany ([
  {year:"2022",
  category:"Peace",laureates:
    [{id: "10001",
      firstname: "David",
      surname: "Attenbourough",
      motivation: "\"I wish the world was twice as big - and half of it was still
unexplored.\"\"",
      share: "2"},
      {id: "10002",
      firstname: "Sviatlana",
      surname: "Tsikhnouskaya",
      motivation: "\"I am not in politics for power. I am in it for justice.\"\"",
      share: "2"}]},
  {year:"2022",
  category:"Economics",laureates:
    [{id: "20002",
      firstname: "Dennis",
      surname: "Sullivan",
      motivation: "\"We can all be heroic. I mean, not necessarily by literally fighting
crime, but just by doing the right thing.\"\"",
      share: "1"}]}
]);
```

```
nobel> db.nobel.find ({ "year": "2002" })
[
  {
    _id: ObjectId("6282947ca292713433a05906"),
    year: '2002',
    category: 'Economics',
    laureates: [
      {
        id: '759',
        firstname: 'Daniel',
        surname: 'Kahneman',
        motivation: '"for having integrated insights from psychological research into economic
science, especially concerning human judgment and decision-making under uncertainty"',
        share: '2'
      },
      {
        id: '760',
        firstname: 'Vernon L.',
        surname: 'Smith',
        motivation: '"for having established laboratory experiments as a tool in empirical eco
nomic analysis, especially in the study of alternative market mechanisms"',
        share: '2'
      }
    ]
  },
  {
    _id: ObjectId("6282947ca292713433a05907"),
    year: '2002',
    category: 'Physics',
    laureates: [
      {
        id: '753',
        firstname: 'Raymond',
        surname: 'Davis Jr.',
        motivation: '"for pioneering contributions to astroPhysics, in particular for the dete
ction of cosmic neutrinos"',
        share: '4'
      },
      {
        id: '754',
        firstname: 'Masatoshi',
        surname: 'Koshiba',
        motivation: '"for pioneering contributions to astroPhysics, in particular for the dete
ction of cosmic neutrinos"',
        share: '4'
      },
      {
        id: '755',
        firstname: 'Riccardo',
        surname: 'Giacconi',
        motivation: '"for pioneering contributions to astroPhysics, which have led to the disc
overy of cosmic X-ray sources"',
        share: '2'
      }
    ]
  }
]
```

Borrado

- Borrar la categoría physics del año 1901.

```
db.nobel.find ({ "year": "1901", "category": "Physics" })
```

```
nobel> db.nobel.find ({ "year": "1901", "category": "Physics" });
[
  {
    _id: ObjectId("628298ab3ac75df71a75ef70"),
    year: '1901',
    category: 'Physics',
    laureates: [
      {
        id: '1',
        firstname: 'Wilhelm Conrad',
        surname: 'Röntgen',
        motivation: 'in recognition of the extraordinary services he has rendered by the discovery of the remarkable rays subsequently named after him',
        share: '1'
      }
    ]
  }
]
nobel> db.nobel.deleteOne ({ "year": "1901", "category": "Physics" });
{ acknowledged: true, deletedCount: 1 }
nobel> db.nobel.find ({ "year": "1901", "category": "Physics" });
nobel>
```

- Borrar la categoría medicine de todos los documentos.

```
db.nobel.deleteOne ({ "year": "1901", "category": "Medicine" })
```

```
    surname: 'Brenner',
    motivation: 'for their discoveries concerning genetic regulation of organ development and programmed cell death',
    share: '3'
  },
  {
    id: '751',
    firstname: 'H. Robert',
    surname: 'Horvitz',
    motivation: 'for their discoveries concerning genetic regulation of organ development and programmed cell death',
    share: '3'
  },
  {
    id: '752',
    firstname: 'John E.',
    surname: 'Sulston',
    motivation: 'for their discoveries concerning genetic regulation of organ development and programmed cell death',
    share: '3'
  }
]
Type "it" for more
nobel> db.nobel.deleteMany ({ "category": "Medicine" });
{ acknowledged: true, deletedCount: 242 }
nobel> db.nobel.find ({ "category": "Medicine" });
nobel>
```

Actualizar

- Actualizar el año 2023 e introducir la categoría “Economics”.

```
db.nobel.updateOne ({ "year": "2023" }, { $set: { "category": "Economics" } });
```

```
nobel> db.nobel.updateOne ({ "year": "2023" }, { $set: { "category": "Economics" } });
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
nobel> db.nobel.find ({ "year": "2023", "category": "Economics" })
[
  {
    _id: ObjectId("62837266906120d5427b18de"),
    year: '2023',
    category: 'Economics'
  }
]
nobel>
```


- Actualiza el nombre de la categoría Peace del año 1902 por su traducción al castellano.

```
db.nobel.updateMany({"year":"1902","category":"Peace"},{$set:{"year":"1902","category":"Paz"}});
```

```
nobel> db.nobel.updateMany ({"year":"1902","category":"Peace"},{$set:{"year":"1902","category":"Paz"}});
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 2,
  modifiedCount: 2,
  upsertedCount: 0
}
nobel> db.nobel.find({"year":"1902","category":"Peace"})
nobel> db.nobel.find({"year":"1902","category":"Paz"})
[
  {
    _id: ObjectId("6282947ca292713433a05b1b"),
    year: '1902',
    category: 'Paz',
    laureates: [
      {
        id: '464',
        firstname: 'Élie',
        surname: 'Ducommun',
        motivation: '"for his untiring and skilful directorship of the Bern Peace Bureau"',
        share: '2'
      },
      {
        id: '465',
        firstname: 'Albert',
        surname: 'Gobat',
        motivation: '"for his eminently practical administration of the Inter-Parliamentary Union"',
        share: '2'
      }
    ]
  },
  {
    _id: ObjectId("628298ab3ac75df71a75ef68"),
    year: '1902',
    category: 'Paz',
    laureates: [
      {
        id: '464',
        firstname: 'Élie',
        surname: 'Ducommun',
        motivation: '"for his untiring and skilful directorship of the Bern Peace Bureau"',
        share: '2'
      },
      {
        id: '465',
        firstname: 'Albert',
        surname: 'Gobat',
        motivation: '"for his eminently practical administration of the Inter-Parliamentary Union"',
        share: '2'
      }
    ]
  }
]
```

- Reemplaza el año 2023, añadiéndole la categoría Economics.

```
db.nobel.replaceOne({"year":"2023"},{year:"2023", category:"Economics"});
```

```
nobel> db.nobel.replaceOne ({"year":"2023"},{year:"2023",category:"Economics"});
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
nobel> db.nobel.find({"year":"2023"})
[
  {
    _id: ObjectId("62837266906120d5427b18de"),
    year: '2023',
    category: 'Economics'
  }
]
nobel>
```

Consultas

Consultas sencillas

1. Muestra los galardonados de la categoría economía.

```
db.nobel.find({"category":"Economics"});
```

```
]
nobel> db.nobel.find({"category":"Economics"});
[
  {
    _id: ObjectId("6282947ca292713433a05898"),
    year: '2020',
    category: 'Economics',
    laureates: [
      {
        id: '995',
        firstname: 'Paul',
        surname: 'Milgrom',
        motivation: '"for improvements to auction theory and inventions of new auction formats"',
        share: '2'
      },
      {
        id: '996',
        firstname: 'Robert',
        surname: 'Wilson',
        motivation: '"for improvements to auction theory and inventions of new auction formats"',
        share: '2'
      }
    ]
  },
  {
    _id: ObjectId("6282947ca292713433a05899"),
    year: '2021',
    category: 'Economics',
    laureates: [
      {
        id: '1007',
        firstname: 'David',
        surname: 'Card',
        motivation: '"for his empirical contributions to labour Economics"',
        share: '2'
      },
      {
        id: '1008',
        firstname: 'Joshua',
        surname: 'Angrist',
        motivation: '"for their methodological contributions to the analysis of causal relationships"',
        share: '4'
      },
      {
        id: '1009',
        firstname: 'Guido',
        surname: 'Imbens',
        motivation: '"for their methodological contributions to the analysis of causal relationships"',
        share: '4'
      }
    ]
  }
]
```


2. Muestra los premiados de los años menores a 1920.

```
db.nobel.find({"year":{"$lt":"1920"}});
```

```
nobel> db.nobel.find({"year":{"$lt":"1920"}});
{
  _id: ObjectId("6282947ca292713433a05ac5"),
  year: '1919',
  category: 'Literature',
  laureates: [
    {
      id: '588',
      firstname: 'Carl',
      surname: 'Spitteler',
      motivation: '"in special appreciation of his epic, <I>Olympian Spring</I>"',
      share: '1'
    }
  ],
}
{
  _id: ObjectId("6282947ca292713433a05ac6"),
  year: '1919',
  category: 'Chemistry',
  overallMotivation: '"No Nobel Prize was awarded this year. The prize money was allocated to the Special Fund of this prize section."'
},
{
  _id: ObjectId("6282947ca292713433a05ac7"),
  year: '1919',
  category: 'Physics',
  laureates: [
    {
      id: '24',
      firstname: 'Johannes',
      surname: 'Stark',
      motivation: '"for his discovery of the Doppler effect in canal rays and the splitting of spectral lines in electric fields"',
      share: '1'
    }
  ],
}
{
  _id: ObjectId("6282947ca292713433a05ac8"),
  year: '1919',
  category: 'Peace',
  laureates: [
    {
      id: '483',
      firstname: 'Woodrow',
      surname: 'Wilson',
      motivation: '"for his role as founder of the League of Nations"',
      share: '1'
    }
  ],
}
```

```
laureates: [
  {
    id: '462',
    firstname: 'Henry',
    surname: 'Dunant',
    motivation: '"for his humanitarian efforts to help wounded soldiers and create international understanding"',
    share: '3'
  },
  {
    id: '463',
    firstname: 'Frederic',
    surname: 'Passy',
    motivation: '"for his lifelong work for international peace conferences, diplomacy and arbitration"',
    share: '2'
  }
],
}
{
  _id: ObjectId("628298ab3ac75df71a75ef6f"),
  year: '1903',
  category: 'Physics',
  laureates: [
    {
      id: '8',
      firstname: 'Henri',
      surname: 'Becquerel',
      motivation: '"in recognition of the extraordinary services he has rendered by his discovery of spontaneous radioactivity"',
      share: '1'
    },
    {
      id: '9',
      firstname: 'Pierre',
      surname: 'Curie',
      motivation: '"in recognition of the extraordinary services they have rendered by their joint researches on the radiation phenomena discovered by Professor Henri Becquerel"',
      share: '1'
    },
    {
      id: '10',
      firstname: 'Marie',
      surname: 'Curie',
      motivation: '"in recognition of the extraordinary services they have rendered by their joint researches on the radiation phenomena discovered by Professor Henri Becquerel"',
      share: '1'
    }
  ],
}
nobel> it
nobel> cursor
nobel> i
```

3. Muestra los premiados entre 1921 y 1923.

```
db.nobel.find({"year":{"$gt":"1921","$lt":"1923"}});
```

```
nobel> db.nobel.find({"year":{"$gt":"1921","$lt":"1923"}});
{
  _id: ObjectId("6282947ca292713433a05ab6"),
  year: '1922',
  category: 'Chemistry',
  laureates: [
    {
      id: '180',
      firstname: 'Francis W.',
      surname: 'Aston',
      motivation: '"for his discovery, by means of his mass spectrograph, of isotopes, in a large number of non-radioactive elements, and for his enunciation of the whole-number rule"',
      share: '1'
    }
  ],
}
{
  _id: ObjectId("6282947ca292713433a05ab9"),
  year: '1922',
  category: 'Peace',
  laureates: [
    {
      id: '487',
      firstname: 'Fridtjof',
      surname: 'Nansen',
      motivation: '"for his leading role in the repatriation of prisoners of war, in international relief work and as the League of Nations' High Commissioner for refugees"',
      share: '1'
    }
  ],
}
{
  _id: ObjectId("6282947ca292713433a05aba"),
  year: '1922',
  category: 'Literature',
  laureates: [
    {
      id: '592',
      firstname: 'Jacinto',
      surname: 'Benavente',
      motivation: '"for the happy manner in which he has continued the illustrious tradition of the Spanish drama"',
      share: '1'
    }
  ],
}
{
  _id: ObjectId("6282947ca292713433a05abd"),
  year: '1922',
  category: 'Physics',
  laureates: [
    {
      id: '27',
      firstname: 'Niels',
      surname: 'Bohr',
      motivation: '"for his services in the investigation of the structure of atoms and of the radiation emanating from them"',
      share: '1'
    }
  ],
}
```

```
surname: 'Aston',
motivation: '"for his discovery, by means of his mass spectrograph, of isotopes, in a large number of non-radioactive elements, and for his enunciation of the whole-number rule"',
share: '1'
},
{
  _id: ObjectId("628298ab3ac75df71a75ef02"),
  year: '1922',
  category: 'Literature',
  laureates: [
    {
      id: '592',
      firstname: 'Jacinto',
      surname: 'Benavente',
      motivation: '"for the happy manner in which he has continued the illustrious tradition of the Spanish drama"',
      share: '1'
    }
  ],
}
{
  _id: ObjectId("628298ab3ac75df71a75ef06"),
  year: '1922',
  category: 'Physics',
  laureates: [
    {
      id: '27',
      firstname: 'Niels',
      surname: 'Bohr',
      motivation: '"for his services in the investigation of the structure of atoms and of the radiation emanating from them"',
      share: '1'
    }
  ],
}
{
  _id: ObjectId("628298ab3ac75df71a75ef0d"),
  year: '1922',
  category: 'Peace',
  laureates: [
    {
      id: '487',
      firstname: 'Fridtjof',
      surname: 'Nansen',
      motivation: '"for his leading role in the repatriation of prisoners of war, in international relief work and as the League of Nations' High Commissioner for refugees"',
      share: '1'
    }
  ],
}
nobel>
```

```
db.nobel.find({"category":{"$in":["Paz","Literature"]}});
```

```
db.nobel.find({"category":{"$in":["Paz","Literature"]}});
```

[illegible]

```
db.nobel.find({"category":"Literatura"}).sort({"year":1});
```

```
db.nobel.find({"category":"Literatura"}).sort({"year":1});
```

```

    },
    {
      _id: ObjectId("628298ab3ac75df71a75ecd4"),
      year: '2020',
      category: 'Literature',
      laureates: [
        {
          id: '993',
          firstname: 'Louise',
          surname: 'Glück',
          motivation: '"for her unmistakable poetic voice that with austere beauty makes indivi
          dual existence universal"',
          share: '1'
        }
      ]
    }
  ],
  Type "it" for more
nobel> it
[
  {
    _id: ObjectId("6282947ca292713433a0589b"),
    year: '2021',
    category: 'Literature',
    laureates: [
      {
        id: '1004',
        firstname: 'Abdulrazak',
        surname: 'Gurnah',
        motivation: '"for his uncompromising and compassionate penetration of the effects of
        colonialism and the fate of the refugee in the gulf between cultures and continents"',
        share: '1'
      }
    ]
  },
  {
    _id: ObjectId("628298ab3ac75df71a75ed74"),
    year: '2021',
    category: 'Literature',
    laureates: [
      {
        id: '1004',
        firstname: 'Abdulrazak',
        surname: 'Gurnah',
        motivation: '"for his uncompromising and compassionate penetration of the effects of
        colonialism and the fate of the refugee in the gulf between cultures and continents"',
        share: '1'
      }
    ]
  }
]
nobel>

```

Consultas con arrays

1. Muestra los nombres de los premiados de la categoría Chemistry del año 1949.

```
db.nobel.find({"category":"Chemistry","year":"1949"});
```

```
nobel> db.nobel.find({"category":"Chemistry","year":"1949"});
{
  _id: ObjectId("6282947ca292713433a05a2f"),
  year: '1949',
  category: 'Chemistry',
  laureates: [
    {
      id: '209',
      firstname: 'William F.',
      surname: 'Giauque',
      motivation: '"for his contributions in the field of chemical thermodynamics, particularly concerning the behaviour of substances at extremely low temperatures"',
      share: '1'
    }
  ]
},
{
  _id: ObjectId("628298ab3ac75df71a75ee79"),
  year: '1949',
  category: 'Chemistry',
  laureates: [
    {
      id: '209',
      firstname: 'William F.',
      surname: 'Giauque',
      motivation: '"for his contributions in the field of chemical thermodynamics, particularly concerning the behaviour of substances at extremely low temperatures"',
      share: '1'
    }
  ]
}
nobel>
```

2. Muestra el número total de los premiados desde 1982.

```
db.nobel.find ({"year":{"$gt":"1982"}}).count();
```

```
nobel> db.nobel.find({"year":{"$gt":"1982"}}).count();
393
nobel>
```

3. Muestra los premiados de Chemistry y Medicine del año 1950.

```
db.nobel.find ({"category":{"$in":["Chemistry","Medicine"]},"year":"1950"});
```

```
nobel> db.nobel.find({"category":{"$in":["Chemistry","Medicine"]},"year":"1950"});
{
  _id: ObjectId("6282947ca292713433a05a2d"),
  year: '1950',
  category: 'Chemistry',
  laureates: [
    {
      id: '210',
      firstname: 'Otto',
      surname: 'Diels',
      motivation: '"for their discovery and development of the diene synthesis"',
      share: '2'
    },
    {
      id: '211',
      firstname: 'Kurt',
      surname: 'Alder',
      motivation: '"for their discovery and development of the diene synthesis"',
      share: '2'
    }
  ]
},
{
  _id: ObjectId("628298ab3ac75df71a75ee75"),
  year: '1950',
  category: 'Chemistry',
  laureates: [
    {
      id: '210',
      firstname: 'Otto',
      surname: 'Diels',
      motivation: '"for their discovery and development of the diene synthesis"',
      share: '2'
    },
    {
      id: '211',
      firstname: 'Kurt',
      surname: 'Alder',
      motivation: '"for their discovery and development of the diene synthesis"',
      share: '2'
    }
  ]
}
nobel>
```

Consultas de datos embebidos

1. Muestra los premios Nobel ganados por Pablo Neruda.

```
db.nobel.find({"laureates.firstname":"Pablo","laureates.surname":"Neruda"})
```

```
nobel> db.nobel.find({"laureates.firstname":"Pablo","laureates.surname":"Neruda"});
[
  {
    _id: ObjectId("6282947ca292713433a059c2"),
    year: '1971',
    category: 'Literature',
    laureates: [
      {
        id: '645',
        firstname: 'Pablo',
        surname: 'Neruda',
        motivation: '"for a poetry that with the action of an elemental force brings alive a c
ontinent's destiny and dreams"',
        share: '1'
      }
    ]
  },
  {
    _id: ObjectId("628298ab3ac75df71a75ee0a"),
    year: '1971',
    category: 'Literature',
    laureates: [
      {
        id: '645',
        firstname: 'Pablo',
        surname: 'Neruda',
        motivation: '"for a poetry that with the action of an elemental force brings alive a c
ontinent's destiny and dreams"',
        share: '1'
      }
    ]
  }
]
nobel>
```

2. Muestra el número total de premiados desde 1982 de la categoría Physics que han compartido premio con otro premiado.

```
db.nobel.find({"year":{"$gt":"1982"},"category":"Physics"},"laureates.share":"2").count()
```

```
nobel> db.nobel.find({"year":{"$gt":"1982"},"category":"Physics"},
{"laureates.share":"2").count();
78
```

3. Cuenta los premiados del año 1932 de la categoría Peace cuyo nombre comiencen por A.

```
db.nobel.find({"year":"1932","category":"Peace"},{"laureates.firstname":"/A/").count();
```

```
nobel> db.nobel.find({"year":"1932","category":"Peace"},
{"laureates.firstname":"/^A/").count();
2
nobel>
```

Consultas de agrupación

1. Muestra la categoría y el número de premiados de cada categoría.

```
db.nobel.aggregate([{$group:{$_id:"$category",count:{$sum:1}}}] );
```

```
nobel> db.nobel.aggregate([{$group:{$_id:"$category",count:{$sum:1}}}] );
[
  { _id: 'Chemistry', count: 242 },
  { _id: 'Physics', count: 240 },
  { _id: 'Economics', count: 108 },
  { _id: 'Literature', count: 242 },
  { _id: 'Peace', count: 241 },
  { _id: 'Paz', count: 2 }
]
nobel>
```