S330591 Lorenzo Stefanoni Homework #4

N°	Query	Results
1	```db.stations.aggregate([{ $match: { "extra.status": { $in : ["online", "offline"] } } }, { $group: { _id : "$extra.status", count: { $sum : 1 } } }])```	```{ _id: 'online', count: 33 } { _id: 'offline', count: 28 }```
2	```db.stations.aggregate([{ $match: { "extra.status": { $nin : ["online", "offline"] } } }, { $group: { _id : "$extra.status", count: { $sum : 1 } } }])```	```{ _id: 'maintenance', count: 4 }```
3	```db.stations.find({ "extra.status" : { $nin : ["online", "offline"]}}, { _id : 0, "extra.status" : 1})```	```{ extra: { status: 'maintenance' } } { extra: { status: 'maintenance' } } { extra: { status: 'maintenance' } } { extra: { status: 'maintenance' } }```
4	```db.stations.find({ "extra.status": "online", "extra.score": { $gte: 4 } }, { _id: 0, name: 1 }).sort({ "name": 1 })```	```{ name: '02. Pettiti' } { name: '04. Reggia' } { name: '06. Municipio' } { name: '08. San Marchese' } { name: '10. Gallo Praile' } { name: 'Belfiore' } { name: 'Borromini' } { name: 'Castello 1'``` ```{ name: 'Castello 1' } { name: 'Corte d`Appello' } {   name: 'Giolitti 1' } {   name: 'Politecnico 1' } {   name: 'Politecnico 3' } {   name: 'Porta Palatina' } {   name: 'Principi d`Acaja 1' } { name: 'Principi d`Acaja 2' } {``` ```{ name: 'Politecnico 1' } { name: 'Politecnico 3' } { name: 'Porta Palatina' } { name: 'Principi d`Acaja 1' } {   name: 'Principi d`Acaja 2' } { name: 'San Francesco da Paola' } { name: 'Sant´Anselmo' } { name: 'Tribunale' }```

5

```
db.stations.find (
  { $and : [
    { $or : [ { "empty_slots" : { $gt : 0 } }, { "free_bikes" : {$gt : 0} } ] },
    {"extra.status" : "online" }
] },
  { _id : 0, name : 1, empty_slots : 1, free_bikes : 1}
  )
```

```
{
  empty_slots: 13,
  free_bikes: 7,
  name: 'Porta Susa 1'
}
{
  empty_slots: 15,
  free_bikes: 0,
  name: 'Cernaia'
}
{
  empty_slots: 9,
  free_bikes: 6,
  name: 'Consolata'
}
{
  empty_slots: 7,
  free_bikes: 6,
  name: 'Corte d`Appello'
}
{
  empty_slots: 5,
  free_bikes: 9,
```

```
{
  empty_slots: 7,
  free_bikes: 6,
  name: 'Corte d`Appello'
}
{
  empty_slots: 5,
  free_bikes: 9,
  name: 'Porta Palatina'
}
{
  empty_slots: 15,
  free_bikes: 11,
  name: 'Porta Nuova 1'
}
{
  empty_slots: 8,
  free_bikes: 9,
  name: 'Giolitti 1'
}
{
  empty_slots: 10,
  free_bikes: 4,
  name: 'San Francesco da Paola'
}
```

```
{
  empty_slots: 10,
  free_bikes: 4,
  name: 'San Francesco da Paola'
}
{
  empty_slots: 4,
  free_bikes: 9,
  name: 'Carlo Alberto'
}
{
  empty_slots: 1,
  free_bikes: 2,
  name: '01. Concordia'
}
{
  empty_slots: 2,
  free_bikes: 2,
  name: '02. Pettiti'
}
{
  empty_slots: 2,
  free_bikes: 1,
  name: '08. San Marchese'
```

```
  name: '08. San Marchese'
}
{
  empty_slots: 2,
  free_bikes: 3,
  name: '10. Gallo Praile'
}
{
  empty_slots: 8,
  free_bikes: 2,
  name: '02. BIKE POINT Mandria'
}
{
  empty_slots: 19,
  free_bikes: 0,
  name: 'Sant´Anselmo'
}
{
  empty_slots: 12,
  free_bikes: 2,
  name: 'Paravia'
}
{
  empty_slots: 10,
  free_bikes: 0,
  name: 'Orbassano 2'
```

```
{
  empty_slots: 12,
  free_bikes: 2,
  name: 'Paravia'
}
{
  empty_slots: 10,
  free_bikes: 0,
  name: 'Orbassano 2'
}
{
  empty_slots: 12,
  free_bikes: 3,
  name: 'Belfiore'
}
{
  empty_slots: 14,
  free_bikes: 1,
  name: 'Valdocco 2'
}
{
  empty_slots: 8,
  free_bikes: 7,
  name: 'Valdocco'
}
```

6

```
db.stations.aggregate( [
  { $group: { _id: null,
            somma : { $sum: "$extra.reviews"}}}
] )
```

```
{
  _id: null,
  somma: 15311
}
```

| 7 | ```
db.stations.aggregate( [
  { $group: { _id: "$extra.score",
              conto : { $sum : 1} } },
  { $sort : { _id : -1 } }
] )
``` | <br>```
{
  _id: 4.7,
  conto: 1
}
{
  _id: 4.5,
  conto: 2
}
{
  _id: 4.4,
  conto: 2
}
{
  _id: 4.3,
  conto: 2
}
{
  _id: 4.2,
  conto: 7
}
{
  _id: 4.1,
```  conto: 7
}
{
  _id: 4.1,
  conto: 5
}
{
  _id: 4,
  conto: 9
}
{
  _id: 3.9,
  conto: 9
}
{
  _id: 3.8,
  conto: 1
}
{
  _id: 3.7,
  conto: 2
}
{
  _id: 3.6,
  conto: 1
}  conto: 2
}
{
  _id: 3.6,
  conto: 1
}
{
  _id: 3.5,
  conto: 4
}
{
  _id: 3.4,
  conto: 3
}
{
  _id: 3.2,
  conto: 1
}
{
  _id: 3,
  conto: 4
}
{
  _id: 2.8,
  conto: 2
}
```}
{
  _id: 2.8,
  conto: 2
}
{
  _id: 2.7,
  conto: 1
}
{
  _id: 2.5,
  conto: 1
}
{
  _id: 2.4,
  conto: 1
}
{
  _id: 2.1,
  conto: 1
}
``` |

| 8 | ```
db.stations.aggregate( [
  { $match : { "extra.status" : { $in : [ "online", "offline" ] } } },
  { $group : { _id : "$extra.status",
               rating : { $avg : "$extra.score" } } }
] )
``` | ```
{
  _id: 'online',
  rating: 3.845454545454552
}
{
  _id: 'offline',
  rating: 3.0285714285714285
}
``` |

| 9 | ```
db.stations.aggregate([
  {
    $group: {
      _id: {
        $cond: {
          if: { $eq: ["$free_bikes", 0] },
          then: "zero",
          else: "non-zero"
        }
      },
      media : { $avg : "$extra.score" }
    }
  }
]);
``` | ```
{
  _id: 'zero',
  media: 3.2305555555555556
}
{
  _id: 'non-zero',
  media: 3.8758620689655174
}
``` |

10		

```
db.stations.aggregate([
  { $match : { "extra.status" : "online" } },
  {
    $group: {
      _id: {
        $cond: {
          if: { $eq: ["$free_bikes", 0] },
          then: "zero",
          else: "non-zero"
        }
      },
      media : { $avg : "$extra.score" }
    }
  }
]);
```

```
{
  _id: 'zero',
  media: 3.7399999999999998
}
{
  _id: 'non-zero',
  media: 3.8642857142857143
}
```

11		

```
db.stations.createIndex({ "location" : "2dsphere" });
```

```
db.stations.find(
  {
    "free_bikes": { $gt: 0 },
    "location": { $near: { $geometry: { type: "Point", coordinates: [45.07456, 7.69463] }
      }
    }
  },
  { "free_bikes" : 1, "name": 1, "_id": 0, "location" : 1 }
).sort({ "location": 1 }).limit(3);
```

```
{
  free_bikes: 3,
  name: 'Belfiore',
  location: {
    type: 'Point',
    coordinates: [
      45.054267,
      7.678409
    ]
  }
}
{
  free_bikes: 5,
  name: 'Politecnico 3',
  location: {
    type: 'Point',
    coordinates: [
      45.060759,
      7.661325
    ]
  }
}
{
  free_bikes: 9,
  name: 'Politecnico 1',
```

```
  }
}
{
  free_bikes: 5,
  name: 'Politecnico 3',
  location: {
    type: 'Point',
    coordinates: [
      45.060759,
      7.661325
    ]
  }
}
{
  free_bikes: 9,
  name: 'Politecnico 1',
  location: {
    type: 'Point',
    coordinates: [
      45.062387,
      7.662494
    ]
  }
}
```

12		

```
db.stations.createIndex( { "location" : "2dsphere"});


db.stations.find(
{ location: { $near: {
$geometry: { type: "Point",
coordinates: db.stations.findOne({name: "Politecnico 4"}).location.coordinates }
 }
},
free_bikes: {$gt: 0}
 },
{location: 1, free_bikes: 1}
).limit(3);
```

```
{
  _id: ObjectId('659efc8ae1e8604aad9635a5'),
  free_bikes: 9,
  location: {
    type: 'Point',
    coordinates: [
      45.062387,
      7.662494
    ]
  }
}
{
  _id: ObjectId('659efc8ae1e8604aad9635a2'),
  free_bikes: 5,
  location: {
    type: 'Point',
    coordinates: [
      45.060759,
      7.661325
    ]
  }
}
```

```
    ]
  }
}
{
  _id: ObjectId('659efc8ae1e8604aad9635a2'),
  free_bikes: 5,
  location: {
    type: 'Point',
    coordinates: [
      45.060759,
      7.661325
    ]
  }
}
{
  _id: ObjectId('659efc8ae1e8604aad9635a4'),
  free_bikes: 3,
  location: {
    type: 'Point',
    coordinates: [
      45.07084597193492,
      7.6612794399261475
    ]
  }
}
```