

UEL315 Base de données (Groupe D) - Semaine 3

Sommaire

- [Membres du groupe](#)
- [Répartition du travail](#)
- [Collaboration](#)
- [Exercice 1](#)
 - [Requête 1.1](#)
 - [Requête 1.2](#)
 - [Requête 1.3](#)
 - [Requête 1.4](#)
 - [Requête 1.5](#)
 - [Requête 1.6](#)
- [Exercice 2](#)
 - [Requête 2.1](#)
 - [Requête 2.2](#)
 - [Requête 2.3](#)
 - [Requête 2.4](#)
 - [Requête 2.5](#)
 - [Requête 2.6](#)
 - [Requête 2.7](#)
 - [Requête 2.8](#)
 - [Requête 2.9](#)
- [Exercice 3](#)
 - [Requête 3.1](#)
 - [Requête 3.2](#)
 - [Requête 3.3](#)
 - [Requête 3.4](#)
 - [Requête 3.5](#)
 - [Requête 3.6](#)
 - [Requête 3.7](#)
 - [Requête 3.8](#)
 - [Requête 3.9](#)
 - [Requête 3.10](#)

Membres du groupe

| Etudiant.e | Alias |
|-------------|------------|
| Mathilde C. | Cloudy23 |
| Kamo G. | Spaghetti5 |
| Mathieu L. | mathleys |
| Filippos K. | filkat34 |

| Etudiant.e | Alias |
|------------|-------|
|------------|-------|

| | |
|-----------|-----------|
| Yamine D. | yamine-dr |
|-----------|-----------|

Répartition du travail

- Exercice 1 (en entier) - Yamine
- Exercice 2 (requêtes 1 à 5) - Mathieu
- Exercice 2 (requêtes 6 à 9) - Kamo
- Exercice 3 (requêtes 1 à 5) - Filippos
- Exercice 3 (requêtes 6 à 10) - Mathilde

Collaboration

Pour collaborer l'équipe a travaillé sur le dépôt Github public suivant : <https://github.com/filkat34/UEL315>.

Le travail de cette semaine se trouve dans le dossier `semaine3`

Exercice 1

Requête 1.1

```
// only show the "name.official" field (hide the id)
const projectionFields = {
  _id: 0,
  name: { official: 1 },
};

// find the countries n°10 to 22 (skip the 9 firsts)
db.pays
  .find()
  .skip(9) // skip the 9 firsts
  .limit(22 - 10) // get the number of countries we want
  .projection(projectionFields);
```

Playground result :

```
[
  {
    name: {
      official: "Republic of Armenia",
    },
  },
  {
    name: {
      official: "American Samoa",
    },
  },
  {
```

```
    name: {
      official: "Antarctica",
    },
  },
{
  name: {
    official: "Territory of the French Southern and Antarctic Lands",
  },
},
{
  name: {
    official: "Antigua and Barbuda",
  },
},
{
  name: {
    official: "Commonwealth of Australia",
  },
},
{
  name: {
    official: "Republic of Austria",
  },
},
{
  name: {
    official: "Republic of Azerbaijan",
  },
},
{
  name: {
    official: "Republic of Burundi",
  },
},
{
  name: {
    official: "Kingdom of Belgium",
  },
},
{
  name: {
    official: "Republic of Benin",
  },
},
{
  name: {
    official: "Burkina Faso",
  },
},
];
};
```

```
// only show the "name.official" field (hide the id)
const projectionFields = {
  _id: 0,
  name: { official: 1 },
};

// find the countries n°10 to 22, sorted by area
db.pays
  .find()
  .skip(9) // skip the 9 firsts
  .limit(22 - 10) // get the number of countries we want
  .sort({ area: 1 }) // sort by area in ascending order
  .projection(projectionFields);
```

Playground result:

```
[{
  {
    name: {
      official: "Macao Special Administrative Region of the People's Republic of China",
    },
  },
  {
    {
      name: {
        official: "Sint Maarten",
      },
    },
    {
      name: {
        official: "United States Minor Outlying Islands",
      },
    },
    {
      name: {
        official: "Territory of Norfolk Island",
      },
    },
    {
      name: {
        official: "Pitcairn Group of Islands",
      },
    },
    {
      name: {
        official: "Bouvet Island",
      },
    },
  }
}
```

```
    name: {
      official: "Saint Martin",
    },
  },
{
  name: {
    official: "Bermuda",
  },
},
{
  name: {
    official: "British Indian Ocean Territory",
  },
},
{
  name: {
    official: "Most Serene Republic of San Marino",
  },
},
{
  name: {
    official: "Bailiwick of Guernsey",
  },
},
{
  name: {
    official: "Anguilla",
  },
},
];
];
```

Requête 1.3

```
// find a specific country (by its capital): Mayotte
db.pays.findOne({ capital: ["Mamoudzou"] });
```

Playground result:

```
{
  "_id": {
    "$oid": "697257a47002bdcec222545a"
  },
  "name": {
    "common": "Mayotte",
    "official": "Department of Mayotte",
    "native": {
      "fra": {
        "official": "Département de Mayotte",
        "common": "Mayotte"
      }
    }
  }
};
```

```
        }
    },
},
"tld": [
    ".yt"
],
"cca2": "YT",
"ccn3": "175",
"cca3": "MYT",
"cioc": "",
"independent": false,
"status": "officially-assigned",
"unMember": false,
"unRegionalGroup": "",
"currencies": {
    "EUR": {
        "name": "Euro",
        "symbol": "€"
    }
},
"idd": {
    "root": "+2",
    "suffixes": [
        "62"
    ]
},
"capital": [
    "Mamoudzou"
],
"altSpellings": [
    "YT",
    "Department of Mayotte",
    "Département de Mayotte"
],
"region": "Africa",
"subregion": "Eastern Africa",
"languages": {
    "fra": "French"
},
"translations": {
    "ara": {
        "official": "ما يوت",
        "common": "ما يوت"
    },
    "bre": {
        "official": "Departament Mayotte",
        "common": "Mayotte"
    },
    "ces": {
        "official": "Mayotte",
        "common": "Mayotte"
    },
    "deu": {
        "official": "Übersee-Département Mayotte",
        "common": "Mayotte"
    }
}
```

```
        "common": "Mayotte"
    },
    "est": {
        "official": "Mayotte",
        "common": "Mayotte"
    },
    "fin": {
        "official": "Mayotte",
        "common": "Mayotte"
    },
    "fra": {
        "official": "Département de Mayotte",
        "common": "Mayotte"
    },
    "hrv": {
        "official": "Odjel Mayotte",
        "common": "Mayotte"
    },
    "hun": {
        "official": "Mayotte",
        "common": "Mayotte"
    },
    "ita": {
        "official": "Dipartimento di Mayotte",
        "common": "Mayotte"
    },
    "jpn": {
        "official": "マイヨット島",
        "common": "マヨット"
    },
    "kor": {
        "official": "마요트",
        "common": "마요트"
    },
    "nld": {
        "official": "Afdeling Mayotte",
        "common": "Mayotte"
    },
    "per": {
        "official": "مجموعه شهرستانی ما یوت",
        "common": "ما یوت"
    },
    "pol": {
        "official": "Majotta",
        "common": "Majotta"
    },
    "por": {
        "official": "Departamento de Mayotte",
        "common": "Mayotte"
    },
    "rus": {
        "official": "Департамент Майотта",
        "common": "Майотта"
    },
}
```

```
"slk": {
    "official": "Department Mayotte",
    "common": "Mayotte"
},
"spa": {
    "official": "Departamento de Mayotte",
    "common": "Mayotte"
},
"srp": {
    "official": "Kolektivitet Majot",
    "common": "Majot"
},
"swe": {
    "official": "Departementsområdet Mayotte",
    "common": "Mayotte"
},
"tur": {
    "official": "Mayotte",
    "common": "Mayotte"
},
"urd": {
    "official": "ما يوٹ",
    "common": "ما يوٹ"
},
"zho": {
    "official": "马约特",
    "common": "马约特"
}
},
"latlng": [
    -12.83333333,
    45.16666666
],
"landlocked": false,
"borders": [],
"area": 374,
"flag": " YT",
"demonyms": {
    "eng": {
        "f": "Mahoran",
        "m": "Mahoran"
    },
    "fra": {
        "f": "Mahoraise",
        "m": "Mahoraïs"
    }
}
}
```

Requête 1.4

```
// search for countries with Dutch as one of their language:  
// they must have the "languages.nld" property, because nld = Netherlands  
const schema = {  
  $jsonSchema: {  
    required: ["languages"],  
    properties: {  
      languages: {  
        bsonType: "object",  
        required: ["nld"],  
      },  
    },  
  },  
};  
  
// only show the "name.official" field (hide the id)  
const projectionFields = {  
  _id: 0,  
  name: { official: 1 },  
};  
  
// execute the search  
db.pays.find(schema).projection(projectionFields);
```

Playground result:

```
[  
  {  
    name: {  
      official: "Aruba",  
    },  
  },  
  {  
    name: {  
      official: "Kingdom of Belgium",  
    },  
  },  
  {  
    name: {  
      official: "Bonaire, Sint Eustatius and Saba",  
    },  
  },  
  {  
    name: {  
      official: "Country of Curaçao",  
    },  
  },  
  {  
    name: {  
      official: "Kingdom of the Netherlands",  
    },  
  },  
]
```

```
{  
  name: {  
    official: "Republic of Suriname",  
  },  
,  
{  
  name: {  
    official: "Sint Maarten",  
  },  
,  
};
```

Requête 1.5

```
// search for countries beginning with 'D'  
const query = {  
  "name.official": { $regex: /^D/ },  
};  
  
db.pays.find(query).projection({ _id: 0, name: { official: 1 } });
```

Playground result:

```
[  
  {  
    name: {  
      official: "Democratic Republic of the Congo",  
    },  
,  
    name: {  
      official: "Dominican Republic",  
    },  
,  
    name: {  
      official: "Democratic Socialist Republic of Sri Lanka",  
    },  
,  
    name: {  
      official: "Department of Mayotte",  
    },  
,  
    name: {  
      official: "Democratic People's Republic of Korea",  
    },  
},
```

```
{  
  name: {  
    official: "Democratic Republic of São Tomé and Príncipe",  
  },  
,  
{  
  name: {  
    official: "Democratic Republic of Timor-Leste",  
  },  
,  
};
```

Requête 1.6

```
// only show the "name.official" field (hide the id)  
const projectionFields = {  
  _id: 0,  
  name: { official: 1 },  
};  
  
// execute the search: countries between 400000 and 500000 km2  
db.pays  
  .find({ area: { $gt: 400000, $lt: 500000 } })  
  .projection(projectionFields);
```

```
[  
{  
  name: {  
    official: "Republic of Cameroon",  
  },  
,  
{  
  name: {  
    official: "Republic of Iraq",  
  },  
,  
{  
  name: {  
    official: "Kingdom of Morocco",  
  },  
,  
{  
  name: {  
    official: "Independent State of Papua New Guinea",  
  },  
,  
{  
  name: {  
    official: "Republic of Paraguay",  
  },  
};
```

```
  },
},
{
  name: {
    official: "Kingdom of Sweden",
  },
},
{
  name: {
    official: "Turkmenistan",
  },
},
{
  name: {
    official: "Republic of Uzbekistan",
  },
},
];
};
```

Exercice 2

Requête 2.1

```
// Afficher tous les titres
db.getCollection("documents").find(
  {},
  { "fields.titre_avec_lien_vers_le_catalogue": 1, _id: 0 },
);
```

Playground Result :

```
[
  {
    fields: {
      titre_avec_lien_vers_le_catalogue:
        "Cinquante nuances plus sombres : roman",
    },
  },
  {
    fields: {
      titre_avec_lien_vers_le_catalogue: "Dans la maison",
    },
  },
  {
    fields: {
      titre_avec_lien_vers_le_catalogue: "La nostalgie heureuse",
    },
  },
];
```

```
    fields: {
      titre_avec_lien_vers_le_catalogue: "Au revoir là-haut : roman",
    },
  },
{
  fields: {
    titre_avec_lien_vers_le_catalogue: "Les lisières",
  },
},
{
  fields: {
    titre_avec_lien_vers_le_catalogue:
      "Quai d'Orsay : chroniques diplomatiques. 2",
  },
},
{
  fields: {
    titre_avec_lien_vers_le_catalogue: "Etranges rivages",
  },
},
{
  fields: {
    titre_avec_lien_vers_le_catalogue: "L'hiver du monde : roman",
  },
},
{
  fields: {
    titre_avec_lien_vers_le_catalogue: "La révolte",
  },
},
{
  fields: {
    titre_avec_lien_vers_le_catalogue: "Peste & choléra : roman",
  },
},
{
  fields: {
    titre_avec_lien_vers_le_catalogue:
      "Immortelle randonnée : Compostelle malgré moi",
  },
},
{
  fields: {
    titre_avec_lien_vers_le_catalogue: "Hunger Games",
  },
},
{
  fields: {
    titre_avec_lien_vers_le_catalogue: "Que choisir ?",
  },
},
{
  fields: {
    titre_avec_lien_vers_le_catalogue: "Skyfall",
```

```

        },
    },
    {
      fields: {
        titre_avec_lien_vers_le_catalogue: "Polisse",
      },
    },
    {
      fields: {
        titre_avec_lien_vers_le_catalogue: "Kaïken : roman",
      },
    },
    {
      fields: {
        titre_avec_lien_vers_le_catalogue: "Le grand Coeur : roman",
      },
    },
    {
      fields: {
        titre_avec_lien_vers_le_catalogue: "Aya de Yopougon. 3",
      },
    },
    {
      fields: {
        titre_avec_lien_vers_le_catalogue: "The Master",
      },
    },
    {
      fields: {
        titre_avec_lien_vers_le_catalogue: "Les femmes du bus 678",
      },
    },
  ];
];

```

Requête 2.2

```

// Afficher tous les titres des documents ayant les rangs 1 à 10
db.getCollection("documents").find(
  { "fields.rang": { $gte: 1, $lte: 10 } },
  { "fields.titre_avec_lien_vers_le_catalogue": 1, _id: 0 },
);

```

Playground Result :

```

[
  {
    fields: {
      titre_avec_lien_vers_le_catalogue:
        "Cinquante nuances plus sombres : roman",

```

```
        },
    },
    {
        fields: {
            titre_avec_lien_vers_le_catalogue: "Au revoir là-haut : roman",
        },
    },
    {
        fields: {
            titre_avec_lien_vers_le_catalogue:
                "Immortelle randonnée : Compostelle malgré moi",
        },
    },
    {
        fields: {
            titre_avec_lien_vers_le_catalogue: "1Q84. 3. Octobre-décembre",
        },
    },
    {
        fields: {
            titre_avec_lien_vers_le_catalogue: "L'embrasement",
        },
    },
    {
        fields: {
            titre_avec_lien_vers_le_catalogue: "Le sermon sur la chute de Rome",
        },
    },
    {
        fields: {
            titre_avec_lien_vers_le_catalogue:
                "La vérité sur l'affaire Harry Quebert : roman",
        },
    },
    {
        fields: {
            titre_avec_lien_vers_le_catalogue: "Le bleu est une couleur chaude",
        },
    },
    {
        fields: {
            titre_avec_lien_vers_le_catalogue: "La liste de mes envies",
        },
    },
    {
        fields: {
            titre_avec_lien_vers_le_catalogue: "Cinquante nuances de Grey :
roman",
        },
    },
];
};
```

Requête 2.3

```
// Afficher les auteurs de tous les documents dont le titre commence par
la lettre N
db.getCollection("documents").find(
  { "fields.titre_avec_lien_vers_le_catalogue": /^N/ },
  { "fields.auteur": 1, _id: 0 },
);
```

Playground Result :

```
[
  {
    fields: {
      auteur: "Gloaguen, Philippe",
    },
  },
  {
    fields: {
      auteur: "Mukasonga, Scholastique",
    },
  },
  {
    fields: {
      auteur: "Moix, Yann",
    },
  },
  {
    fields: {
      auteur: "Coatalem, Jean-Luc",
    },
  },
  {
    fields: {
      auteur: "",
    },
  },
  {
    fields: {
      auteur: "Hunter, Erin",
    },
  },
  {
    fields: {
      auteur: "Bonetto, Cristian",
    },
  },
  {
    fields: {
      auteur: "Toussaint, Jean-Philippe",
    },
  }
]
```

```
        },
    },
    {
      fields: {
        auteur: "",
      },
    },
    {
      fields: {
        auteur: "Roth, Philip",
      },
    },
    {
      fields: {
        auteur: "",
      },
    },
    {
      fields: {
        auteur: "",
      },
    },
    {
      fields: {
        auteur: "Coben, Harlan",
      },
    },
    {
      fields: {
        auteur: "Vigan, Delphine de",
      },
    },
    {
      fields: {
        auteur: "Orval, Thierry",
      },
    },
    {
      fields: {
        auteur: "Otis, Ginger Adams",
      },
    },
    {
      fields: {
        auteur: "Bussi, Michel",
      },
    },
  ],
};
```

Requête 2.4

```
// Afficher toutes les informations vers les documents n'ayant pas de champ "type_de_document"
db.getCollection("documents").find({
  "fields.type_de_document": { $exists: false },
});
```

Playground Result :

```
[];
```

Requête 2.5

```
// Afficher les différents types de documents qui apparaissent dans cette base
db.getCollection("documents").distinct("fields.type_de_document");
```

Playground Result :

```
[
  "",
  "2016-08-27T18:20:35+02:00",
  "Bande dessinée jeunesse",
  "Bande dessinée jeunesse >12 ans",
  "Bande dessinée pour adulte",
  "DVD en audio-description",
  "DVD jeunesse",
  "DVD- vidéo > 12 ans",
  "DVD-vidéo > 16 ans",
  "DVD-vidéo tous publics",
  "Disque compact",
  "Enregistrement musical pour la jeunesse",
  "Livre de Fonds spécialisés",
  "Livre de section jeunesse > 12 ans",
  "Livre jeunesse",
  "Livre pour adulte",
  "Nouveauté",
  "Nouveauté disque compact",
  "Revue pour adulte",
];
```

Requête 2.6

```
// Afficher les titres des 5 documents les plus réservés
db.getCollection("documents")
```

```
.find({}, { "fields.titre_avec_lien_vers_le_catalogue": 1, _id: 0 })
.sort({ "fields.nombre_de_reservations": -1 })
.limit(5);
```

Playground Result :

```
[  
  {  
    fields: {  
      titre_avec_lien_vers_le_catalogue:  
        "La vérité sur l'affaire Harry Quebert : roman",  
    },  
  },  
  {  
    fields: {  
      titre_avec_lien_vers_le_catalogue: "Cinquante nuances de Grey :  
roman",  
    },  
  },  
  {  
    fields: {  
      titre_avec_lien_vers_le_catalogue: "La liste de mes envies",  
    },  
  },  
  {  
    fields: {  
      titre_avec_lien_vers_le_catalogue: "1Q84. 3. Octobre-décembre",  
    },  
  },  
  {  
    fields: {  
      titre_avec_lien_vers_le_catalogue: "Le bleu est une couleur chaude",  
    },  
  },  
];
```

Requête 2.7

```
// Afficher tous les documents ayant plus de 200 réservations  
db.getCollection("documents").find(  
  { "fields.nombre_de_reservations": { $gt: 200 } },  
{});
```

Playground Result :

```
[  
  {
```

```
_id: {
  $oid: "6970f13ab4385367ac2bee35",
},
datasetid: "les_1000_titres_les_plus_reserves_en_2013",
recordid: "472a07556c2555d76c92ddc34f748165118288e6",
fields: {
  nombre_de_reservations: 236,
  rang: 44,
  titre_avec_lien_vers_le_catalogue: "Dans la maison",
  auteur: "",
  type_de_document: "DVD en audio-description",
},
record_timestamp: "2016-08-27T18:20:35+02:00",
FIELD9: "",

},
{
  _id: {
    $oid: "6970f13ab4385367ac2bee36",
  },
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",
  recordid: "16eff9e470f09bb115a433e39ff74c3d6dda13a8",
  fields: {
    nombre_de_reservations: 232,
    rang: 46,
    titre_avec_lien_vers_le_catalogue: "La nostalgie heureuse",
    auteur: "Nothomb, Amélie",
    type_de_document: "Nouveauté",
  },
  record_timestamp: "2016-08-27T18:20:35+02:00",
  FIELD9: "",

},
{
  _id: {
    $oid: "6970f13ab4385367ac2bee37",
  },
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",
  recordid: "b64b457e893e9d8d4a65e738cd6ba03cbdff14b4",
  fields: {
    nombre_de_reservations: 390,
    rang: 13,
    titre_avec_lien_vers_le_catalogue: "La révolte",
    auteur: "Collins, Suzanne",
    type_de_document: "Livre de section jeunesse > 12 ans",
  },
  record_timestamp: "2016-08-27T18:20:35+02:00",
  FIELD9: "",

},
{
  _id: {
    $oid: "6970f13ab4385367ac2bee38",
  },
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",
  recordid: "16c55ae50ed67fa5020e74825def8eb0a09c22da",
  fields: {
```

```
nombre_de_reservations: 342,
rang: 19,
titre_avec_lien_vers_le_catalogue: "Peste & choléra : roman",
auteur: "Deville, Patrick",
type_de_document: "",

},
record_timestamp: "2016-08-27T18:20:35+02:00",
FIELD9: "",

},
{
_id: {
$oid: "6970f13ab4385367ac2bee39",
},
datasetid: "les_1000_titres_les_plus_reserves_en_2013",
recordid: "45e443119f82cbee18b504b7538f86124325805e",
fields: {
nombre_de_reservations: 408,
rang: 10,
titre_avec_lien_vers_le_catalogue:
"Immortelle randonnée : Compostelle malgré moi",
auteur: "Rufin, Jean-Christophe",
type_de_document: "",

},
record_timestamp: "2016-08-27T18:20:35+02:00",
FIELD9: "",

},
{
_id: {
$oid: "6970f13ab4385367ac2bee3b",
},
datasetid: "les_1000_titres_les_plus_reserves_en_2013",
recordid: "f19d32e8c7fd3ed0d3ebd5602d65b03424361cf3",
fields: {
nombre_de_reservations: 217,
rang: 51,
titre_avec_lien_vers_le_catalogue: "Hunger Games",
auteur: "",
type_de_document: "DVD-vidéo tous publics",

},
record_timestamp: "2016-08-27T18:20:35+02:00",
FIELD9: "",

},
{
_id: {
$oid: "6970f13ab4385367ac2bee3c",
},
datasetid: "les_1000_titres_les_plus_reserves_en_2013",
recordid: "6536ec9c97dedbbb02752311d81ee41548aa3627",
fields: {
nombre_de_reservations: 226,
rang: 48,
titre_avec_lien_vers_le_catalogue: "Skyfall",
auteur: "",
type_de_document: "DVD-vidéo tous publics",
```

```
  },
  record_timestamp: "2016-08-27T18:20:35+02:00",
  FIELD9: "",
},
{
  _id: {
    $oid: "6970f13ab4385367ac2bee3e",
  },
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",
  recordid: "6675cbb0cf9e894d3c4a543e50bf5808189f37b4",
  fields: {
    nombre_de_reservations: 420,
    rang: 7,
    titre_avec_lien_vers_le_catalogue:
      "Cinquante nuances plus sombres : roman",
    auteur: "James, E.L.",
    type_de_document: "",
  },
  record_timestamp: "2016-08-27T18:20:35+02:00",
  FIELD9: "",
},
{
  _id: {
    $oid: "6970f13ab4385367ac2bee3f",
  },
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",
  recordid: "cb304d3d696a0fdf983eaf1dc01ec804f89c160d",
  fields: {
    nombre_de_reservations: 376,
    rang: 15,
    titre_avec_lien_vers_le_catalogue:
      "Quai d'Orsay : chroniques diplomatiques. 2",
    auteur: "Lanzac, Abel",
    type_de_document: "",
  },
  record_timestamp: "2016-08-27T18:20:35+02:00",
  FIELD9: "",
},
{
  _id: {
    $oid: "6970f13ab4385367ac2bee40",
  },
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",
  recordid: "0086151c7e80c02a0f20ec34a1fb90b92e129c89",
  fields: {
    nombre_de_reservations: 207,
    rang: 54,
    titre_avec_lien_vers_le_catalogue: "Le grand Coeur : roman",
    auteur: "Rufin, Jean-Christophe",
    type_de_document: "",
  },
  record_timestamp: "2016-08-27T18:20:35+02:00",
  FIELD9: "",
},
```

```
{  
  _id: {  
    $oid: "6970f13ab4385367ac2bee42",  
  },  
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",  
  recordid: "15a3ed316ea411deb794dd09b8008baa6a38bb2a",  
  fields: {  
    nombre_de_reservations: 412,  
    rang: 8,  
    titre_avec_lien_vers_le_catalogue: "Au revoir là-haut : roman",  
    auteur: "Lemaitre, Pierre",  
    type_de_document: "Nouveauté",  
  },  
  record_timestamp: "2016-08-27T18:20:35+02:00",  
  FIELD9: "",  
},  
{  
  _id: {  
    $oid: "6970f13ab4385367ac2bee43",  
  },  
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",  
  recordid: "92b67b93e2be1bb76461373a0add32a2f938f28c",  
  fields: {  
    nombre_de_reservations: 265,  
    rang: 33,  
    titre_avec_lien_vers_le_catalogue: "L'hiver du monde : roman",  
    auteur: "Follett, Ken",  
    type_de_document: "Livre pour adulte",  
  },  
  record_timestamp: "2016-08-27T18:20:35+02:00",  
  FIELD9: "",  
},  
{  
  _id: {  
    $oid: "6970f13ab4385367ac2bee49",  
  },  
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",  
  recordid: "8bb939e7201b6ac2c0ae2b84e5bb9cbf673c9734",  
  fields: {  
    nombre_de_reservations: 250,  
    rang: 38,  
    titre_avec_lien_vers_le_catalogue: "Etranges rivages",  
    auteur: "Arnaldur Indridason",  
    type_de_document: "Livre pour adulte",  
  },  
  record_timestamp: "2016-08-27T18:20:35+02:00",  
  FIELD9: "",  
},  
{  
  _id: {  
    $oid: "6970f13ab4385367ac2bee4a",  
  },  
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",  
  recordid: "550a4089c7d0abe152b44c7e35a3928c006b0f06",  
}
```

```
fields: {
    nombre_de_reservations: 230,
    rang: 47,
    titre_avec_lien_vers_le_catalogue: "Les lisières",
    auteur: "Adam, Olivier",
    type_de_document: "Nouveauté",
},
record_timestamp: "2016-08-27T18:20:35+02:00",
FIELD9: "",
},
{
_id: {
    $oid: "6970f13ab4385367ac2bee90",
},
datasetid: "les_1000_titres_les_plus_reserves_en_2013",
recordid: "0d4658554dff2d937c4e28edb08a9d50b3db8b1",
fields: {
    nombre_de_reservations: 455,
    rang: 4,
    titre_avec_lien_vers_le_catalogue: "1Q84. 3. Octobre-décembre",
    auteur: "Murakami, Haruki",
    type_de_document: "Nouveauté",
},
record_timestamp: "2016-08-27T18:20:35+02:00",
FIELD9: "",
},
{
_id: {
    $oid: "6970f13ab4385367ac2bee93",
},
datasetid: "les_1000_titres_les_plus_reserves_en_2013",
recordid: "badb93738cab2a6227b4e26a843b2ac4305e2b3b",
fields: {
    nombre_de_reservations: 435,
    rang: 6,
    titre_avec_lien_vers_le_catalogue: "L'embrasement",
    auteur: "Collins, Suzanne",
    type_de_document: "Livre de section jeunesse > 12 ans",
},
record_timestamp: "2016-08-27T18:20:35+02:00",
FIELD9: "",
},
{
_id: {
    $oid: "6970f13ab4385367ac2bee95",
},
datasetid: "les_1000_titres_les_plus_reserves_en_2013",
recordid: "f1ff10b0b1ae21fa8c935a1c73683858d04427d4",
fields: {
    nombre_de_reservations: 299,
    rang: 23,
    titre_avec_lien_vers_le_catalogue: "Les apparences",
    auteur: "Flynn, Gillian",
    type_de_document: ""
},
```

```
  },
  record_timestamp: "2016-08-27T18:20:35+02:00",
  FIELD9: "",
},
{
  _id: {
    $oid: "6970f13ab4385367ac2bee98",
  },
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",
  recordid: "b081bef1648e3a0b2e2c6133b154504472b5696c",
  fields: {
    nombre_de_reservations: 272,
    rang: 30,
    titre_avec_lien_vers_le_catalogue: "Heureux les heureux",
    auteur: "Reza, Yasmina",
    type_de_document: "",
  },
  record_timestamp: "2016-08-27T18:20:35+02:00",
  FIELD9: "",
},
{
  _id: {
    $oid: "6970f13ab4385367ac2bee99",
  },
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",
  recordid: "0aef507ef0fb23666db648731d3ca43ae9a59366",
  fields: {
    nombre_de_reservations: 405,
    rang: 11,
    titre_avec_lien_vers_le_catalogue:
      "Quai d'Orsay : chroniques diplomatiques. 1",
    auteur: "Blain, Christophe",
    type_de_document: "Bande dessinée pour adulte",
  },
  record_timestamp: "2016-08-27T18:20:35+02:00",
  FIELD9: "",
},
{
  _id: {
    $oid: "6970f13ab4385367ac2bee9a",
  },
  datasetid: "les_1000_titres_les_plus_reserves_en_2013",
  recordid: "8b80ad84065f9006046e42832ca2696fcbfea78b",
  fields: {
    nombre_de_reservations: 266,
    rang: 32,
    titre_avec_lien_vers_le_catalogue:
      "Un sentiment plus fort que la peur : roman",
    auteur: "Lévy, Marc",
    type_de_document: "Nouveauté",
  },
  record_timestamp: "2016-08-27T18:20:35+02:00",
  FIELD9: "",
```

```
},  
];
```

Requête 2.8

```
// Calculer le total des réservations par type de document  
db.getCollection("documents").aggregate([  
  {  
    $group: {  
      _id: "$fields.type_de_document",  
      total_reservations: { $sum: "$fields.nombre_de_reservations" },  
    },  
  },  
  { $sort: { total_reservations: -1 } },  
]);
```

Playground Result :

```
[  
  {  
    _id: "DVD-vidéo tous publics",  
    total_reservations: 22398,  
  },  
  {  
    _id: "Livre pour adulte",  
    total_reservations: 15706,  
  },  
  {  
    _id: "Nouveauté",  
    total_reservations: 13315,  
  },  
  {  
    _id: "",  
    total_reservations: 10474,  
  },  
  {  
    _id: "Bande dessinée pour adulte",  
    total_reservations: 4357,  
  },  
  {  
    _id: "Bande dessinée jeunesse",  
    total_reservations: 3620,  
  },  
  {  
    _id: "Nouveauté disque compact",  
    total_reservations: 2940,  
  },  
  {  
    _id: "DVD- vidéo > 12 ans",  
  }]
```

```
        total_reservations: 2406,  
    },  
    {  
        _id: "Livre jeunesse",  
        total_reservations: 2075,  
    },  
    {  
        _id: "Livre de section jeunesse > 12 ans",  
        total_reservations: 2064,  
    },  
    {  
        _id: "Bande dessinée jeunesse >12 ans",  
        total_reservations: 1903,  
    },  
    {  
        _id: "Disque compact",  
        total_reservations: 1230,  
    },  
    {  
        _id: "DVD jeunesse",  
        total_reservations: 872,  
    },  
    {  
        _id: "DVD en audio-description",  
        total_reservations: 343,  
    },  
    {  
        _id: "Livre de Fonds spécialisés",  
        total_reservations: 252,  
    },  
    {  
        _id: "Revue pour adulte",  
        total_reservations: 249,  
    },  
    {  
        _id: "DVD-vidéo > 16 ans",  
        total_reservations: 160,  
    },  
    {  
        _id: "2016-08-27T18:20:35+02:00",  
        total_reservations: 101,  
    },  
    {  
        _id: "Enregistrement musical pour la jeunesse",  
        total_reservations: 49,  
    },  
];
```

Requête 2.9

```
// Lister les auteurs ayant le plus de documents dans la collection
db.getCollection("documents").aggregate([
  {
    $group: {
      _id: "$fields.auteur",
      nombre_de_documents: { $sum: 1 },
    },
  },
  { $sort: { nombre_de_documents: -1 } },
  { $limit: 10 }, // Limite aux 10 premiers pour plus de lisibilité
]);
```

Playground Result :

```
[
  {
    _id: "",
    nombre_de_documents: 336,
  },
  {
    _id: "Gloaguen, Philippe",
    nombre_de_documents: 32,
  },
  {
    _id: "Mashima, Hiro",
    nombre_de_documents: 21,
  },
  {
    _id: "Kirkman, Robert",
    nombre_de_documents: 18,
  },
  {
    _id: "Sobral, Patrick",
    nombre_de_documents: 17,
  },
  {
    _id: "Muchamore, Robert",
    nombre_de_documents: 14,
  },
  {
    _id: "Riordan, Rick",
    nombre_de_documents: 9,
  },
  {
    _id: "Oda, Eiichiro",
    nombre_de_documents: 9,
  },
  {
    _id: "Hunter, Erin",
    nombre_de_documents: 9,
  },
]
```

```
{  
  _id: "Läckberg, Camilla",  
  nombre_de_documents: 8,  
},  
];
```

Exercice 3

Requête 3.1

```
// Ajouter une nouvelle publication de type « Book »  
db.getCollection("dblp").insertOne({  
  type: "Book",  
  title:  
    "Modern Database Systems: The Object Model, Interoperability, and  
    Beyond.",  
  year: 1995,  
  publisher: "ACM Press and Addison-Wesley",  
  authors: ["Won Kim"],  
  source: "DBLP",  
});
```

Playground Result :

```
{  
  "acknowledged": true,  
  "insertedId": {  
    "$oid": "696f428250d6a3afcbd93e5d"  
  }  
}
```

Requête 3.2

```
// Ajouter une nouvelle publication de type « Article »  
db.getCollection("dblp").insertOne({  
  type: "Article",  
  title: "Pas d'inspiration",  
  year: 2026,  
  publisher: "PULIM",  
  authors: ["Filippos Katsanos", "John Doe"],  
  source: "DBLP",  
});
```

Playground Result :

```
{  
  "acknowledged": true,  
  "insertedId": {  
    "$oid": "696f42b90b1683a5a82d390b"  
  }  
}
```

Requête 3.3

```
// Afficher le nombre de publications de type « Book »  
db.getCollection("dblp").countDocuments({ type: "Book" });
```

Playground Result :

```
92
```

Requête 3.4

```
// Afficher toutes les publications dont je suis l'auteur  
db.getCollection("dblp").find({ authors: "Filippos Katsanos" });
```

Playground result :

```
[  
  {  
    _id: {  
      $oid: "696f42b90b1683a5a82d390b",  
    },  
    type: "Article",  
    title: "Pas d'inspiration",  
    year: 2026,  
    publisher: "PULIM",  
    authors: ["Filippos Katsanos", "John Doe"],  
    source: "DBLP",  
  },  
];
```

Requête 3.5

```
//Afficher le titre de toutes les publications depuis 2012 inclus  
//Pour tout afficher utiliser .toArray() pour éviter le retour du curseur
```

```
seulement
db.getCollection("dblp")
  .find({ year: { $gte: 2012 } }, { title: 1, _id: 0 })
  .toArray();
```

Playground result (extrait) :

```
[  
  {  
    title: "Shared Interfaces for Co-located Interaction.",  
  },  
  {  
    title:  
      "The Semantic Product Memory: An Interactive Black Box for Smart  
Objects.",  
  },  
  {  
    title: "Perspectives on Reasoning About Time.",  
  },  
  {  
    title:  
      "A SemProM Use Case: Maintenance of Factory and Automotive  
Components.",  
  },  
  {  
    title: "A SemProM Use Case: Health Care and Compliance.",  
  },  
  {  
    title: "Controlling Interaction with Digital Product Memories.",  
  },  
  {  
    title: "Foundations of Rule Learning",  
  },  
  {  
    title: "Ubiquitous Display Environments",  
  },  
  {  
    title: "Considering the Aesthetics of Ubiquitous Displays.",  
  },  
  {  
    title:  
      "Language Processing with Perl and Prolog – Theories,  
Implementation, and Application",  
  },  
  {  
    title:  
      "SemProM – Foundations of Semantic Product Memories for the Internet  
of Things",  
  },  
  {  
    title:  
      "Audience Measurement for Digital Signage: Exploring the Audience's
```

```
Perspective.",  
},  
{  
  title: "The Smart SemProM.",  
},  
];
```

Requête 3.6

```
// Afficher le nombre de publications de type « Article » depuis 2012  
(2012 non inclus)  
db.getCollection("dblp").countDocuments({  
  type: "Article",  
  year: { $gt: 2012 },  
});
```

Playground result :

```
157;
```

Requête 3.7

```
// Afficher les années des publications de l'auteur « Wolfgang Wahlster »  
// Pas de doublons + tri par ordre croissant  
db.getCollection("dblp")  
.aggregate([  
  { $match: { authors: "Wolfgang Wahlster" } },  
  { $group: { _id: "$year" } }, // années distinctes  
  { $sort: { _id: 1 } }, // triage croissant  
  { $project: { _id: 0, year: "$_id" } }, // format avec remplacement de  
_id par year  
])  
.toArray();
```

Playground result :

```
[  
  {  
    year: 2006,  
  },  
  {  
    year: 2011,  
  },  
  {  
    year: 2013,  
  },
```

```
},  
];
```

Requête 3.8

```
// Afficher la liste de tous les éditeurs (champ "publisher") distincts  
// sans doublons  
db.getCollection("dblp").distinct("publisher", {  
    publisher: { $exists: true, $ne: null, $ne: "" }  
});
```

Playground result:

```
["ACM Press and Addison-Wesley", "IOS Press", "PULIM", "Springer"];
```

Requête 3.9

```
// Afficher la liste des publications de « Wolfgang Wahlster » triée par  
// année croissante  
db.getCollection("dblp")  
    .find(  
        {  
            authors: "Wolfgang Wahlster",  
        },  
        { _id: 0, year: 1, title: 1, type: 1, publisher: 1, authors: 1,  
author: 1 },  
    )  
    .sort({ year: 1, title: 1 })  
    .toArray();
```

Playground result:

```
[  
  {  
    type: "Article",  
    title: "Dialogue Systems Go Multimodal: The SmartKom Experience.",  
    year: 2006,  
    authors: ["Wolfgang Wahlster"],  
  },  
  {  
    type: "Article",  
    title: "Seamless Resource-Adaptive Navigation.",  
    year: 2011,  
    authors: [  
      "Tim Schwartz",  
    ]  
  }]
```

```

    "Christoph Stahl",
    "J?rg Baus",
    "Wolfgang Wahlster",
  ],
},
{
  type: "Article",
  title:
    "The Shopping Experience of Tomorrow: Human-Centered and Resource-
Adaptive.",
  year: 2011,
  authors: [
    "Wolfgang Wahlster",
    "Michael Feld",
    "Patrick Gebhard",
    "Dominikus Heckmann",
    "Ralf Jung",
    "Michael Kruppa",
    "Michael Schmitz",
    "L?bomira Spassova",
    "Rainer Wasinger",
  ],
},
{
  type: "Article",
  title:
    "The Semantic Product Memory: An Interactive Black Box for Smart
Objects.",
  year: 2013,
  authors: ["Wolfgang Wahlster"],
},
];

```

Requête 3.10

```
// Supprimer le champ « type » de toutes les publications
db.getCollection("dblp").updateMany({}, { $unset: { type: "" } });
```

Playground result:

```
{
  "acknowledged": true,
  "insertedId": null,
  "matchedCount": 801,
  "modifiedCount": 801,
  "upsertedCount": 0
}
```