

Exercise 1: Basic Queries

1. **List all collections in the database**

```
```mongodb
show collections
```

2. **Display all documents in the `employees` collection**

```
db.employees.find().pretty()
```

3. **Count the number of documents**

```
db.employees.count()
```

4. **Insert two employees using different methods**

```
db.employees.insert({nom: 'Martin', prenom: 'Paul', prime: 500})
db.employees.save({nom: 'Dupont', prenom: 'Sophie', anciennete: 3})
```

5. **List all employees with the first name "David"**

```
db.employees.find({prenom: 'David'})
```

6. **List employees whose first name starts or ends with "D"**

```
db.employees.find({prenom: /^D|D$/})
```

7. **List employees whose first name starts with "D" and is exactly 5 characters long**

```
db.employees.find({prenom: /^D.{4}$/})
```

## Exercise 2: Document Manipulation

8. **Find employees whose first name starts and ends with a vowel**

```
db.employees.find({prenom: /^[aeiouAEIOU].*[aeiouAEIOU]$/})
```

9. **Find employees whose first name starts and ends with the same letter**

```
db.employees.find({prenom: /^(.)*\1$/})
```

10. **Find employees with more than 10 years of seniority**

```
db.employees.find({anciennete: {$gt: 10}}, {nom: 1, prenom: 1})
```

11. **Find employees with an `adresse.rue` attribute**

```
db.employees.find({'adresse.rue': {$exists: true}}, {nom: 1, adresse: 1})
```

12. **Increase the existing `prime` by 200**

```
db.employees.updateMany({prime: {$exists: true}}, {$inc: {prime: 200}})
```

13. Get the top 3 employees with the highest seniority

```
db.employees.find().sort({anciennete: -1}).limit(3)
```

## Exercise 3: Data Update and Transformation

14. Group employees by city (filtering for "Toulouse")

```
db.employees.aggregate([
 {$match: {ville: 'Toulouse'}},
 {$project: {nom: 1, prenom: 1, anciennete: 1}}
])
```

15. Find employees whose first name starts with "M" and city is either "Foix" or "Bordeaux"

```
db.employees.find({prenom: /^M/, ville: {$in: ['Foix', 'Bordeaux']}})
```

16. Update the address of Dominique Mani

```
db.employees.updateOne(
 {nom: 'Mani', prenom: 'Dominique'},
 {$set: {adresse: {numero: 20, ville: 'Marseille', codepostal: '13015'}}}
)
```

17. Set prime to 1500 for all employees except those in Toulouse, Bordeaux, and Paris

```
db.employees.updateMany(
 {prime: {$exists: false}, ville: {$nin: ['Toulouse', 'Bordeaux', 'Paris']}},
 {$set: {prime: 1500}}
)
```