GROUP C
ASSIGNMENT 2

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CLASS – TE-IT
BATCH - T2
ROLL NO – 7048

2. Execute at least 10 queries on any suitable MongoDB database that demonstrates following querying techniques:
   - find and findOne (specific values)
   - Query criteria (Query conditionals, OR queries, $not, Conditional semantics)
   - Type-specific queries (Null, Regular expression, Querying arrays)

Find document

Display the list of all employees

```
> db.employees.find({})
{ "_id" : ObjectId("5d8e4ab54f5e86a76906931a"), "ID" : "1",
"Name" : "Mark", "Designation" : "CEO" }
{ "_id" : ObjectId("5d8e4cf44f5e86a76906931b"), "ID" : "2",
"Name" : "Eduardo", "Designation" : "CFO" }
{ "_id" : ObjectId("5d8e4d844f5e86a76906931c"), "ID" : "3",
"Name" : "Tyler", "Designation" : "Product Manager" }
{ "_id" : ObjectId("5d8e4d844f5e86a76906931d"), "ID" : "4",
"Name" : "Rohit", "Designation" : "Senior VP" }
{ "_id" : ObjectId("5d8edba14f5e86a76906931f"), "ID" : "5",
"Name" : "Vikram", "Designation" : "Product Designer" }
{ "_id" : ObjectId("5d8edbba4f5e86a769069320"), "ID" : "6",
"Name" : "John", "Designation" : "COO" }
{ "_id" : ObjectId("5d8ede384f5e86a769069321"), "ID" : "7",
"Name" : "Bill", "Designation" : "Software Engineer", "Skills" :
[ "Python", "DBMS", "Java" ] }
{ "_id" : ObjectId("5d8ede554f5e86a769069322"), "ID" : "8",
"Name" : "Steve", "Designation" : "Software Engineer", "Skills"
: [ "Python", "DBMS", "Java" ] }
```

Display employee details having ID=1

```
> db.employees.find({ID: "1"})
{ "_id" : ObjectId("5d8e4ab54f5e86a76906931a"), "ID" : "1",
"Name" : "Mark", "Designation" : "CEO" }
```

Display employees who are software engineers

```
> db.employees.find({Designation: "Software Engineer"})
{ "_id" : ObjectId("5d8ede384f5e86a769069321"), "ID" : "7",
"Name" : "Bill", "Designation" : "Software Engineer", "Skills" :
[ "Python", "DBMS", "Java" ] }
{ "_id" : ObjectId("5d8ede554f5e86a769069322"), "ID" : "8",
"Name" : "Steve", "Designation" : "Software Engineer", "Skills"
: [ "Python", "DBMS", "Java" ] }
```

Find document in JSON format

```
> db.employees.find({}).pretty()
{
     "_id" : ObjectId("5d8e4ab54f5e86a76906931a"),
     "ID" : "1",
     "Name" : "Mark",
     "Designation" : "CEO"
}
{
     "_id" : ObjectId("5d8e4cf44f5e86a76906931b"),
     "ID" : "2",
     "Name" : "Eduardo",
     "Designation" : "CFO"
}
{
     "_id" : ObjectId("5d8e4d844f5e86a76906931c"),
     "ID" : "3",
     "Name" : "Tyler",
     "Designation" : "Product Manager"
}
{
     "_id" : ObjectId("5d8e4d844f5e86a76906931d"),
     "ID" : "4",
     "Name" : "Rohit",
     "Designation" : "Senior VP"
}
{
     "_id" : ObjectId("5d8edba14f5e86a76906931f"),
     "ID" : "5",
     "Name" : "Vikram",
     "Designation" : "Product Designer"
}
```

```
{
     "_id" : ObjectId("5d8edbba4f5e86a769069320"),
     "ID" : "6",
     "Name" : "John",
     "Designation" : "COO"
}
{
     "_id" : ObjectId("5d8ede384f5e86a769069321"),
     "ID" : "7",
     "Name" : "Bill",
     "Designation" : "Software Engineer",
     "Skills" : [
          "Python",
          "DBMS",
          "Java"
     ]
}
{
     "_id" : ObjectId("5d8ede554f5e86a769069322"),
     "ID" : "8",
     "Name" : "Steve",
     "Designation" : "Software Engineer",
     "Skills" : [
          "Python",
          "DBMS",
          "Java"
     ]
}
```

Use of findOne

Display the first document of employee working as software engineer

```
> db.employees.findOne({Designation: "Software Engineer"})
{
     "_id" : ObjectId("5d8ede384f5e86a769069321"),
     "ID" : "7",
     "Name" : "Bill",
     "Designation" : "Software Engineer",
     "Skills" : [
          "Python",
          "DBMS",
          "Java"
     ]
```

```
}
```

AND condition

Display employees working as a software engineer and having Java skills

```
> db.employees.find({Designation: "Software Engineer", Skills:
"Java"})
{ "_id" : ObjectId("5d8ede384f5e86a769069321"), "ID" : "7",
"Name" : "Bill", "Designation" : "Software Engineer", "Skills" :
[ "Python", "DBMS", "Java" ] }
{ "_id" : ObjectId("5d8ede554f5e86a769069322"), "ID" : "8",
"Name" : "Steve", "Designation" : "Software Engineer", "Skills"
: [ "Python", "DBMS", "Java" ] }
{ "_id" : ObjectId("5d8f06934f5e86a769069325"), "ID" : "11",
"Name" : "Andy", "Designation" : "Software Engineer", "Skills" :
[ "Java", "C++", ".NET" ] }
```

Display employees working as product manager and having Agile skills

```
> db.employees.find({Designation: "Product Manager", Skills:
"Agile"})
>
```

OR condition

Display employees working as a software engineer or a product manager

```
> db.employees.find({$or: [{Designation: "Software
Engineer"},{Designation: "Product Manager"}]})
{ "_id" : ObjectId("5d8e4d844f5e86a76906931c"), "ID" : "3",
"Name" : "Tyler", "Designation" : "Product Manager" }
{ "_id" : ObjectId("5d8ede384f5e86a769069321"), "ID" : "7",
"Name" : "Bill", "Designation" : "Software Engineer", "Skills" :
[ "Python", "DBMS", "Java" ] }
{ "_id" : ObjectId("5d8ede554f5e86a769069322"), "ID" : "8",
"Name" : "Steve", "Designation" : "Software Engineer", "Skills"
: [ "Python", "DBMS", "Java" ] }
```

Display employees working as a software engineer or having Java skills

```
> db.employees.find({$or: [{Designation: "Software Engineer"},
{Skills: "Java"}]})
{ "_id" : ObjectId("5d8e4d844f5e86a76906931c"), "ID" : "3",
"Name" : "Tyler", "Designation" : "Product Manager", "Skills" :
[ "Management", "SCRUM", "Java" ] }
{ "_id" : ObjectId("5d8ede384f5e86a769069321"), "ID" : "7",
"Name" : "Bill", "Designation" : "Software Engineer", "Skills" :
[ "Python", "DBMS", "Java" ] }
{ "_id" : ObjectId("5d8ede554f5e86a769069322"), "ID" : "8",
"Name" : "Steve", "Designation" : "Software Engineer", "Skills"
: [ "Python", "DBMS", "Java" ] }
{ "_id" : ObjectId("5d8f06934f5e86a769069324"), "ID" : "10",
"Name" : "Pam", "Designation" : "Web Developer", "Skills" : [
"HTML", "Bootstrap", "PHP", "Javascript", "React", "Java" ] }
{ "_id" : ObjectId("5d8f06934f5e86a769069325"), "ID" : "11",
"Name" : "Andy", "Designation" : "Software Engineer", "Skills" :
[ "Java", "C++", ".NET" ] }
```

NOT condition

Display employees not having DBMS skills

```
> db.employees.find({Skills: {$not: {$eq: "DBMS"}}})
{ "_id" : ObjectId("5d8e4ab54f5e86a76906931a"), "ID" : "1",
"Name" : "Mark", "Designation" : "CEO", "Skills" : [
"Management", "Strategy" ] }
{ "_id" : ObjectId("5d8e4cf44f5e86a76906931b"), "ID" : "2",
"Name" : "Eduardo", "Designation" : "CFO", "Skills" : [
"Financial Analysis", "Accounting" ] }
{ "_id" : ObjectId("5d8e4d844f5e86a76906931c"), "ID" : "3",
"Name" : "Tyler", "Designation" : "Product Manager", "Skills" :
[ "Management", "SCRUM", "Java" ] }
{ "_id" : ObjectId("5d8e4d844f5e86a76906931d"), "ID" : "4",
"Name" : "Rohit", "Designation" : "Senior VP", "Skills" : [
"PHP", ".NET" ] }
{ "_id" : ObjectId("5d8edba14f5e86a76906931f"), "ID" : "5",
"Name" : "Vikram", "Designation" : "Product Designer", "Skills"
: [ "Prototyping", "CAD" ] }
{ "_id" : ObjectId("5d8edbba4f5e86a769069320"), "ID" : "6",
"Name" : "John", "Designation" : "COO" }
{ "_id" : ObjectId("5d8f06934f5e86a769069323"), "ID" : "9",
"Name" : "Mohit", "Designation" : "CMO", "Skills" : [
"Strategy", "Copywriting" ] }
```

```
{ "_id" : ObjectId("5d8f06934f5e86a769069324"), "ID" : "10",
"Name" : "Pam", "Designation" : "Web Developer", "Skills" : [
"HTML", "Bootstrap", "PHP", "Javascript", "React", "Java" ] }
{ "_id" : ObjectId("5d8f06934f5e86a769069325"), "ID" : "11",
"Name" : "Andy", "Designation" : "Software Engineer", "Skills" :
[ "Java", "C++", ".NET" ] }
```

Relational operators

List all employees having salary greater than 150000

```
> db.employees.find({Salary: {$gt: 150000}})
{ "_id" : ObjectId("5d8e4ab54f5e86a76906931a"), "ID" : "1",
"Name" : "Mark", "Designation" : "CEO", "Skills" : [
"Management", "Strategy" ], "Salary" : 250000 }
{ "_id" : ObjectId("5d8e4cf44f5e86a76906931b"), "ID" : "2",
"Name" : "Eduardo", "Designation" : "CFO", "Skills" : [
"Financial Analysis", "Accounting" ], "Salary" : 200000 }
{ "_id" : ObjectId("5d8e4d844f5e86a76906931d"), "ID" : "4",
"Name" : "Rohit", "Designation" : "Senior VP", "Skills" : [
"PHP", ".NET" ], "Salary" : 200000 }
{ "_id" : ObjectId("5d8edbba4f5e86a769069320"), "ID" : "6",
"Name" : "John", "Designation" : "COO", "Salary" : 200000 }
{ "_id" : ObjectId("5d8f06934f5e86a769069323"), "ID" : "9",
"Name" : "Mohit", "Designation" : "CMO", "Skills" : [
"Strategy", "Copywriting" ], "Salary" : 200000 }
```

Display details of employees having ID between 6 and 10

```
> db.employees.find( { ID: {$in: ["6", "7", "8", "9", "10"] } } )
).pretty()
{
     "_id" : ObjectId("5d8edbba4f5e86a769069320"),
     "ID" : "6",
     "Name" : "John",
     "Designation" : "COO",
     "Salary" : 200000
}
{
     "_id" : ObjectId("5d8ede384f5e86a769069321"),
     "ID" : "7",
     "Name" : "Bill",
     "Designation" : "Software Engineer",
     "Skills" : [
```

```
            "Python",
            "DBMS",
            "Java"
        ],
        "Salary" : 150000
    }
    {
        "_id" : ObjectId("5d8ede554f5e86a769069322"),
        "ID" : "8",
        "Name" : "Steve",
        "Designation" : "Software Engineer",
        "Skills" : [
            "Python",
            "DBMS",
            "Java"
        ],
        "Salary" : 150000
    }
    {
        "_id" : ObjectId("5d8f06934f5e86a769069323"),
        "ID" : "9",
        "Name" : "Mohit",
        "Designation" : "CMO",
        "Skills" : [
            "Strategy",
            "Copywriting"
        ],
        "Salary" : 200000
    }
    {
        "_id" : ObjectId("5d8f06934f5e86a769069324"),
        "ID" : "10",
        "Name" : "Pam",
        "Designation" : "Web Developer",
        "Skills" : [
            "HTML",
            "Bootstrap",
            "PHP",
            "Javascript",
            "React",
            "Java"
        ],
        "Salary" : 80000
    }
```

Display employees having salary between 100000 and 200000

```
> db.employees.find({Salary: {$gte: 100000, $lte:
200000}}).pretty()
{
     "_id" : ObjectId("5d8e4cf44f5e86a76906931b"),
     "ID" : "2",
     "Name" : "Eduardo",
     "Designation" : "CFO",
     "Skills" : [
          "Financial Analysis",
          "Accounting"
     ],
     "Salary" : 200000
}
{
     "_id" : ObjectId("5d8e4d844f5e86a76906931c"),
     "ID" : "3",
     "Name" : "Tyler",
     "Designation" : "Product Manager",
     "Skills" : [
          "Management",
          "SCRUM",
          "Java"
     ],
     "Salary" : 150000
}
{
     "_id" : ObjectId("5d8e4d844f5e86a76906931d"),
     "ID" : "4",
     "Name" : "Rohit",
     "Designation" : "Senior VP",
     "Skills" : [
          "PHP",
          ".NET"
     ],
     "Salary" : 200000
}
{
     "_id" : ObjectId("5d8edba14f5e86a76906931f"),
     "ID" : "5",
     "Name" : "Vikram",
     "Designation" : "Product Designer",
     "Skills" : [
          "Prototyping",
```

```
            "CAD"
        ],
        "Salary" : 150000
}
{
        "_id" : ObjectId("5d8edbba4f5e86a769069320"),
        "ID" : "6",
        "Name" : "John",
        "Designation" : "COO",
        "Salary" : 200000
}
{
        "_id" : ObjectId("5d8ede384f5e86a769069321"),
        "ID" : "7",
        "Name" : "Bill",
        "Designation" : "Software Engineer",
        "Skills" : [
            "Python",
            "DBMS",
            "Java"
        ],
        "Salary" : 150000
}
{
        "_id" : ObjectId("5d8ede554f5e86a769069322"),
        "ID" : "8",
        "Name" : "Steve",
        "Designation" : "Software Engineer",
        "Skills" : [
            "Python",
            "DBMS",
            "Java"
        ],
        "Salary" : 150000
}
{
        "_id" : ObjectId("5d8f06934f5e86a769069323"),
        "ID" : "9",
        "Name" : "Mohit",
        "Designation" : "CMO",
        "Skills" : [
            "Strategy",
            "Copywriting"
        ],
        "Salary" : 200000
```

```
}
```

Aggregate

List all the positions in the company

```
> db.employees.aggregate( [ { $group: { _id: "$Designation" } }
] )
{ "_id" : "Software Engineer" }
{ "_id" : "Sales Executive" }
{ "_id" : "Product Manager" }
{ "_id" : "Product Designer" }
{ "_id" : "CMO" }
{ "_id" : "Web Developer" }
{ "_id" : "Senior VP" }
{ "_id" : "CFO" }
{ "_id" : "CEO" }
{ "_id" : "COO" }
```

Regular expressions

List employees whose name starts with ‘A’

```
> db.employees.find({Name: /^A/})
{ "_id" : ObjectId("5d8f06934f5e86a769069325"), "ID" : "11",
"Name" : "Andy", "Designation" : "Software Engineer", "Skills" :
[ "Java", "C++", ".NET" ], "Salary" : 50000 }
```

List employees whose name has the substring ‘it’

```
> db.employees.find({Name: /it/})
{ "_id" : ObjectId("5d8e4d844f5e86a76906931d"), "ID" : "4",
"Name" : "Rohit", "Designation" : "Senior VP", "Skills" : [
"PHP", ".NET" ], "Salary" : 200000 }
{ "_id" : ObjectId("5d8f06934f5e86a769069323"), "ID" : "9",
"Name" : "Mohit", "Designation" : "CMO", "Skills" : [
"Strategy", "Copywriting" ], "Salary" : 200000 }
```

List employees whose name ends with ‘m’

```
> db.employees.find({Name: /m$/})
{ "_id" : ObjectId("5d8edba14f5e86a76906931f"), "ID" : "5",
"Name" : "Vikram", "Designation" : "Product Designer", "Skills"
: [ "Prototyping", "CAD" ], "Salary" : 150000 }
```

```
{ "_id" : ObjectId("5d8f06934f5e86a769069324"), "ID" : "10",
"Name" : "Pam", "Designation" : "Web Developer", "Skills" : [
"HTML", "Bootstrap", "PHP", "Javascript", "React", "Java" ],
"Salary" : 80000 }
```

Count

Count total no. of employees

```
> db.employees.count()
13
```

Count the number of employees working as software engineers

```
> db.employees.count({Designation: "Software Engineer"})
3
```