

## Lab: MongoDB Practice 1

### Part A

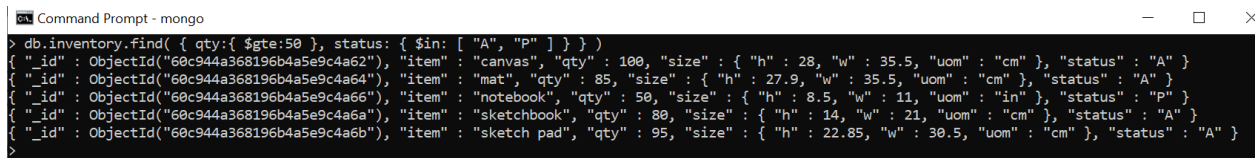
Start from an empty inventory collection and populate the collection using the following command.

```
db.inventory.insertMany([
  { item: "canvas", qty: 100, size: { h: 28, w: 35.5, uom: "cm" }, status: "A" },
  { item: "journal", qty: 25, size: { h: 14, w: 21, uom: "cm" }, status: "A" },
  { item: "mat", qty: 85, size: { h: 27.9, w: 35.5, uom: "cm" }, status: "A" },
  { item: "mousepad", qty: 25, size: { h: 19, w: 22.85, uom: "cm" }, status: "P" },
  { item: "notebook", qty: 50, size: { h: 8.5, w: 11, uom: "in" }, status: "P" },
  { item: "paper", qty: 100, size: { h: 8.5, w: 11, uom: "in" }, status: "D" },
  { item: "planner", qty: 75, size: { h: 18.85, w: 30, uom: "cm" }, status: "D" },
  { item: "postcard", qty: 45, size: { h: 10, w: 15.25, uom: "cm" }, status: "A" },
  { item: "sketchbook", qty: 80, size: { h: 14, w: 21, uom: "cm" }, status: "A" },
  { item: "sketch pad", qty: 95, size: { h: 22.85, w: 30.5, uom: "cm" }, status: "A" }
]);
```

1. Find all the documents with qty greater than or equal to 50 and with status "A" or "P".

'''

```
db.inventory.find( { qty: { $gte: 50 }, status: { $in: [ "A", "P" ] } })
```



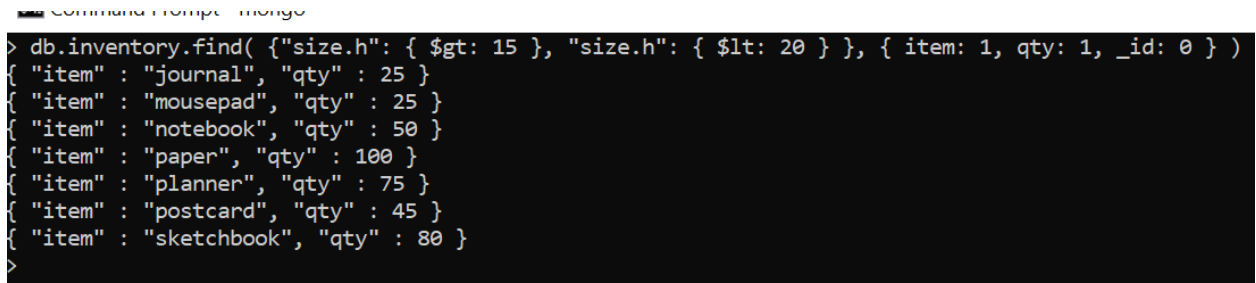
```
Command Prompt - mongo
> db.inventory.find( { qty: { $gte: 50 }, status: { $in: [ "A", "P" ] } })
{ "_id" : ObjectId("60c944a368196b4a5e9c4a62"), "item" : "canvas", "qty" : 100, "size" : { "h" : 28, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("60c944a368196b4a5e9c4a64"), "item" : "mat", "qty" : 85, "size" : { "h" : 27.9, "w" : 35.5, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("60c944a368196b4a5e9c4a66"), "item" : "notebook", "qty" : 50, "size" : { "h" : 8.5, "w" : 11, "uom" : "in" }, "status" : "P" }
{ "_id" : ObjectId("60c944a368196b4a5e9c4a6a"), "item" : "sketchbook", "qty" : 80, "size" : { "h" : 14, "w" : 21, "uom" : "cm" }, "status" : "A" }
{ "_id" : ObjectId("60c944a368196b4a5e9c4a6b"), "item" : "sketch pad", "qty" : 95, "size" : { "h" : 22.85, "w" : 30.5, "uom" : "cm" }, "status" : "A" }
>
```

You may also use \$or.

2. Find all the documents with h greater than 15 and less than 20. The result should only return the item and the qty fields.

The following query gives the wrong result

```
db.inventory.find( { "size.h": { $gt: 15 }, "size.h": { $lt: 20 } }, { item: 1, qty: 1, _id: 0 } )
```



```
Command Prompt - mongo
> db.inventory.find( { "size.h": { $gt: 15 }, "size.h": { $lt: 20 } }, { item: 1, qty: 1, _id: 0 } )
{ "item" : "journal", "qty" : 25 }
{ "item" : "mousepad", "qty" : 25 }
{ "item" : "notebook", "qty" : 50 }
{ "item" : "paper", "qty" : 100 }
{ "item" : "planner", "qty" : 75 }
{ "item" : "postcard", "qty" : 45 }
{ "item" : "sketchbook", "qty" : 80 }
>
```

Only the last expression on the same key ( "size.h": { \$lt: 20 } ) will be used.

To specify multiple expressions on the same field, we need to use \$and operator explicitly, or place all the conditions together if you still want to use the implicit and

```
db.inventory.find( { $and: [ { "size.h": { $gt: 15 } }, { "size.h": { $lt: 20 } } ] }, { item: 1, qty: 1, _id:0 } )
```

```
> db.inventory.find( { $and: [ { "size.h": { $gt: 15 } }, { "size.h": { $lt: 20 } } ] }, { item: 1, qty: 1, _id:0 } )
{ "item" : "mousepad", "qty" : 25 }
{ "item" : "planner", "qty" : 75 }
>
```

```
db.inventory.find( { "size.h": { $gt: 15, $lt: 20 } }, { item: 1, qty: 1, _id: 0 } )
```

 Command Prompt - mongo

```
> db.inventory.find( { "size.h": { $gt: 15, $lt: 20 } }, { item: 1, qty: 1, _id: 0 } )
{ "item" : "mousepad", "qty" : 25 }
{ "item" : "planner", "qty" : 75 }
>
```

Reference: <https://docs.mongodb.com/manual/reference/operator/query/and/>


## Part B

Start from an empty inventory collection and populate the collection using the following command.

```
db.inventory.insertMany( [
  { item: "journal", instock: [ { warehouse: "A", qty: 5 }, { warehouse: "C", qty: 15 } ] },
  { item: "notebook", instock: [ { warehouse: "C", qty: 5 } ] },
  { item: "paper", instock: [ { warehouse: "A", qty: 60 }, { warehouse: "B", qty: 15 } ] },
  { item: "planner", instock: [ { warehouse: "A", qty: 40 }, { warehouse: "B", qty: 5 } ] },
  { item: "pen", instock: [ { warehouse: "A", qty: 50 }, { warehouse: "B", qty: 10 }, { warehouse: "C", qty: 20 } ] },
  { item: "postcard", instock: [ { warehouse: "B", qty: 15 }, { warehouse: "C", qty: 35 } ] },
  { item: "pencil" },
]);
```

1. Find the documents where the instock array has at least one element that satisfies both conditions: warehouse equal to "A" and qty greater than 40.

```
db.inventory.find( { instock: { $elemMatch: { warehouse: "A", qty: { $gt: 40 } } } } )
```

 Command Prompt - mongo

```
> db.inventory.find( { instock: { $elemMatch: { warehouse: "A", qty: { $gt: 40 } } } } )
{ "_id" : ObjectId("60c9461b68196b4a5e9c4a6f"), "item" : "paper", "instock" : [ { "warehouse" : "A", "qty" : 60 }, { "warehouse" : "B", "qty" : 15 } ] }
{ "_id" : ObjectId("60c9461b68196b4a5e9c4a70"), "item" : "pen", "instock" : [ { "warehouse" : "A", "qty" : 50 }, { "warehouse" : "B", "qty" : 10 }, { "warehouse" : "C", "qty" : 20 } ] }
>
```

2. Find the documents where the first element in the instock array has qty greater than 10 and the second element in that array has qty less than 15.

```
db.inventory.find( { "instock.0.qty": { $gt: 10 }, "instock.1.qty": { $lt: 15 } } )
```

```
> db.inventory.find( { "instock.0.qty": { $gt: 10 }, "instock.1.qty": { $lt: 15 } } )
{ "_id" : ObjectId("60c9461b68196b4a5e9c4a6f"), "item" : "planner", "instock" : [ { "warehouse" : "A", "qty" : 40 }, { "warehouse" : "B", "qty" : 5 } ] }
{ "_id" : ObjectId("60c9461b68196b4a5e9c4a70"), "item" : "pen", "instock" : [ { "warehouse" : "A", "qty" : 50 }, { "warehouse" : "B", "qty" : 10 }, { "warehouse" : "C", "qty" : 20 } ] }
>
```