SUBSCRIBE ->
https://www.youtube.com/@AkhilSharmaTech/videos

MongoDB official Documentation - https://www.mongodb.com/docs/

Creating a completely-managed data base - https://www.mongodb.com/atlas/database

Mongo compass installation - https://www.mongodb.com/docs/compass/current/install/

Studio 3T installation - https://studio3t.com/free/

[Optional] **MongoDB Installation** - https://www.mongodb.com/docs/manual/installation/

[Optional] **Mongo shell installation** -
https://www.mongodb.com/try/download/shell

Recommended books to learn MongoDB -

1. https://www.oreilly.com/library/view/mongodb-the-definitive/9781491954454/
2. https://www.amazon.in/MongoDB-Workshop-Interactive-Approach-Learning/dp/1839210648
3. https://www.amazon.in/Mastering-MongoDB-4-x-high-fault-tolerant/dp/1789617871
4. https://www.amazon.com/MongoDB-Action-Kyle-Banker/dp/1935182870
5. https://www.amazon.in/Seven-Databases-Weeks-Eric-Redmond/dp/1934356921

Playgrounds ->

1. https://www.humongous.io/app/playground/mongodb/new
2. https://mongoplayground.net/
3. https://www.mongodb.com/docs/manual/tutorial/insert-documents/

HANDS-ON

EXAMPLE 1 -> **count documents** (Dataset 1)

db.collection.countDocuments({})

EXAMPLE 2 -> **Find docs** (Dataset 1)

db.collection.find({ })

EXAMPLE 3 -> **$and** (Dataset 1)

```
db.collection.find({
  $and: [
    {
      capital: "Washington, D.C."
    },
    {
      name: "United States"
    }
  ]
})
```

EXAMPLE 4 -> **$or** (Dataset 1)

```
db.collection.find({
  $or: [
    {
      capital: "Washington, D.C."
    },
    {
      capital: "Canberra"
    }
  ]
})
```

EXAMPLE 5 -> **$in** (Dataset 1)

```
db.collection.find({
  $or: [
    {
      "capital": "Washington, D.C."
    },
    {
      population: {
        $in: [
          25681300,
          125960000
        ]
      }
```

```
    }
  ]
})
```

EXAMPLE 6 -> **$lt** (Dataset 1)

```
db.collection.find({
  $or: [
    {
      population: {
        $lt: 125960000
      }
    },
    {
      population: {
        $in: [
          25681300,
          328239523
        ]
      }
    }
  ]
})
```

EXAMPLE 7 -> **$gt** (Dataset 1)

```
db.collection.find({
  $or: [
    {
      population: {
        $gt: 210147124
      }
    },
    {
      population: {
        $in: [
          125960000,
          25681300,
          328239523
        ]
      }
```

```
    }
  ]
})
```

EXAMPLE 8 -> **$eq** (Dataset 1)

```
db.collection.find({
  $or: [
    {
      name: {
        $eq: "Australia"
      }
    },
    {
      population: {
        $eq: 125960000
      }
    }
  ]
})
```

EXAMPLE 9 -> **$ ne**

```
db.collection.find({
  $or: [
    {
      name: {
        $eq: "Australia"
      }
    },
    {
      name: {
        $ne: "United States"
      }
    }
  ]
})
```

EXAMPLE 10 -> **$nin**

```
db.collection.find({
```

```
  $or: [
    {
      population: {
        $nin: [
          328239523,
          25681300,
          125960000
        ]
      }
    },
    {
      name: "Brazil"
    }
  ]
})
```

EXAMPLE 11 -> **$gte**

```
db.collection.find({
  population: {
    $gte: 125960000
  }
})
```

EXAMPLE 12- > **$lte**

```
db.collection.find({
  population: {
    $lte: 125960000
  }
})
```

EXAMPLE 13 -> **$nor**

```
db.collection.find({
$nor:[
  {
    population:210147125
  },
  {
    population:125960000
  }
```

```
]
})
```

EXAMPLE 14 -> **$exists**
SWITCH to MONGOPLAYGROUND from this example onwards
Add extra record in the data ->

```
{
    _id: "62e5288f4d0440f7811d142d",
    name: "India",
    capital: "Delhi",
    continent: "Asia",
    language: "Hindi",

  },
```

QUERY ->
***

```
db.collection.find({
  population: {
    $exists: true,
    $nin: [
      210147125,
      125960000
    ]
  }
})
```

EXAMPLE 15 -> **update query**

```
db.collection.update({
  _id: "62e5288f4d0440f7811d1928"
},
{
  $set: {
    "capital": "Dubai",
    "language": "arabic",
    "name": "UAE"
  }
})
```

EXAMPLE 16 -> **$rename**

```
db.collection.update({
  name: "United States"
},
{
  $rename: {
    "capital": "capital city",
    "continent": "kontinent",
  }
})
```

EXAMPLE 17 -> **$inc**

```
db.collection.update({
  name: "United States"
},
{
  $inc: {
    population: -2
  }
})
```

EXAMPLE 18 -> **$min**

```
db.collection.update({
  name: "United States"
},
{
  $min: {
    population: 20
  }
})
```

EXAMPLE 19 -> **$max**

```
db.collection.update({
  name: "United States"
},
{
  $max: {
    population: 40
  }
})
```

EXAMPLE 20 -> **$mul**

```
db.collection.update({
  name: "United States"
},
{
  $mul: {
    population: 2
  }
})
```

EXAMPLE 21 -> **$unset**

```
db.collection.update({
  name: "United States"
},
{
  $unset: {
    capital: "",
    continent: ""
  }
})
```

EXAMPLE 22 -> **Array ops ['$' operator]** (Dataset 2)

```
db.collection.update({
  _id: 1,
  grades: 80
},
{
  $set: {
    "grades.$": 82
  }
})
```

EXAMPLE 23 -> **Array ops ['.' operator]** (Dataset 3)

```
db.collection.update({
```

```
  _id: 4,
  "grades.grade": 80
},
{
  $set: {
    "grades.$.std": 6
  }
})
```

EXAMPLE 24 -> **Array ops [$elematch]** (Dataset 3)

elematch returns documents that contain an array field with **at least one** element that matches all the specified query criteria.

```
db.collection.update({
  _id: 4,
  grades: {
    $elemMatch: {
      grade: {
        $lte: 90
      },
      mean: {
        $gt: 80
      }
    }
  }
},
{
  $set: {
    "grades.$.std": 6
  }
})
```

EXAMPLE 25 -> **embedded data** (Dataset 4)

```
db.collection.find({
  size: {
    h: 14,
    w: 21,
    uom: "cm"
  }
```

```
})
```

EXAMPLE 26 -> **embedded data '.' notation** (Dataset 4)

```
db.collection.find({
  "size.uom": "in"
})
```

EXAMPLE 27 -> **embedded data, mixing $gt with '.' notation** (Dataset 4)

```
    db.collection.find({
  "size.h": {
    $gt: 15
  }
})
```

EXAMPLE 28 -> **more criteria matching** (Dataset 4)

```
    db.collection.find({
  "size.h": {
    $lt: 15
  },
  "size.uom": "in",
  "status": "D"
})
```

EXAMPLE 29 -> **Add to set** (Dataset 5)

```
db.collection.update({
  _id: 1
},
{
  $addToSet: {
    colors: "seagreen"
  }
})
```

```
//for the guys on their local systems
db.getCollection("dataset5").update(
{
_id:1
},
{
$addToSet:{
colors:"seagreen"}
}
)
```

EXAMPLE 30 -> **Array add to set** (Dataset 5)

```
db.collection.update({
  _id: 1
},
{
  $addToSet: {
    colors: [
      "brown",
      "black"
    ]
  }
})
```

EXAMPLE 31 -> **$pop** (Dataset 6)

```
db.getCollection("scores").update(
    {
        _id: 1
    },
    {
        $pop: {
            scores: 1
        }
    }
)
```

EXAMPLE 32 -> **$pull** (Dataset 7)

```
db.collection.update({
  _id: 2
},
{
  $pull: {
    fruits: {
      $in: [
        "apples",
        "oranges"
      ]
    },
    vegetables: "carrots"
  }
})
```

EXAMPLE 33 -> **multi-pull** (Dataset 8)

```
db.collection.update({
  _id: 1
},
{
  $pull: {
    votes: {
      $gte: 6
    }
  }
})
```

EXAMPLE 34 -> **$all** (Dataset 9)

```
db.collection.find({
  tags: {
    $all: [
      "appliance",
      "school",
      "book"
    ]
  }
})
```

EXAMPLE 35 -> **$all with $elematch** (Dataset 9)

```
db.collection.find({
  qty: {
    $all: [
      {
        "$elemMatch": {
          size: "M",
          num: {
            $gt: 50
          }
        }
      },
      {
        "$elemMatch": {
          num: 100,
          color: "green"
        }
      }
    ]
  }
})
```

EXAMPLE 36 -> **compare elematch without elematch** (Dataset 10)

```
db.collection.find({
  results: {
    $elemMatch: {
      product: "xyz"
    }
  }
})
```

THE DIFFERENCE COMES HERE -

```
db.collection.find({
  "results": {
    $elemMatch: {
      product: {
        $ne: "xyz"
```

```
    }
   }
  }
})
```

VS

```
db.collection.find({
  "results.product": {
    $ne: "xyz"
  }
})
```

EXAMPLE 37 -> **$push** (Dataset 8)

```
db.collection.update({
  _id: 1
},
{
  $push: {
    votes: 89
  }
})
```

EXAMPLE 38 -> **$push with $each for adding multiple values to array** (Dataset 8)

```
db.collection.update({
  _id: 1
},
{
  $push: {
    votes: {
      $each: [
        90,
        92,
        85
      ]
    }
  }
})
```

EXAMPLE 39 -> **$push with multiple modifiers** (Dataset 11)

```
db.collection.update({
  _id: 5
},
{
  $push: {
    quizzes: {
      $each: [
        {
          wk: 5,
          score: 8
        },
        {
          wk: 6,
          score: 7
        },
        {
          wk: 7,
          score: 6
        }
      ],
      $sort: {
        score: -1
      },
      $slice: 3
    }
  }
})
```

EXAMPLE 40 -> **$pullall** (Dataset 12)

```
db.collection.update({
  _id: 1
},
{
  $pullAll: {
    scores: [
      0,
      5
    ]
```

```
  }
})
```

Datasets ->

DATASET 1 ->

```
[
  {
    _id: "62e5288f4d0440f7811d1928",
    name: "United States",
    capital: "Washington, D.C.",
    continent: "North America",
    language: "English",
    population: 328239523,

  },
  {
    _id: "62e5288f4d0440f7811d192b",
    name: "Australia",
    capital: "Canberra",
    continent: "Australia",
    language: "English",
    population: 25681300,

  },
  {
    _id: "62e5288f4d0440f7811d192c",
    name: "Japan",
    capital: "Tokyo",
    continent: "Asia",
    language: "Japanese",
    population: 125960000,

  },
  {
    _id: "62e5288f4d0440f7811d192d",
    name: "Brazil",
    capital: "Brasília",
    continent: "South America",
    language: "Portuguese",
```

```
    population: 210147125,

  },

]
```

DATASET 2 ->

```
[
  {
    "_id": 1,
    "grades": [
      85,
      80,
      80
    ]
  },
  {
    "_id": 2,
    "grades": [
      88,
      90,
      92
    ]
  },
  {
    "_id": 3,
    "grades": [
      85,
      100,
      90
    ]
  }
]
```

DATASET 3 ->

```
[
{
  _id: 4,
  grades: [
    { grade: 80, mean: 75, std: 8 },
```

```
    { grade: 85, mean: 90, std: 5 },
    { grade: 85, mean: 85, std: 8 }
  ]
}
]
```

DATASET 4 ->

```
[
  {
    item: "journal",
    qty: 25,
    size: {
      h: 14,
      w: 21,
      uom: "cm"
    },
    status: "A"
  },
  {
    item: "notebook",
    qty: 50,
    size: {
      h: 8.5,
      w: 11,
      uom: "in"
    },
    status: "A"
  },
  {
    item: "paper",
    qty: 100,
    size: {
      h: 8.5,
      w: 11,
      uom: "in"
    },
    status: "D"
  },
  {
    item: "planner",
    qty: 75,
    size: {
      h: 22.85,
```

```
    w: 30,
    uom: "cm"
   },
   status: "D"
  },
  {
   item: "postcard",
   qty: 45,
   size: {
    h: 10,
    w: 15.25,
    uom: "cm"
   },
   status: "A"
  }
]
```

DATASET 5 ->

```
[
  {
    _id: 1,
    colors: [
      "blue, green, red"
    ]
  }
]
```

DATASET 6 ->

```
[
  {
    _id: 1,
    scores: [
      8,
      9,
      10
    ]
  }
]
```

DATASET 7 ->

```
[
  {
    _id: 1,
    fruits: [
      "apples",
      "pears",
      "oranges",
      "grapes",
      "bananas"
    ],
    vegetables: [
      "carrots",
      "celery",
      "squash",
      "carrots"
    ]
  },
  {
    _id: 2,
    fruits: [
      "plums",
      "kiwis",
      "oranges",
      "bananas",
      "apples"
    ],
    vegetables: [
      "broccoli",
      "zucchini",
      "carrots",
      "onions"
    ]
  }
]
```

DATASET 8 ->

```
[
```

```
 {
   _id: 1,
   votes: [
     3,
     5,
     6,
     7,
     7,
     8
   ]
 }
]
```

DATASET 9 ->

```
[
 {
   _id: ObjectId("5234cc89687ea597eabee675"),
   code: "xyz",
   tags: [
     "school",
     "book",
     "bag",
     "headphone",
     "appliance"
   ],
   qty: [
     {
       size: "S",
       num: 10,
       color: "blue"
     },
     {
       size: "M",
       num: 45,
       color: "blue"
     },
     {
       size: "L",
       num: 100,
       color: "green"
     }
   ]
```

```
},
{
  _id: ObjectId("5234cc8a687ea597eabee676"),
  code: "abc",
  tags: [
    "appliance",
    "school",
    "book"
  ],
  qty: [
    {
      size: "6",
      num: 100,
      color: "green"
    },
    {
      size: "6",
      num: 50,
      color: "blue"
    },
    {
      size: "8",
      num: 100,
      color: "brown"
    }
  ]
},
{
  _id: ObjectId("5234ccb7687ea597eabee677"),
  code: "efg",
  tags: [
    "school",
    "book"
  ],
  qty: [
    {
      size: "S",
      num: 10,
      color: "blue"
    },
    {
      size: "M",
      num: 100,
      color: "blue"
```

```
      },
      {
        size: "L",
        num: 100,
        color: "green"
      }
    ]
  },
  {
    _id: ObjectId("52350353b2eff1353b349de9"),
    code: "ijk",
    tags: [
      "electronics",
      "school"
    ],
    qty: [
      {
        size: "M",
        num: 100,
        color: "green"
      }
    ]
  }
]
```

DATASET 10 ->

```
[
  {
    "_id": 1,
    "results": [
      {
        "product": "abc",
        "score": 10
      },
      {
        "product": "xyz",
        "score": 5
      }
    ]
  },
  {
    "_id": 2,
```

```
    "results": [
      {
        "product": "abc",
        "score": 8
      },
      {
        "product": "xyz",
        "score": 7
      }
    ]
  },
  {
    "_id": 3,
    "results": [
      {
        "product": "abc",
        "score": 7
      },
      {
        "product": "xyz",
        "score": 8
      }
    ]
  },
  {
    "_id": 4,
    "results": [
      {
        "product": "abc",
        "score": 7
      },
      {
        "product": "def",
        "score": 8
      }
    ]
  }
]
```


Dataset 11 ->


```
[
  {
```

```
    "_id": 5,
    "quizzes": [
      {
        "wk": 1,
        "score": 10
      },
      {
        "wk": 2,
        "score": 8
      },
      {
        "wk": 3,
        "score": 5
      },
      {
        "wk": 4,
        "score": 6
      }
    ]
  }
]
```


Dataset 12 ->


```
[
  {
    _id: 1,
    scores: [
      0,
      2,
      5,
      5,
      1,
      0
    ]
  }
]
```