Ex.No: 5 Aggregation with suitable example using MongoDB.

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ROLL NO=22BCS025

DATE=14/08/2024

AIM: To perform data aggregation in MongoDB, a NoSQL database.

```
Command Prompt - mongo                                        —    □    ×
> db.person.aggregate([ {$match : {gender:"male", isActive:true}}]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e6986b"),
        "index" : 15,
        "name" : "Newman Rodriquez",
        "isActive" : true,
        "registered" : ISODate("2017-09-19T11:25:18Z"),
        "gender" : "male",
        "eyeColor" : "green",
        "favoriteFruit" : "strawberry",
        "company" : {
                "title" : "PHARMACON",
                "email" : "newmanrodriquez@pharmacon.com",
                "phone" : "+1 (906) 591-2086",
                "location" : {
                        "country" : "France",
                        "address" : "624 Madeline Court"
                }
        },
        "tags" : [
                "ad",
                "in"
        ],
        "personAge" : 29
}
{
        "_id" : ObjectId("66b30cecec984aa777e69872"),
        "index" : 23,
        "name" : "Bowman Whitaker",
        "isActive" : true,
```

Command Prompt - mongo

> db.person.aggregate([{$match : {personAge : {$gt:30}, isActive:true}},{$count:"totaldocs"}])
{ "totaldocs" : 248 }
> db.person.aggregate([{$match : {personAge : {$gt:30}, isActive:true}}])
{ "_id" : ObjectId("66b30cecec984aa777e69863"), "index" : 7, "name" : "Anastasia Blake", "isActive" : true, "registered"
 : ISODate("2016-07-01T02:32:46Z"), "gender" : "female", "eyeColor" : "brown", "favoriteFruit" : "strawberry", "company"
 : { "title" : "ZERBINA", "email" : "anastasiablake@zerbina.com", "phone" : "+1 (867) 563-3788", "location" : { "country
" : "Italy", "address" : "147 Montague Terrace" } }, "tags" : ["Lorem", "consequat", "ex", "pariatur", "labore"], "per
sonAge" : 40 }
{ "_id" : ObjectId("66b30cecec984aa777e69865"), "index" : 3, "name" : "Karyn Rhodes", "isActive" : true, "registered" :
ISODate("2014-03-11T03:02:33Z"), "gender" : "female", "eyeColor" : "green", "favoriteFruit" : "strawberry", "company" :
{ "title" : "RODEMCO", "email" : "karynrhodes@rodemco.com", "phone" : "+1 (801) 505-3760", "location" : { "country" : "U
SA", "address" : "521 Seigel Street" } }, "tags" : ["cillum", "exercitation", "excepteur"], "personAge" : 39 }
{ "_id" : ObjectId("66b30cecec984aa777e69869"), "index" : 10, "name" : "Belinda Zimmerman", "isActive" : true, "register
ed" : ISODate("2015-11-19T02:18:09Z"), "gender" : "female", "eyeColor" : "green", "favoriteFruit" : "apple", "company" :
 { "title" : "COMTRAK", "email" : "belindazimmerman@comtrak.com", "phone" : "+1 (899) 410-3073", "location" : { "country
" : "France", "address" : "259 Bergen Street" } }, "tags" : ["nisi", "officia", "nisi"], "personAge" : 34 }
{ "_id" : ObjectId("66b30cecec984aa777e6986e"), "index" : 9, "name" : "Tina Barnett", "isActive" : true, "registered" :
ISODate("2015-03-09T11:16:38Z"), "gender" : "female", "eyeColor" : "blue", "favoriteFruit" : "apple", "company" : { "tit
le" : "JETSILK", "email" : "tinabarnett@jetsilk.com", "phone" : "+1 (963) 569-3905", "location" : { "country" : "Germany
", "address" : "514 Lefferts Avenue" } }, "tags" : ["veniam", "proident"], "personAge" : 39 }
{ "_id" : ObjectId("66b30cecec984aa777e69870"), "index" : 18, "name" : "Mable Pratt", "isActive" : true, "registered" :
ISODate("2016-04-22T11:00:05Z"), "gender" : "female", "eyeColor" : "blue", "favoriteFruit" : "banana", "company" : { "ti
tle" : "PARAGONIA", "email" : "mablepratt@paragonia.com", "phone" : "+1 (875) 523-3825", "location" : { "country" : "USA
", "address" : "767 Hendrix Street" } }, "tags" : ["excepteur", "et", "ullamco", "nisi", "magna"], "personAge" : 32 }
{ "_id" : ObjectId("66b30cecec984aa777e69874"), "index" : 22, "name" : "Agnes West", "isActive" : true, "registered" : I
SODate("2014-03-26T01:38:01Z"), "gender" : "female", "eyeColor" : "blue", "favoriteFruit" : "apple", "company" : { "titl
e" : "GEEKMOSIS", "email" : "agneswest@geekmosis.com", "phone" : "+1 (983) 462-2577", "location" : { "country" : "Italy"
, "address" : "652 Johnson Street" } }, "tags" : ["sint", "sit"], "personAge" : 39 }
{ "_id" : ObjectId("66b30cecec984aa777e69875"), "index" : 25, "name" : "Bryant Thornton", "isActive" : true, "registered
" : ISODate("2016-07-02T06:12:47Z"), "gender" : "male", "eyeColor" : "green", "favoriteFruit" : "strawberry", "company"

Command Prompt - mongo

> db.person.aggregate([{$match : {favoriteFruit:"banana"}},{$count:"total"}])
{ "total" : 339 }
> db.person.aggregate([{$match : {favoriteFruit:"banana"}}]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e6985f"),
        "index" : 0,
        "name" : "Aurelia Gonzales",
        "isActive" : false,
        "registered" : ISODate("2015-02-11T04:22:39Z"),
        "gender" : "female",
        "eyeColor" : "green",
        "favoriteFruit" : "banana",
        "company" : {
                "title" : "YURTURE",
                "email" : "aureliagonzales@yurture.com",
                "phone" : "+1 (940) 501-3963",
                "location" : {
                        "country" : "USA",
                        "address" : "694 Hewes Street"
                }
        },
        "tags" : [
                "enim",
                "id",
                "velit",
                "ad",
                "consequat"
        ],
        "personAge" : 20
}

Command Prompt - mongo   — □ ✕

> db.person.aggregate([{$group : {_id:"$personAge"}}]).pretty()
{ "_id" : 20 }
{ "_id" : 34 }
{ "_id" : 40 }
{ "_id" : 24 }
{ "_id" : 38 }
{ "_id" : 33 }
{ "_id" : 39 }
{ "_id" : 28 }
{ "_id" : 23 }
{ "_id" : 35 }
{ "_id" : 26 }
{ "_id" : 30 }
{ "_id" : 37 }
{ "_id" : 36 }
{ "_id" : 29 }
{ "_id" : 25 }
{ "_id" : 31 }
{ "_id" : 21 }
{ "_id" : 32 }
{ "_id" : 22 }
Type "it" for more
> ■

Total No of grouped documents: 21

Command Prompt - mongo   — □ ✕

> db.person.aggregate([{$match : {gender:"female"}}, {$group : {_id:{eyeColor:"$eyeColor",favoriteFruit:"$favoriteFruit"
}}}]).pretty()
{ "_id" : { "eyeColor" : "blue", "favoriteFruit" : "apple" } }
{ "_id" : { "eyeColor" : "brown", "favoriteFruit" : "banana" } }
{ "_id" : { "eyeColor" : "green", "favoriteFruit" : "strawberry" } }
{ "_id" : { "eyeColor" : "green", "favoriteFruit" : "banana" } }
{ "_id" : { "eyeColor" : "blue", "favoriteFruit" : "strawberry" } }
{ "_id" : { "eyeColor" : "brown", "favoriteFruit" : "strawberry" } }
{ "_id" : { "eyeColor" : "blue", "favoriteFruit" : "banana" } }
{ "_id" : { "eyeColor" : "green", "favoriteFruit" : "apple" } }
{ "_id" : { "eyeColor" : "brown", "favoriteFruit" : "apple" } }
> ■

```
> db.person.aggregate([{$project : {name:1,"company.email":1,"company.location.country":1}},{$count:"total"}]).pretty()
{ "total" : 1000 }
> db.person.aggregate([{$project : {name:1,"company.email":1,"company.location.country":1}}]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e6985e"),
        "name" : "Kitty Snow",
        "company" : {
                "email" : "kittysnow@digitalus.com",
                "location" : {
                        "country" : "Italy"
                }
        }
}
{
        "_id" : ObjectId("66b30cecec984aa777e6985f"),
        "name" : "Aurelia Gonzales",
        "company" : {
                "email" : "aureliagonzales@yurture.com",
                "location" : {
                        "country" : "USA"
                }
        }
}
{
        "_id" : ObjectId("66b30cecec984aa777e69860"),
        "name" : "Hays Wise",
        "company" : {
                "email" : "hayswise@exiand.com",
                "location" : {
                        "country" : "France"
```



```
> db.person.aggregate([{$match : {"company.location.country":"France"}},{$count:"total"}]).pretty()
{ "total" : 245 }
> db.person.aggregate([{$match : {"company.location.country":"France"}}]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e69860"),
        "index" : 2,
        "name" : "Hays Wise",
        "isActive" : false,
        "registered" : ISODate("2015-02-23T10:22:15Z"),
        "gender" : "male",
        "eyeColor" : "green",
        "favoriteFruit" : "strawberry",
        "company" : {
                "title" : "EXIAND",
                "email" : "hayswise@exiand.com",
                "phone" : "+1 (801) 583-3393",
                "location" : {
                        "country" : "France",
                        "address" : "795 Borinquen Pl"
                }
        },
        "tags" : [
                "amet",
                "ad",
                "elit",
                "ipsum"
        ],
        "personAge" : 24
}
{
```

```
> db.person.aggregate([{$match : { favoriteFruit : {$nin : ["banana","apple"]}}},{$count:"total"}]).pretty()
{ "total" : 323 }
> db.person.aggregate([{$match : { favoriteFruit : {$nin : ["banana","apple"]}}}]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e69860"),
        "index" : 2,
        "name" : "Hays Wise",
        "isActive" : false,
        "registered" : ISODate("2015-02-23T10:22:15Z"),
        "gender" : "male",
        "eyeColor" : "green",
        "favoriteFruit" : "strawberry",
        "company" : {
                "title" : "EXIAND",
                "email" : "hayswise@exiand.com",
                "phone" : "+1 (801) 583-3393",
                "location" : {
                        "country" : "France",
                        "address" : "795 Borinquen Pl"
                }
        },
        "tags" : [
                "amet",
                "ad",
                "elit",
                "ipsum"
        ],
        "personAge" : 24
}
{
```

```
> db.person.aggregate([{$match : { gender:"male", isActive:true}},{$count:"total"}]).pretty()
{ "total" : 263 }
> db.person.aggregate([{$match : { gender:"male", isActive:true}}]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e6986b"),
        "index" : 15,
        "name" : "Newman Rodriquez",
        "isActive" : true,
        "registered" : ISODate("2017-09-19T11:25:18Z"),
        "gender" : "male",
        "eyeColor" : "green",
        "favoriteFruit" : "strawberry",
        "company" : {
                "title" : "PHARMACON",
                "email" : "newmanrodriquez@pharmacon.com",
                "phone" : "+1 (906) 591-2086",
                "location" : {
                        "country" : "France",
                        "address" : "624 Madeline Court"
                }
        },
        "tags" : [
                "ad",
                "in"
        ],
        "personAge" : 29
}
{
        "_id" : ObjectId("66b30cecec984aa777e69872"),
        "index" : 23,
```

```
> db.person.aggregate([{$match : { personAge:{$gt : 30}, eyeColor:"blue"}},{$count:"total"}]).pretty()
{ "total" : 164 }
> db.person.aggregate([{$match : { personAge:{$gt : 30}, eyeColor:"blue"}}]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e6985e"),
        "index" : 1,
        "name" : "Kitty Snow",
        "isActive" : false,
        "registered" : ISODate("2018-01-23T04:46:15Z"),
        "gender" : "female",
        "eyeColor" : "blue",
        "favoriteFruit" : "apple",
        "company" : {
                "title" : "DIGITALUS",
                "email" : "kittysnow@digitalus.com",
                "phone" : "+1 (949) 568-3470",
                "location" : {
                        "country" : "Italy",
                        "address" : "154 Arlington Avenue"
                }
        },
        "tags" : [
                "ut",
                "voluptate",
                "consequat",
                "consequat"
        ],
        "personAge" : 38
}
{
```

```
> db.person.aggregate([{$project : {index:1,eyeColor:1,favoriteFruit:1} }]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e6985e"),
        "index" : 1,
        "eyeColor" : "blue",
        "favoriteFruit" : "apple"
}
{
        "_id" : ObjectId("66b30cecec984aa777e6985f"),
        "index" : 0,
        "eyeColor" : "green",
        "favoriteFruit" : "banana"
}
{
        "_id" : ObjectId("66b30cecec984aa777e69860"),
        "index" : 2,
        "eyeColor" : "green",
        "favoriteFruit" : "strawberry"
}
{
        "_id" : ObjectId("66b30cecec984aa777e69861"),
        "index" : 5,
        "eyeColor" : "blue",
        "favoriteFruit" : "apple"
}
{
        "_id" : ObjectId("66b30cecec984aa777e69862"),
        "index" : 4,
        "eyeColor" : "brown",
        "favoriteFruit" : "banana"
```

Command Prompt - mongo

> db.person.aggregate([{$group : {_id:null, totalDocuments : {$sum : 1}}}])
{ "_id" : null, "totalDocuments" : 1000 }
>

Command Prompt - mongo

> db.person.aggregate([{$project : {gender:0, eyeColor:0,date:0,personAge:0} }]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e6985e"),
        "index" : 1,
        "name" : "Kitty Snow",
        "isActive" : false,
        "registered" : ISODate("2018-01-23T04:46:15Z"),
        "favoriteFruit" : "apple",
        "company" : {
                "title" : "DIGITALUS",
                "email" : "kittysnow@digitalus.com",
                "phone" : "+1 (949) 568-3470",
                "location" : {
                        "country" : "Italy",
                        "address" : "154 Arlington Avenue"
                }
        },
        "tags" : [
                "ut",
                "voluptate",
                "consequat",
                "consequat"
        ]
}
{
        "_id" : ObjectId("66b30cecec984aa777e6985f"),
        "index" : 0,
        "name" : "Aurelia Gonzales",
        "isActive" : false,
        "registered" : ISODate("2015-02-11T04:22:39Z"),

```
> db.person.aggregate([{$match : {gender:"female"}},{$project : {name:1,"company.email":1,"company.country":1 },{$count:"total"}]).pretty()
{ "total" : 507 }
> db.person.aggregate([{$match : {gender:"female"}},{$project : {name:1,"company.email":1,"company.country":1 }]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e6985e"),
        "name" : "Kitty Snow",
        "company" : {
                "email" : "kittysnow@digitalus.com"
        }
}
{
        "_id" : ObjectId("66b30cecec984aa777e6985f"),
        "name" : "Aurelia Gonzales",
        "company" : {
                "email" : "aureliagonzales@yurture.com"
        }
}
{
        "_id" : ObjectId("66b30cecec984aa777e69861"),
        "name" : "Grace Larson",
        "company" : {
                "email" : "gracelarson@ovolo.com"
        }
}
{
        "_id" : ObjectId("66b30cecec984aa777e69862"),
        "name" : "Alison Farmer",
        "company" : {
                "email" : "alisonfarmer@otherside.com"
        }
}
{
        "_id" : ObjectId("66b30cecec984aa777e69863"),
        "name" : "Anastasia Blake",
        "company" : {
                "email" : "anastasiablake@zerbina.com"
        }
}
{
        "_id" : ObjectId("66b30cecec984aa777e69864"),
        "name" : "Carmella Morse",
        "company" : {
                "email" : "carmellamorse@shepard.com"
        }
}
{
        "_id" : ObjectId("66b30cecec984aa777e69865"),
        "name" : "Karyn Rhodes",
        "company" : {
                "email" : "karynrhodes@rodemco.com"
```



```
> db.person.aggregate([{$group : { _id:"$favoriteFruit",total : {$count : {}}}}]).pretty()
{ "_id" : "banana", "total" : 339 }
{ "_id" : "strawberry", "total" : 323 }
{ "_id" : "apple", "total" : 338 }
>
```

```
> db.person.aggregate([{$group : {_id:"$gender",total : {$count : {}}}}]).pretty()
{ "_id" : "male", "total" : 493 }
{ "_id" : "female", "total" : 507 }
>
```

```
> db.person.aggregate([{$sort : {personAge:1,gender:-1}}]).pretty()
{
        "_id" : ObjectId("66b30cecec984aa777e69883"),
        "index" : 37,
        "name" : "Combs Graham",
        "isActive" : true,
        "registered" : ISODate("2015-06-24T10:30:08Z"),
        "gender" : "male",
        "eyeColor" : "green",
        "favoriteFruit" : "apple",
        "company" : {
                "title" : "FREAKIN",
                "email" : "combsgraham@freakin.com",
                "phone" : "+1 (803) 596-3695",
                "location" : {
                        "country" : "Italy",
                        "address" : "278 Bayard Street"
                }
        },
        "tags" : [
                "eiusmod",
                "irure",
                "in",
                "officia"
        ],
        "personAge" : 20
}
{
        "_id" : ObjectId("66b30cecec984aa777e69893"),
        "index" : 53,
        "name" : "Cobb Wells",
        "isActive" : true,
        "registered" : ISODate("2016-08-12T07:51:53Z"),
        "gender" : "male",
        "eyeColor" : "blue",
        "favoriteFruit" : "banana",
        "company" : {
                "title" : "SLOGANAUT",
                "email" : "cobbwells@sloganaut.com",
                "phone" : "+1 (813) 511-3958",
                "location" : {
                        "country" : "Germany",
                        "address" : "258 Meeker Avenue"
                }
        },
        "tags" : [
                "sit",
                "veniam",
                "laborum",
                "exercitation"
```

```
            title: 'THREDZ',
            email: 'acevedowagner@thredz.com',
            phone: '+1 (909) 543-2265',
            location: { country: 'USA', address: '100 Livingston Street' }
          },
          tags: [ 'ullamco', 'aliqua', 'qui', 'amet', 'aute' ],
          personAge: 27
        },
        {
          _id: ObjectId('66bc47fc280e5ad9dc1f4484'),
          index: 996,
          name: 'Brown Wiggins',
          isActive: true,
          registered: ISODate('2015-12-30T03:40:53.000Z'),
          gender: 'male',
          eyeColor: 'blue',
          favoriteFruit: 'banana',
          company: {
            title: 'BUZZNESS',
            email: 'brownwiggins@buzzness.com',
            phone: '+1 (840) 567-2972',
            location: { country: 'France', address: '759 Clarendon Road' }
          },
          tags: [ 'velit', 'laboris', 'quis', 'ullamco' ],
          personAge: 27
        }
      ]
    }
  }
]
dv> db.c.aggregate([{$group : {_id:"$eyeColor",persons:{$push:"$$ROOT"}}},{$sort : {_id:-1}}])
```