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Basis Data Terdistribusi

Dataset

Dataset yang digunakan adalah hasil review produk baju dari suatu ecommerce. Datasetnya memiliki 10 kolom, dengan total 23486 data.

Clothing ID	Age	Title	Review Text
767	33		Absolutely wonderful - silky and sexy and comfortable
1080	34		Love this dress! it's sooo pretty. i happened to find it in a store, and i'm glad i did bc i never would have ordered it online bc it's petite. i bought a pet
1077	60	Some major design flaws	I had such high hopes for this dress and really wanted it to work for me. i initially ordered the petite small (my usual size) but i found this to be outrage
1049	50	My favorite buy!	I love, love, love this jumpsuit. it's fun, flirty, and fabulous! every time i wear it, i get nothing but great compliments!
847	47	Flattering shirt	This shirt is very flattering to all due to the adjustable front tie. it is the perfect length to wear with leggings and it is sleeveless so it pairs well with any
1080	49	Not for the very petite	I love tracy reese dresses, but this one is not for the very petite. i am just under 5 feet tall and usually wear a 0p in this brand. this dress was very pre
858	39	Cagrcoal shimmer fun	I aded this in my basket at hte last mintue to see what it would look like in person. (store pick up). i went with teh darkler color only because i am so p
858	39	Shimmer, surprisingly goes with lots	I ordered this in carbon for store pick up, and had a ton of stuff (as always) to try on and used this top to pair (skirts and pants). everything went with i
1077	24	Flattering	I love this dress. i usually get an xs but it runs a little snug in bust so i ordered up a size. very flattering and feminine with the usual retailer flair for styl
1077	34	Such a fun dress!	I'm 5"5' and 125 lbs. i ordered the s petite to make sure the length wasn't too long. i typically wear an xs regular in retailer dresses. if you're less busty
1077	53	Dress looks like it's made of cheap material	Dress runs small esp where the zipper area runs. i ordered the sp which typically fits me and it was very tight! the material on the top looks and feels
1095	39		This dress is perfection! so pretty and flattering.
1095	53	Perfect!!!	More and more i find myself reliant on the reviews written by savvy shoppers before me and for the most past, they are right on in their estimation of t
767	44	Runs big	Bought the black xs to go under the larkspur midi dress because they didn't bother lining the skirt portion (grrrrrrrrrrr). my stats are 34a-28/29-36 and the xs fit very smoothly around the chest and was flowy around my lower half, so i would say it's running big. the straps are very pretty and it could easily be nightwear too. i'm 5'6" and it came to just below my knees.
1077	50	Pretty party dress with some issues	This is a nice choice for holiday gatherings. i like that the length grazes the knee so it is conservative enough for office related gatherings. the size sr
1065	47	Nice, but not for my body	I took these out of the package and wanted them to fit so badly, but i could tell before i put them on that they wouldn't. these are for an hour-glass figu
1065	34	You need to be at least average height, or talle	Material and color is nice. the leg opening is very large. i am 5'1 (100#) and the length hits me right above my ankle. with a leg opening the size of r
853	41	Looks great with white pants	Took a chance on this blouse and so glad i did. i wasn't crazy about how the blouse is photographed on the model. i paired it whit white pants and it v
1120	32	Super cute and cozy	A flattering, super cozy coat. will work well for cold, dry days and will look good with jeans or a dressier outfit. i am 5' 5", about 135 and the small fits
1077	47	Stylish and comfortable	I love the look and feel of this tulle dress. i was looking for something different, but not over the top for new year's eve. i'm small chested and the top
847	33	Cute, crisp shirt	If this product was in petite, i would get the petite. the regular is a little long on me but a tailor can do a simple fix on that. fits nicely! i'm 5'4, 130lb and pregnant so i bough t medium to grow into. the tie can be front or back so provides for some nice flexibility on form fitting.

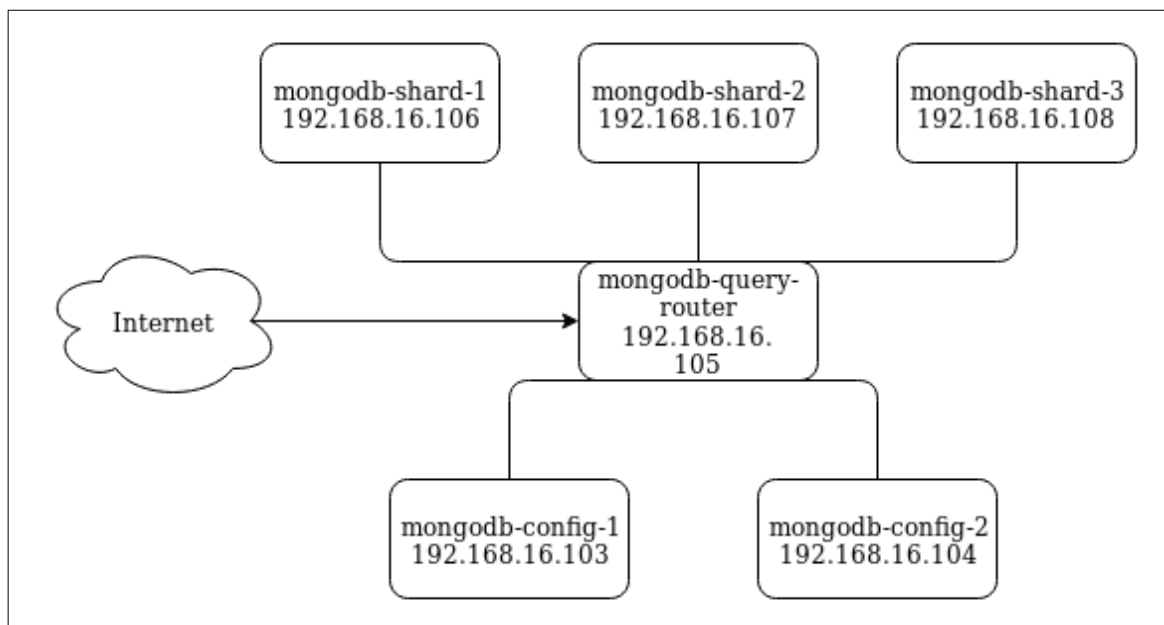| Rating	Recommended IND	Positive Feedback Count	Division Name	Department Name	Class Name
4	1	0	Initmates	Intimate	Intimates
5	1	4	General	Dresses	Dresses
3	0	0	General	Dresses	Dresses
5	1	0	General Petite	Bottoms	Pants
5	1	6	General	Tops	Blouses
2	0	4	General	Dresses	Dresses
5	1	1	General Petite	Tops	Knits
4	1	4	General Petite	Tops	Knits
5	1	0	General	Dresses	Dresses
5	1	0	General	Dresses	Dresses
3	0	14	General	Dresses	Dresses
5	1	2	General Petite	Dresses	Dresses
5	1	2	General Petite	Dresses	Dresses
5	1	0	Initmates	Intimate	Intimates
3	1	1	General	Dresses	Dresses
4	1	3	General	Bottoms	Pants
3	1	2	General	Bottoms	Pants
5	1	0	General	Tops	Blouses
5	1	0	General	Jackets	Outerwear
5	1	0	General	Dresses	Dresses

Prosedur konfigurasi MongoDB Cluster

Terdiri dari:
- 3 shard server
- 2 config server
- 1 query router server

Spesifikasi server:
- mongodb-config-1:
  - OS Ubuntu 18.04
  - RAM 1024 mb
  - IP 192.168.16.103
- mongodb-config-2:
  - OS Ubuntu 18.04
  - RAM 1024 mb
  - IP 192.168.16.104
- mongodb-query-router:
  - OS Ubuntu 18.04
  - RAM 1024 mb
  - IP 192.168.16.105
- mongodb-shard-1:
  - OS Ubuntu 18.04
  - RAM 1024 mb
  - IP 192.168.16.106
- mongodb-shard-2:
  - OS Ubuntu 18.04
  - RAM 1024 mb
  - IP 192.168.16.107
- mongodb-shard-3:
  - OS Ubuntu 18.04
  - RAM 1024 mb
  - IP 192.168.16.108

Arsitektur server:

Prosedur:
1. Run *vagrant up.*
2. Setelah *vagrant up* sukses di*run,* kita harus *copy mapping* IP ke *hostname* yang terdapat dalam file */etc/hosts*. Lakukan ini di setiap server shard, config dan query router.

```
192.168.16.103 mongodb-config-1
192.168.16.104 mongodb-config-2
```

```
192.168.16.105 mongodb-query-router
192.168.16.106 mongodb-shard-1
192.168.16.107 mongodb-shard-2
192.168.16.108 mongodb-shard-3
```

3. Pembuatan root user dilakukan pada salah satu config server yang ingin digunakan sebagai primary node. Run command sebagai berikut.

```
mongo

use admin

db.createUser({user: "mongo-admin", pwd: "password", roles:[{role: "root", db: "admin"}]})
```

4. Pada setiap config server (mongodb-config-1 dan mongodb-config-2), perbaruhi file */etc/mongod.conf* sebagai berikut.

```
port: 27019
bindIp: 192.168.16.103

replication:
  replSetName: configReplSet

sharding:
  clusterRole: "configsvr"
```

Nilai *bindIP* menyesuaikan IP address dari server. Lalu run sudo systemctl restart mongod.

5. Untuk inisialisasi replica set config server, masuk ke server mongodb-config-2 lalu run command berikut.

```
mongo mongodb-config-1:27019 -u mongo-admin -p --authenticationDatabase admin

rs.initiate( { _id: "configReplSet", configsvr: true, members: [ { _id: 0,
host: "mongodb-config-1:27019" }, { _id: 1, host: "mongodb-config-2:27019" }" }
] } )
```

6. Masuk ke server query router. Buat file dengan path */etc/mongos.conf* dengan nilai berikut.

```
# where to write logging data.
systemLog:
  destination: file
  logAppend: true
  path: /var/log/mongodb/mongos.log

# network interfaces
net:
  port: 27017
  bindIp: 192.168.16.105

sharding:
  configDB: configReplSet/mongodb-config-1:27019,mongodb-config-2:27019
```

7. Buat file systemd untuk mongos dengan path */lib/systemd/system/mongos.service* dengan nilai berikut.

```
[Unit]
Description=Mongo Cluster Router
After=network.target

[Service]
User=mongodb
Group=mongodb
ExecStart=/usr/bin/mongos --config /etc/mongos.conf
# file size
LimitFSIZE=infinity
# cpu time
LimitCPU=infinity
# virtual memory size
LimitAS=infinity
# open files
LimitNOFILE=64000
# processes/threads
LimitNPROC=64000
# total threads (user+kernel)
TasksMax=infinity
TasksAccounting=false

[Install]
WantedBy=multi-user.target
```

Berhentikan server mongod agar tidak konflik dengan mongos, dengan cara run command *sudo systemctl stop mongod.*
Nyalakan server mongos dengan run command berikut:

```
sudo systemctl enable mongos.service
sudo systemctl start mongos
```

8. Ketika server mongos sudah nyala, maka kita dapat konfigurasi server shard. Masuk ke masing-masing server shard (mongodb-shard-1, mongodb-shard-2, mongodb-shard-3), lalu perbaruhi file */etc*/mongod.conf. Pada bagian bindIP sesuai dengan IP address masing-masing server. Karena kita akan set sebagai replica set, maka bagian replication dan replSetName diisi dengan name replica set. Per replica set hanya ada 1 server, maka untuk setiap server, replSetName akan diincrement dengan 1. Replica set yang nyala, akan diset sebagai shard, oleh karena itu clusterRole memiliki nilai shardsvr . Sebagai contoh rs1, rs2, rs3.

```
bindIP: 127.0.0.1,192.168.16.106

replication:
  replSetName: rs1

sharding:
  clusterRole: "shardsvr"
```

Restart mongodb dengan run command sudo systemctl restart mongod.

9. Masuk ke masing-masing shard server, lalu run command berikut. Nilai dari _id dan members akan menyesuaikan dengan masing-masing server.

```
mongo

rs.initiate( {
    _id: "rs1",
    version: 1,
    members: [
       { _id: 0, host : "mongodb-shard-1:27017" },
    ]
})
```

10. Login ke mongos query router dan tambahkan replica set sebagai shard dengan cara run command berikut.

```
mongo mongodb-query-router:27017 -u mongo-admin -p –- authenticationDatabase
admin

sh.addShard( "rs1/mongodb-shard-1:27017" )
sh.addShard( "rs2/mongodb-shard-2:27017" )
sh.addShard( "rs3/mongodb-shard-3:27017" )
```

11. Login ke mongos query router, lalu nyalakan sharding pada database dengan cara run command berikut.

```
mongo mongodb-query-router:27017 -u mongo-admin -p – authenticationDatabase
admin

use reviewsDb
sh.enableSharding("reviewsDb")
```

```
Nyalakan sharding pada sisi collections.
```

```
db.reviews.ensureIndex( { _id: "hashed" } )
sh.shardCollection( "reviewsDb.reviews", { "_id": "hashed" } )
```

```
Import file reviews, melalui command line host OS.
```

```
mongoimport --host 192.168.16.105:27017 --authenticationDatabase admin -d
reviewsDb -c reviews --type csv --file 'Womens Clothing E-Commerce Reviews.csv'
--headerline -u mongo-admin
```

```
Check      data      yang      terdistribusi      pada      shard      yang      tersedia
db.reviews.getShardDistribution().
```

Uji Coba CRUD

1. Create Review

Jumlah data awal sebanyak 23486:

Lakukan create review:

Setelah create review data bertambah 1 menjadi 23487, terdistribusi ke shard rs2:

```
mongos> db.reviews.getShardDistribution()

Shard rs3 at rs3/mongodb-shard-3:27017
 data : 3.93MiB docs : 7749 chunks : 2
 estimated data per chunk : 1.96MiB
 estimated docs per chunk : 3874

Shard rs2 at rs2/mongodb-shard-2:27017
 data : 4.05MiB docs : 7936 chunks : 2
 estimated data per chunk : 2.02MiB
 estimated docs per chunk : 3968

Shard rs1 at rs1/mongodb-shard-1:27017
 data : 3.98MiB docs : 7802 chunks : 2
 estimated data per chunk : 1.99MiB
 estimated docs per chunk : 3901

Totals
 data : 11.96MiB docs : 23487 chunks : 6
 Shard rs3 contains 32.87% data, 32.99% docs in cluster, avg obj size on shard : 532B
 Shard rs2 contains 33.86% data, 33.78% docs in cluster, avg obj size on shard : 535B
 Shard rs1 contains 33.26% data, 33.21% docs in cluster, avg obj size on shard : 534B
```

2. Read Review

List review per halaman:

Review   Create Review

Love the embroidery!
Really cute top! the embroidery on the collar & bib of this top is beautiful and unique, received lots of compliments & questions about where i got it. i'm rather busty up top and the medium fit well, a small probably would've fit better but it's still super adorable.

★★★★★

👍 0 people found this helpful.

Love
I absolutely love this bib tee! it's probably my favorite retailer purchase of all time. i'm 5'7", 140 pounds and the small was a perfect fit for me. i typically wear either a s or m tops.

★★★★★

👍 2 people found this helpful.

Boring front, great back
This tank fit well and i loved the ruffle in the back and how it layed. but the front was not a good look and i will be retuning it.

★★★

👍 0 people found this helpful.

Soft and comfortable
I've been looking for bralettes that provide some support but not binding/tight for night time and casual wear. this is a light weight bra, could be a little more supportive. pretty color, with nice lines. only downside is the retailer tag on the back - itchy (i need to remove it.)

★★★★

👍 1 people found this helpful.

Super cute and unique top
Just received this in the mail, tried it on and am smitten. i'm usually a l, but sometimes i'm a xl (if no stretch), in retailer tops. i bought this one in l and i'm sure glad i did. very flowy, stretchy and comfortable. i also bought the meda lace top from one september and they are very similar expect this is more of a t-shirt and the other is more of a blouse. i almost think i could've gotten a m in this because there is a lot of extra fabric at the chest which is usually never the issue for me

★★★★

👍 9 people found this helpful.

Previous   Next

Agregasi review:
- Jumlah vote per rating untuk produk yang direkomendasi

```
db.reviews.aggregate([
    { $match: {"Recommended IND": 1} },
    { $group: {_id: {rating: "$Rating"}, count: {$sum: 1} } }
    ])
```
```
var result = _context.CommerceReviews
                .AsQueryable()
                .Where(r => r.RecommendedIND == 1)
                .GroupBy(r => r.Rating, (k, s) => new
                {
                    rating = k,
                    Count = s.Count()
                });
```

- Rata-rata rating untuk produk yang tidak direkomendasi

```
db.reviews.aggregate([
        { $match: {"Recommended IND": 0} },
        { $group: {_id: { x: "$Recommended IND" }, avg: {$avg: "$Rating"}} }
      ])
```
```
var result = _context.CommerceReviews
                .AsQueryable()
                .Where(r => r.RecommendedIND == 0)
                .GroupBy(r => r.RecommendedIND, (i, reviews) => new
                {
                    avg = reviews.Average(x => x.Rating)
                });
```

- Tipe produk yang memiliki rata-rata rating terrendah

```
db.reviews.aggregate([
        { $group: { _id: { clothingType: "$Class Name"},
          count: {$avg: "$Rating"} } },
        { $sort: {count: 1} },
        { $limit: 1 }
      ])
```
```
var result = _context.CommerceReviews
                .AsQueryable()
                .GroupBy(r => r.ClassName, (s, reviews) => new
                {
                    ClothingType = s,
                    Count = reviews.Average(x => x.Rating)
                })
                .OrderBy(r => r.Count)
                .Take(1);
```

Review — Create Review

Number of Votes per Rating of Recommended Products

Rating: 3 - Votes: 1189

Rating: 1 - Votes: 16

Rating: 4 - Votes: 4910

Rating: 2 - Votes: 94

Rating: 5 - Votes: 13106

Average Rating of Non Recommended Products

2.303691275167785

Clothing Type With Lowest Average Rating

Clothing Type: Trend - Average Rating: 3.8151260504201683

3. Edit Review

Review — Create Review

Edit Review

Clothing ID

30

Class Name

Short Pants

Department Name

Clothing Department

Division Name

Clothing Division

Title

Fusce rutrum nulla nec libero dictum, a egestas massa porttitor. Vestibulum eget vulputate urna, in condimentum urna

Review Text

Ut at lorem molestie, imperdiet urna at, mattis odio. Maecenas ex orci, lobortis eu augue non, placerat sagittis metus. Nam id hendrerit nisl, a luctus magna. Donec vel sapien odio. Suspendisse at dolor eros. Aenean a odio ante. Aliquam pharetra, sapien aliquam euismod tincidunt, lectus dui malesuada dolor, sed placerat ipsum risus eu ante. Ut sed tempor leo. Nam tincidunt ante nec leo posuere, id tempus libero varius.

Rating

4

Recommend Product

⦿ Yes   ◯ No

What is your age?

20

Save   Delete

4. Delete Review

Hapus salah satu review:

Review

Some major design flaws

I had such high hopes for this dress and really wanted it to work for me. i initially ordered the petite small (my usual size) but i found this to be outrageously small. so small in fact that i could not zip it up! i reordered it in petite medium, which was just ok. overall, the top half was comfortable and fit nicely, but the bottom half had a very tight under layer and several somewhat cheap (net) over layers. imo, a major design flaw was the net over layer sewn directly into the zipper - it c

★★★

👍 0 people found this helpful.

Love this dress! it's sooo pretty. i happened to find it in a store, and i'm glad i did bc i never would have ordered it online bc it's petite. i bought a petite and am 5'8". i love the length on me- hits just a little below the knee. would definitely be a true midi on someone who is truly petite.

★★★★★

👍 4 people found this helpful.

Cagrcoal shimmer fun

I aded this in my basket at hte last mintue to see what it would look like in person. (store pick up). i went with teh darkler color only because i am so pale :-) hte color is really gorgeous, and turns out it mathced everythiing i was trying on with it prefectly. it is a little baggy on me and hte xs is hte msallet size (bummer, no petite). i decided to jkeep it though, because as i said, it matvehd everything. my ejans, pants, and the 3 skirts i waas trying on (of which i]kept all) oops.

★★★★★

👍 1 people found this helpful.

My favorite buy!

I love, love, love this jumpsuit. it's fun, flirty, and fabulous! every time i wear it, i get nothing but great compliments!

★★★★★

👍 0 people found this helpful.

Such a fun dress!

I'm 5'5' and 125 lbs. i ordered the s petite to make sure the length wasn't too long. i typically wear an xs regular in retailer dresses. if you're less busty (34b cup or smaller), a s petite will fit you perfectly (snug, but not tight). i love that i could dress it up for a party, or down for work. i love that the tulle is longer then the fabric underneath.

★★★★★

👍 0 people found this helpful.

Previous   Next

Setelah dihapus, data berkurang 1 menjadi 23486. Data yang dihapus berada pada shard rs1, karena sebelum dihapus shard rs1 memiliki jumlah data 7802, lalu berkurang menjadi 7801:


```
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Shard rs3 at rs3/mongodb-shard-3:27017
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 estimated docs per chunk : 3874

Shard rs1 at rs1/mongodb-shard-1:27017
 data : 3.97MiB docs : 7801 chunks : 2
 estimated data per chunk : 1.98MiB
 estimated docs per chunk : 3900

Shard rs2 at rs2/mongodb-shard-2:27017
 data : 4.05MiB docs : 7936 chunks : 2
 estimated data per chunk : 2.02MiB
 estimated docs per chunk : 3968

Totals
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```