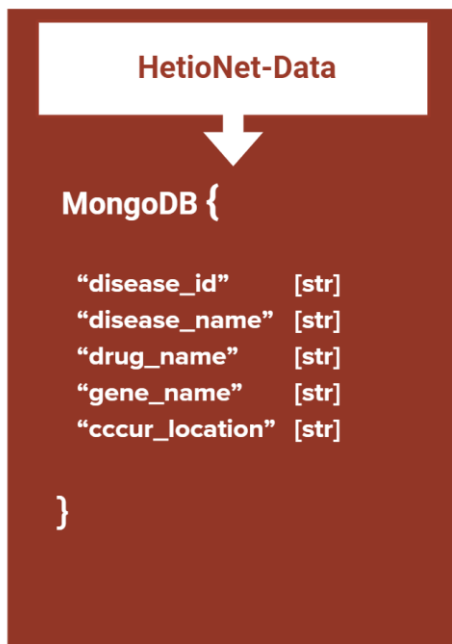


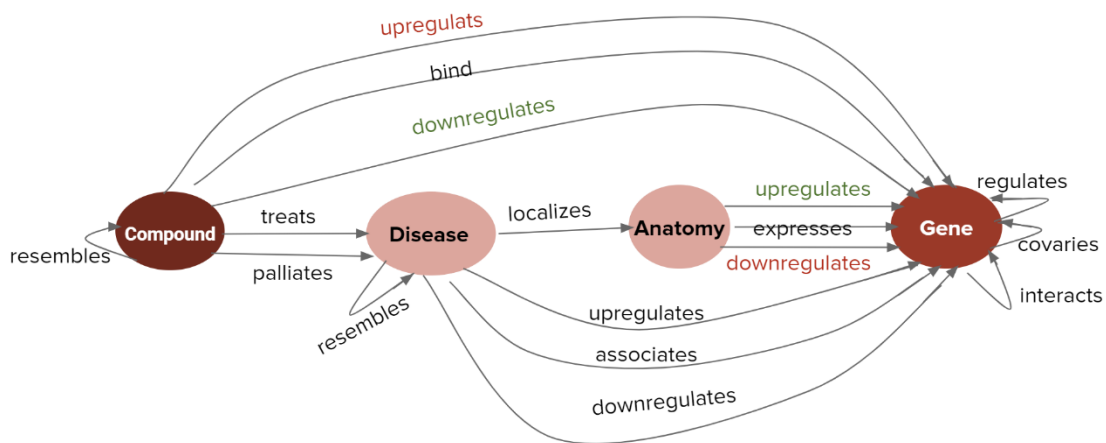
Author: Xihao Jiang

#### Potential Improvements:

1. Choose a better NoSQL database
2. Design a better database schema
3. Create a better index to support read operations
4. Create a better index to support the query
5. Reduce \$lookup: For user running too many \$lookup operations on our data. Take advantage of MongoDB's rich schema model to embed related data in a single collection.
6. Avoid unbounded array: If the documents contain array fields with many elements, which can degrade query performance.
7. Remove unnecessary index: unnecessary indexes in the collection, which can consume disk space and degrade write performance.
8. Reduce the size of large documents: If we have excessively large documents, which can degrade the performance of our most frequent queries.
9. Reduce number of collections: If we have an exceedingly high number of collections in a database, which can result in unnecessary disk space usage.
10. Improve of case insensitive regex queries: we are executing case-insensitive regex queries which could be improved with an index.

#### Design Diagrams:





Local

7 DBS 6 COLLECTIONS

☆ FAVORITE

HOST  
localhost:27017

CLUSTER  
Standalone

EDITION  
MongoDB 4.4.1 Community

Filter your data

> admin

> config

> hetionet

> edges

> nodes

> local

> mydatabase

hetionet.edges

DOCUMENTS 1.3m TOTAL SIZE 116.8MB AVG. SIZE 95B INDEXES 1 TOTAL SIZE 12.2MB AVG. SIZE 12.2MB

Documents Aggregations Schema Explain Plan Indexes Validation

FILTER

ADD DATA

VIEW

Displaying documents 1 - 20 of 1292203

REFRESH

\_id: ObjectId("5f9f6fd417f3e11af99a4964")

source: "Gene:881"

metaedge: "G1G"

target: "Gene:7428"

\_id: ObjectId("5f9f6fd417f3e11af99a4965")

source: "Gene:5987"

metaedge: "G1G"

target: "Gene:9412"

\_id: ObjectId("5f9f6fd417f3e11af99a4966")

source: "Gene:5747"

metaedge: "G1G"

target: "Gene:79738"

\_id: ObjectId("5f9f6fd417f3e11af99a4967")

source: "Gene:3725"

metaedge: "G1G"

target: "Gene:10514"

