Final Exam

M312 Final Exam, Question 3

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The following are true:

- Lots of collections with flat structures in the database (i.e., no subdocuments or arrays).
  - The real problem here is "lots of collections." This implies over-normalization, possibly due to relational thinking, or possibly due to other reasons. The "flat structures" is a further warning sign in this context, implying that there probably is relational thinking, as the lack of arrays or subdocuments may have come from an overly relational mindset when creating the MongoDB schema. Flat structures on their own aren't necessarily a problem, but in situations with an excessive number of collections, they can be a sign that MongoDB's data structures aren't being fully utilized.
- Many (e.g., more than 5) operations are sent to the database in order to load one piece of frequently accessed content in the application.
  - This is a signal that data is spread out into too many separate documents. It may be due to over-normalization, or it may be due to other reasons, but frequently accessed data should be kept together, as much as possible.

The following is false

- Fields in your documents that are not included in any indexes.
  - This is another option that looks bad until you think about it. First, it wasn't called out as a problem in any of the content. Second, fields should only be indexed if queries need that information to figure out which documents they want to return, or updates need to use that field to determine which documents they will write to. For example, an application may want to store an address for every user, but may never need to find all users in a given *city*. In that case, there is no reason to put *city* in an index.

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