



1. Schema Design Exercise

In this group exercise, we're going to take what we've learned about MongoDB and try to come up with a basic but reasonable data model for an e-commerce site. For users of RDBMSs, the most challenging part of the exercise will be figuring out how to construct a data model when joins aren't allowed. We're going to attempt to model for the following entities and features:

Product Catalog

1. Products. The core of an e-commerce site, products vary quite a bit. In addition to the standard production attributes, we'll want to allow for variations of product type, along with custom attributes. For instance, users may search for blue jackets, red jackets, 11-inch macbooks, or size 12 shoes. The product catalog will contain millions of products.
2. Product pricing. Current prices as well as price histories.
3. Product categories. Every e-commerce site includes a category hierarchy. We need to allow for that hierarchy, and we also must persist the many-to-many relationship between products and categories.
4. Product reviews. Every product has zero or more reviews, and each review can receive votes and comments.

Product Metrics

1. Product views and purchases. Keep track of the number of times each product is viewed and when each product is purchased.
2. Top 10 lists. Create queries for top 10 viewed products, top 10 purchased products.
3. Graph historical trends. Create a query to graph how a product is viewed/purchased over the past 30 days with 1 hour granularity. This graph will appear on every product page, the query must be very fast.

2. Deliverables

1. Sample document and schema for each collection
2. Queries the application will use
3. Index definitions