Lab - Subset Pattern

1. User Story

- You are the lead developer for an online organic recycled clothing store.
- Due to the growing number of environmentally-conscious consumers, our store's inventory has increased exponentially. We now also have an increasingly large pool of makers and suppliers.

2. Problem

- We recently found that our shopping app is getting slower due to the fact that the frequently-used documents can no longer all fit in RAM. This is happening largely due to having all product reviews, questions, and specs stored in the same document, which grows in size as reviews and ratings keep coming in.
- To resolve this issue, we want to reduce the amount of data immediately available to the user in the app and only load additional data when the user asks for it.
- Please review the **3. Problem-Schema** and the **4. Problem-Document** to help understand the old schema and how we need to change the schema to apply the **7. Pattern-Subset**.

3. Task

To address this issue, you will need to change the schema to:

- Remove the maker address and the list of makers from the schema with the intention of moving those pieces of information to a separate collection.
- Replace the *reviews* and *questions* fields with *top_five_reviews* and *top_five_questions* respectively.

4. Problem-Schema

```json
{
  "_id": "<objectId>",
  "item_code": "<string>",
  "name": "<string>",
  "maker_brand": "<string>",
  "price": "<decimal>",
  "description": "<string>",
  "materials": ["<string>"],
  "country": "<string>",
  "image": "<string>",
  "available_sizes": {
    "mens": ["<string>"],
    "womens": ["<string>"]
  },
  "package_weight_kg": "<decimal>",
  "average_rating": "<decimal>",
  "reviews": [{
    "author": "<string>",
    "text": "<string>",
    "rating": "<int>"
  }],
  "questions": [{
    "author": "<string>",
    "text": "<string>",
    "likes": "<int>"
  }],
  "stock_amount": "<int>",
  "maker_address": {
    "building_number": "<string>",
    "street_name": "<string>",
    "city": "<string>",
    "country": "<string>",
    "postal_code": "<string>"
  },
  "makers": ["<string>"]
}
```

5. Problem-document

```json
{
  "_id": ObjectId("5c9be463f752ec6b191c3c7e"),
  "item_code": "AS45OPD",
  "name": "Recycled Kicks",
  "maker_brand": "Shoes From The Gutter",
  "price": 100.00,
  "description": "These amazing Kicks are made from recycled plastics and
fabrics.They come in a variety of sizes and are completely unisex in design.
If your feet don't like them within the first 30 days, we'll return your
money no questions asked.
",
  "materials": [
    "recycled cotton",
    "recycled plastic",
    "recycled food waste",
  ],
  "country": "Russia",
  "image": "https:///www.shoesfromthegutter.com/kicks/AS45OPD.img",
  "available_sizes": {
      "mens": ["5", "6", "8", "8W", "10", "10W", "11", "11W", "12", "12W"],
      "womens": ["5", "6", "7", "8", "9", "10", "11", "12"]
  },
  "package_weight_kg": 2.00,
  "average_rating": 4.8,
  "reviews": [{
      "author": "i_love_kicks",
      "text": "best shoes ever! comfortable, awesome colors and design!",
      "rating": 5
    },
    {
      "author": "i_know_everything",
      "text": "These shoes are no good because I ordered the wrong size.",
      "rating": 1
    },
    "..."
  ],
  "questions": [{
      "author": "i_love_kicks",
      "text": "Do you guys make baby shoes?",
      "likes": 1223
    },
    {
      "author": "i_know_everything",
      "text": "Why do you make shoes out of garbage?",
      "likes": 0
    },
    "..."
  ],
  "stock_amount": 10000,
  "maker_address": {
    "building_number": 7,
    "street_name": "Turku",
    "city": "Saint-Petersburg",
    "country": "RU",
    "postal_code": 172091
  },
  "makers": ["Ilya Muromets", "Alyosha Popovich", "Ivan Grozniy", "Chelovek Molekula"],
}
```

6. Answer-document

```json
{
  "_id": ObjectId("5c9be463f752ec6b191c3c7e"),
  "item_code": "AS45OPD",
  "name": "Recycled Kicks",
  "maker_brand": "Shoes From The Gutter",
  "price": 100.00,
  "description": "These amazing Kicks are made from recycled plastics and
fabrics.They come in a variety of sizes and are completely unisex in design.
If your feet don't like them within the first 30 days, we'll return your
money no questions asked.
",
  "materials": [
    "recycled cotton",
    "recycled plastic",
    "recycled food waste",
  ],
  "country": "Russia",
  "image": "https:///www.shoesfromthegutter.com/kicks/AS45OPD.img",
  "available_sizes": {
      "mens": ["5", "6", "8", "8W", "10", "10W", "11", "11W", "12", "12W"],
      "womens": ["5", "6", "7", "8", "9", "10", "11", "12"]
  },
  "package_weight_kg": 2.00,
  "average_rating": 4.8,
  "top_five_reviews": [{
      "author": "i_love_kicks",
      "text": "best shoes ever! comfortable, awesome colors and design!",
      "rating": 5
    },
    {
      "author": "i_know_everything",
      "text": "These shoes are no good because I ordered the wrong size.",
      "rating": 1
    },
    "..."
  ],
  "top_five_questions": [{
      "author": "i_love_kicks",
      "text": "Do you guys make baby shoes?",
      "likes": 1223
    },
    {
      "author": "i_want_to_know_everything",
      "text": "How are these shoes made?",
      "likes": 1120
    },
    "..."
  ],
  "stock_amount": 10000,
}
```

7. Pattern-Subset

```json
{
  "_id": "<objectId>",
  "item_code": "<string>",
  "name": "<string>",
  "maker_brand": "<string>",
  "price": "<decimal>",
  "description": "<string>",
  "materials": ["<string>"],
  "country": "<string>",
  "image": "<string>",
  "available_sizes": {
    "mens": ["<string>"],
    "womens": ["<string>"]
  },
  "package_weight_kg": "<decimal>",
  "average_rating": "<decimal>",
  "reviews": [{
    "author": "<string>",
    "text": "<string>",
    "rating": "<int>"
  }],
  "questions": [{
    "author": "<string>",
    "text": "<string>",
    "likes": "<int>"
  }],
  "stock_amount": "<int>",
  "maker_address": {
    "building_number": "<string>",
    "street_name": "<string>",
    "city": "<string>",
    "country": "<string>",
    "postal_code": "<string>"
  },
  "makers": ["<string>"]
}
```