

Elemental Back-end Web Dev Screening Test

Thank you for your interest in Elemental. In order to help us gauge your experience level, we'd like to ask you to complete a short programming exercise. The purpose of the exercise is for us to start to understand your thought process and how you approach a moderately complex problem. You can choose any language or technology for your implementation. Please keep in mind, it will be easier for us to understand your work if you limit yourself to tools available in standard libraries.

As you work please use git to track your progress. When you are done, create a tar archive that contains your local repo and email it to Elemental Recruiting.

The scope of this exercise is intentionally limited, we appreciate the value your time. Most candidates will complete the task in 2-4 hours.

The Problem

You are going to receive an inventory of products from an online store and your job is to design an inventory manager that answers questions about the products. The inventory will be given to you in JSON format. The products can be books, dvds, cds or other types. A few example inventories are included with this project. The real inventory will be similar, but may contain many more items and many more product types.

```
[
  {
    "price": 15.99,
    "chapters": [
      "one",
      "two",
      "three"
    ],
    "year": 1999,
    "title": "foo",
    "author": "mary",
    "type": "book"
  },
  {
    "price": 11.99,
    "minutes": 90,
    "year": 2004,
    "title": "bar",
    "director": "alan",
    "type": "dvd"
  },
]
```

```

{
  "price": 15.99,
  "tracks": [
    {
      "seconds": 180,
      "name": "one"
    },
    {
      "seconds": 200,
      "name": "two"
    }
  ],
  "year": 2000,
  "title": "baz",
  "author": "joan",
  "type": "cd"
}
]

```

Your task is to write a program that parses the inventory and answers the following questions:

1. What are the 5 most expensive items from each category?
2. Which cds have a total running time longer than 60 minutes?
3. Which authors have also released cds?
4. Which items have a title, track, or chapter that contains a year.

Your program should read the inventory from stdin, and it should print your answers to stdout in whatever format you choose. You can assume the item list is well formatted as in the example, but your code should be written such that it can process other input files that are similarly formatted. The input data may be large but you can assume it is no larger than 100 MB. Please approach the exercise with the same level of care you would with any other project, and keep in mind that robustness, correctness and extensibility are important to us.