

Software Engineering Assignment for Centro DSP Platform Candidates

This assignment is intended to present candidates aspiring to join Centro DSP Platform Team with an opportunity to demonstrate their hands-on knowledge of Java programming language, its concurrency primitives and best practices of Object-Oriented Programming in general. Submissions will be evaluated, in order of importance, based on the code's:

- performance
- extensibility/maintainability
- style
- correctness
- and elegance

As a candidate, you are requested to design and implement a simplistic system for evaluating bid requests against advertising campaigns. Bid requests are messages that contain the following information:

- request ID
- page URL (e.g., <http://apple.com/ca/store?item=1290>)
- country of origin (e.g., CA, IT)
- and placement dimensions (e.g., 300x250)

Advertising campaigns are entities that are comprised of the following fields:

- campaign ID
- targeted country (e.g., CA, IT)
- targeted domain (e.g., apple.com)
- list of available ad dimensions (e.g., 300x250, 600x200)

Your program will ingest input data as JSON from two files provided to you along with this document:

- campaigns.json: predefined advertising campaigns
- bid_requests.json: bid requests that the advertising campaigns have to be matched against

The output of your program must include evaluation results and total evaluation time in JSON format. Below is the expected output data model:

```
{
  "results": [{
    "bidRequestId": "1",
    "campaignId": 3
  }, {
    "bidRequestId": "978",
    "campaignId": 5
  }],
  "evaluationTimeInMillis": 5469
}
```

You are at liberty to create as many Java classes as you deem appropriate. Note that you are not to use any libraries, except for the standard Java language constructs (e.g., Java Collections) and JSON libraries (e.g., Jackson JSON).

Please submit your code along with sample output as a ZIP archive.