

Software Developer Coding Challenge

This coding challenge is for candidates who have applied for a software development position with Stanley Gibbons.

General Assumptions

- Code will be executed on a LAMP environment using at least PHP 5.3
- Apache is configured with a base install with mod_rewrite available
- All unit tests will be executed using PHPUnit
- External frameworks are allowed, but must be installed via composer (<http://getcomposer.org>)
- All code should be made available via a git repo and published to BitBucket with an included readme file.
- Your project should not require any complex installation instructions. However, if you choose to use something outside the normal constraints in this document, they should be noted in the readme file that accompanies your project.
- There is no time constraint on this project.
- Added bonus: deliver the project with a Vagrantfile and a README.md, that allows the testing of developed functionality via cloning the git repository, a simple *vagrant up* followed by web requests to the API endpoint.

Phase 1

A client has asked you to write a simple PHP library that will calculate the mean, median, mode, and range of a set of numbers. Your methods should accept an array of numbers and implement methods for mean, median, mode and range independently. All returned values should be rounded to a maximum of 3 decimal places. If a return value does not exist, your methods should return NULL.

Phase 2

Your client has asked you to make this library available via an API. Your API should implement a single endpoint called "/mmmr" with no query string parameters. When a POST request is called to "/mmmr", a single JSON object will be passed with an attribute called "numbers". "numbers" is a JSON array of n numbers that should be processed. The script should process the mean, median, mode and range of the numbers and return back a JSON object.

- If any value does not exist, an empty string should be returned.
- Any system errors should be handled gracefully with a JSON response and a 500 error.
- If a request is sent to "/mmmr" that is not a POST request, a JSON response and a 404 error should be returned.

Sample JSON POST body to /mmmr	Sample JSON Return Response from /mmmr
<pre>{ "numbers": [5, 6, 8, 7, 5] }</pre>	<pre>{ "results": { "mean": 6.2, "median": 6, "mode": 5, "range": 3 } }</pre>

Sample Error Response

```
{
  "error": {
    "code": 404,
    "message": "Method GET not available on this endpoint"
  }
}
```