Technical Assessment for Web Developer

Prerequisites

1) You have Github, Bitbucket, or Gitlab account

How to Submit Answers

1) Store you code to your public repository
2) Send us your repository URL

Shell (10)

1) Create a single line script that returns the number of httpd processes that are running on the current machine

2) Open a terminal and type:
```
# cd /tmp
# mkdir -p mig33/inner.folder
# touch mig33/inner.folder/{1,2,3,4,5}.txt
```

From the current folder (/tmp), provide some bash commands that will rename all the *.txt files in mig33/inner_folder/ to *.dat

SQL (15)

(Mysql) Given the table below:

```
create table assessments (
    date dateTime,
    username varchar(128),
    score float
);
```

1) Provide a mysql select statement to return the following resultset structure:

```
day; num_pos_scores; num_neg_scores
```

Where `num_pos_scores` and `num_neg_scores` are the total number of positive score rows, and negative score rows in the table, for individual days between March 1st, 2011 and April 30th, 2011, both days inclusive.

2) Provide a mysql select statement that returns all the days between January 1st, 2011 and June 30th, 2011, both days inclusive, where there were no negative scores.

NodeJS, Python, Golang, or PHP (20)

Write a function which, taking in a positive integer n as input, returns an array of all primes lower than n.

sample expected output:
```
getPrimes(5);  ⇒ array(2, 3)
getPrimes(10);  ⇒ array(2, 3, 5, 7)
```

JavaScript (30)

We have a data service returning json data from another server (Server to Server), you get json-encoded as:

```
[{"username":"ali","hair_color":"brown","height":1.2},{"username":"marc","hair_color":"blue","height":1.4},{"username":"joe","hair_color":"brown","height":1.7},{"username":"zehua","hair_color":"black","height":1.8}]
```

In an effort to reduce transfer size, we want to transfer the data in the following json format instead:

```
{"h":["username","hair_color","height"],"d":[["ali","brown",1.2],["marc","blue",1.4],["joe","brown",1.7],["zehua","black",1.8]]}
```

Assignments:
1) Write the NodeJS function which, taking in a raw data set as first mentioned, will return the improved json-encoded string and expose it into standard RESTFul API

Notes:
1) it can be assumed that all records in the initial JSON result set have the same fields, and that said fields are indexed in the same order
2) make your functions generic (where the field names of the records in the resultset are not known in advance)

Algorithmic (25)

In the language of your choice, write a function which, taking a positive integer n as input, finds all sets of numbers that sum up to n.

For example, n=4, we have:
4
3,1
2,2
2,1,1
1,1,1,1

Note that 2,1,1 is same as 1,2,1 or 1,1,2 .

Bonus: Parallel and Concurrency (10)

Please explain Parallel and Concurrency to non-technical person, without technical terms. Let's say you explain to non developers. Tips, you can use diagrams, pictures, or story as long as non-technical persons understand.