Technical Questions

This is intended to be an example list of technical questions for mock interviews. The bullet point questions are meant to be a discussion about technology while things listed under problems are intended to be worked on in a white board or on a computer. Please try to ask one of each type of question during the technical questions section. This interview section should last around 20 minutes if the overall interview session is 45 minutes.

For Full Stack Web Developers, ask questions from Web Development and Databases

Python

- What is the difference between a list and a set in Python?

Web Development

https://github.com/h5bp/Front-end-Developer-Interview-Questions/blob/master/README.md

- Read their resume, figure out which framework(s) they have experience with, pick the one that looks most recent. Ask them about their experience with the framework: "What did you like, and why?", "What did you not like, and why?", "How does it compare to other frameworks?" Then, "When would you use one over the other??"
- What is a Style Sheet?
- How can I include comments in my Style Sheet?
- How do you clear a floated element?
- What is a sprite? How is it applied using CSS? What is the benefit?
- Why was the decision made to make padding apply outside of the width of a 'box' rather than inside, which would seem to make more sense?
- Name three ways to define a color in HTML.
- What are the advantages/disadvantages of the various style methods?
- Explain the difference between visibility:hidden; and display:none.
- Explain how `this` works in JavaScript
- What is a closure and what are some common use cases for them?

Problems:

- Word Break problem - http://thenoisychannel.com/2011/08/08/retiring-a-great-interview-problem

- **What will this javascript array for loop output? How do you fix it to do what is intended?**
```
const arr = [10, 12, 15, 21];
for (var i = 0; i < arr.length; i++) {
  setTimeout(function() {
    console.log('Index: ' + i + ', element: ' + arr[i]);
  }, 3000);
}
```

- **Write a function that would allow you to add six:**
```
var addSix = createBase(6);
addSix(10); // returns 16
addSix(21); // returns 27
```

- **Write code to use a closure to create a private counter**

- **Given the following HTML, how would you fire an event to alert the item text when each item is clicked?**
```
<ul id="todo-app">
  <li class="item">Walk the dog</li>
  <li class="item">Pay bills</li>
  <li class="item">Make dinner</li>
  <li class="item">Code for one hour</li>
</ul>
```

- **When a user scrolls the page, you want to fire an event that retrieves more data from the database and adds it to the end of the page. What considerations are there with this implementation?**
Followup: Write some code to implement a debounce function that prevents the scroll event from firing for 3 seconds.

- **Write a program that prints all the numbers from 1 to 100. For multiples of 3, instead of the number, print "Fizz", for multiples of 5 print "Buzz". For numbers which are multiples of both 3 and 5, print "FizzBuzz".**

DevOps

https://github.com/spikenode/DevOps-Interview-Questions

- Describe your production deployment process.
- What automated-build tools or processes have you used?
- What is ETL and when should it be used?
- What is the role of continuous integration systems in the automated-build process?

Databases

- In databases, what is the difference between a delete statement and a truncate statement?
- What are transaction logs, and how are they used?
- What are the most important database performance metrics, and how do you monitor them?
- What is ETL and when should it be used?

Networking

- What is the role of SNMP?
- What is a cross site scripting attack, and how do you defend against it?
- In network security, what is a honey pot, and why is it used?

Data Science

Theoretical Questions

- What is one belief you have observed many data scientists have that you do not agree with, and why?
- What is ETL and when should it be used?
- What problems arise if the distribution of a new (unseen) test data set is significantly different than the distribution of the training data?
- What are bias and variance, and what are their relation to modeling data?
- What are some ways I can make my model more robust to outliers?
- When can parallelism make your algorithms run faster? When could it make your algorithms run slower?

Technical Questions

- DataFrame questions

```
data = {'animal': ['cat', 'cat', 'snake', 'dog', 'dog', 'cat', 'snake', 'cat', 'dog', 'dog'],
     'age': [2.5, 3, 0.5, np.nan, 5, 2, 4.5, np.nan, 7, 3],
     'visits': [1, 3, 3, 3, 2, 3, 1, 1, 2, 1],
     'priority': ['yes', 'yes', 'no', 'yes', 'no', 'no', 'no', 'yes', 'no', 'no']}

labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
```

How do you create a dataframe?
How do you display a summary of the information?
How do you return the first 3 rows of the DataFrame?
Select just the 'animal' and 'age' columns from the DataFrame.
Select only the rows where the number of visits is greater than 2.
How do you filter out rows in 'visits' which contain the same integer as the row immediately above?