Zoosk Software Developer Coding Challenge

Take your time and answer the following questions as best you can in their entirety. Your answers will be used as a code sample throughout the interview process. Our team is looking for well documented, efficient, optimal, and error free solutions.

(Return your solutions in PDF, MS Word or Text Only format)

1a) There is a function that scans an array of characters for the character 'e' and prints out each index. What is the time complexity? Please implement this function in C, C++, PHP, or JavaScript.

1b) To sort the array of characters, what kind of sort would you use? What is the time complexity of the sort?

1c) If you were to rewrite the function from question #1a, but assume it takes a sorted array, what (if anything) would you do differently? What would be the time complexity? (You don't have to implement the function, just describe any differences.)

2) Implement the function accumulate below in the language of your choice. The code is in PHP but the syntax of this question should translate into any language. You should have enough information from the comments to define this function correctly. You do not need to implement the function calc.

```
/**
* This interface represents the ability to take 2 integers as input,
* perform some arithmetic operation on them, and return a resulting integer
*/
interface iBinaryOperator
{
/**
* This will take int $x and int $y and return an integer value or
* throw an exception
*
* @param int $x
* @param int $y
* @return int the value of the binary operation of $x and $y
* @throws MathException
*/
public function calc($x, $y);
}
```

```
/   **
*   This function should go through the array of operands and run calc on each
*   operand IN ORDER, then return the accumulated value.
*
*   For example the code below would echo the value 10:
*
*   $op = new Addition(); // class Addition implements iBinaryOperator
*   $operands = array(5,2,3);
*   echo accumulate($op, $operands); // outputs 10
*
*   This function should work for ANY size array of operands, and ANY class
*   that implements iBinaryOperator
*
*   @param iBinaryOperator $op
*   @param array $operands array of integers of size N, can be empty
*
*   @return int|string returns an int on successful accumulation, or
*   the string 'error' in error conditions
*/
function accumulate(iBinaryOperator $op, array $operands)
{

  // Add C, C++, PHP, or JavaScript code here




}
```

3) Have you ever developed an application on your own either because you wanted learn a new skill or just because it would be cool to have application like it? If yes, share details with us.

4) When are you available to start a new position?