

## Part 3: Algorithm Challenges

I will use php for the algorithm part

### 1. Prime Number Generation:

```
function getPrimesUpToN($n) {  
    if ($n < 2) {  
        return [];  
    }  
  
    $primes = [2];  
    for ($i = 3; $i <= $n; $i += 2) {  
        $isPrime = true;  
        foreach ($primes as $prime) {  
            if ($prime * $prime > $i) {  
                break;  
            }  
            if ($i % $prime == 0) {  
                $isPrime = false;  
                break;  
            }  
        }  
        if ($isPrime) {  
            $primes[] = $i;  
        }  
    }  
    return $primes;  
}
```

### 2. Palindrome Checker:

```
function isPalindrome($str) {  
    // Remove non-alphanumeric characters and convert to lowercase  
    $cleanedStr = preg_replace("/[^A-Za-z0-9]/", '', $str);  
    $cleanedStr = strtolower($cleanedStr);  
  
    // Check if the cleaned string is the same when reversed  
    return $cleanedStr === strrev($cleanedStr);  
}
```