Credit Name: CSE 2110 Procedura; Programming 1
Assignment Name: Prime Number Mastery Project

How has your program changed from planning to coding to now? Please explain?

Initially, I planned to create a program that prompts the user for a number and checks whether it is prime by dividing it by numbers up to half of its value. The concept of prime checking wasn't too difficult to understand, but I needed to make my approach a bit more efficient to optimize performance. During my coding, I realized that my initial plan of dividing the number by every number between 2 and itself would be inefficient for large numbers. I optimized/made it more efficient by only checking divisibility up to half of the number, which reduced unnecessary iterations and improved the speed of prime checking. The program works as I thought. It successfully determines whether a number is prime or not and displays the result, handling edge cases like 1 (which is not prime) correctly.

```java
// Check if the number is prime
boolean isPrime = true;  // Assume the number is prime initially

// 1 is not a prime number, so handle it separately
if (number <= 1) {
    isPrime = false;
} else {
    // Loop to check if the number is divisible by any number other than 1 and itself
    for (int i = 2; i <= number / 2; i++) {
        if (number % i == 0) {  // If the number is divisible by i, it's not prime
            isPrime = false;
            break;
        }
    }
}
```