

Credit Name: CSE 2110 Procedural Programming 1

Assignment Name: PrimeNumber

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

I began creating a method that determines whether a number is prime. This method returns a boolean value, and uses a number entered by user as its param.

```
//This method determines whether a number is prime
//@param num: number
//@return: true or false
public static boolean isPrime(int num) {
```

Declared and initialized variable "prime" as 0 within the method; if the number is prime, it will remain as 0 later on.

```
//declare and initialize variable
int prime = 0;
```

Using a for loop, test each int between 2 and num. We do not test for 1 and num itself because it will always be true in context.

if the remainder of num divided by i is equal to 0, this means that the number is not prime since it can be divided by other #'s other than 1 and itself.

Thus, set prime to 1, to differentiate between prime (0) and non-prime data.

Break to end loop. We do not need to test any more if one value has already successfully divided into num.

```
//for each int number between 2 and num; (i):
for (int i = 2; i < num; i++) {
    if (num % i == 0) { //if remainder of num divided by i = 0,
        prime = 1; //set prime variable as 1
        break; //end loop
    }
}
```

If the prime variable is not equal to 1, have method return true to signify prime number

```
if (prime != 1) { //if prime is not equal to 1
    return(true); //return true
}
```

If the prime variable is equal to 1, have method return false to signify non-prime number.

```
return(false); //else, return false
```

In main method, import scanner to prepare for user input.

```
//prepare for user input  
Scanner input = new Scanner(System.in);
```

Prompted user to enter a integer number, and recorded user input in a new declared variable "num".

```
//Prompt user for number, and record user input in new variable "num"  
System.out.print("Please enter any whole number: ");  
int num = input.nextInt();
```

Using method isPrime with the param as variable num, if the return value is equal to false, display "non-prime" message.  
Otherwise, if the return value is equal to true, display "prime" message.

```
if (isPrime(num)== false) { //if isPrime(num) return is equal to false  
    System.out.print("Your number is NOT a prime number."); //print "non-prime" message  
}  
else {  
    System.out.print("Your number IS a prime number!"); //else, print "prime" message  
}
```