Credit Name: CSE 2110 Procedural Programming 1

Assignment: PrimeNumber Part a

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

```
//Declaration
int num,remainder=1,i=1;

//Prepare for User Input
Scanner UserInput = new Scanner(System.in);

//Get the User to type a random Number
System.out.print("Please Enter a Number: ");
num = UserInput.nextInt();
UserInput.close();
```

I declared my variables as integers as those are the only types of numbers we deal with in this assignment. I initialized my remainder value and i value to 1. Int i refers to a dummy variable which increases as we try to find a number which divides the users number, indicating that it is not prime.

```
//keep finding the remainder when dividing num by 2-7 while the remainder is non-zero.
do
{
    i+=1;
    remainder = num%i;
}while(remainder != 0 && i<=7);
```

We try to find a divisor which will divide the users number exactly and tell us whether or not it is prime. Note that my remainder was initialized to 1 because that value is greater than zero allowing our while loop to run initially. I went up to 7 for i-values because all values greater than that are either multiples of 1-7 or prime. Numbers like 4, and 6 were just included because the code was simpler to leave them in, however, the same endpoint can be reached if you exclude those 2 numbers as well.

```
if(remainder != 0 || num == i)
{
    System.out.print("The Number is Prime");
}
//If not it is not prime
else
{
    System.out.print("The Number is NOT Prime");
}
```

If our remainder is not zero after we go through all iterations of division or if the number we dividing is the same as i (which are prime numbers, 4, 6 dont come up as prime because i value is 2 for when the do-while loop stops) we get a prime number. Otherwise the number isnt prime.