

Credit Name: CSE 2140 2nd Language Programming

Assignment: Digits Mastery

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

```
{  
    //Declaration  
    int n, h, t, o ;  
}
```

I have started off by declaring my variables; Since i want the user to plug in a 3 digit INTEGER I defined the variable n to be that variable and hold only integer values. Since my hundreds,tens and ones values are also integers I have defined them in a similar way to n. This step is also important because we will need to perform integer division in order to get our values for each individual digit.

```
//Prep for User Input  
  
Scanner UserInput = new Scanner(System.in);  
  
//Ask for 3-digit number from User and receive the input  
System.out.print("Please enter a three digit number: ") ;  
  
n = UserInput.nextInt();
```

I have now set up the preparation to ask the user for their input by using the Scanner tool.

Then after sending a print message to give the user instructions for the program, i have set up the integer n to hold the value the user inputs.

```
//Perform int division to get the hundreds value  
  
h = n/100 ;  
  
//Calculate the tens value  
  
t = (n-h*100)/10 ;  
  
// perform modulo division on n to get the ones value  
  
o = n%10 ;
```

To calculate the the hundreds you need to divide the original number by 100 and take the integer portion. E.g. $323/100 = 3.23$ but the integer portion returns 3 which is the value of the hundreds.

To find the value of tens you need to get rid of the 100s in the number this can be done by taking the hundreds value away from the original value. We need to multiply h by 100 because we are only storing a single digit answer. Then after finding the difference we can divide by 10 and take the integer portion of it similar to how we got h.

Finding o just requires us to take the remainder of the original number divided by 10 so we do $n \bmod 10$. This works because only the ones column is less than 10 so will be given as a remainder.

```
//Print the Output  
  
System.out.print("The value of the hundreds is " + h + ", the value of the tens is " + t + ", and the value of the ones is " + o + ".");  
  
}
```

Final Print Statement