Credit Name: CS 3120 Object-Oriented Programming 1

Assignment: DigitExtractor

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

```
3  public class Num {
4      private int n;
5
6      //Constructor to initialize my number
7
8      public Num(int number)
9      {
10         n = number;
11     }
```

For my object, it is called Num. I declared a variable n(the number) to be a private (only want this class to be able to access it) int(user only types in an integer).

Then I made a constructor with a parameter which makes n = parameter .

```
public int getNum()
{
    return n;
}

public int getOnes()
{
    int o;
    o = n % 10;
    return o;
}

public int getTens()
{
    int t;
    t = (n/10) % 10;
    return t;
}

public int getHundreds()
{
    int h;
    h = n/100;
    return h;
}}
```

Then i set up an accessor method to get the number the user typed, so the method simply returns the integer value of n.

Then i made a method to get the value of the ones, by dividing the n by 10 and finding the remainder.

Similarly i made a method to get the value of the tens. I integer divided the number by 10 to eliminate the ones column. Then I found the remainder after the new number was divided by 10 as the tens column initially is now in the ones column.

Lastly, to get the hundreds value i integer divided n by 100 to eliminate the ones and tens value.

```
public class DigitExtractor {

    public static void main(String[] args)
    {
        Scanner input = new Scanner(System.in);

        System.out.println("Enter an integer: ");
        int usernum = input.nextInt();

        Num number = new Num(usernum);
```

In my client code now, i got the integer value from the user and then created a new object 'number' which holds the value inputted by the user.

```
    //Start While loop to keep coming back to options until user inputs 0
        char choice = ' ';
        while(choice != 'q')
        {
            System.out.println("show (W)hole number.");
            System.out.println("show (O)nes Place number.");
            System.out.println("show (T)ens Place number.");
            System.out.println("show (H)hundreds Place number.");
            System.out.println("(Q)uit");

            System.out.println("Enter your Choice: ");
            choice = input.next().toLowerCase().charAt(0);

            switch(choice)
            {
          case 'w':
              System.out.println("Whole Number: " + number.getNum());
              break;
          case 'h':
              System.out.println("Hundreds Digit: " + number.getHundreds());
              break;
          case 't':
              System.out.println("Tens Digit: " + number.getTens());
              break;
          case 'o':
              System.out.println("Ones Digit: " + number.getOnes());
              break;
          case 'q':
              System.out.println("Quitting the program.");
              break;
          default:
              System.out.println("Invalid command. Please try again.");
              input.close();
        }
```

Since the user needs to pick a letter to choose their options i made the choice variable a character. It is initialized as a space. While the choice character is not 'q' the loop will keep running. I then display the options and ask the user to enter their choice. Whatever the user enters is converted to lower case and we only take the first character.
We do a switch case for all the different options.
For case 'w' we access the object 'number' and use getNum.

For case ‘h’,’t’, and ‘o’ we get the hundreds, tens and ones respectively after accessing the object.
When it is case ‘q’ we show that we are quitting the application before the while loop stops.

Our default case displays an error message when user doesn't type in a valid out put and the loop continues on as usual.