Credit Name: CSE2140 2nd Language Programming

Assignment Name: Digit Extractor Mastery

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

Created a public class with a private int variables called hundred, ten and one.

```
public class DigitExtractor {
    private int hundred, ten, one;
```

Created constructor method with default values for each variable.

```
//Constructor method with default values
public DigitExtractor() {
    hundred = 0;
    ten = 0;
    one = 0;
}
```

Created method that overloads constructor method with a 3 int variables as the parameters.

```
//Overloading constructor method
public DigitExtractor(int h, int t, int o) {
    hundred = h;
    ten = t;
    one = o;
}
```

Created an access method for each class variable, will return the variable.

```
//Access method
public int getHundred() {
    return hundred;
}
public int getTen() {
    return ten;
}
public int getOne() {
    return one;
}
```

Created a modifier method for each class variable with a int as the parameter that can you change/alter the variable. Doesn't return a value, only initializes the variable.

```
//Modifier method
public void setHundred(int h) {
    hundred = h;
}
public void setTen(int t) {
    ten = t;
}
public void setOne(int o) {
    one = o;
}
```

Created a string method with an int as the paramenters that will return a string that displays the number inputted from the parameters.

```
//Show whole number
```

In the client code in the main method, delcare the variables as int and string as we are dealing with numbers and letters.

```
public static void main(String[] args) {
    // TODO Auto-generated method stub
    //Declaration area
    int userNum;
    String option;
```

Prepared for user to input an answer.

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

Create a new object, setting the the hundreds, tens and ones place as 0.

```
//Create new object
DigitExtractor Num = new DigitExtractor(0, 0, 0);
```

Prompt user to input an integer and initialize it.

```
//Prompt user to input an integer an initialize it
System.out.print("Enter an integer: ");
userNum = userInput.nextInt();
```

Display options to user, prompting them to input an options. Initiazlize the input.

```
//Display options and prompt user to input an option and record it
System.out.print("Show (W)hole number."
    + "\nShow (O)nes place number."
    + "\nShow (T)ens place number."
    + "\nShow (H)undereds place number."
    + "\n(Q)uit."
    + "\nEnter your choice: ");
option = userInput.next();
```

Used a while loop to continue asking user to input an option until the user enters q to break out of the loop. Using if statements, compare the user input to the letters. Use the methods and objects to display information picked based on user input.

```
//Continue loops until break condition
while (true) {
    //Display answer to user based on option picked
    if (option.equalsIgnoreCase("w")) {
        System.out.println(Num.showNum(userNum));
    }
    else if (option.equalsIgnoreCase("o")) {
        System.out.println(Num.getOnes(userNum));
    }
    else if (option.equalsIgnoreCase("t")) {
        System.out.println(Num.getTens(userNum));
    }
    else if (option.equalsIgnoreCase("h")) {
        System.out.println(Num.getHundreds(userNum));
    }
    else if (option.equalsIgnoreCase("q")) {
```

```
public String showNum(int userNum) {
    return ("The whole number is " + userNum + ".");
}
```

Created a string method with an int as the paramenters that will return a the hundreds place of the number inputted from the parameters. Calculate by dividing the the number by 100. Returns the hundreds place.

```
//Find hundreds place
public String getHundreds(int userNum) {
    hundred = userNum / 100;
    return ("The hundreds place digit is " + hundred + ".");
}
```

Created a string method with an int as the paramenters that will return a the tens place of the number inputted from the parameters. Calculate the hundreds by dividing the the number by 100 again so it can act independantly. Calculate tens place by subtracting hundreds from inputted number and divide by 10. Returns the tens place as a string.

```
//Find tens place
public String getTens(int userNum) {
    hundred = userNum / 100;
    ten = (userNum - (hundred * 100)) / 10;
    return ("The tens place digit is " + ten + ".");
}
```

Created a string method with an int as the paramenters that will return a the tens place of the number inputted from the parameters. Repeat calculation steps above so it can act independantly. Calculate ones place and returns ones place as a string.

```
//Find ones place
public String getOnes(int userNum) {
    hundred = userNum / 100;
    ten = (userNum - (hundred * 100)) / 10;
    one = userNum - ((hundred * 100) + (ten * 10));
    return ("The ones place digit is " + one + ".");
}
```

```
        break;
    }
    else {
        System.out.println("Invalid option");
    }
```

Prompt user to input an option and initialize it.

```
//Prompt user to input option
System.out.print("Enter your choice: ");
option = userInput.next();
```