Reflection log

```
1  package Mastery;
2
3  import java.util.Scanner;
4
5  public class DigitExtractor {
6
7⊖     public static void main(String[] args) {
8          Scanner scanner = new Scanner(System.in);
9
```

The code defines a DigitExtractor class within the Mastery package and sets up a Scanner object to capture user input from the console in the main method. This prepares the program to process input data for extracting digits or other tasks.

```
.0         // Prompt the user for an integer
.1         System.out.print("Enter an integer: ");
.2         int userInput = scanner.nextInt();
.3
.4         // Create a Num object
.5         Num num = new Num(userInput);
.6
```

The code prompts the user to input an integer using the Scanner object and stores the value in the userInput variable. It then creates a Num object, initialized with the user's input, to encapsulate and possibly process the integer further.

```
int choice;
do {
    // Display menu options
    System.out.println("\nMenu:");
    System.out.println("1. Show the ones digit");
    System.out.println("2. Show the tens digit");
    System.out.println("3. Show the hundreds digit");
    System.out.println("4. Show the whole number");
    System.out.println("0. Quit");
    System.out.print("Enter your choice: ");
    choice = scanner.nextInt();
```

This code implements a menu system using a do-while loop to repeatedly display options to the user. It allows the user to select actions such as showing specific digits (ones, tens, hundreds) or the whole number by entering a corresponding choice. The user's input is read using the Scanner object and stored in the choice variable to control the loop and execute the desired operation.

```java
            // Process user choice
            switch (choice) {
                case 1:
                    System.out.println("Ones digit: " + num.getOnesDigit());
                    break;
                case 2:
                    System.out.println("Tens digit: " + num.getTensDigit());
                    break;
                case 3:
                    System.out.println("Hundreds digit: " + num.getHundredsDigit());
                    break;
                case 4:
                    System.out.println("The whole number is: " + num.getNumber());
                    break;
                case 0:
                    System.out.println("Exiting the program. Goodbye!");
                    break;
                default:
                    System.out.println("Invalid choice. Please try again.");
                    break;
            }
        } while (choice != 0);

        // Close the scanner
        scanner.close();
    }
}
```

This code uses a switch statement to process the user's menu choice and execute the corresponding operation, such as displaying specific digits or the entire number. Each case invokes methods on the Num object (e.g., getOnesDigit, getTensDigit) to retrieve and display the requested values. The loop continues until the user enters 0 to quit, at which point the program prints an exit message and closes the Scanner.