Reflection Log

```
package mastery;

import java.text.DecimalFormat;
import java.util.Scanner;

public class Metricconversion {
```

Imports scanner and creates class

```
 public static void main(String[] args) {
     Scanner in = new Scanner(System.in);
     DecimalFormat deca = new DecimalFormat("#.##");
```

Creates new scanner object to record input and decimal format to restrict decimal places

```
 //prompt user to enter a number to pick which type of
     System.out.println("Metric Conversion Menu");
     System.out.println("1. Inches to Centimeters");
     System.out.println("2. Centimeters to Inches");
     System.out.println("3. Feet to Centimeters");
     System.out.println("4. Centimeters to Feet");
     System.out.println("5. Yards to Meters");
     System.out.println("6. Meters to Yards");
     System.out.println("7. Miles to Kilometers");
     System.out.println("8. Kilometers to Miles");
     System.out.print("Enter your choice: ");
     int choice = in.nextInt();
```

Prompt user to choose a type of metric conversion that is available to run inside the code

```java
//switch case for each metric conversion choice
switch (choice) {

//runs case 1 when user picks 1
    case 1:
        //prompt user for input
        System.out.print("Enter inches: ");
        //holds user input
        double inches = in.nextDouble();
        //takes user input and applies inchestocm method to it
        System.out.println(inches + " inches is equal to " + deca.format(inchestocm(inches)) + " centimeters");
        break;

      //runs case 2 when user picks 2
    case 2:
        //prompt user for input
        System.out.print("Enter centimeters: ");
      //holds user input
        double cm = in.nextDouble();
      //takes user input and applies cmtoinches method to it
        System.out.println(cm + " centimeters is equal to " + deca.format(cmtoinches(cm)) + " inches");
        break;

      //runs case 3 when user picks 3
    case 3:
        //prompt user for input
        System.out.print("Enter feet: ");
      //holds user input
        double feet = in.nextDouble();
      //takes user input and applies feettocm method to it
        System.out.println(feet + " feet is equal to " + deca.format(feettocm(feet)) + " centimeters");
        break;

      //runs case 4 when user picks 4
    case 4:
        //prompt user for input
        System.out.print("Enter centimeters: ");
      //holds user input
        cm = in.nextDouble();
      //takes user input and applies cmtofeet method to it
        System.out.println(cm + " centimeters is equal to " + deca.format(cmtofeet(cm)) + " feet");
        break;

      //runs case 5 when user picks 5
    case 5:
        //prompt user for input
        System.out.print("Enter yards: ");
      //holds user input
        double yards = in.nextDouble();
      //takes user input and applies yardstom method to it
        System.out.println(yards + " yards is equal to " + deca.format(yardstom(yards)) + " meters");
        break;
```

```
  //runs case 6 when user picks 6
case 6:
    //prompt user for input
    System.out.print("Enter meters: ");
  //holds user input
    double m = in.nextDouble();
  //takes user input and applies mtoyards  method to it
    System.out.println(m + " meters is equal to " + deca.format(mtoyards(m)) + " yards");
    break;

  //runs case 7 when user picks 7
case 7:
    //prompt user for input
    System.out.print("Enter miles: ");
  //holds user input
    double miles = in.nextDouble();
  //takes user input and applies miletokm method to it
    System.out.println(miles + " miles is equal to " + deca.format(miletokm(miles)) + " kilometers");
    break;

  //runs case 8 when user picks 8
case 8:
    //prompt user for input
    System.out.print("Enter kilometers: ");
  //holds user input
    double km = in.nextDouble();
  //takes user input and applies kmtomile method to it
    System.out.println(km + " kilometers is equal to " + deca.format(kmtomile(km)) + " miles");
    break;
```

Uses switch case to choose which method to run based off of user input
When a case is chosen it records what number the user entered through a variable and runs the variable through a method to convert it

```java
public static double inchestocm(double inch) {
    //changes the number of inches the user input into centimeters
    return inch * 2.54;}

public static double cmtoinches(double cm) {
    //changes the number of centimeters the user input into inches
    return cm / 2.54;}

public static double feettocm(double feet) {
    //changes the number of feet the user input into centimeters
    return feet * 30;}

public static double cmtofeet(double cm) {
    //changes the number of centimeters the user input into feet
    return cm / 30;}

public static double yardstom(double yards) {
    //changes the number of yards the user input into meters
    return yards * 0.91;}

public static double mtoyards(double m) {
    //changes the number of meters the user input into yards
    return m / 0.91;}

public static double miletokm(double miles) {
    //changes the number of miles the user input into kilometers
    return miles * 1.6;}

public static double kmtomile(double km) {
    //changes the number of kilometers the user input into miles
    return km / 1.6;
}
```

Methods that take the number the user entered and converts it to whichever measurement the user required