# 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 for input
System.out.print("Enter a number: ");

//holds user input
double num = in.nextDouble();
```

**Prompt user to input the number they want to convert and stores it in double num**

```
//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**

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

//runs case 1 when user picks 1
    case 1:

        //takes user input and applies inchestocm method to it
        System.out.println(num + " inches is equal to " + deca.format(inchestocm(num)) + " centimeters");
        break;

      //runs case 2 when user picks 2
    case 2:
      //takes user input and applies cmtoinches method to it
        System.out.println(num + " centimeters is equal to " + deca.format(cmtoinches(num)) + " inches");
        break;

      //runs case 3 when user picks 3
    case 3:
      //takes user input and applies feettocm method to it
        System.out.println(num + " feet is equal to " + deca.format(feettocm(num)) + " centimeters");
        break;

      //runs case 4 when user picks 4
    case 4:

      //takes user input and applies cmtofeet method to it
        System.out.println(num + " centimeters is equal to " + deca.format(cmtofeet(num)) + " feet");
        break;

      //runs case 5 when user picks 5
    case 5:
      //takes user input and applies yardstom method to it
        System.out.println(num + " yards is equal to " + deca.format(yardstom(num)) + " meters");
        break;

      //runs case 6 when user picks 6
    case 6:
      //takes user input and applies mtoyards  method to it
        System.out.println(num + " meters is equal to " + deca.format(mtoyards(num)) + " yards");
        break;

      //runs case 7 when user picks 7
    case 7:
      //takes user input and applies miletokm method to it
        System.out.println(num + " miles is equal to " + deca.format(miletokm(num)) + " kilometers");
        break;

      //runs case 8 when user picks 8
    case 8:
      //takes user input and applies kmtomile method to it
        System.out.println(num + " kilometers is equal to " + deca.format(kmtomile(num)) + " miles");
        break;
```

**Uses switch case to choose which method to run based off of the menu the user picked from**
**When a case is chosen it takes double num and runs the variable through a method to convert it**

```java
//methods that convert measurements to different types of measurements

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

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

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

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

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

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

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

public static double kmtomile(double km) {
    //changes the number 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**