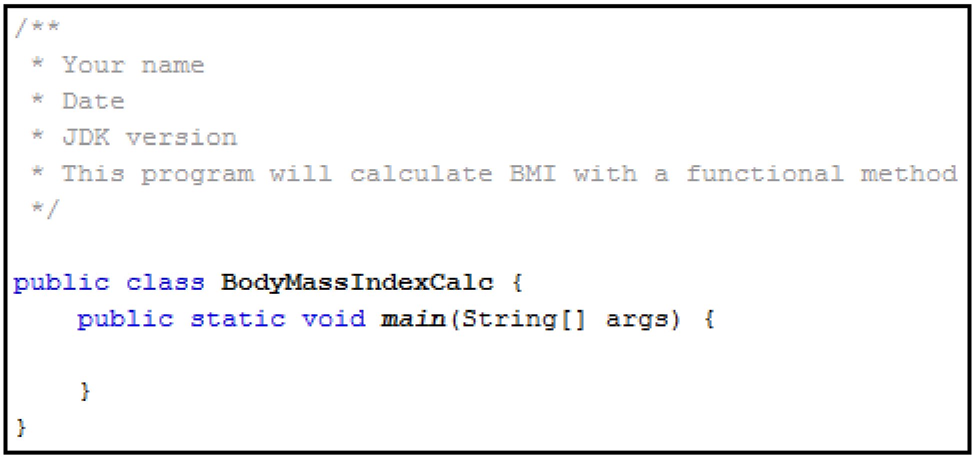
Calculating BMI Exercise

Our goal is to write an interactive program that will allow a user to enter their height and weight, calculate and return their BMI (Body Mass Index) by using a functional method, and display their BMI using a message box. The body mass index measures the relation of a person's weight to their height.

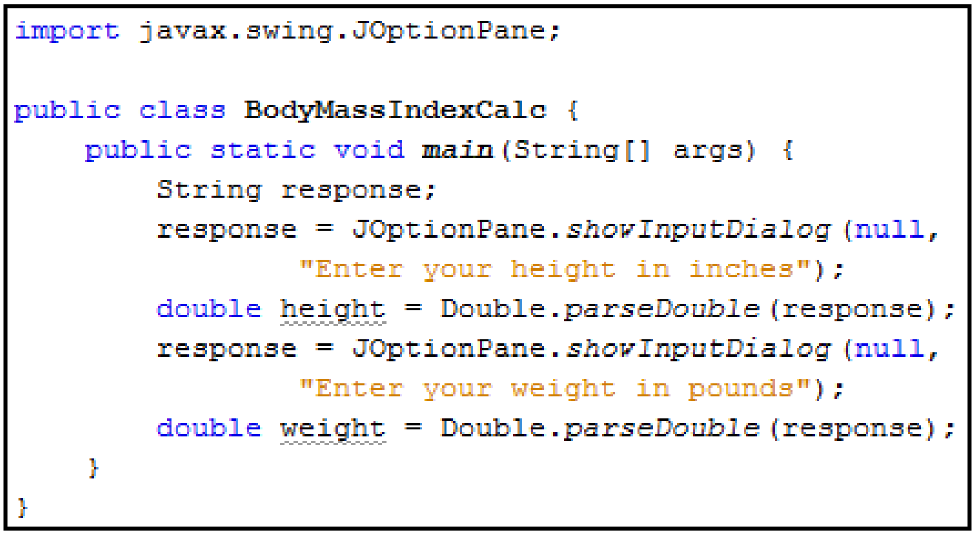
1. Get into NetBeans and start a new Java project. The name of the project should be: **BodyMassIndexCalc**. Be sure to save this project to the appropriate exercise folder and do not create a Package statement.

2. Add comments to the program as shown below:



```
/**
 * Your name
 * Date
 * JDK version
 * This program will calculate BMI with a functional method
 */

public class BodyMassIndexCalc {
    public static void main(String[] args) {

    }
}
```

3. We are now going prompt the user for their height in inches and their weight in pounds via the JOptionPane input dialog. You will need to import the package for the JOptionPane and add the JOptionPane input dialogs to the main method as shown below:



```
import javax.swing.JOptionPane;

public class BodyMassIndexCalc {
    public static void main(String[] args) {
        String response;
        response = JOptionPane.showInputDialog(null,
                "Enter your height in inches");
        double height = Double.parseDouble(response);
        response = JOptionPane.showInputDialog(null,
                "Enter your weight in pounds");
        double weight = Double.parseDouble(response);
    }
}
```

4. We are now going to add calculateBMI functional method to our program. This method is going to take in the height and weight argument when the method is called. The height and weight argument will be passed into the height and weight parameter of the method declaration shown below. The BMI will then be calculated using this height and weight variable. The BMI will be returned as a double from wherever the method was called.

```
public static double calculateBMI(double height, double weight) {
    return (weight*703)/(height*height);
}
```

Key:

⬜ Modifier – determines the scope of the method

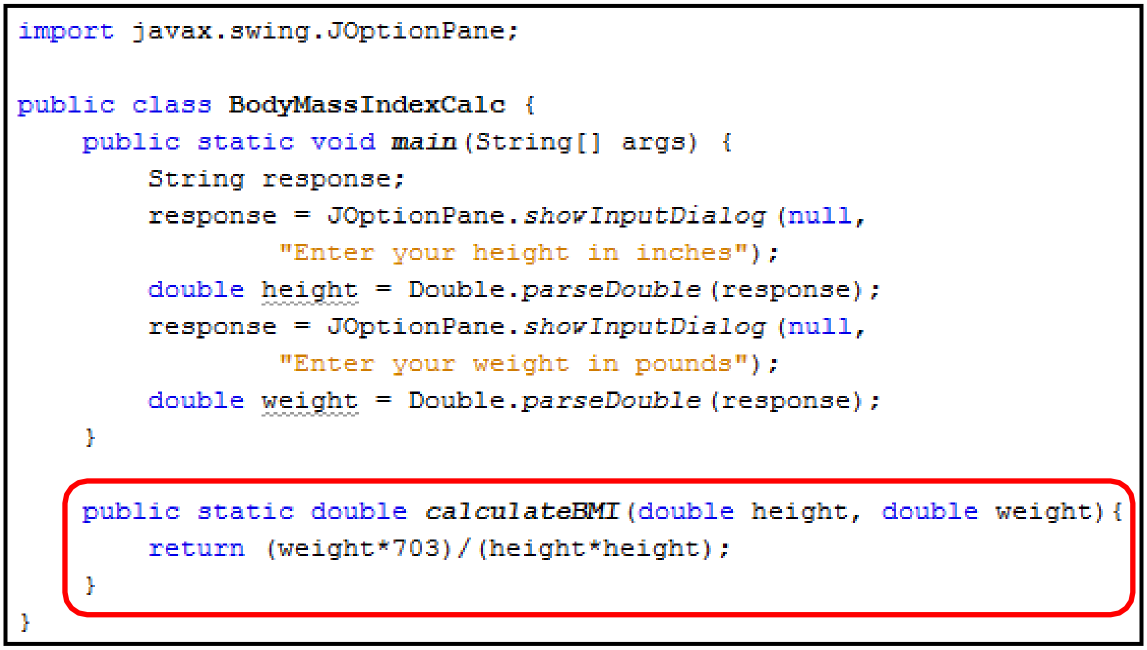
🟦 Static – is not associated with an object

🟩 Return type – double means that we will be sending a double answer back from where the method was called

🟨 Method name

🟪 Parameters

The program should look as follows so far:

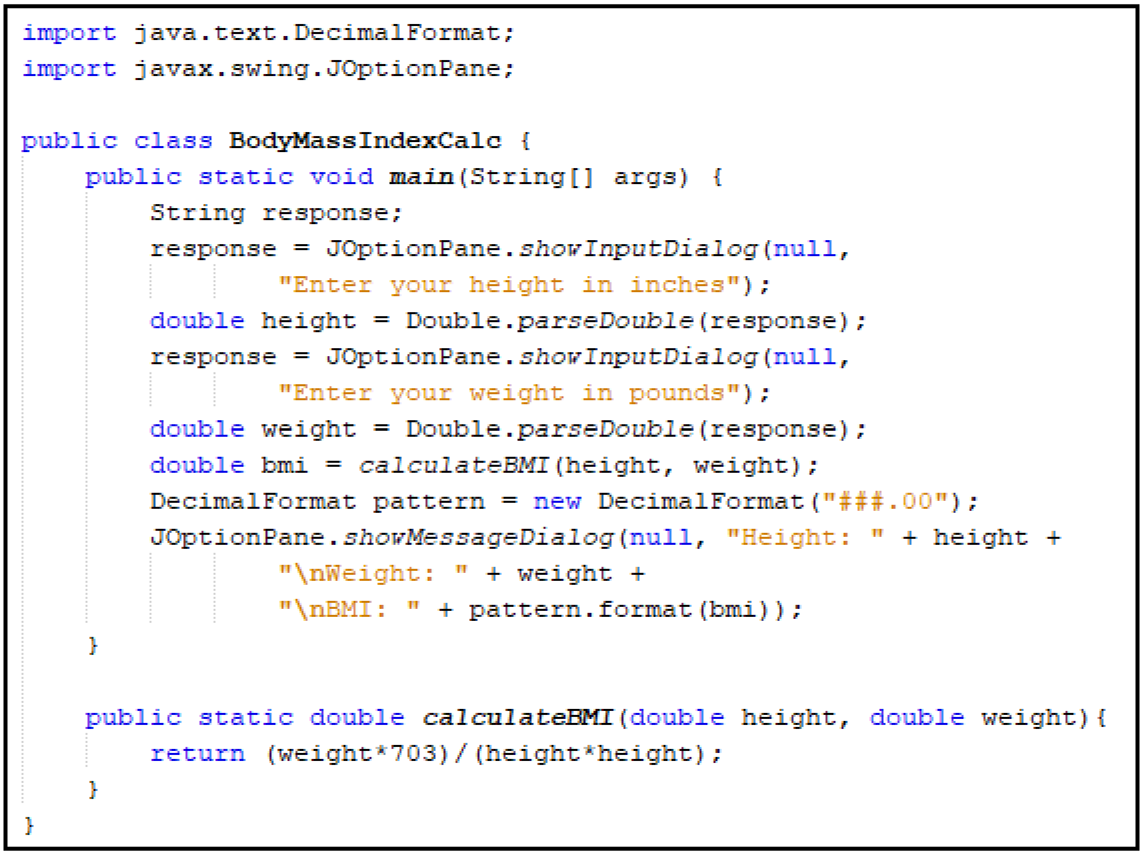


```
import javax.swing.JOptionPane;

public class BodyMassIndexCalc {
    public static void main(String[] args) {
        String response;
        response = JOptionPane.showInputDialog(null,
                "Enter your height in inches");
        double height = Double.parseDouble(response);
        response = JOptionPane.showInputDialog(null,
                "Enter your weight in pounds");
        double weight = Double.parseDouble(response);
    }

    public static double calculateBMI(double height, double weight){
        return (weight*703)/(height*height);
    }
}
```

5. We have created a functional method that calculates the BMI, but we have not used this method. We need to call this method in order to use it. When we call the method, we need to pass in the height and weight argument. It is important that you pass the height and weight arguments in the same order that the calculateBMI parameters are set up to accept the arguments. If you pass the weight first and then the height, it will plug the variables into the wrong part of the equation and return the incorrect result. Add the following method call after the input dialogs in the main method:

   double bmi = calculateBMI(height, weight);

6. We now need to format and display the BMI result in a message box. The final program is shown below.



```
import java.text.DecimalFormat;
import javax.swing.JOptionPane;

public class BodyMassIndexCalc {
    public static void main(String[] args) {
        String response;
        response = JOptionPane.showInputDialog(null,
                "Enter your height in inches");
        double height = Double.parseDouble(response);
        response = JOptionPane.showInputDialog(null,
                "Enter your weight in pounds");
        double weight = Double.parseDouble(response);
        double bmi = calculateBMI(height, weight);
        DecimalFormat pattern = new DecimalFormat("###.00");
        JOptionPane.showMessageDialog(null, "Height: " + height +
                "\nWeight: " + weight +
                "\nBMI: " + pattern.format(bmi));
    }

    public static double calculateBMI(double height, double weight){
        return (weight*703)/(height*height);
    }
}
```

7. Run your project to test it.

8. Close your project