

# Scanners

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# Getting Input

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- The name of the scanner is scan

- new Scanner(...) tells Java to make a new one

- System.in tells Java that the scanner is to take input from the keyboard



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```
int myInt = scan.nextInt();
```



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  - `new Scanner(...)` tells Java to make a new one
  - `System.in` tells Java that the scanner is to take input from the keyboard
- To read in the next int:  
`int myInt = scan.nextInt();`
- To read in the next double:  
`double myDouble = scan.nextDouble();`



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`int myInt = scan.nextInt();`
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- To read in the next String:  
`String myString = scan.next();`



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- To read in the next int:  
`int myInt = scan.nextInt();`
- To read in the next double:  
`double myDouble = scan.nextDouble();`
- To read in the next String:  
`String myString = scan.next();`
- To read in the entire next line as a String:  
`String myLine = scan.nextLine();`



# Getting Input

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- Create a scanner and assign it to a variable:

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- To read in the next int:

```
int myInt = scan.nextInt();
```

- To read in the next double:

```
double myDouble = scan.nextDouble();
```

- To read in the next String:

```
String myString = scan.next();
```

- To read in the entire next line as a String:

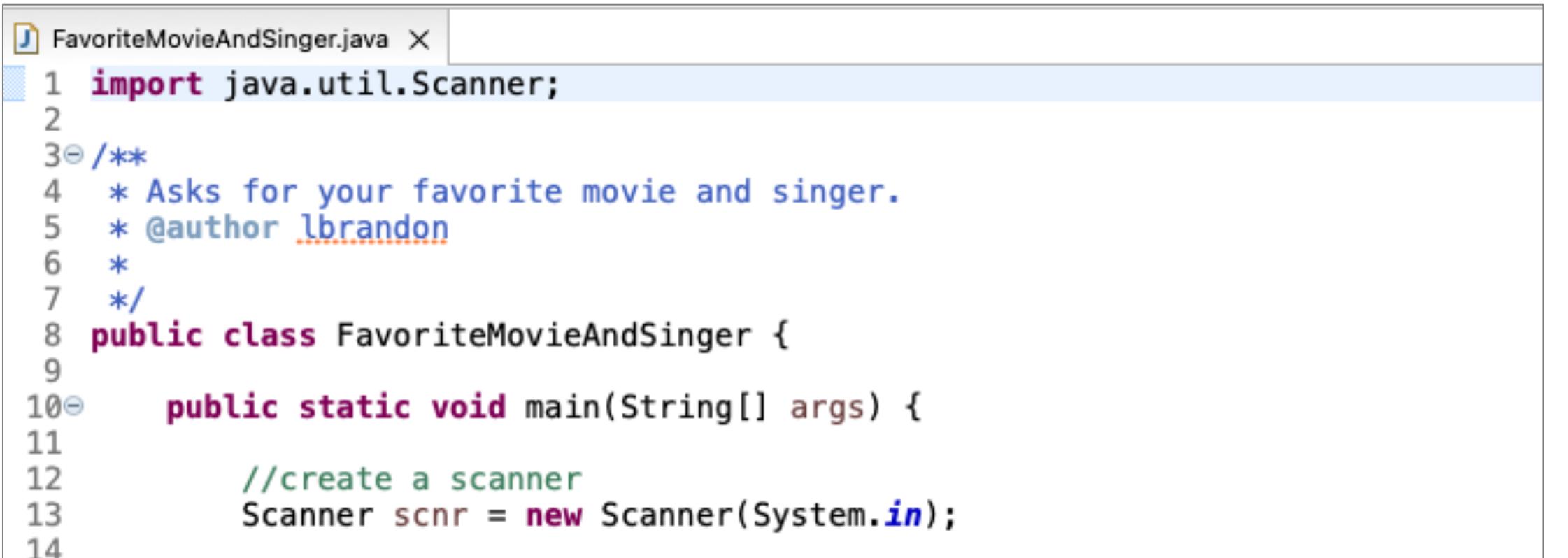
```
String myLine = scan.nextLine();
```

- It's always a good idea to close the Scanner when you are done:

```
scan.close();
```



# Favorite Movie and Singer



```
J FavoriteMovieAndSinger.java X
1 import java.util.Scanner;
2
3 /**
4  * Asks for your favorite movie and singer.
5  * @author lbrandon
6  *
7 */
8 public class FavoriteMovieAndSinger {
9
10    public static void main(String[] args) {
11
12        //create a scanner
13        Scanner scnr = new Scanner(System.in);
14    }
}
```

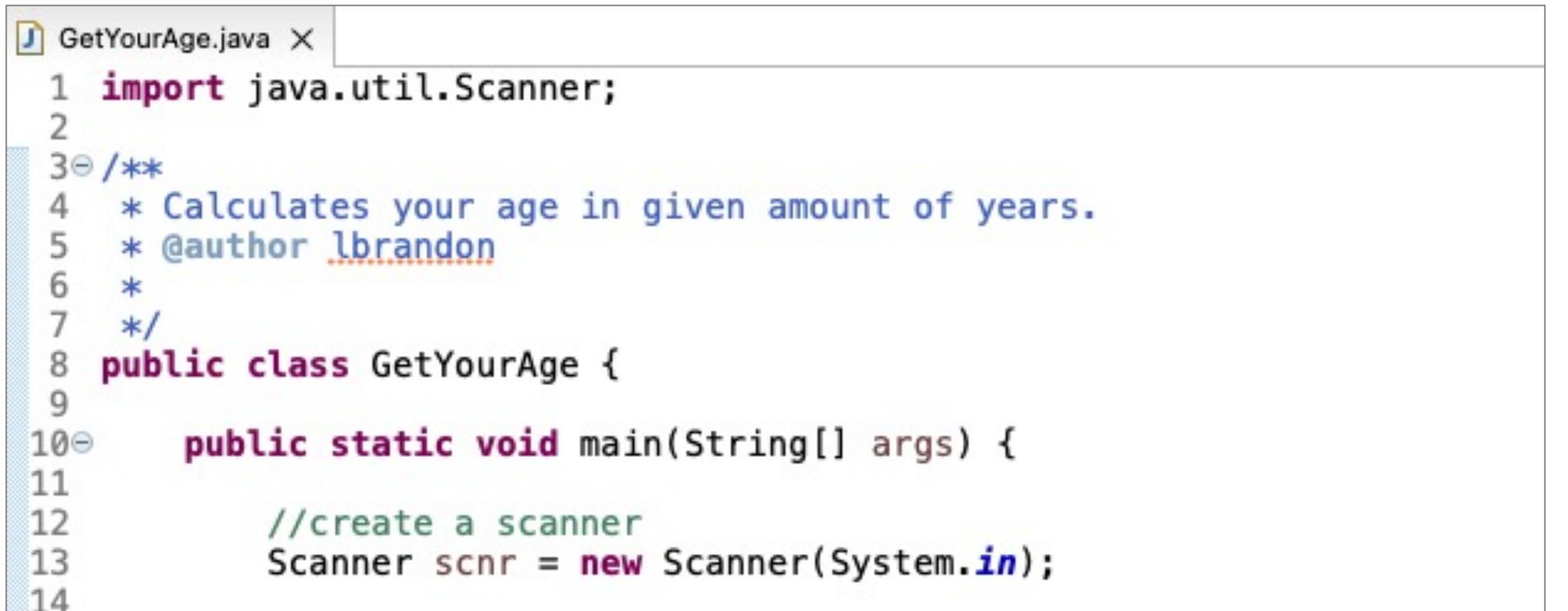
# Favorite Movie and Singer

```
14  
15      //get your favorite movie as a String  
16      System.out.println("What is your favorite movie?");  
17      String favMovie = scnр.nextLine(); //get entire line as String input  
18  
19      //get your favorite singer as a String  
20      System.out.println("Who is your favorite singer?");  
21      String favSinger = scnр.nextLine(); //get entire line as String input  
22
```

# Favorite Movie and Singer

```
22  
23     //combine them to create a new String variable  
24     String favs = "Your favorite movie is " + favMovie + " and your "  
25         + "favorite singer is " + favSinger + ".";  
26     System.out.println(favs);  
27  
28     //close the scanner  
29     scnrf.close();  
30  
31 }  
32  
33 }  
34 }
```

# Get Your Age



```
GetYourAge.java X
1 import java.util.Scanner;
2
3 /**
4 * Calculates your age in given amount of years.
5 * @author lbrandon
6 *
7 */
8 public class GetYourAge {
9
10    public static void main(String[] args) {
11
12        //create a scanner
13        Scanner scnr = new Scanner(System.in);
14    }
}
```

# Get Your Age

```
14  
15     //get your age as an int  
16     System.out.println("How old are you?");  
17     int age = scnr.nextInt();  
18     System.out.print("You are " + age + " years old. ");  
19  
20     //calculate how old you'll be in 3 years  
21     System.out.println(age + 3 + " years old in 3 years.");  
22  
23     //close the scanner  
24     scnr.close();  
25  
26 }  
27  
28 }  
29 }
```

# Calculate Total Bill

CaclulateTotalBill.java X

```
1 import java.util.Scanner;
2
3 /**
4  * Calculates the total bill at a restaurant (meal + tax + tip).
5  * @author lbrandon
6  *
7 */
8 public class CaclulateTotalBill {
9
10    public static void main(String[] args) {
11
12        //create a scanner
13        Scanner scnr = new Scanner(System.in);
14    }
}
```

# Calculate Total Bill

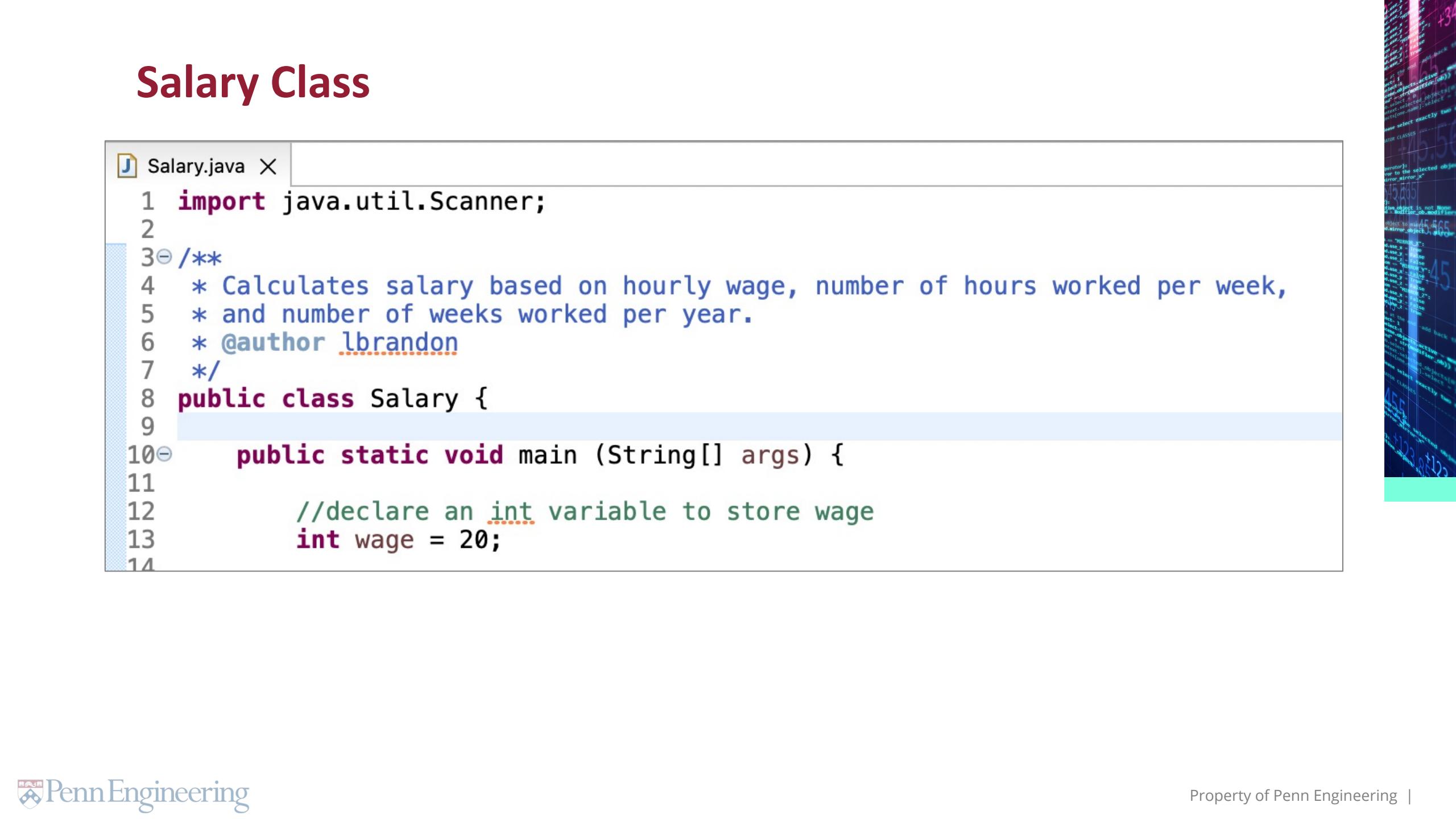
```
14  
15 //get bill as double from user input  
16 System.out.println("How much is the meal?");  
17 double bill = scnr.nextDouble();  
18  
19 //get tax percentage as double from user input  
20 System.out.println("What is the sales tax (percentage)?");  
21 double tax = scnr.nextDouble();  
22  
23 //get tip percentage as double from user input  
24 System.out.println("How much of a tip (percentage)?");  
25 double tip = scnr.nextDouble();  
26
```

# Calculate Total Bill

```
26  
27     double taxAmount = (bill * tax) / 100; //calculate tax  
28     double total = bill + taxAmount; //calculate bill amount, without tip  
29     double tipAmount = (total * tip) / 100; //calculate tip amount  
30  
31     total = total + tipAmount; //calculate total bill amount  
32     System.out.println("The total bill is $" + total); //print output  
33  
34     //close the scanner  
35     scnr.close();  
36 }  
37  
38 }
```

# Salary Calculator

# Salary Class



```
J Salary.java X
1 import java.util.Scanner;
2
3 /**
4  * Calculates salary based on hourly wage, number of hours worked per week,
5  * and number of weeks worked per year.
6  * @author lbrandon
7 */
8 public class Salary {
9
10    public static void main (String[] args) {
11
12        //declare an int variable to store wage
13        int wage = 20;
```

# Salary Class

```
14  
15     //print wage  
16     System.out.print("Wage is: ");  
17     System.out.println(wage);  
18  
19     //calculate and print salary  
20     System.out.print("Salary is: ");  
21     System.out.println(wage * 40 * 52);  
22
```

# Salary Class

```
22  
23     //declare a scanner variable and create a scanner  
24     Scanner scnr = new Scanner(System.in);  
25  
26     System.out.println(); //print blank line  
27     System.out.println("Enter a new wage value: ");  
28  
29     //get wage as an int from user input  
30     //put new value in wage variable  
31     wage = scnr.nextInt();  
32  
33     //print new wage (concatenated with a String)  
34     System.out.println("Wage is: " + wage);  
35  
36     //calculate and put new salary in a new variable, then print  
37     int annualSalary = wage * 40 * 52;  
38     System.out.print("Salary is: ");  
39     System.out.println(annualSalary);  
40
```

# Salary Class

```
40
41     System.out.println(); //print blank line
42     System.out.println("Enter number of work hours per week: ");
43
44     //get number of work hours per week as an int from user input
45     //put new value in new variable
46     int workhoursPerWeek = scnr.nextInt();
47
48     //print new number of work hours per week (concatenated with a String)
49     System.out.println("Number of work hours per week is: " + workhoursPerWeek);
50
51     //calculate and print new salary
52     annualSalary = wage * workhoursPerWeek * 52;
53     System.out.print("Salary is: ");
54     System.out.println(annualSalary);
55
```

# Salary Class

```
55  
56     System.out.println(); //print blank line  
57     System.out.println("Enter number of work weeks per year: ");  
58  
59     //get number of work weeks per year as an int from user input  
60     //put new value in new variable  
61     int workWeeksPerYear = scnr.nextInt();  
62  
63     //print new number of work weeks per year (concatenated with a String)  
64     System.out.println("Number of work weeks per year is: " + workWeeksPerYear);  
65  
66     //calculate and print new salary  
67     annualSalary = wage * workhoursPerWeek * workWeeksPerYear;  
68     System.out.print("Salary is: ");  
69     System.out.println(annualSalary);  
70
```

# Salary Class

```
70  
71     System.out.println(); //print blank line  
72     System.out.println("Enter your job title: ");  
73  
74     //get job title as a String from user input  
75     //put new value in new variable  
76     String jobTitle = scnr.next();  
77  
78     //print job title and salary  
79     System.out.println("Your job title is " + jobTitle  
80             + " and your salary is " + annualSalary);  
81
```

# Salary Class

```
81  
82     //close the scanner  
83     scnr.close();  
84  
85     System.out.println(); //print blank line  
86     System.out.println("Goodbye!");  
87  
88 }  
89 }  
90 }
```

# Dog Years Calculator

# DogYears Class

```
J DogYears.java X
1o import java.math.BigDecimal;
2 import java.math.RoundingMode;
3 import java.util.Scanner;
4
5o /**
6 * Calculates age in human years based on age in dog years.
7 * @author lbrandon
8 */
9 public class DogYears {
10
11o     public static void main(String [] args) {
12
13         //declare a variable and create a scanner
14         Scanner scnr = new Scanner(System.in);
15
16         //declare a variable to store number of dog years (as a double)
17         double dogYears;
18
19         //declare a variable to store number of human years (as a double)
20         double humanYears;
21 }
```



# DogYears Class

```
22 System.out.print("Enter age in dog years: ");
23
24 //get dog years (as a double) from user input
25 //put value in dogYears variable
26 dogYears = scnr.nextDouble();
27
28 //calculate age in human years
29 humanYears = 7 * dogYears;
```

# DogYears Class

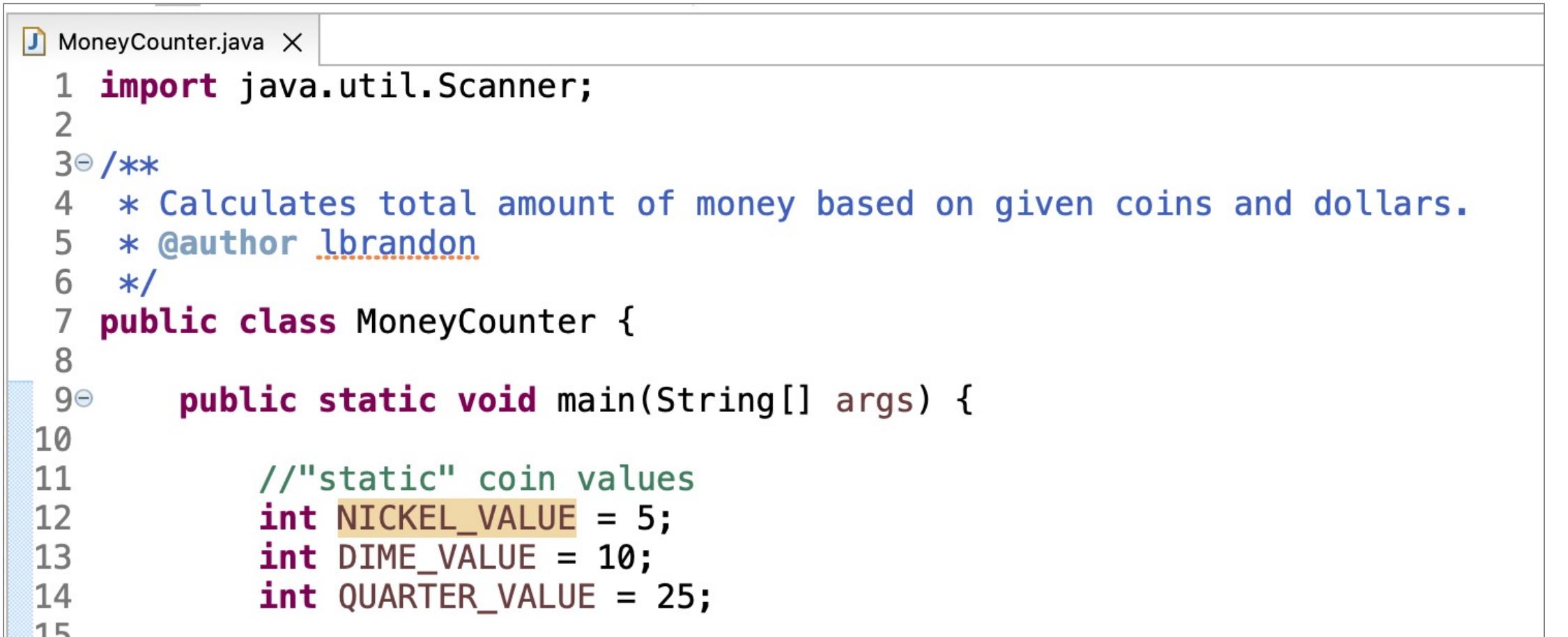
```
50  
31     //round human years value  
32     //create big decimal with value of humanYears  
33     BigDecimal bd = new BigDecimal(humanYears);  
34  
35     //set config for big decimal  
36     bd = bd.setScale(2, RoundingMode.HALF_UP);  
37  
38     //get rounded value  
39     humanYears = bd.doubleValue();  
40
```

# DogYears Class

```
43  
44     //print age in dog years and in human years  
45     System.out.print(dogYears);  
46     System.out.print(" dog years is about ");  
47  
48     System.out.print(humanYears);  
49     System.out.println(" human years");  
50  
51     //close the scanner  
52     scnrf.close();  
53  
54     System.out.println(); //print blank line  
55     System.out.println("Goodbye!");  
56 }  
57 }
```

# Money Calculator

# MoneyCounter Class



```
MoneyCounter.java X
1 import java.util.Scanner;
2
3 /**
4  * Calculates total amount of money based on given coins and dollars.
5  * @author lbrandon
6 */
7 public class MoneyCounter {
8
9     public static void main(String[] args) {
10
11         // "static" coin values
12         int NICKEL_VALUE = 5;
13         int DIME_VALUE = 10;
14         int QUARTER_VALUE = 25;
15     }
16 }
```



# MoneyCounter Class

```
15  
16    //declare variables (of type int) to keep track of money  
17    int pennies;  
18    int nickels;  
19    int dimes;  
20    int quarters;  
21    int dollars;  
22  
23    //declare variable (of type double) to keep track of total amount of money  
24    double totalMoney;  
25
```

# MoneyCounter Class

```
25  
26     //create a scanner  
27     Scanner scnr = new Scanner(System.in);  
28  
29     //get number of pennies  
30     System.out.print("How many pennies do you have? ");  
31     pennies = scnr.nextInt();  
32  
33     //get number of nickels  
34     System.out.print("How many nickels do you have? ");  
35     nickels = scnr.nextInt();  
36  
37     //get number of dimes  
38     System.out.print("How many dimes do you have? ");  
39     dimes = scnr.nextInt();  
40  
41     //get number of quarters  
42     System.out.print("How many quarters do you have? ");  
43     quarters = scnr.nextInt();  
44  
45     //get number of dollars  
46     System.out.print("How many dollars do you have? ");  
47     dollars = scnr.nextInt();  
48
```

# MoneyCounter Class

```
48  
49     //calculate total change  
50     int totalChange = pennies  
51         + (nickels * NICKEL_VALUE)  
52         + (dimes * DIME_VALUE)  
53         + (quarters * QUARTER_VALUE);  
54  
55     //convert change to dollars  
56     //force it to a double by dividing by a double (100.0)  
57     double totalChangeAsDollars = (totalChange / 100.0);  
58  
59     //calculate total money  
60     totalMoney = totalChangeAsDollars + dollars;  
61
```

# MoneyCounter Class

```
61  
62     System.out.print("You have a total of $");  
63     System.out.print(totalMoney);  
64  
65     //close the scanner  
66     scnr.close();  
67 }  
68 }
```