

COSC 117 Lab 2

The programs for this lab should be stored in your Eclipse repository. Create a new Java project called **lab2** in your workspace. Remember to use a workspace location on your P: drive or a USB drive (not the C: drive). When your programs are running correctly, turn in a printout of the Java code for each program to the instructor. Make sure you include comments for your program (especially your name).

Problem 1

Create a new class called SimplePay in your lab2 project. Make sure to include a main method when creating your class. Write code to do the following:

- Declare three variables of type double: one each to hold the number of hours worked, the pay rate, and the total pay.
- Prompt the user for the number of hours worked.
- Prompt the user for the pay rate.
- Compute the total pay.
- Display the total pay. Note that the resulting total pay is displayed using exactly two digits after the decimal point. Use Java's `System.out.printf` function to do this.

Example 1:

```
Enter the hours worked: 30.0
Enter the pay rate per hour: 9.25
The total pay is $277.50
```

Problem 2

Create a new class called DistanceConverter that converts miles to kilometers. Your program should use meaningful variable names and should have the following behavior:

- The program should ask the question "How many miles do you want to convert?"
- The program should then read this amount from the user and compute the number of kilometers.
- Lastly, the program should display both the user provided number of miles and the computed number of kilometers.

The conversion factor should be declared as a **constant**. In other words, it should be impossible to change the value once it has been set. The distance values should be displayed using exactly four digits after the decimal point. Use Java's `System.out.printf` function to display the number of miles and number of kilometer.

Example 1:

```
How many miles do you want to convert? 12
12.0000 miles = 19.3121 kilometers
```

Problem 3

Create a new class called ChangeCounter that prompts the user for how many coins of various denominations they have and then displays the total amount of change. Make sure that the resulting change amount is displayed using exactly two digits after the decimal point. For example, fifty cents should be \$0.50. Use Java's `System.out.printf` function to display the total amount.

Example 1:

```
Enter the number of pennies: 0
Enter the number of nickels: 2
Enter the number of dimes: 1
Enter the number of quarters: 3
The total amount of change is $0.95
```