

Computer Programming Python Practice – Making Change

Objective: Use the basics of python to make change.

Some cash register systems use change machines that automatically dispense coins. This lab will investigate the problem solving and programming behind such machinery. You always want to use the fewest coins possible. You should use integer mathematics to solve this problem.

1. In your *Computer Programming* folder, create a folder titled *first_last_python_practice*. Start IDLE. Create a new file. Save it in your *first_last_python_practice* folder as *make_change.py*.
2. Create a variable called *amount* and set its initial value to 59. You are to create variables for quarters, dimes, nickels and pennies and **calculate** how to make change for 59 cents. As you know, to make change for 59 cents with the fewest number of coins, you should use 2 quarters, 0 dimes, 1 nickel and 4 pennies. You need to use integer division (*//*) as well as remainder arithmetic (*%*) in your calculations.
3. Now print your results so that the output of your code looks like this:

```
59 cents =>
  Quarter(s) :  2
    Dime(s)   :  0
  Nickels(s) :  1
  Pennies(s) :  4
```

You should use 15 spaces for the names of the coins and 3 spaces for the quantity of coins.

4. Before turning in your work, you are to create a Word document called *output.txt* and save it in your *first_last_python_practice* folder. Now, run your code 4 times with the following 4 values for *amount*:

```
Run 1:    94
Run 2:    72
Run 3:    19
Run 4:    46
```

After each run, copy the output from your shell window and paste it into the *output.txt* file.

5. Before you turn this assignment in, make sure that your *first_last_python_1* folder has 2 files:
 - ✓ *output.txt*
 - ✓ *make_change.py*
6. Zip your *first_last_python_practice* folder and turn it in in the usual manner.