# Algorithmic Thinking ProblemSet0 Exercise 5 Step-by-Step

1. How many items are you going to buy?
2. What is the cost of each item?
3. Add the cost of each item, lets refer to this as total.
4. Subtract the total cost by the amount of money given, lets refer to this as change.
5. Check over, and over again the largest value of bill or coin that I can give back given the current value of change until there is no more change to give back.

Example: the change is $15.35. The largest bill I can give first is one $10 bill. Now the remaining change $5.35, now I can give one $5 bill. Remaining change is $0.35, I can give one $0.25 coin. Remaining change is $0.15, now I can give one $0.10 coin. Remaining change is $0.05, now I can give one $0.05 coin. Change is now $0.00, no more change to give back.

1. Memorize the value of the bill or coin, and how many I need to give back as change.

Example: one $10 bill, one $5 dollar bill, one $0.25 coin, one $0.10 coin, one $0.05 coin.

1. As I give the money back, I will say how many of the bill or coin and the value/name of the bill or coin.

Example: “The change was one $10 bill, one $5 dollar bill, one quarter, one dime, one nickel.”

*Notice how I do not say a “$0.25 cent coin,” I say quarter.*

*Check next page for Python written algorithm.*

In Python

Text

Description automatically generated

Everything after line 23 is not part of the algorithm itself, but it is me converting all the values I calculated and received (amount of change, amount of bills and value of each bill) to a format easier for a human to read.