

# CSCU9A3 Tutorial 1

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## Overview

This tutorial is to provide you with practice of reading a problem, breaking it down into sub problems, and solving each chunk in pseudo-code.

Come to the tutorial with notes, part solutions, chunks of pseudo code, and anything and everything that shows you have been trying to solve the problem. Even better, you could code it up and check your solution works, and bring along the code!

Remember with pseudo-code you don't need to worry about syntax, just focus on the logic and correctness of your solution, as well as granularity of the steps.

**Come prepared to discuss your solution and answers.**

## The Problem

You are given the cost of a bill, and the amount of money that was given to pay the bill. Calculate the change required, using the least number of notes and coins possible.

## Hints

### While Loops

There is more than one way to solve this problem, one way may involve while loops. Can you think of another way? Remember the outline for a while loop is:

```
while <condition>
    <do stuff>
```

### Output

Don't worry about the syntax, you can just say for example:

```
Print "The number of £5 notes would be: " numFiveNotes
```

## Questions

Answer the following:

1. Without using a computer, what techniques are there for testing if your solution is correct?
2. Does your solution work for, say, a bill cost of: £123.54 and amount paid of: £200? If not why not? Did you make any assumptions about the problem?
3. Read through your solution. Were you able to make any improvements? If so what were they?
4. If you had tried to solve this problem in Java from the beginning, without first solving the problem on paper, would you have found it harder or easier? Do you think it would have been quicker? Which method would result in fewer bugs?