# COS 212—Algorithms and Complexity
# Counting ways of giving change, catalan number, edit distance .
# Practical 4 Term 3                                    15 August 2016

<div align="center">Due before: 23h59, 21 August 2016</div>

---

(1) Counting ways of making change, (2) Catalan number, (3) Shortest edit distance

---

1. (a) Do this problem inside your `43practical` in a created directory called `1answer`: You are given South African coins and notes and must calculate the number of different ways that change can be given that adds up to a given amount less than R100-00. Read the amount from the standard input and print the integer number of ways on a single line as output.

   (b) Do this problem inside your `43practical` in a created directory called `2answer`: Calculate the $n$-th Catalan number where $n \leq 1000$ accurate to the last digit. Read $n$ from the standard input and write the answer to the standard output ended by a new line.

   (c) Do this problem inside your `43practical` in a created directory called `3answer`: Calculate the shortest edit distance between two strings that are read in from two separate lines of input from the standard input and print the answer followed by a newline on the standard output.

2. Ensure that you have a valid `Makefile` in each directory.

3. Submit using the usual `cd; make submit`.

---