

# Exercises for lab 2 of CS2101a

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## 1 Exercise 1

Write a C program that asks the user to enter a \$ amount and then shows how to pay this amount using the smallest number of \$20, \$10, \$5, \$1 bills:

**Example.** *Enter a dollar amount: 93*

```
$20 bills : 4
$10 bills : 1
$5  bills : 0
$1  bills : 3
```

## 2 Exercise 2

Write a program that asks the user to enter an integer value  $n$  and that computes  $f(x)$  for  $x = 1, \dots, n$ , where  $f(x)$  is the following polynomial function:

$$f(x) = (x+1)(x+2)\dots(x+n).$$

1. Use `float` operations for computing  $f(x)$ .
2. Record the running time for  $n = 10^k$  with  $k = 1, 2, 3, 4, 5, 6$ .
3. Interpret the results of the previous question.

## 3 Exercise 3

Read the web page

[http://en.wikipedia.org/wiki/Babylonian\\_method](http://en.wikipedia.org/wiki/Babylonian_method)

Write a C program that asks the user to enter an integer value  $S$  and calculates an approximation to a square root of  $S$  using either the Bakhshali approximation or the Babylonian method. (The choice is yours.)