

# Computer Practicum 1

## Intro to Bash scripts - exercises

Vida Groznik

## Exercise 7

Write a script that calculates the cube of  $N$ , where  $N$  is an integer supplied as the first argument to your script. You should check that  $N$  is an integer before entering the routine.

## Exercise 8

Use bash arithmetic expressions to calculate all primes between 1 and N, where N is a number supplied as the first argument to your script.

## Exercise 9

Write a script that takes either the argument `-m` or `-s`, followed by as many numbers as the user wishes.

The script should:

- Calculate the sum of all numbers if `-s` is provided
- The mean if `-m` is provided
- Give an error if neither `-m` nor `-s` are given

# Exercise 10

Give regular expressions that satisfy the following

	matches	does not match	chars
a)	abbbc, abbc, abc, ac	aba	4
b)	abbbc, abbc, abc	bac, ab	4
c)	ac, abashc, a123c	cbluba, aefg	5
d)	qome, qol , qde	eqo, efeq	4
e)	arrp, whee	bla, kee	4

Note: The art of writing regular expressions is to use the smallest number of characters possible to achieve your goal. The number in the last column gives the number of characters necessary to achieve a possible solution.

# Exercise 11

Write a script, that checks whether a string, provided as an argument to the script, is a palindrome.

(A palindrome is a word, phrase, number, or other sequence of characters which reads the same backward as forward, such as madam or “taco cat” or racecar. )

## Exercise 12

Write a script that takes all the files with an extension .txt (in the current directory) and change it to .doc.

## Exercise 13

Write a script that calculates whether the year you have provided to a script via „read“ command is a leap year or not.

For help see: <https://www.wikihow.com/Calculate-Leap-Years>



## Exercise 14

Write a program that asks the user for a number  $n$  and prints the sum of the numbers 1 to  $n$ .

- Modify the previous program (add a function) such that only multiples of three or five are considered in the sum, e.g. 3, 5, 6, 9, 10, 12, 15 for  $n=17$
- Write another function that prints *all* prime numbers up to number  $n$ .

## Exercise 15

Write a function that prints out the list of the first 100 Fibonacci numbers.

For help see: <http://mathworld.wolfram.com/FibonacciNumber.html>