

CENG 112 – DATA STRUCTURES

Homework 1a

February 24, 2017

Due Date: 03 February 2017

Assignment 1 Command-Line Calculator

Write a program in “calc.cc” that takes an operator as the first command-line argument, either “+” or “*”. It then either sums or multiplies the rest of the command-line arguments which you can assume all to be numbers and prints the result to standard output. The following shows the typical example execution of the program:

```
$ calc + 1 2 5
8
$ calc * 1 2 5
10
```

Write a CMake script in “CMakeLists.txt” that adds an executable “calc” with the source code “calc.cc”. The assistants should be able to compile your code using this file.

Edge Cases:

- If the program is called without any arguments then it should print a usage message (see the `fahr2celc` program in the lecture notes). The return code should be non-zero.
- If the operator is neither “+” nor “*” then an error message should be printed to `stderr` and the program exits with a non-zero return code.
- If “+” operator is given but no numbers are input, the output result should be the number zero.
- If “*” operator is given but no numbers are input, the output result should be the number one.

Hints:

- To compare the C strings in `argv` to the strings “+” and “*”, you can use the `strcmp` function defined in the `<cstring>` header.
- You can type `man 3 strcmp` on a terminal to get help on the function. This works with all C functions.
- <http://en.cppreference.com/w/cpp> is a good resource for looking up the C++ language features.