

Lab7: Learn from the Past

Lab7: Learn from the Past

Task

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Task

In this lab, you only need to use a high-level programming language (e.g. C/C++) to implement all the code that has been written before. Note that the algorithm needs to be consistent with what was used before. (e.g. Modulo operations cannot be replaced with %)

Here are program lists:

- lab1: Unfold the Secret
- lab2: Collatz Conjecture
- lab3: Palindromic String
- lab4: Sakiko's Savings

Rules

Here are some details:

1. You are expressly **forbidden** to use operations like `*`, `/`, `%`, `>>`, `<<` which LC-3 does not support directly and the equivalent library functions
2. You are allowed to use `+`, `-`, `=`, `++`, `--`, `==`, `!=`, `<`, `>`, `<=`, `>=`, `&`, `|`, `~`, `()` ;
3. You are allowed to use `for`, `while`, `do while`, `if`, `continue`, `break`, `switch case` ;
4. You can only use certain data types, including `int`, `int16_t`, `char` and pointers/arrays of the same type.
5. You are allowed to define help functions that do not violate the above rules.'

Output

With the `test.txt` we provide, here is the output

```
1  ===== lab1 =====
2  104
3  ===== lab2 =====
4  8
5  ===== lab3 =====
6  1
7  ===== lab4 =====
8  144
```

Notice

- Since we used the student number for calculations in lab1, in this lab you will also need to set your secret by modifying the macro definition `STUDENT_ID_SECRET`.

Submission

- Your report should be structured into the following sections:
 - Purpose
 - Principles
 - Procedure(e.g. bugs or challenges you encountered and how to solve them)
 - Results
- Your submission should be structured as shown below:

```
1  PB*****_Name_lab7.zip
2  |—— ./PB*****_Name_report.pdf
3  |—— ./lab7.cpp
4  |—— ./test.txt
```