

Computing Machinery I

Assignment 4

10% of your final score

Due June 9th @ 11:59PM MST

Objective

The objective of this assignment is to practice using 2D arrays and structures in ARMv8 assembly.

New Skills needed for this assignment

- Ability to work with 2D arrays in ARMv8 assembly
- Ability to use structures in ARMv8 assembly

Note

This assignment is a redo of Assignment 1, but it is watered down. Keep in mind that the submission of a compiler-generated assembly code will result in academic misconduct investigation.

Overview

Your program will simply display a table of random digits. The user requests to search the table for a specific digit. The program reports the number of occurrences of that digit in the table in addition to the row and column number for each occurrence.

Details

Display to the user an $N \times N$ table of random digits (positive integer between 0 and 9). N is chosen by the user when prompted:

```
./tableSearch.o
```

```
Enter the size of the table: 5
```

Then, the displayed table may look like:

```
0 5 7 8 3
9 3 5 7 2
3 5 3 7 8
2 2 5 7 9
0 9 0 3 4
```

The user then chooses a digit:

```
Enter a digit to search for: 0
```

The program responds with the following statistics:

```
Digit 0 occurrences: 3
1. In (0,0)
2. In (4,0)
3. In (4,2)
```

The user can quit the program or choose another digit.

Submission

- **Note:** The TA may provide further submission instructions.
- Name your programs *assign4.asm*
- Create a script file *assign4.script*

- Submit a *README* file providing extra instructions or information for your TA (optional)
- Submit your work to the appropriate dropbox on D2L.

Late Submission Policy

This is a very short semester, and **we will not be granting extensions**. I suggest that you submit by the deadline. There is a grace period of 48 hours: if you submit your assignment within 48 hours of the deadline, no penalty will be levied. After the grace period, late submissions will be penalized as follows:

-12.5% for each late day or portion of a day for the first two days

-25% for each additional day or portion of a day after the first two days

Hence, no submissions will be accepted after 7 days (including weekend days) of the announced deadline.

Academic Misconduct

This assignment is to be done by individual students: your final submission must be your own original work. Teamwork is not allowed. Any similarities between submissions will be further investigated for academic misconduct. While you are encouraged to discuss the assignment with your colleagues, this must be limited to conceptual and design decisions. Code sharing by any means is prohibited, including *looking* at someone else's paper or screen. The submission of compiler generated assembly code is absolutely prohibited. Any re-used code of excess of 5 lines in C and 10 lines in assembly (10 assembly language instructions) must be cited and have its source acknowledged. Failure to credit the source will also result in a misconduct investigation.

D2L Marks

Marks posted on D2L are subject to change (up or down).

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Assignment 4 Rubric

Student: _____

Item	Max Points	Points
Code compiles	5	
Code runs	5	
Random Numbers between 0 and 9	20	
Searching & stats	40	
User interface (input validation, implementing all features)	20	
Code readability (formatting and documentation including macros)	10	
Total Points	100	