

COMP 2280 Winter 2022 - Lab 2

Due date: March 4th

Objectives

In this lab, you will learn to implement:

1. an if/else statement
2. a while loop

Exercise 1: if/else statements

Write an LC---3 assembly language program that does the following.

1. Display the prompt **Enter any character:.**
2. Read a character from the keyboard using **getc** (Trap x20) and display it in the console window using **out** (Trap x21).
3. If the three least significant bits of the ASCII representation of the character are 111 use puts to display the message **The character ends with 111.**
4. Otherwise if the two least significant bits of the ASCII representation of the character are 11 use puts to display the message **The character ends with 11.**
5. Display a termination message that includes your name before halting the program.

If the character is **7** then the output from the program should be similar to:

```
Enter any character: 7
The character ends with 111.
```

```
Programmed by Stew Dent.
End of processing.
```

If the character is **C** then the output from the program should be similar to:

```
Enter any character: C
The character ends with 11.
```

```
Programmed by Stew Dent
End of processing.
```

If the character is **a** then the output from the program should be similar to:

```
Enter any character: a
```

```
Programmed by Stew Dent
End of processing.
```

COMP 2280 Winter 2022 - Lab 2

Due date: March 4th

Exercise 2: while loops

Modify the LC---3 assembly language program from exercise 1 so that it:

1. Loops inputting characters from the keyboard until the user enters **ctrl-D** (x04), which is known as **EoT**.
2. If the character entered is **EoT** do not display it on the console.
3. Display a termination message that includes your name before halting the program.

A sample run of the program is shown below.

```
Enter any character: 0
Enter any character: 1
Enter any character: 2
Enter any character: 3
The character ends with 11.
Enter any character: 4
Enter any character: 5
Enter any character: 6
Enter any character: 7
The character ends with 111.
Enter any character: 8
Enter any character: 9
Enter any character: a
Enter any character: b
Enter any character: c
The character ends with 11.
Enter any character: d
Enter any character: e
Enter any character: f
Enter any character: g
The character ends with 111.
Enter any character: h
Enter any character:
```

Note that no character is displayed
since CTRL-D (EoT) was entered

Programmed by Stew Dent
End of processing.