Lab #3
Using Memory

Sections 2 and 3 of this exercise will count towards your final coursework mark for CS1021. Submit your solutions using Blackboard no later than 23:59pm on Monday 5th December 2016.

1 String Reverse (For Practice Only)

Assume that a NULL-terminated string of ASCII characters is stored in memory. Design, write and test an ARM Assembly Language program to create a new string that is the reverse of the original. Use the StringReverse project to develop your solution.

2 Proper Case (To Be Submitted)

Design and write an ARM Assembly Language program to convert a string stored in memory to Proper Case, where the first letter of each word is Upper Case and the remaining letters are all lower case. Assume the string contains only upper or lower case letters and spaces.

For example, if the original string was "hello WORLD", your program should replace it with the string "Hello World".

Use the ProperCase project to develop your solution.

3 Unique Values (To Be Submitted)

Design and write an ARM Assembly Language program that will determine whether each word-size value in a list of word-size values in memory is unique (i.e. each value occurs only once in the list). If every value in the list is unique, your program should store the value 1 in R0, otherwise you should store 0 in R0.

For example, given the list below, your program should store a 1 in R0.

5, 2, 7, 4, 13, 30, 18, 8, 9, 12

However, given the list below, your program should store a 0 in R0.

5, 2, 7, 4, 13, 4, 18, 8, 9, 12

Use the Unique project to develop your solution.