**Tyler Holland**

10/15/09

Lab 3

No Cheating Signature:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Demo Signature:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

;Tyler Holland

;10/14/2009

;Lab 3

;Pig Latin Basic Translator

;R1 is used to hold the loop counters

;R2 is used to hold the position of the next input in Store

;R3 is used to hold the opposite of Enter

;R4 is a data dump for Enter test

.ORIG x3000

AND R1,R1,#0 ;Clear R1

AND R2,R2,#0 ;Clear R2

AND R3,R3,#0 ;Clear R3

LEA R2,Store ;Put the address of Store in R2

LD R3,Enter ;Put xFFF6 into R3

;

; Prompt Loop (idea from page 208)

;

LEA R1,Prompt ;Load Prompt offset

Loop1 LDR R0,R1,#0 ;Load Prompt into R0, for loop

BRz Input ;Jumps out when the null is hit

OUT ;Output R0

ADD R1,R1,#1 ;Make R1 point to next character

BRnzp Loop1 ;Continue the loop

;

; User Input stage

;

Input GETC ;Get a character

OUT ;Echo to screen

STR R0,R2,#0 ;Store R0 into Store

ADD R4,R0,R3 ;Check if last char was Enter

BRz Done ;Jump out if Enter was pressed

ADD R2,R2,#1 ;Increment R2, next space in Store

BRnzp Input ;Continue the loop

;

; Output text stage

;

Done LEA R1,Second ;Load Second offset

Loop2 LDR R0,R1,#0 ;Load Second into R0

BRz Last ;Jump out if null is hit

OUT ;Output R0

ADD R1,R1,#1 ;Increment R1

BRnzp Loop2 ;Continue the loop

;

; Pig Latin Output

;

Last LEA R1,Store ;Put Store's address in R1

ADD R1,R1,#1 ;Make first character the 2nd character

Loop3 LDR R0,R1,#0 ;Put R1 in R0

BRz Step2 ;Make it Pig Latin if null is hit

ADD R4,R0,R3 ;Check if Enter was hit

BRz Step2 ;Ignore enter in Pig Latin conversion

OUT

ADD R1,R1,#1 ;Increment R1

BRnzp Loop3 ;Continue the loop

Step2 LEA R1,Store ;Put Store's address in R1

LDR R0,R1,#0 ;Put R1 in R0

OUT

LEA R1,Latin ;Put Latin's address in R1

Loop4 LDR R0,R1,#0 ;Put R1 in R0

BRz Finish ;Stop if null is hit

OUT

ADD R1,R1,#1 ;Increment R1

BRnzp Loop4 ;Continue the loop

;

Finish HALT

;

Store .BLKW #21 ;User's input

Latin .STRINGZ "ay" ;Add on to end of word

Prompt .STRINGZ "English Word: " ;Prompt

Second .STRINGZ "Pig-Latin Word: " ;Line after the prompt

Enter .FILL xFFF6 ;Opposite of ASCII Enter

.END