Assignment 5

# Alphabetic.asm

.ORIG x3000

INPUT LDI R5, FFE00

BRzp INPUT

LDI R0, FFE02

REPEAT LDI R5, FFE04

BRzp REPEAT

STI R0, FFE06

JSR ISALPHA

HALT

FFS AND R0, R0, #0

LD R5, MEMR5

LD R4, MEMR4

RET

CHK LD R5, LS

ADD R4, R0, R5

BRn FFS

LD R5, LE

ADD R4, R0, R5

BRp FFS

AND R0, R0, #0

ADD R0, R0, #1

LD R5, MEMR5

LD R4, MEMR4

RET

ISALPHA ST R5, MEMR5

ST R4, MEMR4

LD R5, US

ADD R4, R0, R5

BRn FFS

LD R5, UE

ADD R4, R0, R5

BRp CHK

AND R0, R0, #0

ADD R0, R0, #1

RET

FFE00 .FILL xFE00

FFE06 .FILL xFE06

FFE04 .FILL xFE04

FFE02 .FILL xFE02

LS .FILL #-97

US .FILL #-65

UE .FILL #-90

LE .FILL #-122

MEMR5 .BLKW 1

MEMR4 .BLKW 1

.END

# Running when input is a letter (Supposed to be 1 at R0)

Graphical user interface, application, table

Description automatically generated

# Running when input is not a letter (Supposed to be 0 at R0)

Graphical user interface, application, table

Description automatically generated

2- .ORIG x3000

LEA R0,MESS

PUTS

LD R0,LOC

TRAP x26 ; string STd at x3100

PUTS

HALT

MESS .STRINGZ "enter line: "

LOC .FILL x3100

.END

.ORIG x028A

ADD R4, R0, #0

UI GETC

OUT

ADD R3, R0, #-10

BRnp KP

RTI

KP STR R0, R4, #0

ADD R4, R4, #1

BR UI

.END

Graphical user interface, application, table

Description automatically generated

3-

1. TRAP X72
2. Yes, after the trap instructions, RTI will save the program counter

4-

You can infer from x34 the location (x1000) and from x1000 the address at which the trap instruction is set to start