CSE232 : Systems Programming

Assignment 3

Muhammet Hakan Taştan

20190701009-071

08/04/2023

1. Q1

```
            ORG $100 ; the program counter starts from address 100H.

            LDAA #$A ; Storing elements of Array A to addresses between
50H-54H
            STAA $50
            LDAA #$17
            STAA $51
            LDAA #$4
            STAA $52
            LDAA #$D
            STAA $53
            LDAA #$25
            STAA $54 ; Elements of Array A stored

            LDAA #$9 ; Storing elements of Array B to addresses between
60H-64H
            STAA $60
            LDAA #$13
            STAA $61
            LDAA #$4
            STAA $62
            LDAA #$E
            STAA $63
            LDAA #$5
            STAA $64 ; Elements of Array B stored

            LDX #0 ; index is initialized to 0.

LOOP  LDAA 50,X ; Load A[i]
            LDAB $60,X ; Load B[i]
            CBA ; compare A - B
            BPL PLUS ; if A - B >= 0, branch to PLUS
            BRA MINUS ; otherwise branch to MINUS

PLUS  BEQ MINUS ; check for zero
            LDAA #1 ; store 1 to ACC A
            BRA STORE ; Branch to Store

MINUS LDAA #0 ; else store 0 to ACC A
            BRA STORE ; Branch to Store

STORE STAA $70,X ; C[i] = M[ACC A]
            INX ; i = i + 1
            BRA CHECK

CHECK CPX #5 ; check for i < 5
            BNE LOOP;
```

2. Q2

Assembly Program	Program Counter	Machine Code	Addressing Mode
.ORG $2000	--	--	--
LDX #1000	2000	CE	Immediate
L: CPX #0	2003	8C	Immediate
BEQ FIN	2006	27	Relative
LDAA #20	2008	86	Immediate
STAA $120	200A	97	Extended
LSR $120	200D	64	Extended
STAA $30	2010	97	Direct
ASLA	2012	48	Implied (Inherent)
DEX	2013	09	Implied (Inherent)
BRA L	2014	20	Relative
FIN: CLR $120	2016	7F	Extended
.END	--	--	--