Bisrat Asefaw

CSS 422, Hardware

Yang Peng

Lab 1

**Report Lab 1**

Part I, Hello\_Asefaw

A program that reads a string information(message) stored at address A1 and displays on a screen when the code executed.

In the beginning of the code **LEA** (Load Effective Addressing) command is given in order to load the address of the item ***MESSAGE*** into address register A1. After this line the code contains a **MOVE**.B that is used to load the literal number 14 on the data register D0 because this data register has to be filled up before “TRAP #15”. Then the code TRAP #15 is used to display a null terminated string at A1with CR, LF. **MESSAGE** is a label **DC.B** reserves a memory for the string input. Since *TRAP #14* requires a null to terminate, we end it with a 0.

Text

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Part II, input\_branch\_Asefaw

Program that reads input from user and uses branching techniques to display message on a screen. The program displays “Warning!!!, Not between 20 and 25” on screen when the input number is not between 20 and 25 (inclusive) and displays different messages (as shown on the screen shot) if the number is between 20 and 25.

The program starts with LEA to load message to address A1. The program will check if this value is between 20 and 25(inclusive). The CMP.L compares the input data with 20 and BLT returns an INVALID if the number is below 20, similarly the program will return INVALID if the Input number compared with 25 and is greater. If the program passes those branches, the input number will the compare with 20,21,22,23,24,25 (using CMP.L number, 20~25) and displays a value that represent what value it is (or what the input number is with some string). The program uses a LOOP at the end of the program in order to ask user to put integer numbers of their choice and do the branching depending on the number’s validity. The program will stop execution when I provide my student ID (“1972554”).

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*I have learned from this lab...*

From First program I have learned how to write a string data and store it into data registers Dn. This project also thought me how to use CR, LF and the functions of key words TRAP and MOVE.B/ MOVE.L/ MOVE.W.

From the second Lab program I have learned how to use LOOP, receive input, Branching and comparing two values in this easy68K programing language. I have learned key words like CMP(.B/.L),BLT(Branch if Less Than ),BGT(Branch if Greater Than),BEQ(Branch if Equal), LEA, BRA(Branch/ GO TO), BNE(Branch if Not Equal).

I am becoming more confident in tracing assembly language. The more I practice and read about it, the more I become more understandable.