Lab Exercise Number 02

Introduction to Advanced Debug Features (Bubble Sort)

Lab Partners:

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**Academic Honor Code:**

*"I have neither given nor received unauthorized aid in completing this work, nor have I presented someone else’s work as my own"*

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# Introduction:

The purpose of this lab was to get familiar with the special emphasis on the Simulator’s graphic debug facilities. The main purpose of this lab is to teach us the basics of a bubble sort function in the 68000 Assembly language and to use a breakpoint in the code.

# Required Resources:

|  |  |
| --- | --- |
| Lab Resource Identification: | |
| Easy68k Assembler | v5.15.04 |

# Lab Description & Pre-Lab:

# To start this lab we entered in the example code that the lab manual gave us. This is a Bubble Sort function. The Bubble is one of the slowest methods of sorting data *O(n2).* The method for sorting in this method is to take the first 2 numbers in a list and compare them then sort them, then take the last number from the last sort and the next number in a list. Repeat until you’re at the end of the list, should be n-1 steps. Then repeat this from the beginning and keep repeating for n-1 cycles. That is the basic process that this code is doing.

# Set-up and Procedure:

We typed the program in the manual in easy68k and enable the logging feature in EASy68k. The next step was to find where in the code the system does a sweep (starting an entire pass through the list). We did not need to log every time a letter is swapped as that would be a very long list, so seeing the list at the beginning of every pass is good enough. We proceeded to trace-into the program when in countering the breakpoint. Then hit the run button until we meet the break point again. This will make it so we only log the list after the start of every sweep. We repeat this step until we reach the end of the code.

# Results:

The list: 34 0F CA 09 AB 25 BA 3F BE 56 8D BA 08 8D 01 FE, was sorted into the following: 01 08 09 0F 25 34 3F 56 8D 8D AB BA BA BE CA FE.

# Conclusion:

This lab help us understand how to use the breakpoint feature when debugging. It also helped us understand bubble sort algorithm in 68000 Microprocessor, the functionality of it and what are its advantages and disadvantages.