APH Exercise 1 – 1005872m
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Static Implementation of mlist.c

My implementation of mlist is a statically sized hashtable, with a declared size of 101. So far from my testing with a variety of sizes of file this implementation seems to work well, successfully allocating nodes containing mail entries to the appropriate linked list bucket as determined by the hash value of the entry. While I am not aware of any bugs with this file at the moment, I would be surprised (but very happy) if my memory management was perfect. I learnt a large amount about memory management in C with this assignment but I worry that because it was so much a learning experience I have accidently left a lose end somewhere in the code.

Implementation of mentry.c

My implementation of mentry is fully functional, successfully building and returning mailing list entries as well as generating hash values for entries and comparing them to each other to judge equality. There are some limitations in my implementation. In order to allocate memory to each attribute of the mentry struct I have defined some constants which I then use to define the size of the char arrays in each attribute. I could have perhaps implemented a way to dynamically allocated the memory to each struct attribute depending on how long the string stored was, which would have been more memory efficient.

Compare appears to not be working 100% correctly. While I have experienced the correct output when running S.txt, when running larger files I have seen output that have declared two entries duplicates when their postcodes were similar but not identical. I have not been able to fix this issue.

During the initial implementation of this file I ran into a large amount of difficult to detect memory management issues that caused unpredictable output. I worked my way through the file and tried to close off all the leaks I could find but I would as with mlist I would be very pleasantly surprised if there was not some still poor practise with memory management in this file that I have not identified.

Summary

Overall I think my solution is very functional when working with the test file supplied but I worry about how it will hold up to much larger or more varied files, due to the bug with mentry compare that I have experienced. This was a very instructional exercise and I’m excited to use the lessons learnt going forward.