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Host: Mac

Guest: Linux

These are the steps I took:

1. Download osboxes then ubuntu for linux OS.
2. Enable shared folder between host and guest
3. Download g++, gdb, etc
4. In guest terminal, following the video given by professor and with the help from gdb:
5. Try to compile buggy.cpp after learning multiple commands in gdb, such as break for breakpoint, print to print variable value, and -g for symbol table
6. found seg fault occurs around line 16
7. Then fix part C by allocating space for each node
8. Since mylist[i] are pointers, I replaced “.” with “->”.
9. Wrote a function to delete all the notes to avoid memory leak.
10. As I run g++ buggy.cpp -fsanitize=address, the Asan says the error was caused by memory access at which function thus its memory address.

This is my corrected code:

#include <iostream>

#include <vector>

using namespace std; // complete needed header files

class node {

public: // make members public

int val;

node\* next;

};

void create\_LL(vector<node\*>& mylist, int node\_num){

mylist.assign(node\_num, NULL);

//create a set of nodes

for (int i = 0; i < node\_num; i++) {

mylist[i] = new node; // allocate memory for new node

mylist[i]->val = i;

mylist[i]->next = NULL;// pointer should use ->

}

//create a linked list

for (int i = 0; i < node\_num; i++) {

mylist[i]->next = mylist[i+1];// pointer should use ->

}

}

int sum\_LL(node\* ptr) {

int ret = 0;

while(ptr) {

ret += ptr->val;

ptr = ptr->next; // pointer should use ->

}

return ret;

}

void delete\_LL(vector<node\*>& mylist, int node\_num){

for (int i = 0; i < node\_num; i++) {

delete mylist[i];

}

}

int main(int argc, char \*\* argv){

const int NODE\_NUM = 3;

vector<node\*> mylist;

create\_LL(mylist, NODE\_NUM);

int ret = sum\_LL(mylist[0]);

cout << "The sum of nodes in LL is " << ret << endl;

//Step4: delete nodes

delete\_LL(mylist, NODE\_NUM);// to delete all nodes

}

And my screenshot for step 10:

Text

Description automatically generated