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Inet 3101 Lab 1.5

A screenshot of a computer

AI-generated content may be incorrect.A screenshot of a computer program

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Q1) The results above show why having static arrays are bad because c compilers will overwrite the neighboring array memory’s data, if the data that is entered that goes outside the predefined indexes. This is a no-no because potential hackers can exploit that loophole and get to the data.

Q3) I updated the program so that it manages memory dynamically with the reallocate function. At first, the user input the full the size of the array. Now it changes the size of the array in increments of 5 if it runs out of space. This was done through program dynamically allocating the array of the users data inputs with the realloc function. Now input is collected indefinitely in a loop, and the array keeps increasing in size to compensate. I think the use case for a program like this would be if the initial or even ending size of the array is unknown although it would need a stop condition somewhere.

Q4)

A computer screen shot of a black screen

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Q5) Objects in Oriented Programming can both define variables and have functions. They are combined into a single entity that can be called elsewhere in places like classes. Basically, objects contain data and the code to manipulate that data.

A python list is an example of an object because it comes from the list class in Python. It has properties like its size and can be manipulated like adding a new item with .append()

Copilot and python lists are similar as they are tools which can aid programmers from not doing the tedious stuff, like sorting lists yourself like you need to do in C

Q6) Linked lists solve the same problem as dynamic memory allocation by allowing for flexible memory management. They don’t need a fixed amount of memory like arrays. Linked lists dynamically allocate memory for each new element. This lets us scale the size and traverse the stored data easily. It is also space efficient and doesn’t waste memory.