**Lecture 44 – LINKED LISTS #1**

Arrays

Why are arrays good?

* They can store multiple things
* They are indexed:
  + Allows us to get any elements in the array at the same time (Random Addressing)
  + With arrays, we’re able to get any element in the array in the same amount of time (one step) i.e:
    - **pointerArrayStart + ( sizeof(arrayElements) \* n )** to find the nth element of an array.

Why are arrays bad?

* You can’t easily insert elements without **shuffling everything around.**
* Not as meaningful to view it as a linear sequence. There are **other relationships between some elements** that aren’t captured.
* Arrays have a **defined ending (fixed size)**
* Elements must be **all the same size and type**.
* For the compiler to find an index, it has to know:
  + What the index is
  + How big each element is
* Inefficient use of memory:
  + Each element must have enough memory to store the largest amount of data that the array will ever receive.

Linked Lists

LINKED LISTS = Treasure Hunt 🡪 One clue / step at a time

ARRAYS = Scavenger Hunt 🡪 Access everything at once