* Pointer is used to store the address of data

A picture containing text, whiteboard

Description automatically generated

* \*p = dereference = data variable value stored in that address

A screenshot of a text message

Description automatically generated with low confidence

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Graphical user interface, text

Description automatically generated

Text

Description automatically generated

A screenshot of a computer

Description automatically generated with low confidence

Text

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Graphical user interface, text, application, email

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Text

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Graphical user interface, text, application

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**WHY POINTER?**

* Function/ program main can only access stack and code section. To access heap, you have to use pointer.
* Similar, the main() program can’t access file/network connection/mouse/printer…, thus it need pointers

**HEAP MEMORY ALLOCATION/ ACCESS – Dynamically – at run time not at compile time.**

Diagram

Description automatically generated

* **Stack memory** variable will be deleted when the program get out of scope
* **Heap memory** will not be deleted as long as you program still run or you not delete/deallocate it.
* Also, you have to **delete/deallocate** the pointer before have that point to another data variable
* **Memory leak** = you forgot to deallocate the memory block from a pointer and use that pointer to point to another memory block I the heap. The previous memory block will have no use and cause memory leak.

A person writing on a white board

Description automatically generated with medium confidence

* You can modify the array in the heap via pointer and have it act as the name of the array

A person with the arms crossed

Description automatically generated with low confidence

Text

Description automatically generated

* Problem 1: Make sure that you has your pointer point to an address

Diagram

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* Problem 2: You must delete a pointer before you make it a null

Text, letter, whiteboard

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* Problem 3: Dangling pointer try to access a memory that was deallocated already
* Solution: Do not delete it In the function fun()

A picture containing text, whiteboard

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A whiteboard with writing on it

Description automatically generated with low confidence