

Feature	Variable	Pointer
Basic Definition	Named memory location that stores data	Variable that stores memory address
What it Stores	Actual value (data)	Memory address of another variable
Declaration	type variable_name;	type *pointer_name;
	int num;	int *ptr;
Memory Allocation	Allocates memory for the value	Allocates memory to hold an address
Size	sizeof(type) sizeof(int) = 4 bytes	sizeof(pointer) Usually 4 or 8 bytes (system dependent)
Key Operators	Direct name access	& (address-of), * (dereference)
Initialization	int num = 10;	int *ptr = #
Access Method	Direct access	Indirect access through dereferencing
NULL Assignment	Not applicable	Can be assigned NULL: ptr = NULL;
Arithmetic	Normal arithmetic: num + 1 (adds 1 to value)	Pointer arithmetic: ptr + 1 (moves to next memory location)
Primary Purpose	Store and manipulate data	Reference other variables, dynamic memory
Risk Level	Lower risk of memory errors	Higher risk (segmentation faults memory leaks)