

Intro To Pointers & Data Structures

By [CrackingLessons.com](https://crackinglessons.com)

What are pointers?

- Pointers are memory addresses that store an address of another memory location
- Contrast this with ordinary addresses – which store values

Pointers vs Ordinary Addressess

	Address	Data
	234022A0	96
	234022A4	18
Pointer →	234022A8	234022A0

How to access contents of memory

- Use square brackets: []
- Put the address within the square brackets: [234022A8]

Accessing memory

	Address	Data
	234022A0	90
	234022A4	18
Pointer →	234022A8	234022A0

eax = 234022A0

[eax + 8]

Data Structures

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What is a Data Structure?

- Is a group of memory location containing data about a single object
- E.g. a player object data struct may contain:

health

ammo

x coordinate

y coordinate

z coordinate

Data Structures

Address	Data
23402200	96
23402204	18
23402208	23.5
2340220C	12.8
23402210	1.2

Player

Address	Data
23402800	96
23402804	18
23402808	23.5
2340280C	12.8
23402810	1.2

Enemy

Address	Data
23402200	88
23402204	12
23402208	11.0
2340220C	22.8
23402210	3.2

Using pointer offset notation

Player

Address	Data
[eax + 0]	96
[eax + 4]	18
[eax + 8]	23.5
[eax + C]	12.8
[eax + 10]	1.2

Enemy

Address	Data
[eax + 0]	96
[eax + 4]	18
[eax + 8]	23.5
[eax + C]	12.8
[eax + 10]	1.2

Thank you