

## Topics for today:

More on assembly language

Arrays in assembly language –  
an exercise in indirect addressing  
and the base/offset approach

## Programming in assembly language vs. a high-level language

Programming in assembly language is a slower process than programming in a high-level language (C++, Java, etc.). However, the code it produces is typically more efficient (i.e., runs faster and/or takes up less memory).

So, there is a tradeoff between programmer time and code efficiency.

## Base/offset approach

In the base/offset approach to addressing, a base address for data is stored in a pointer variable. Other data is reference by an offset, that is, a number that is added to the base address.

The entire program can be written without any concern about the actual value of the base address. This makes data placement in memory especially flexible.

## Note

The base/offset approach can also be used for addresses of instructions (so not just for data).

A block of executable code can be written so that all address references (for jumps, etc.) are expressed as an offset from the address of the first line of code in the block. The block of code can be placed anywhere in memory, and the address of the first line determined at that moment.