

Indirect Addressing

3/14/01

Lecture #15

16.070

- Direct Addressing: access memory location by using variable name
- Indirect Addressing: access memory location by using a variable whose contents contain address of desired location
- Indirect Addressing allows functions to access and modify memory locations outside of the function
- Indirect Addressing provides a method for returning multiple values from a function

Indirect Addressing Using Pointers

- Variables possess three characteristics
 - Variable name
 - Value (contents)
 - Memory Address - identifies unique storage location in memory
- We have been accessing the contents by using the variable name
- The contents can also be accessed by referencing the memory address
- A Pointer Variable is a variable whose value is a memory address

Declaring Pointer Variables in C

- Pointer variables must be declared
- In declaration statement, pointer variable name is preceded by indirection operator, symbol *
- The type declaration must be the type of memory to which the pointer is pointing
 - If the pointer is to point to an integer, the pointer is declared as type