



Programming in C\*

- C\* is a tiny subset of the programming language C
- C\* supports only 2 data types: unsigned integer, `uint64_t`, and pointer to unsigned integer, `uint64_t*`. There are no signed integers and no composite data types.
- C\* features the unary \* operator as the only means to access heap memory hence the name C\*. There are no arrays and no structs in C\*.
- C\* features 5 statements (assignment, if-else, while loop, procedure call, return).
- C\* has 3 types of literals (signed decimal number, character, string).
- C\* supports 5 arithmetic operators (+, -, \*, /, %) and 6 comparison operators (==, !=, <, <=, >, >=). There are no bitwise operators and no Boolean operators.

# atoi in C\*

(proper character and exception handling removed)

```
uint64_t atoi(uint64_t* s) {  
    uint64_t n;  
  
    n = 0;  
  
    // loop until s is terminated  
    while (*s != 0) {  
        // use base 10, offset by '0'  
        n = n * 10 + *s - '0';  
  
        // go to next digit  
        s = s + 1;  
    }  
  
    return n;  
}
```

**atoi stands for  
ASCII to integer**

**Given a string s of  
decimal digits,  
the atoi code computes  
the numerical value n  
represented by s**

Click [atoi](#) to see the actual code in selfie.  
We provide such links throughout the presentation.

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