Programming in C*

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- 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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