Write C Functions to Use What We Have Learned

Let's write a few C functions.

Our goals:
- learn how to use various operators,
- learn how use control constructs,
- understand scope and call by value, and
- think about argument checking and error handling.

First Task: Reverse Bits in an Integer

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reverse the bits in a 32-bit integer.

For example (with 6 bits),
- given **001010**, produce **010100**, or
- given **110010**, produce **010011**.

What is the function signature?

Start by Developing the Function Signature

Let's **call the function `reverse_bits`**.

Argument type? **`uint32_t`**

Return type? **`uint32_t`**

Why unsigned?

Safer with bitwise operations
(avoids any special treatment of sign bit).

```
uint32_t reverse_bits(uint32_t arg);
```

How can we approach the problem?

A Simple Way to Reverse Bits

How about moving one bit at a time?

Copy, shift, repeat.