**Variables**

* What is a variable?
  + An object that holds data that can be changed
* What is variable scope?
* Local vs Static vs Global
* What are variable types?
* What is a pointer?
  + What can a pointer point to?
* What is an array?
* What is a string?
* What is casting?

**Functions**

* What is a function prototype?
* How can you tell the return type of a function?
* How do you pass arguments to a function?
* What is a struct?

**Computer Architecture**

* What is a register?
* What are the x86 registers and what are they used for?
* What is meant by little endianness?

**Assembly language**

* What is assembly language?
* What are the sources for the values used in an assembly instruction?
* What happens when the call instruction executes?
* What is a function prologue?
* How are function arguments accessed?
* How are local variables accessed?

**Concepts of a running process**

* What sections is a program divided into?
* What kind of data is stored in each section?
* What is the stack and how does it work?
* What is a stack frame?
* How can you view the details of a stack frame in gdb?

**Misc**

* What is a file descriptor?
* What is a format parameter?

The first four registers (EAX, ECX, EDX, and EBX) are known as general purpose registers.

EAX = Accumulator

ECX = Counter

EDX = Data

EBX = Base

Can be used for a variety of purposes but mainly act as temp variables.

The second four registers (ESP, EBP, ESI, and EDI) are also general-purpose registers, but are also used for pointers and indexes.

ESP = Stack Pointer

EBP = Base Pointer

ESI = Source Index

EDI = Destination Index

The first to registers are called pointers because they store 32-bit addresses. The last two addresses are also pointers that typically point to the source and destination of where data needs to be written.

The EIP point to the current instruction the processor is reading.

EIP = Instruction Pointer

The default size of a single unit is a four-byte unit called a word

A format string is just a character string with special escape sequences

Escape sequences or format parameters and for each one in the format string the function is expected to take an additional argument.

%d = decimal

%u = Unsigned decimal

%x = Hexadecimal

%s = string

%n = number of bytes written so far