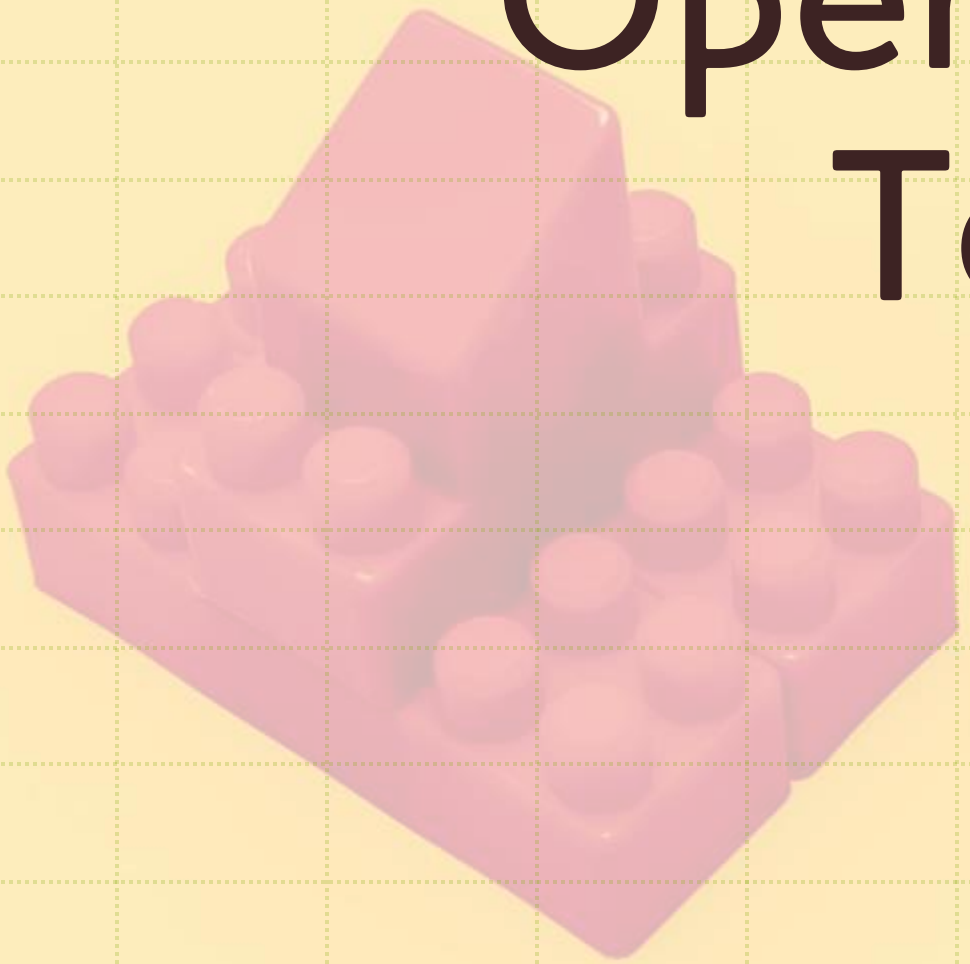
Open Design & Technology

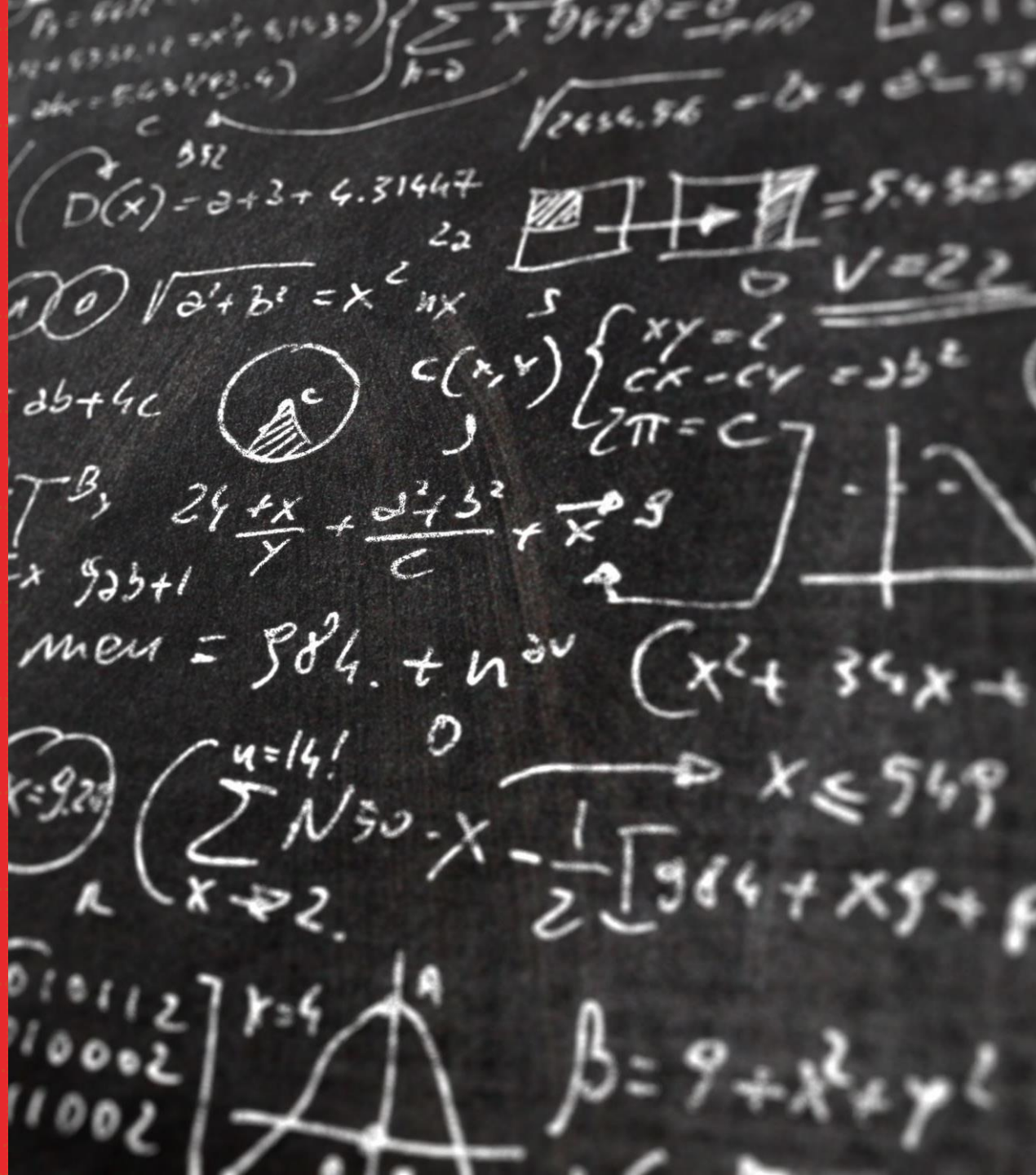


Empowering Designers to Embrace Technology

Week 2 Review

Week 3

Basic Programming

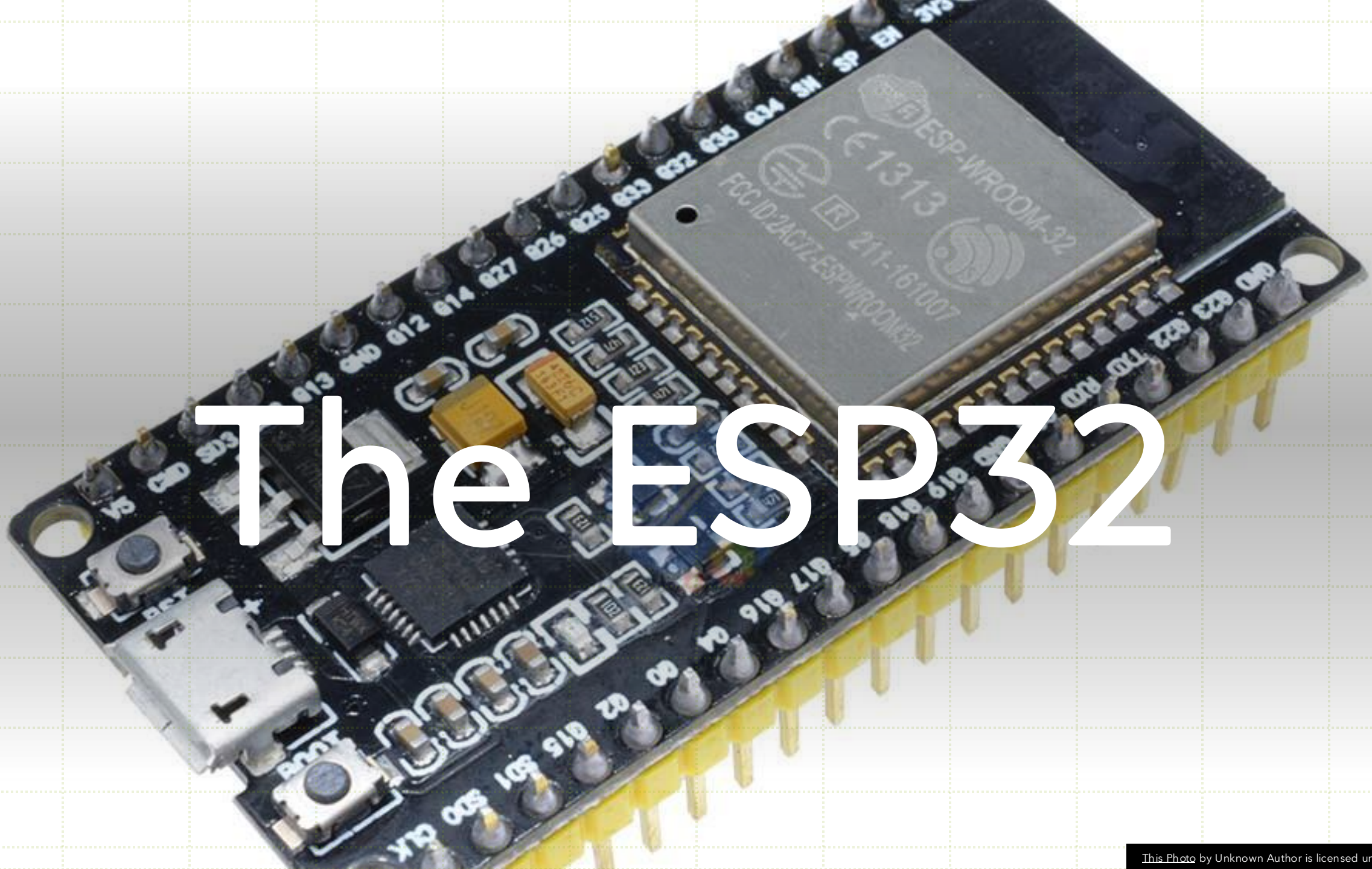


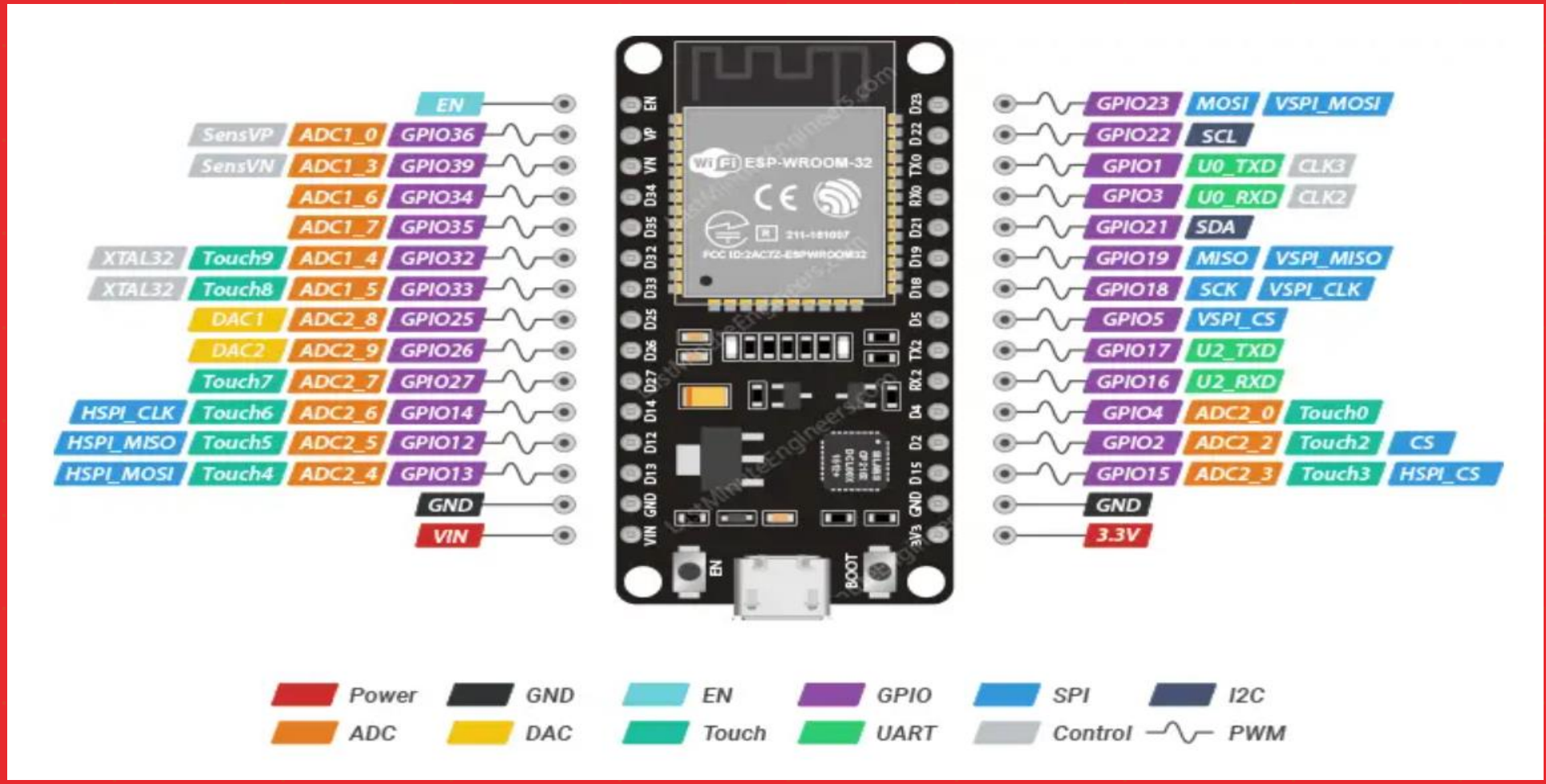
A Basic Computer

Computing Element

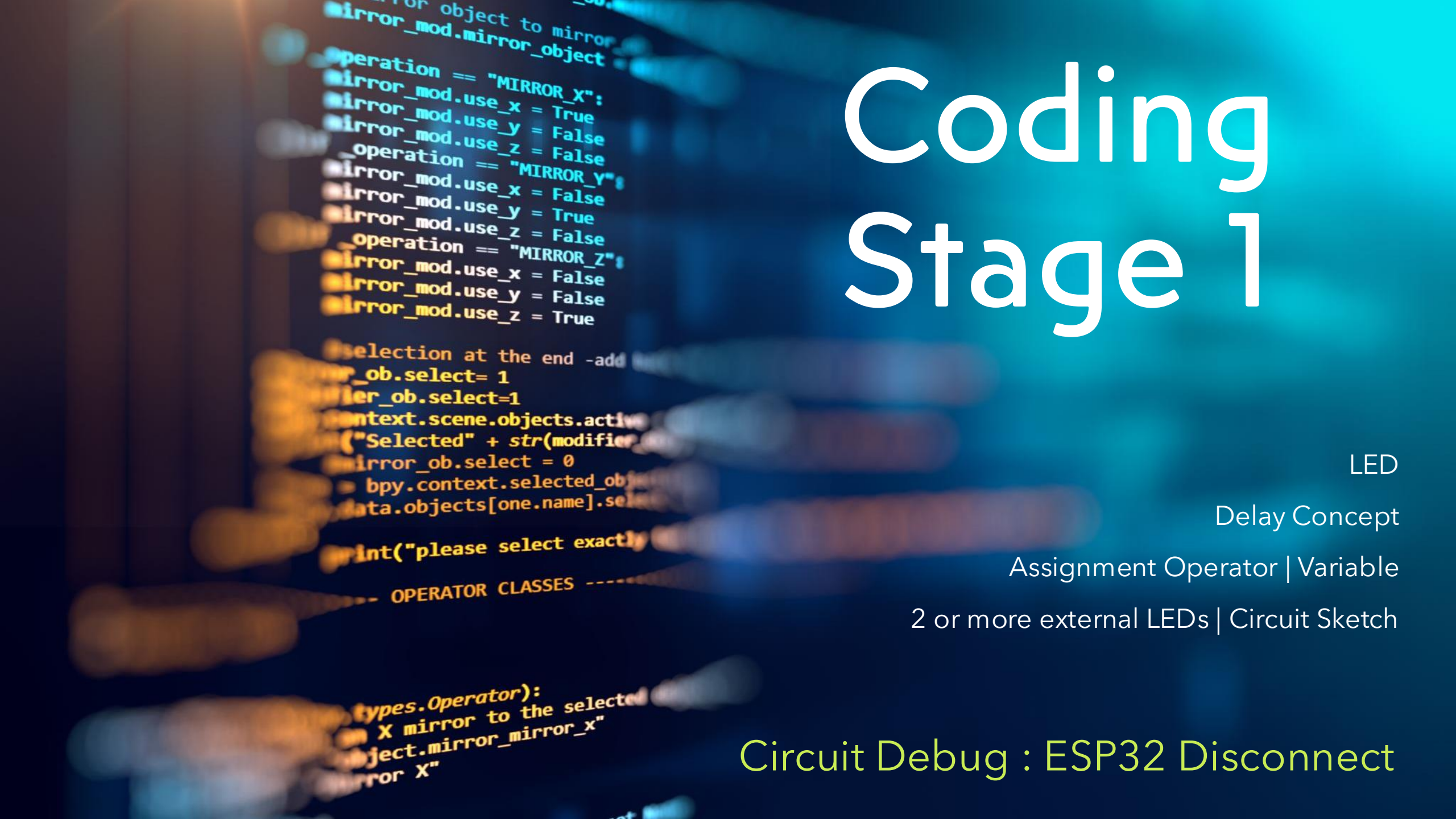
- Another Example
- Input | Output | Processing

The ESP32




EN
SensVP ADC1_0 GPIO36
SensVN ADC1_3 GPIO39
ADC1_6 GPIO34
ADC1_7 GPIO35
XTAL32 Touch9 ADC1_4 GPIO32
XTAL32 Touch8 ADC1_5 GPIO33
DAC1 ADC2_8 GPIO25
DAC2 ADC2_9 GPIO26
Touch7 ADC2_7 GPIO27
HSPI_CLK Touch6 ADC2_6 GPIO14
HSPI_MISO Touch5 ADC2_5 GPIO12
HSPI_MOSI Touch4 ADC2_4 GPIO13
GND
VIN
ESP-WROOM-32
GPIO23 MOSI VSPI_MOSI
GPIO22 SCL
GPIO1 U0_TXD CLK3
GPIO3 U0_RXD CLK2
GPIO21 SDA
GPIO19 MISO VSPI_MISO
GPIO18 SCK VSPI_CLK
GPIO5 VSPI_CS
GPIO17 U2_TXD
GPIO16 U2_RXD
GPIO4 ADC2_0 Touch0
GPIO2 ADC2_2 Touch2 CS
GPIO15 ADC2_3 Touch3 HSPI_CS
GND
3.3V
Power
GND
EN
GPIO
SPI
I2C
ADC
DAC
Touch
UART
Control
PWM


Your first
Python Code!
ENTER
SHIFT
SUPER
DELETE
INSERT
HOME



Coding Stage 1

LED

Delay Concept

Assignment Operator | Variable

2 or more external LEDs | Circuit Sketch

Circuit Debug : ESP32 Disconnect

Operators in Python

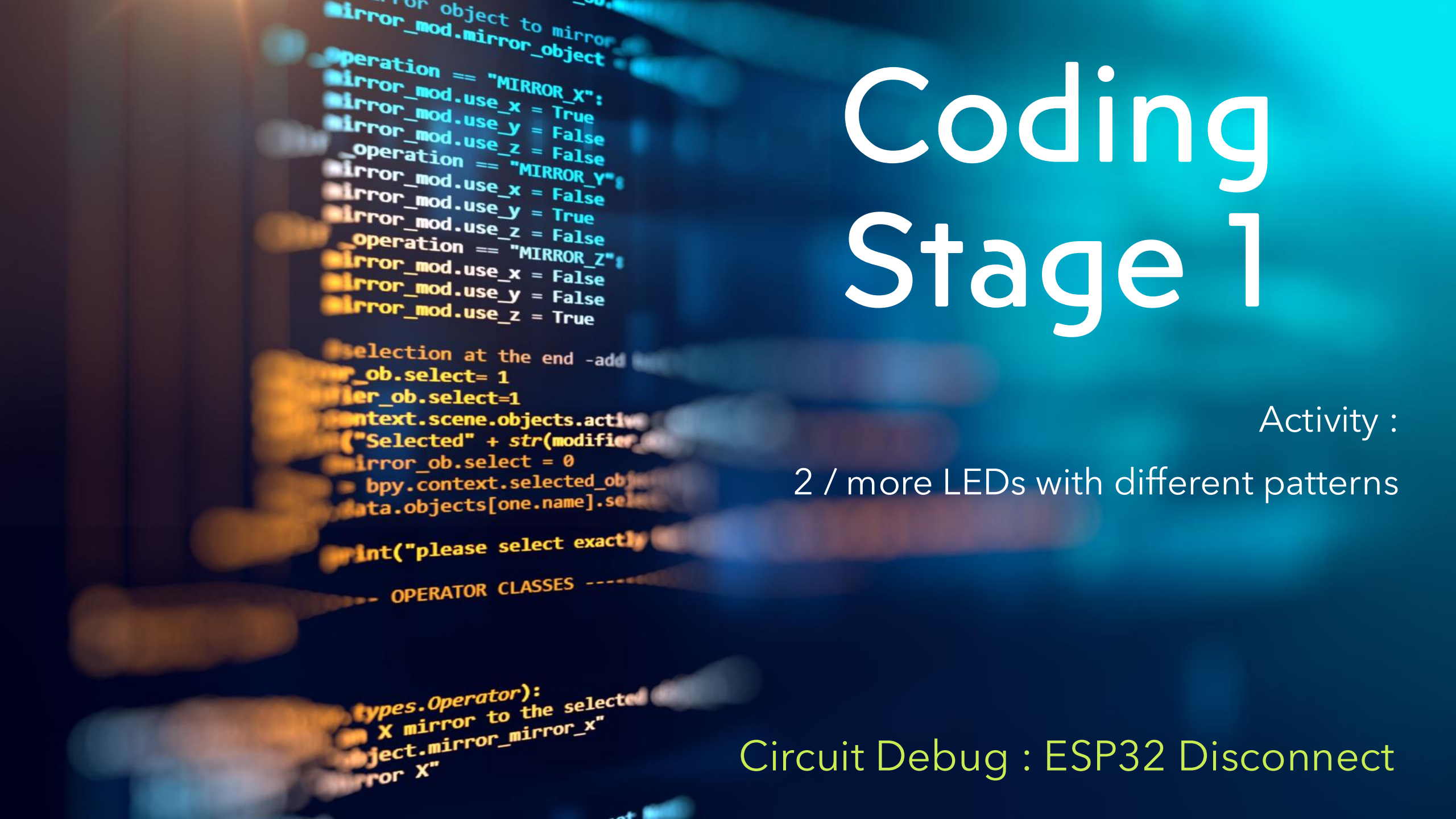
Operators	Type
+ - * / %	Arithmetic
< <= > >= == !=	Relational
&& etc.	Logical
& ^ etc.	Bitwise
= += -+ *= etc.	Assignment

Relational

==

Assignment

=



Coding Stage 1

Activity :

2 / more LEDs with different patterns

Circuit Debug : ESP32 Disconnect

Coding Stage 2

"while" Loop

Infinite "while" Loop

Breadboard + LED + Resistor (CC)

Circuit Debug : ESP32 Disconnect

Coding Stage 2

Activity :

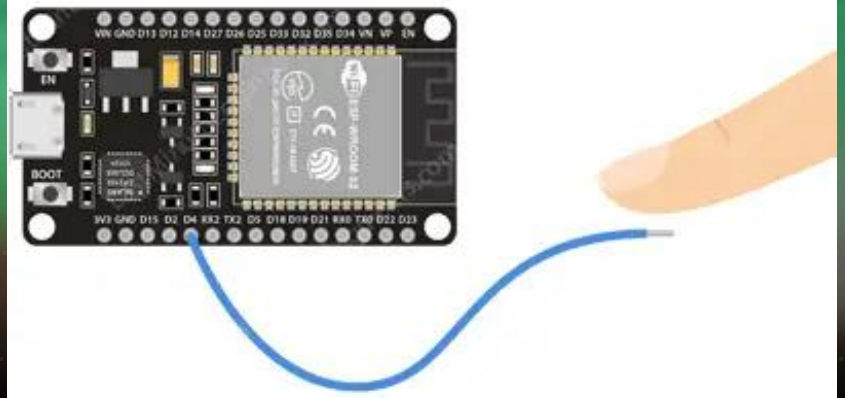
LED(s) + Resistor + Buzzer
+ Loops + More

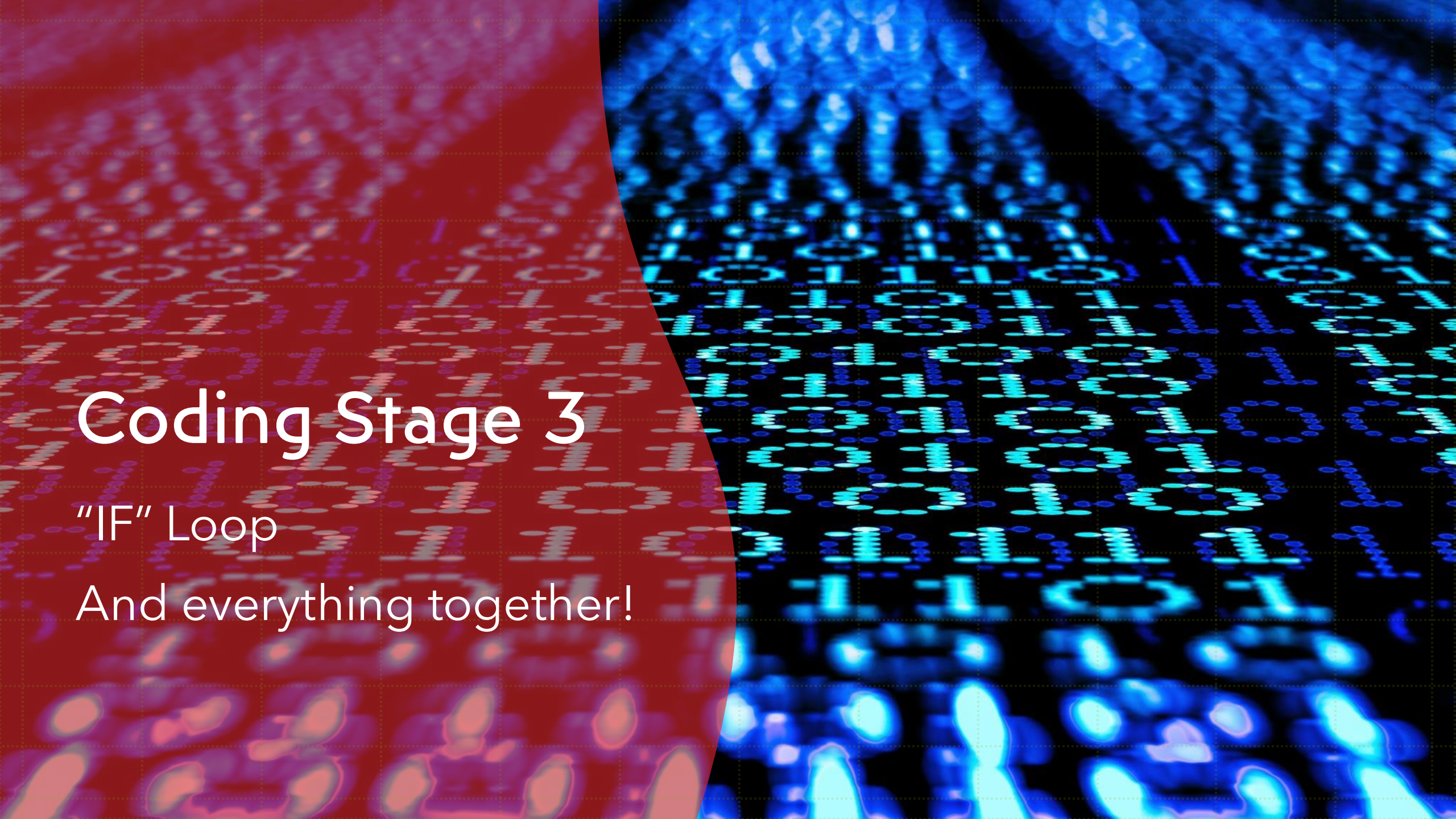
Circuit Debug : ESP32 Disconnect

Capacitive Touch

Specific Pins

Anything Conductive





Coding Stage 3

"IF" Loop

And everything together!