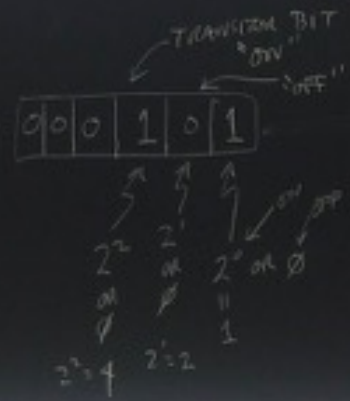
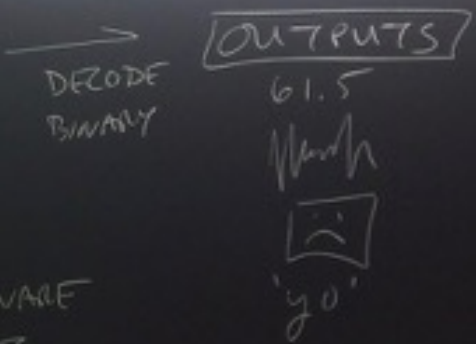
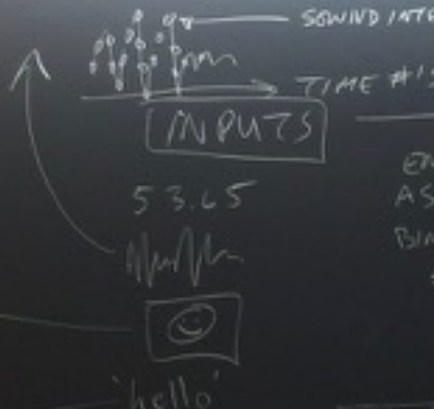




SOUND → SHORT "SAMPLES"



DECIMAL 5 CONVERTS TO BINARY 0101

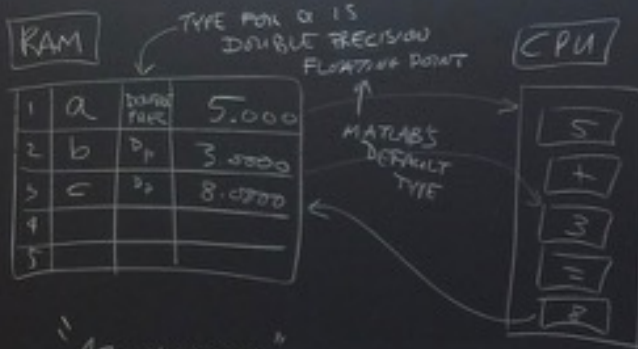
HARDWARE SWITCHES MILLIONS OF BINARY BITS

MILLIONS OF "BITS"



RAM - RANDOM ACCESS MEMORY  
CPU - CENTRAL PROCESSING UNIT

VARIABLES HAVE  
MEMORY LOCATION  
NAME  
TYPE  
VALUE



"ASSIGNMENT" OF VALUE TO VARIABLE, e.g.,  $a = 5$

SEQUENTIAL ACCESS

TAPES



PROGRAM

$a = 5$   
 $b = 3$   
 $c = a + b$

EXPRESSION

VALUE OF EXPRESSION ASSIGNED TO VAR. C

PROGRAM USES CURRENT VALUE OF a

DIGIT PAGE

ROW #  
COL #  
RED #  
GREEN #  
BLUE #



TE  
T  
h-

MATH EXPRESSIONS → WRITTEN IN ONE LINE OR SERIES OF SINGLE LINES

HAND WRITTEN → PROGRAM

~~$$X = \frac{y^2 + 3z}{25^{1/2}}$$~~

$$X = \frac{y^2 + 3z}{\sqrt{25}}$$

$$X = (y^2 + 3 * z) / 25 \wedge 0.5$$

OTHER WAYS

$$X_{num} = y^2 + 3 * z$$

$$X_{denom} = 25 \wedge 0.5$$

$$X = X_{num} / X_{denom}$$

→ OR  $\text{sqrt}(25)$

↑  
A BUILT-IN  
MATLAB  
FUNCTION

$25 \wedge 0.5 * 3$   
 $(25^{1/2}) * 3$   
NOT  
 $25 \wedge 1.5$

ORDER OF PRECEDENCE

↑  
HIGHER PRIORITY  
\* /  
+ -  
LEFT → RIGHT

( )  
^