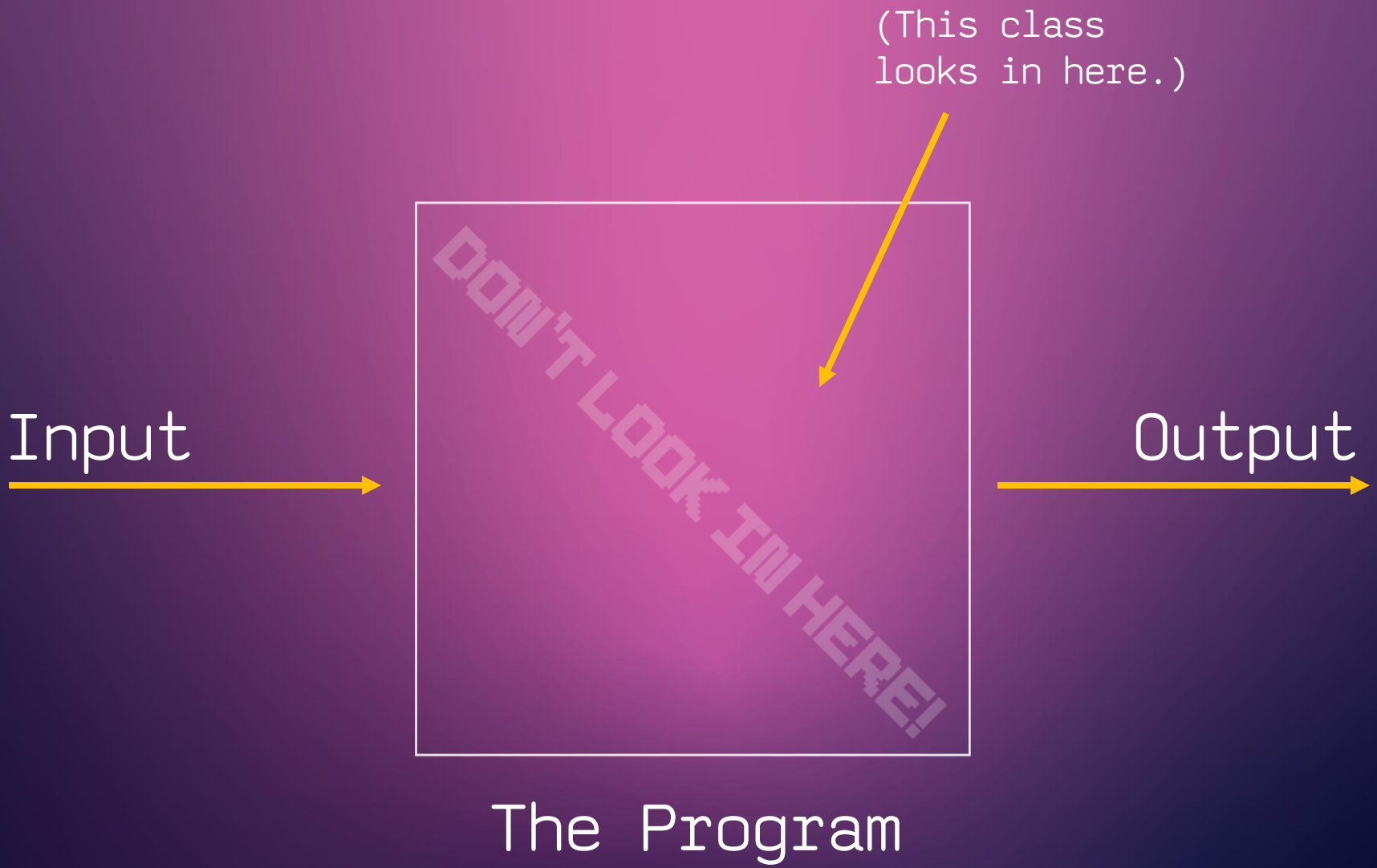
CMPSC 100

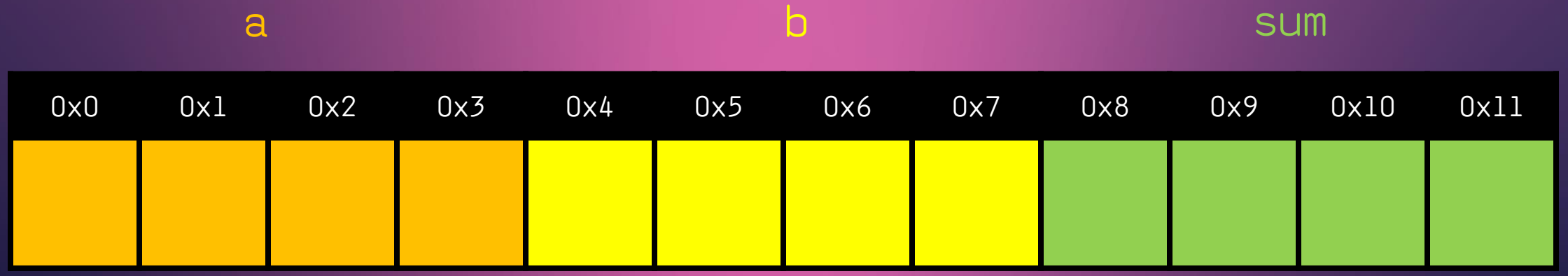
Python Basics

COURSE INFORMATION

- Terminal/Python basics quiz posted
- We will discuss Week 0 grading when I finish it
  - I'm starting today
- Assignment for Week 1 posted to #assignments
- Don't forget that this week we manifest the groups fully


(This class
looks in here.)
Input
DON'T LOOK IN HERE!
Output
The Program

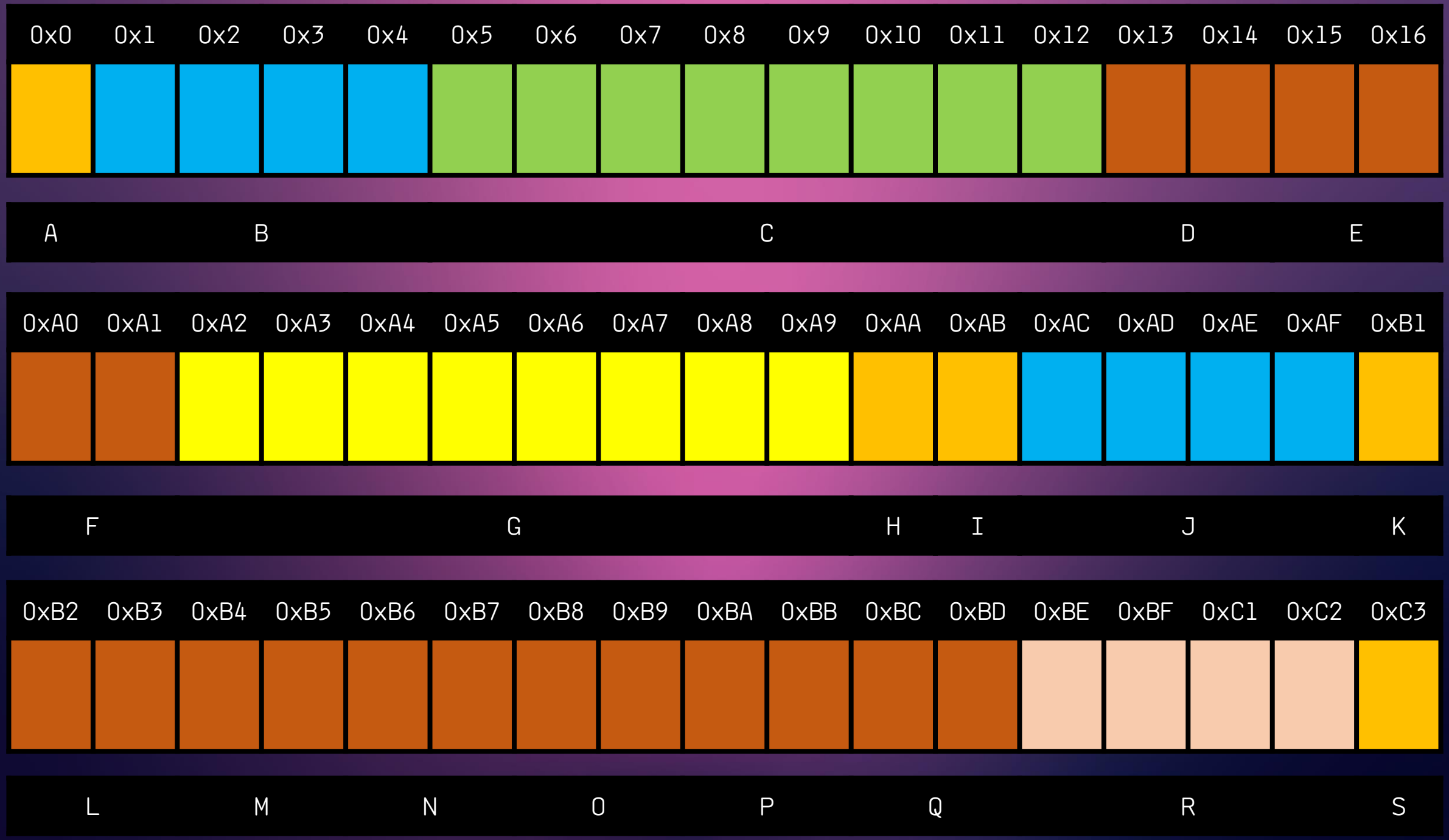
ASSIGNMENTS AND VARIABLES



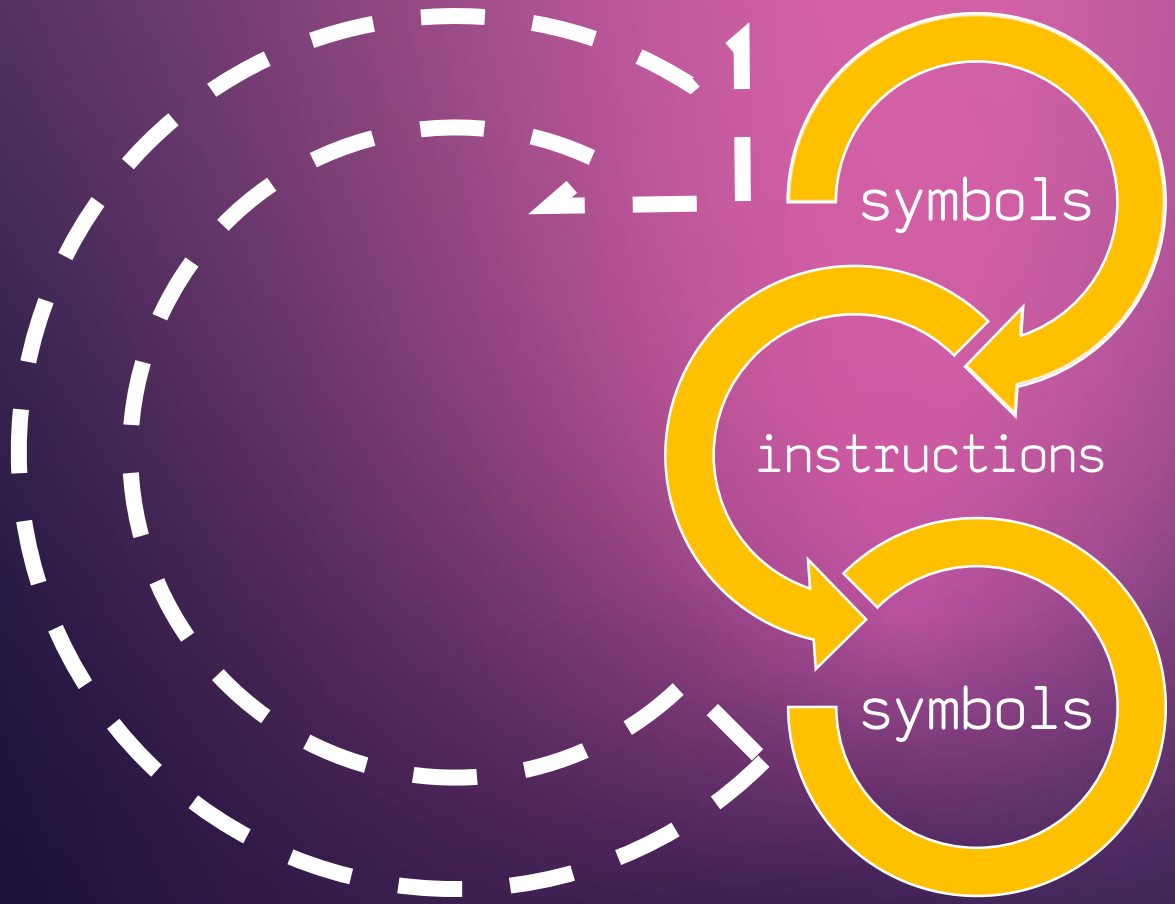
We're cool with nicknames

a	a number	some memory location (0x0…0x3)
b	a number	some memory location (0x4…0x7)
sum	a number	some memory location (0x8…0x11)

WE DON'T CARE!

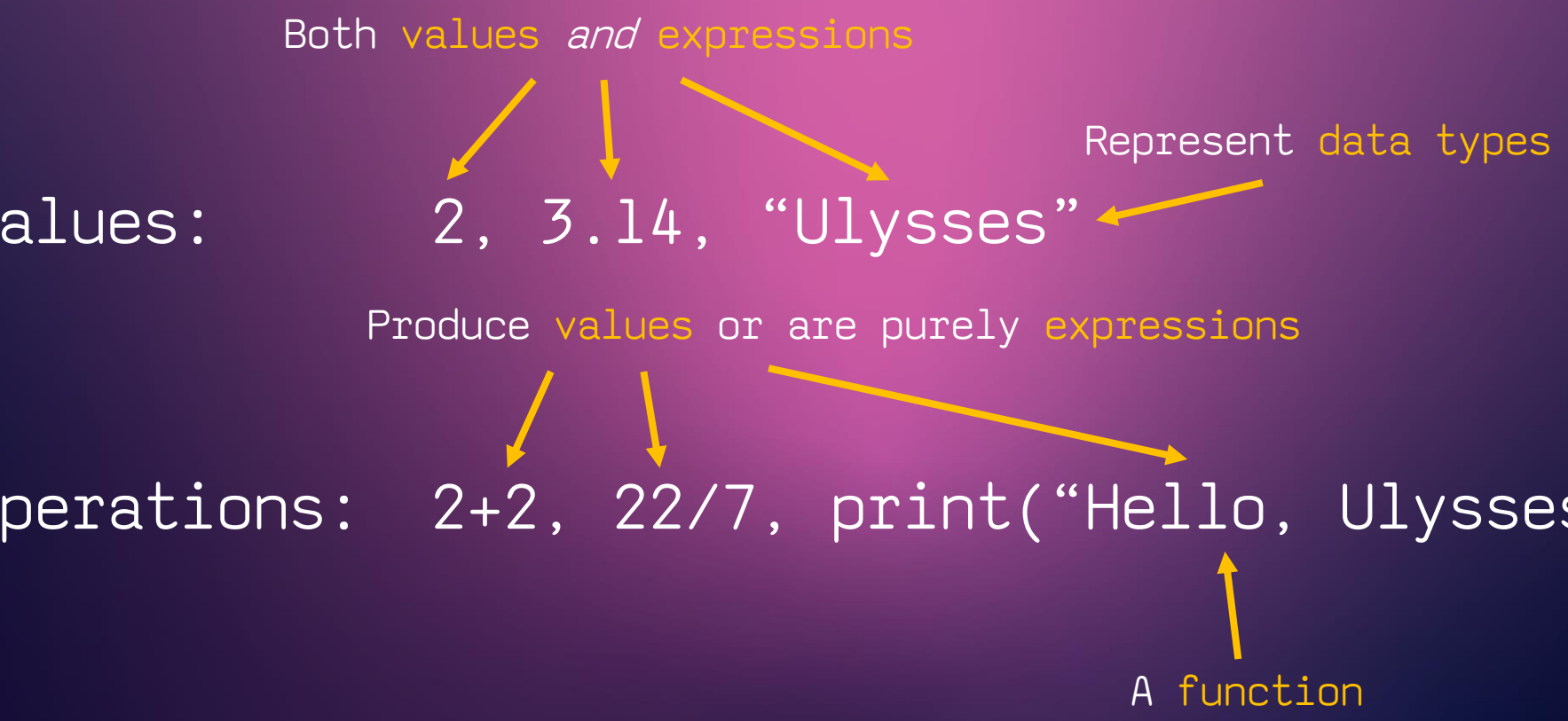

0x0 0x1 0x2 0x3 0x4 0x5 0x6 0x7 0x8 0x9 0x10 0x11 0x12 0x13 0x14 0x15 0x16
A B C D E
0xA0 0xA1 0xA2 0xA3 0xA4 0xA5 0xA6 0xA7 0xA8 0xA9 0xAA 0xAB 0xAC 0xAD 0xAE 0xAF 0xB1
F G H I J K
0xB2 0xB3 0xB4 0xB5 0xB6 0xB7 0xB8 0xB9 0xBA 0xBB 0xBC 0xBD 0xBE 0xBF 0xC1 0xC2 0xC3
L M N O P Q R S

PROGRAMMING IS...



RULE #1: OPERATIONS ARE DONE BY EXPRESSIONS

Can be:



RULE #2: VALUES MUST BE STORED BY ASSIGNMENT

```
a = 2
b = 2
```

assignment of values

```
sum = a + b
```

assignment of product of expression

I will refer to this as “single equal”

In Python = always means assignment

RULE #2A: VARIABLES HAVE NAMING RULES

Rules

Must start with a letter or _
Can contain, but must not start with, numbers
Names can only contain letters, numbers and _
Names are case sensitive, meaning:

banana, bAnAnA, and BANANA are all different

RULE #2A: VARIABLES HAVE NAMING RULES

LEGAL

```
_total
number_of_cats
Claw5
m3owZ
```

ILLEGAL

```
#hashtag
5alive
$dollars
number of dogs
```

RULE #2A': PYTHON HAS RESERVED WORDS

and
as
assert
break
class
continue
def
del
elif
else
except
finally
False
for
from
global
if
import
in
is
lambda
Nonlocal
None
not
or
pass
raise
return
True
try
With
while
yield

There's no reason to memorize these.

So, don't.

RULE 3: THERE ARE THREE PRIMARY DATA TYPES

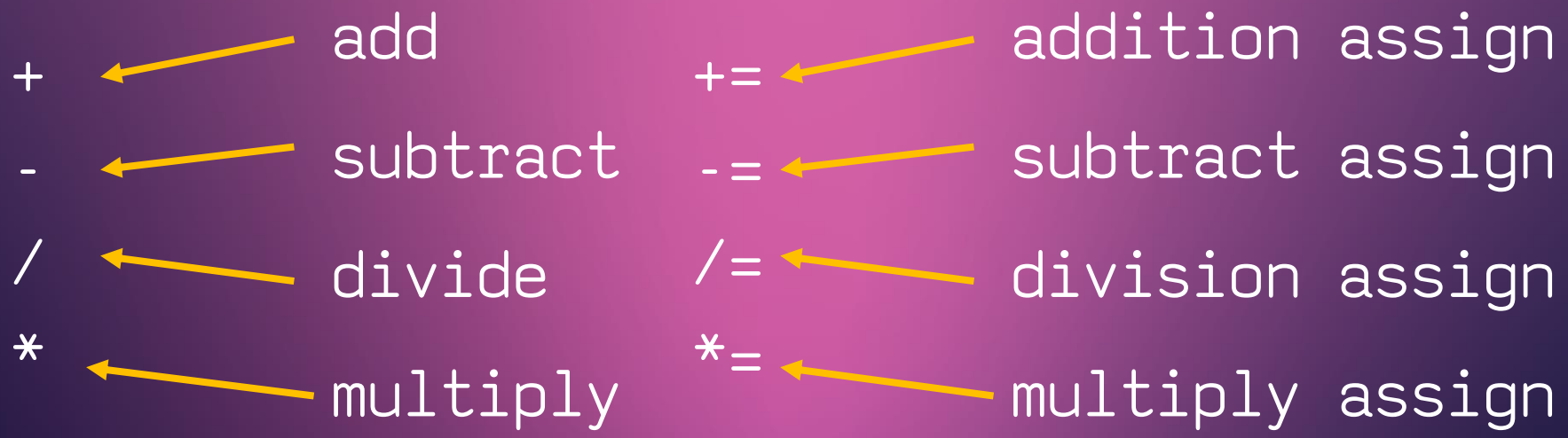
Integer	3
Floating point	3.141592653589793
String	“3.141592653589793…”

whole “counting” numbers, incl. negatives.

any decimal up to 15 places

Theoretically infinite group of characters and symbols

RULE 4: VARIOUS EXPRESSIONS USE OPERATORS



RULE 4: VARIOUS EXPRESSIONS USE OPERATORS

```
a = 3
b = 2

a += b
print(a)

> 5
```

equivalent to a + b

RULE #5: EXPRESSIONS CAN BE FUNCTIONS

The traditional first program in any language:

```
print("Hello, World!")
```

Caveat:

Some functions don't evaluate to anything. print() merely prints the value of a string to the screen.

(So, assigning it doesn't necessarily mean much.)

RULE #5A: FUNCTIONS CAN RETURN VALUES THO

To request user input, use the input() function: