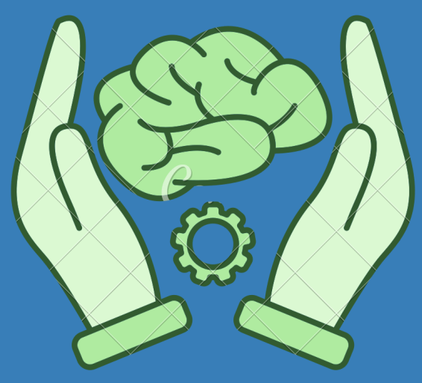
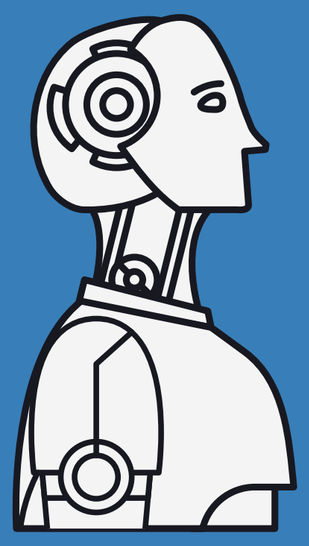
REVIEW Notes



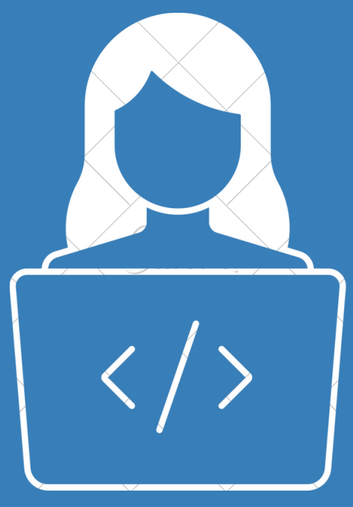


print("Hello, World!")

What is python?

Python is a computer programming language. It is easy to learn, and can be used to write all sorts of computer programs. People use Python to build games, online tools, and websites

Why start with python?



- easy to read
- easy to create / build things like games, apps
- alot of really fun things you can do with it!

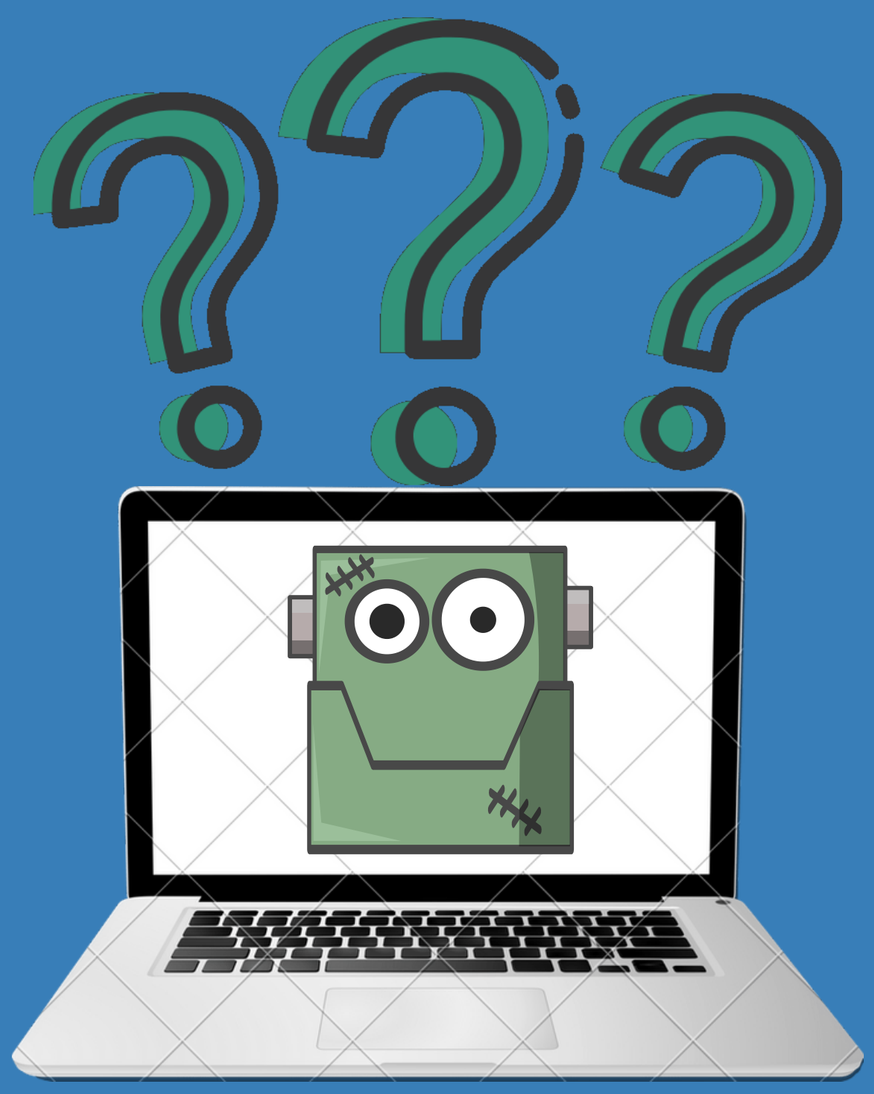
VS

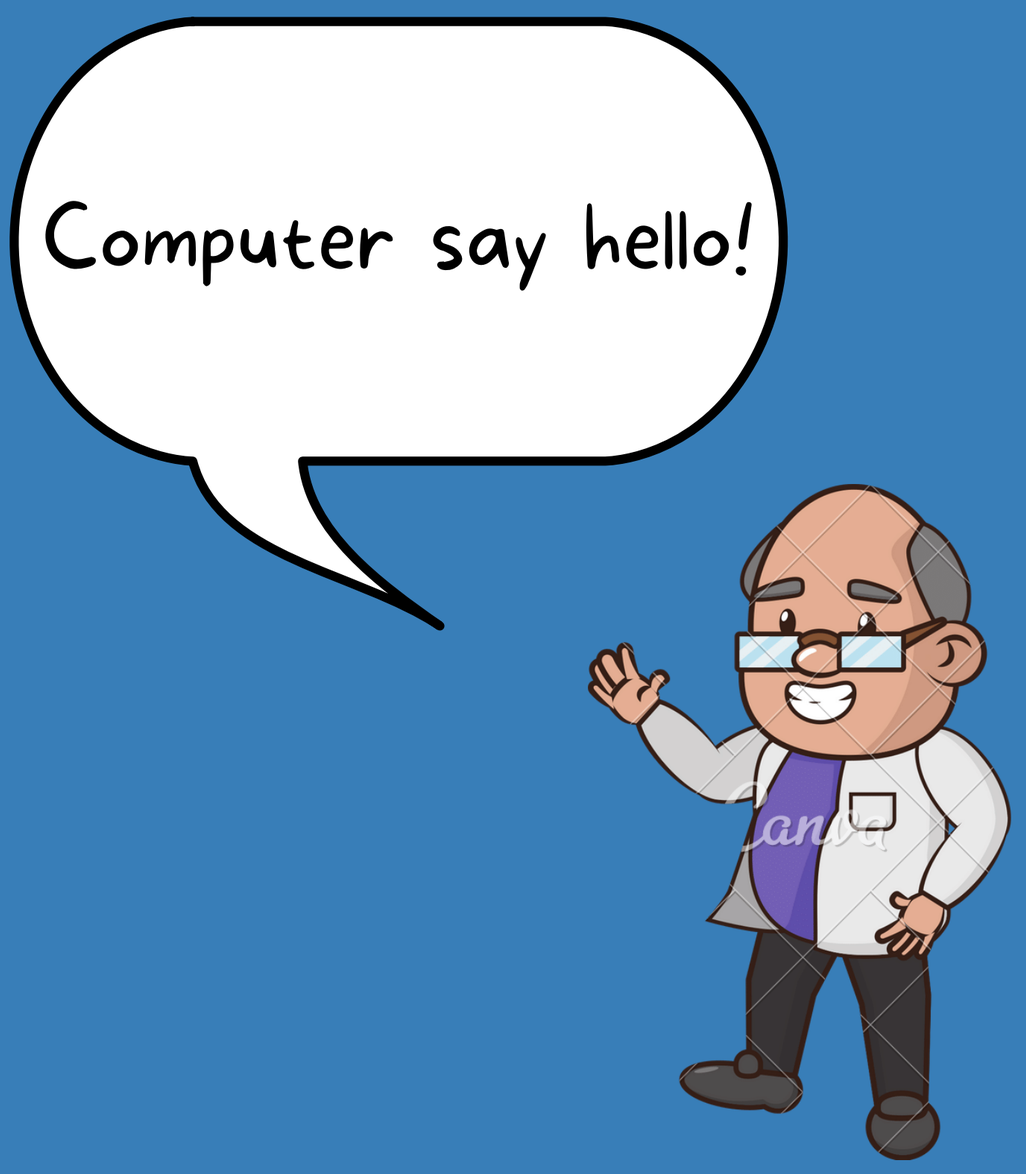
Which is smarter?

...

NONE ITS A TIE!!!!

By itself, the computer cannot do anything; it needs a detailed set of instructions on what to do. The detailed set of instructions is called a program.





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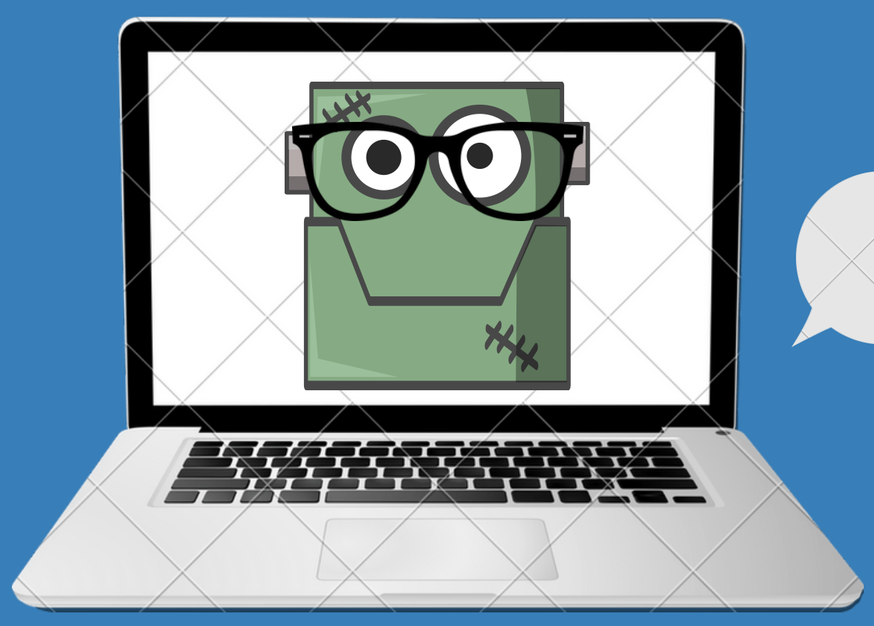


>>hello

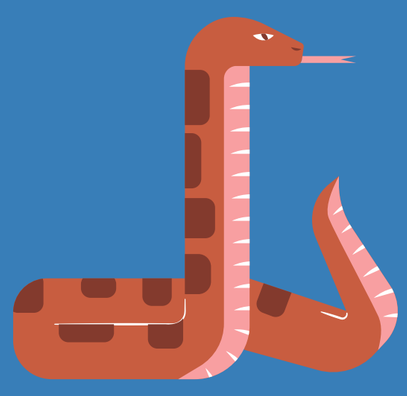
print("hello")

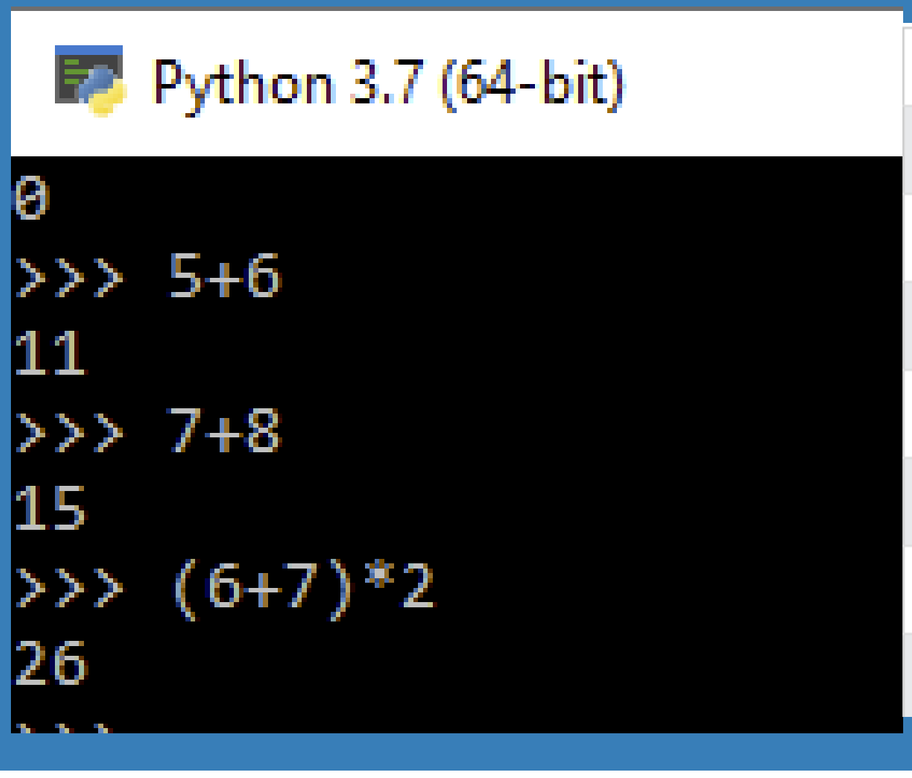
Instruction: print("hello")

print("message goes here")

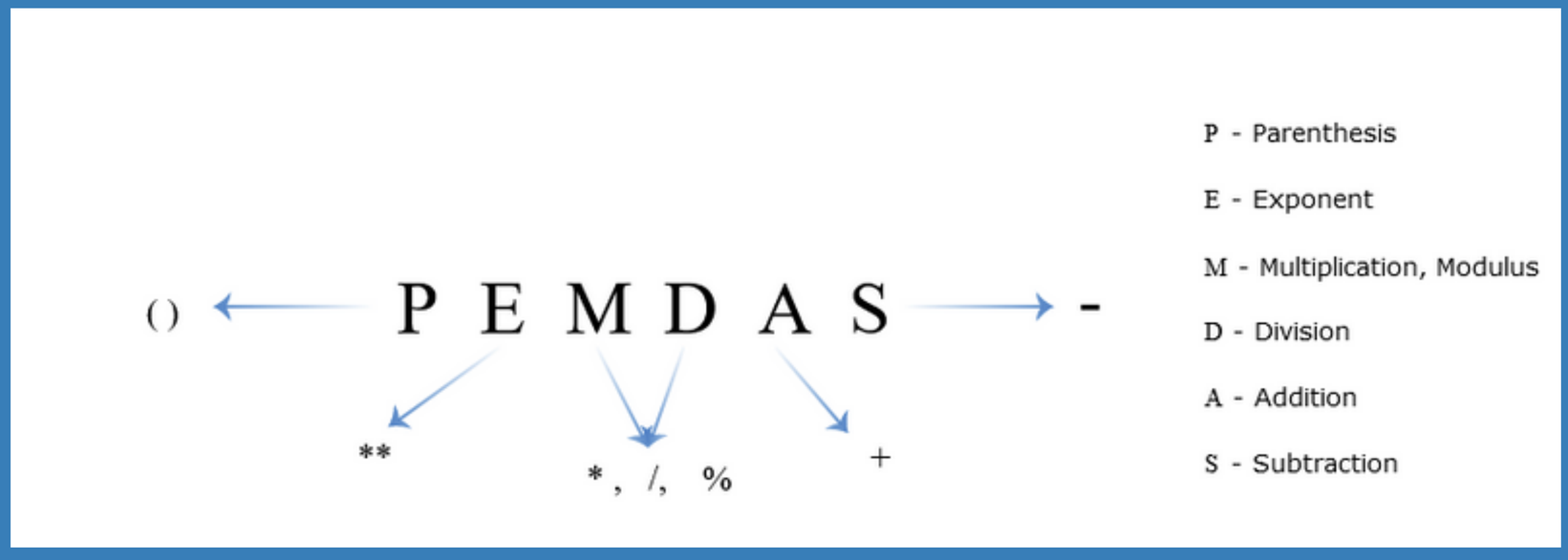
Arithmetic and operators

```
>>> # Example of doing simple arithmetic using Python.
>>> 2 + 5
7
>>> 5 - 3
2
>>> 7*2
14
>>> 9/3  # Division always gives the result in data type float.
3.0
>>> 9%2 # % operator gives the remainder.
1
>>> 9//5 # // operator gives the quotient and discards the remainder.
1
>>> # ** operator raises the power of left operand to the right operand.
>>> 2**3
8
>>>
```





Operator	Name	Example
+	Addition	x + y
-	Subtraction	x - y
*	Multiplication	x * y
/	Division	x / y
%	Modulus	x % y
**	Exponentiation	x ** y
//	Floor division	x // y

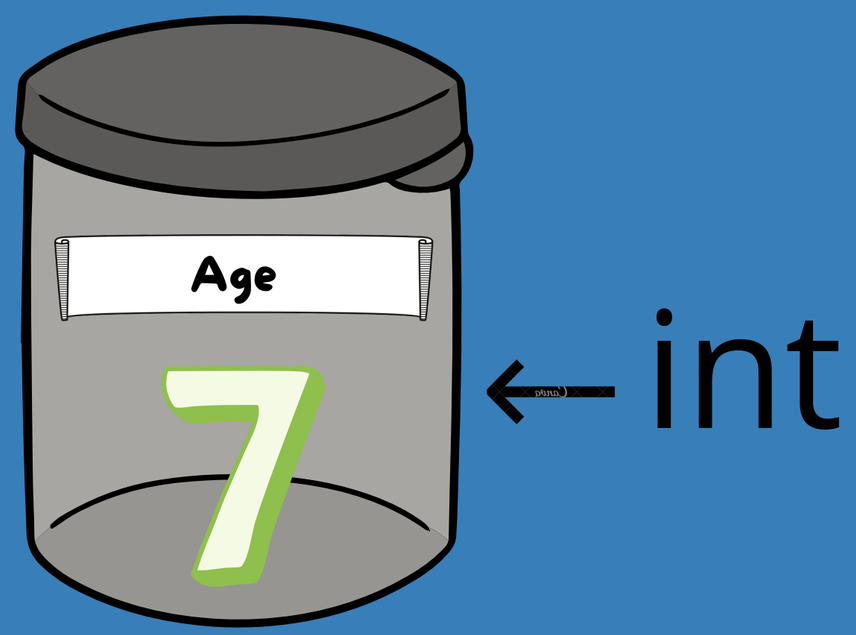


Variables : containers for storing data values.

Age = 7

name of your variable

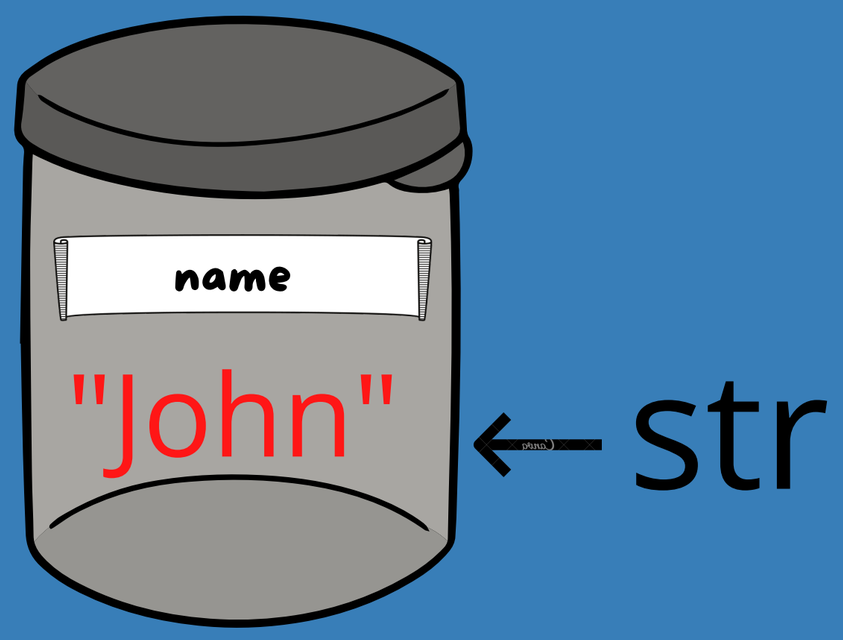
what goes inside



name ="John"

name of your variable

what goes inside




```
x = 4       # x is of type int
x = "Sally" # x is now of type str
print(x)
```

```
Python 3.7 (64-bit)
0
>>> x=5
>>> y = "John"
>>> print(x)
5
>>> print(y)
John
>>>
```

Apart from doing arithmetic operations that you learned in Python Arithmetic chapter, the computer can also do comparison between the values stored in two variables.

```
>>> num1 = 5
>>> num2 = 10
>>>
>>> num1 < num2
True
>>>
>>>
>>> num1 > num2
False
>>>
```

```
>>> string1 = "hello"
>>> string2 = "tuna"
>>>
>>> string1 > string2
False
>>>
```

how does the computer compare strings(words)? if they are not numbers???

The computer compares the 1st letter of string1 ('h') with 1st letter of string2 ('t') using their ASCII value shown below

Dec	Hx	Oct	Char	Dec	Hx	Oct	Html	Chr	Dec	Hx	Oct	Html	Chr	Dec	Hx	Oct	Html	Chr
0	0	000	NUL (null)	32	20	040		Space	64	40	100	@	@	96	60	140	`	`
1	1	001	SOH (start of heading)	33	21	041	!	!	65	41	101	A	A	97	61	141	a	a
2	2	002	STX (start of text)	34	22	042	"	"	66	42	102	B	B	98	62	142	b	b
3	3	003	ETX (end of text)	35	23	043	#	#	67	43	103	C	C	99	63	143	c	c
4	4	004	EOT (end of transmission)	36	24	044	$	$	68	44	104	D	D	100	64	144	d	d
5	5	005	ENQ (enquiry)	37	25	045	%	%	69	45	105	E	E	101	65	145	e	e
6	6	006	ACK (acknowledge)	38	26	046	&	&	70	46	106	F	F	102	66	146	f	f
7	7	007	BEL (bell)	39	27	047	'	'	71	47	107	G	G	103	67	147	g	g
8	8	010	BS (backspace)	40	28	050	(	(	72	48	110	H	H	104	68	150	h	h
9	9	011	TAB (horizontal tab)	41	29	051	)	)	73	49	111	I	I	105	69	151	i	i
10	A	012	LF (NL line feed, new line)	42	2A	052	*	*	74	4A	112	J	J	106	6A	152	j	j
11	B	013	VT (vertical tab)	43	2B	053	+	+	75	4B	113	K	K	107	6B	153	k	k
12	C	014	FF (NP form feed, new page)	44	2C	054	,	,	76	4C	114	L	L	108	6C	154	l	l
13	D	015	CR (carriage return)	45	2D	055	-	-	77	4D	115	M	M	109	6D	155	m	m
14	E	016	SO (shift out)	46	2E	056	.	.	78	4E	116	N	N	110	6E	156	n	n
15	F	017	SI (shift in)	47	2F	057	/	/	79	4F	117	O	O	111	6F	157	o	o
16	10	020	DLE (data link escape)	48	30	060	0	0	80	50	120	P	P	112	70	160	p	p
17	11	021	DC1 (device control 1)	49	31	061	1	1	81	51	121	Q	Q	113	71	161	q	q
18	12	022	DC2 (device control 2)	50	32	062	2	2	82	52	122	R	R	114	72	162	r	r
19	13	023	DC3 (device control 3)	51	33	063	3	3	83	53	123	S	S	115	73	163	s	s
20	14	024	DC4 (device control 4)	52	34	064	4	4	84	54	124	T	T	116	74	164	t	t
21	15	025	NAK (negative acknowledge)	53	35	065	5	5	85	55	125	U	U	117	75	165	u	u
22	16	026	SYN (synchronous idle)	54	36	066	6	6	86	56	126	V	V	118	76	166	v	v
23	17	027	ETB (end of trans. block)	55	37	067	7	7	87	57	127	W	W	119	77	167	w	w
24	18	030	CAN (cancel)	56	38	070	8	8	88	58	130	X	X	120	78	170	x	x
25	19	031	EM (end of medium)	57	39	071	9	9	89	59	131	Y	Y	121	79	171	y	y
26	1A	032	SUB (substitute)	58	3A	072	:	:	90	5A	132	Z	Z	122	7A	172	z	z
27	1B	033	ESC (escape)	59	3B	073	;	;	91	5B	133	[	[	123	7B	173	{	{
28	1C	034	FS (file separator)	60	3C	074	<	<	92	5C	134	\	\	124	7C	174			|
29	1D	035	GS (group separator)	61	3D	075	=	=	93	5D	135	]	]	125	7D	175	}	}
30	1E	036	RS (record separator)	62	3E	076	>	>	94	5E	136	^	^	126	7E	176	~	~
31	1F	037	US (unit separator)	63	3F	077	?	?	95	5F	137	_	_	127	7F	177	&#127;	DEL

Source: www.LookupTables.com

'h' 't'

104 > 116

false! 104 not greater than 116

variables continued...

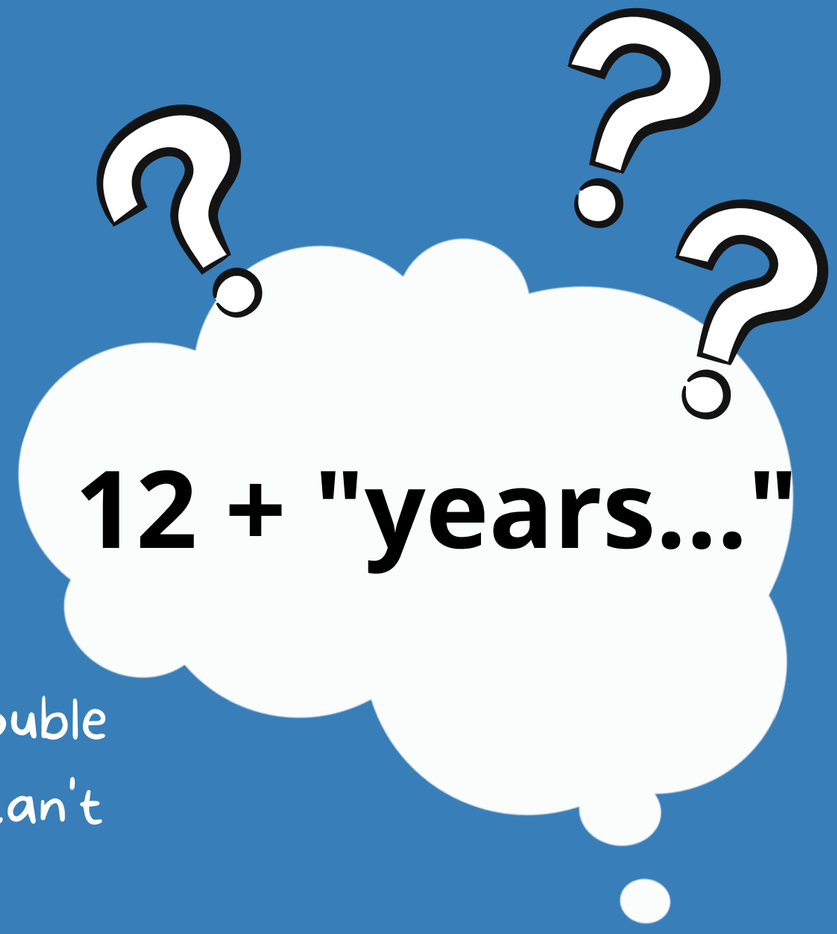
We practiced using variables and operators together to see how they can be useful kind of like a shortcut!

```
>>> score1 = 100
>>>
>>> score2 = 80
>>>
>>> score3 = 94
>>>
>>> print(score1 + score2 + score3/3)
211.33333333333334
>>> print(score1 + score2 + score3//3)
211
>>>
```

Here we are finding the average of scores using variables and operators

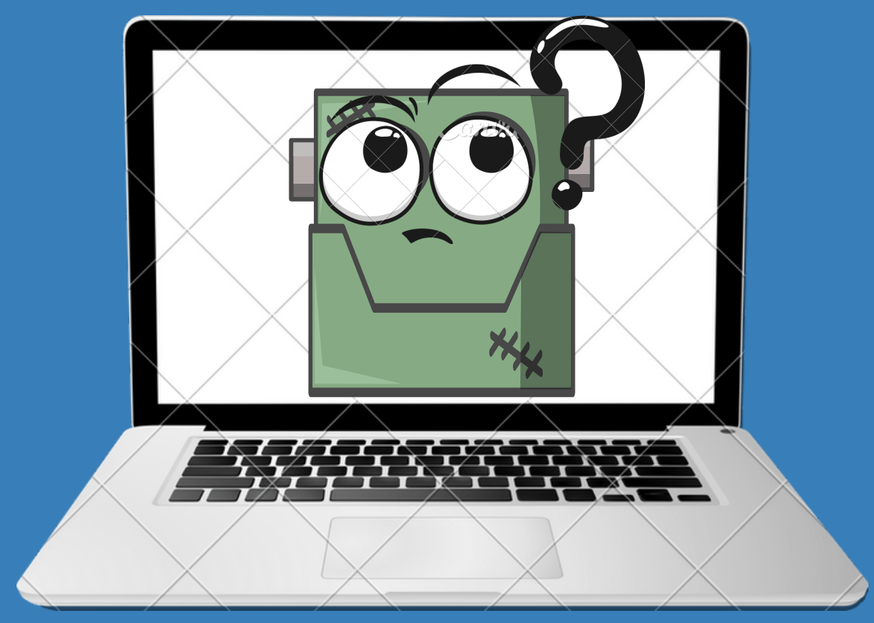
We can also combine strings using the + operator notice it has a different meaning when your using strings called concatenation

```
>>> name = "William"
>>>
>>> age = "12"
>>>
>>> Favorite_color = "green"
>>>
>>> print(name + " is " + age + " years old and his favorite color is " + Favorite_color)
William is 12 years old and his favorite color is green
>>>
```



notice when we don't surround the number 12 for age with double quotes "12" we get an error... That's because the computer can't compare a number(int) with a letter(str) !

```
>>> name = "william"
>>>
>>> age = 12
>>>
>>> Favorite_color = "green"
>>>
>>>
>>> print(name + " is " + age +" years old and his favorite color is " + Favorite_color)
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
TypeError: can only concatenate str (not "int") to str
>>>
```



practice

practice using the typecast function to fix the problem of using number with strings

```
>>> name = "william"
>>>
>>> age = 12
>>>
>>> Favorite_color = "green"
>>>
>>>
>>> print(name + " is " + age +" years old and his favorite color is " + Favorite_color)
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
TypeError: can only concatenate str (not "int") to str
>>>
```

```
>>> name = "William"
>>>
>>> age = 12
>>>
>>> Favorite_color = "green"
>>>
>>> print(name + " is " + str(age) + " years old and his favorite color is " + Favorite_color)
William is 12 years old and his favorite color is green
>>>
```

str( )

put the number you want to convert to a string here