This is CS50

Daily Mail

Harvard announces it will teach students using an artificial intelligence instructor next semester

The teachers of Harvard University's popular intro-level coding course are 'experimenting' with a ChatGPT-powered teaching assistant.

NY Post

Harvard to roll out AI professors in flagship coding class for fall semester

AI has got a new gig. Harvard is tapping artificial intelligence to help teach its most popular coding class next school year.

Giant Freakin Robot

The Best College Is Using An AI Professor Next Year

It sounds like a joke, but it's actually happening. AI will teach a course at the most prestigious US college next year.

This is CS50

This is CS50

FROM

learn how to program in C

learn how to program in Python

learn how to program in SQL

learn how to program in JavaScript

learn how to program

learn how to solve problems

learn how to represent numbers

learn how to represent letters

learn how to represent colors

learn how to represent images

learn how to represent videos

learn how to represent audio

learn how to write algorithms

learn how to write code

2/3

of CS50 students have never taken CS before

what ultimately matters in this course is not so much where you end up relative to your classmates but where you end up relative to yourself when you began

CS50 Lunches

HELLO
HELLO
Brianna
HARVARD
whatnot

CS50 Puzzle Day

Sets
EXIT
204

CS50
CS50
CS50
CS50

CS50 Hackathon

THIS IS CS50
IHOP
HARVARD
SHUTTLE
LAS
36442

IHOP
IHOP
for every
Get a $5 bonus coupon with $25 gift
Who-Roa
OMEL
BOSE

CS50 Fair

EXIT

POP CORN

I took CS50.
I took CS50.
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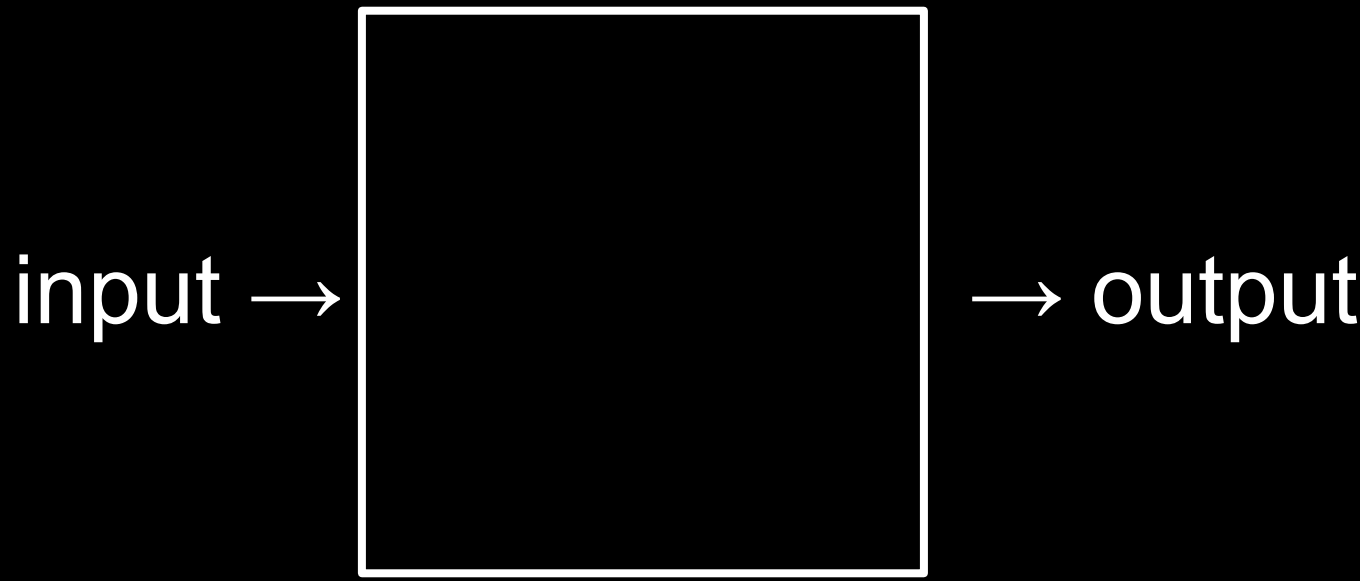
I took CS50.
I took CS50.
I took CS50.
I took CS50.
I took CS50.

computer science

problem solving

computational thinking


input →
→ output

representation

unary

base-1

base-2

binary

binary digit

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base-10

decimal

123

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ASCII

0	NUL	16	DLE	32	SP	48	0	64	@	80	P	96	`	112	p
1	SOH	17	DC1	33	!	49	1	65	A	81	Q	97	a	113	q
2	STX	18	DC2	34	"	50	2	66	B	82	R	98	b	114	r
3	ETX	19	DC3	35	#	51	3	67	C	83	S	99	c	115	s
4	EOT	20	DC4	36	$	52	4	68	D	84	T	100	d	116	t
5	ENQ	21	NAK	37	%	53	5	69	E	85	U	101	e	117	u
6	ACK	22	SYN	38	&	54	6	70	F	86	V	102	f	118	v
7	BEL	23	ETB	39	'	55	7	71	G	87	W	103	g	119	w
8	BS	24	CAN	40	(	56	8	72	H	88	X	104	h	120	x
9	HT	25	EM	41	)	57	9	73	I	89	Y	105	i	121	y
10	LF	26	SUB	42	*	58	:	74	J	90	Z	106	j	122	z
11	VT	27	ESC	43	+	59	;	75	K	91	[	107	k	123	{
12	FF	28	FS	44	,	60	<	76	L	92	\	108	l	124	|
13	CR	29	GS	45	-	61	=	77	M	93	]	109	m	125	}
14	SO	30	RS	46	.	62	>	78	N	94	^	110	n	126	~
15	SI	31	US	47	/	63	?	79	O	95	_	111	o	127	DEL

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2	STX	18	DC2	34	"	50	2	66	B	82	R	98	b	114	r
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5	ENQ	21	NAK	37	%	53	5	69	E	85	U	101	e	117	u
6	ACK	22	SYN	38	&	54	6	70	F	86	V	102	f	118	v
7	BEL	23	ETB	39	'	55	7	71	G	87	W	103	g	119	w
8	BS	24	CAN	40	(	56	8	72	H	88	X	104	h	120	x
9	HT	25	EM	41	)	57	9	73	I	89	Y	105	i	121	y
10	LF	26	SUB	42	*	58	:	74	J	90	Z	106	j	122	z
11	VT	27	ESC	43	+	59	;	75	K	91	[	107	k	123	{
12	FF	28	FS	44	,	60	<	76	L	92	\	108	l	124	|
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72 73 33

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8	BS	24	CAN	40	(	56	8	72	H	88	X	104	h	120	x
9	HT	25	EM	41	)	57	9	73	I	89	Y	105	i	121	y
10	LF	26	SUB	42	*	58	:	74	J	90	Z	106	j	122	z
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8	BS	24	CAN	40	(	56	8	72	H	88	X	104	h	120	x
9	HT	25	EM	41	)	57	9	73	I	89	Y	105	i	121	y
10	LF	26	SUB	42	*	58	:	74	J	90	Z	106	j	122	z
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8	BS	24	CAN	40	(	56	8	72	H	88	X	104	h	120	x
9	HT	25	EM	41	)	57	9	73	I	89	Y	105	i	121	y
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11	VT	27	ESC	43	+	59	;	75	K	91	[	107	k	123	{
12	FF	28	FS	44	,	60	<	76	L	92	\	108	l	124	|
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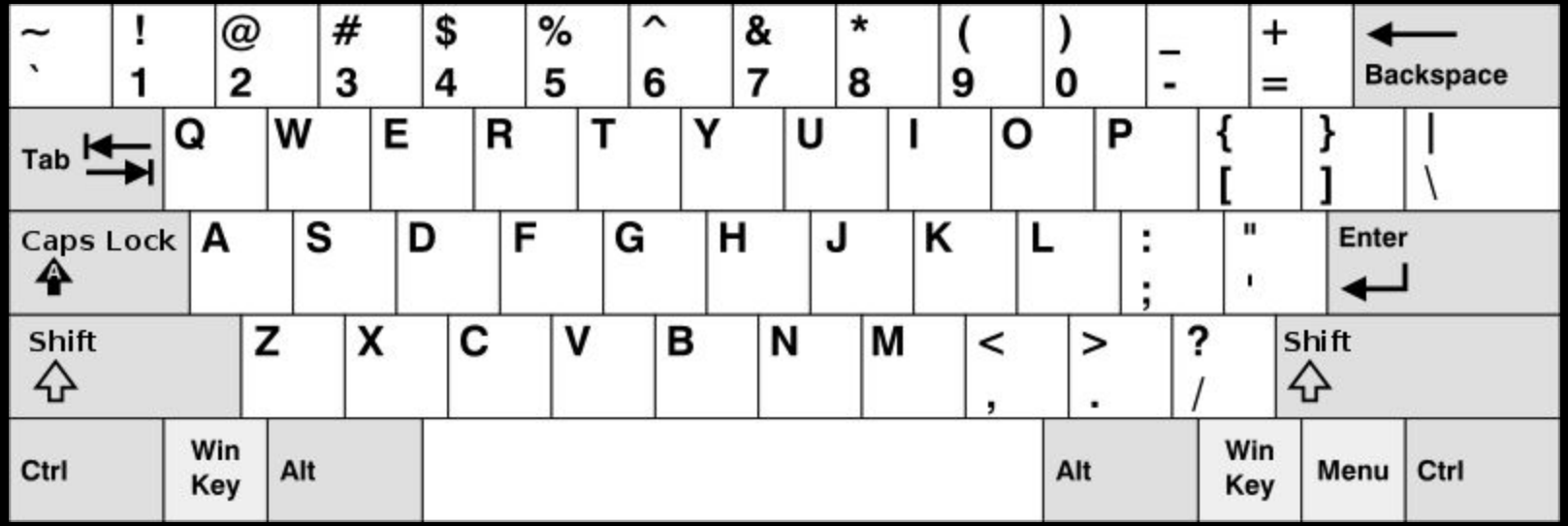
14	SO	30	RS	46	.	62	>	78	N	94	^	110	n	126	~
15	SI	31	US	47	/	63	?	79	O	95	_	111	o	127	DEL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@ 2
# 3
$ 4
% 5
^ 6
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* 8
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+ =
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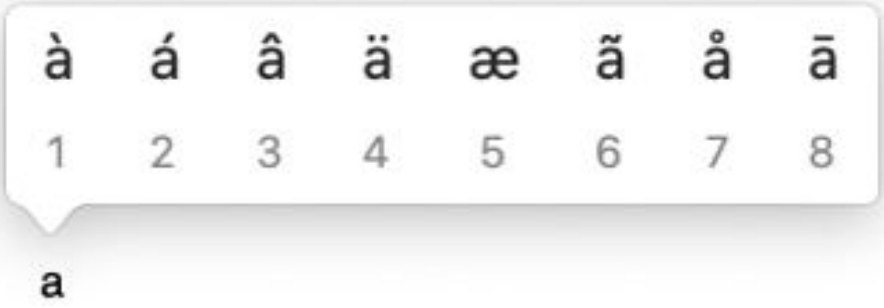
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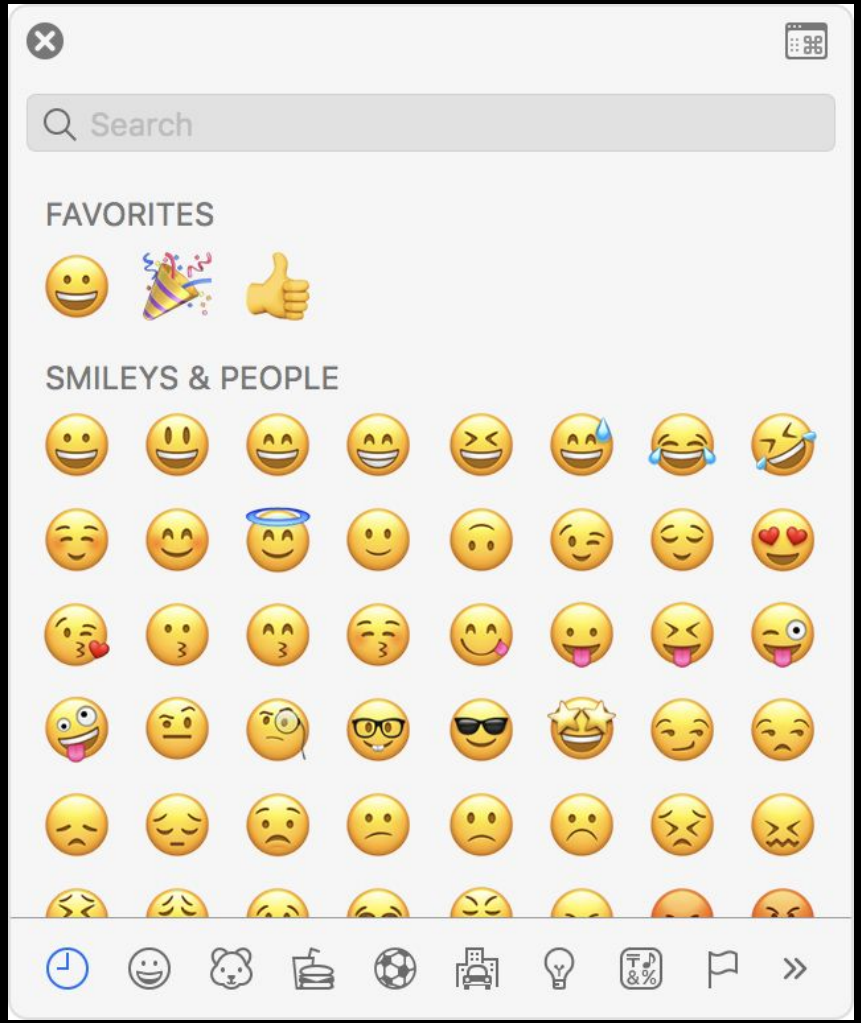
Search
FAVORITES
SMILEYS & PEOPLE

Unicode

11110000100111111001100010000010

4036991106

U+1F602

U+1F44D

U+1F44D U+1F3FD

U+1F491

U+1F469 U+200D U+2764 U+FE0F U+200D U+1F468

U+1F469 U+200D U+2764 U+FE0F U+200D U+1F468

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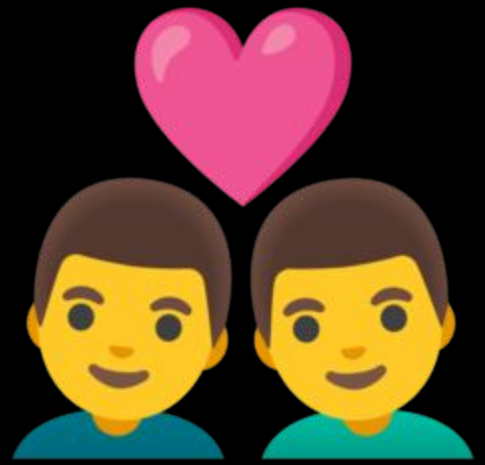
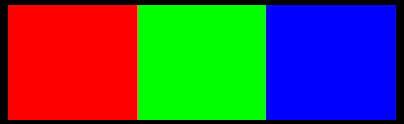


U+1F468 U+200D U+2764 U+FE0F U+200D U+1F468

RGB



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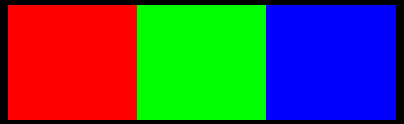


face-with-tears-of-joy_1f602.png

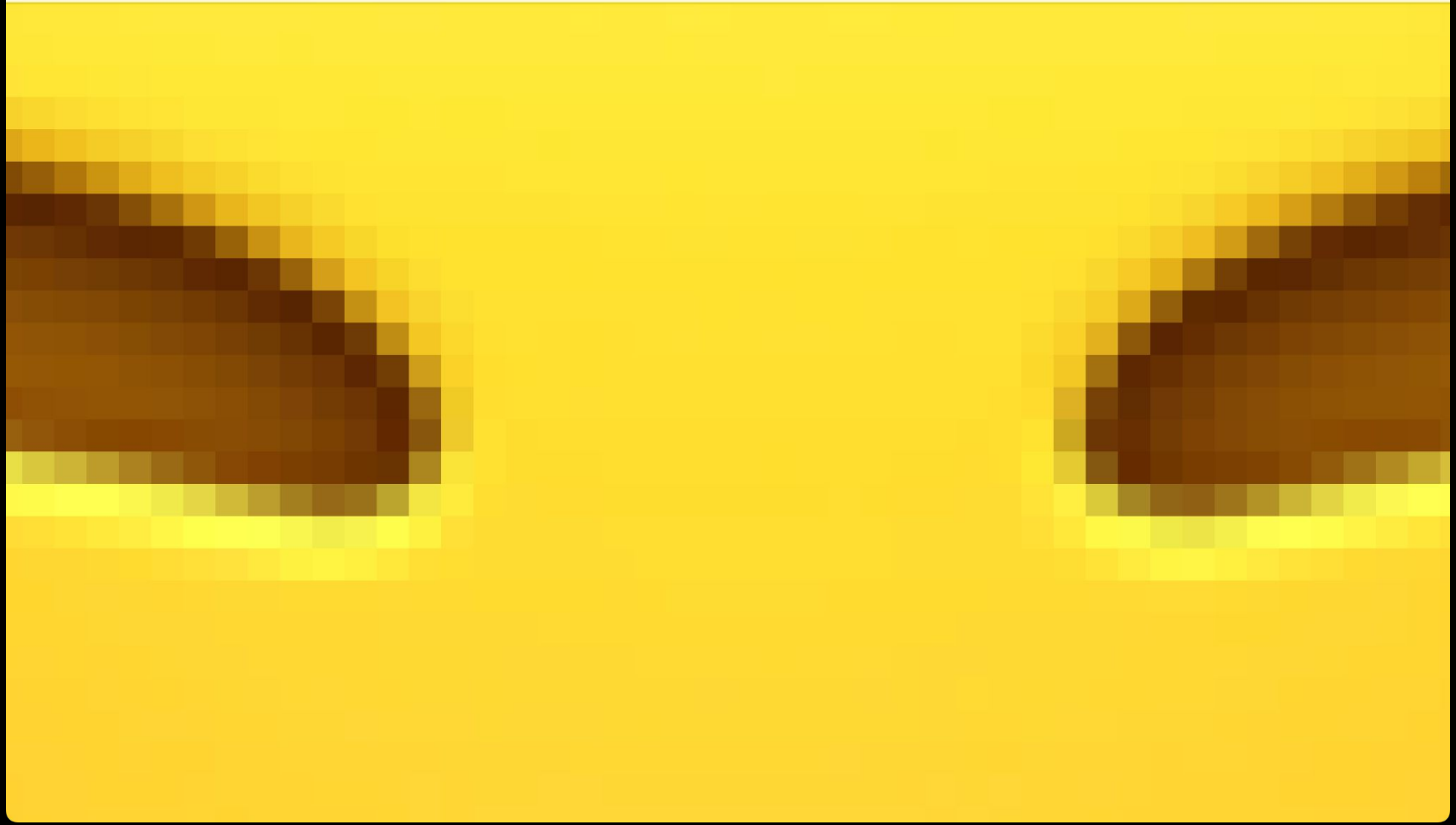
Search

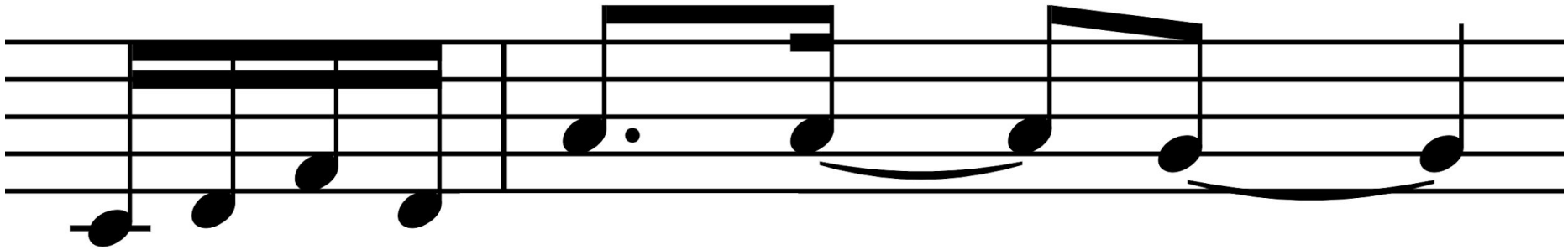
face-with-tears-of-joy_1f602.png

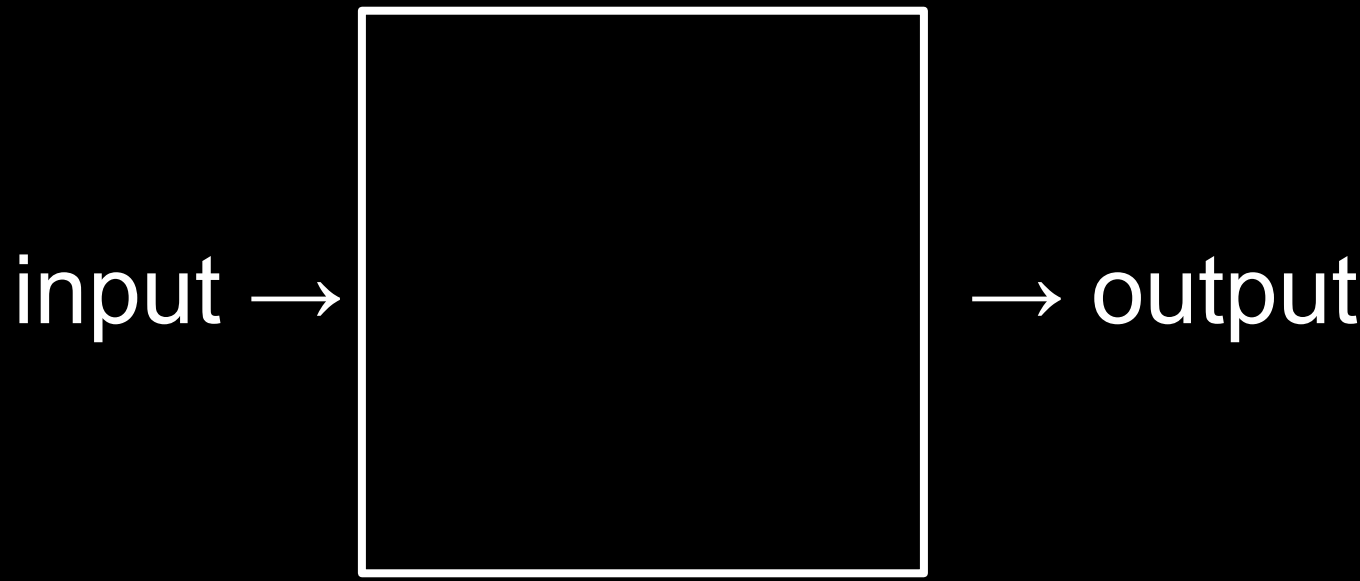
Search

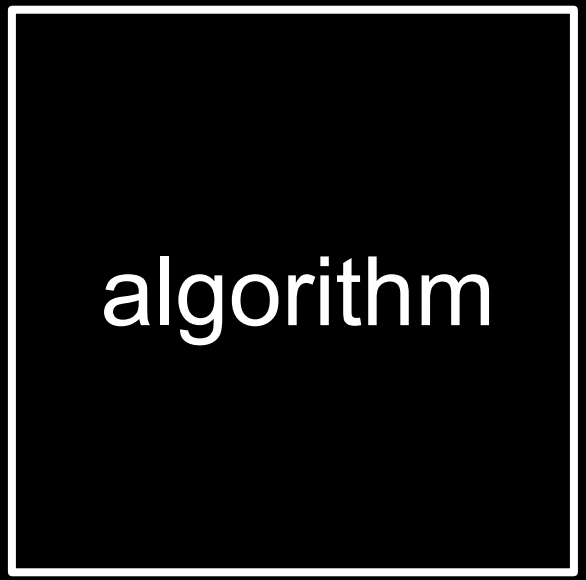
face-with-tears-of-joy_1f602.png

Search






input →
→ output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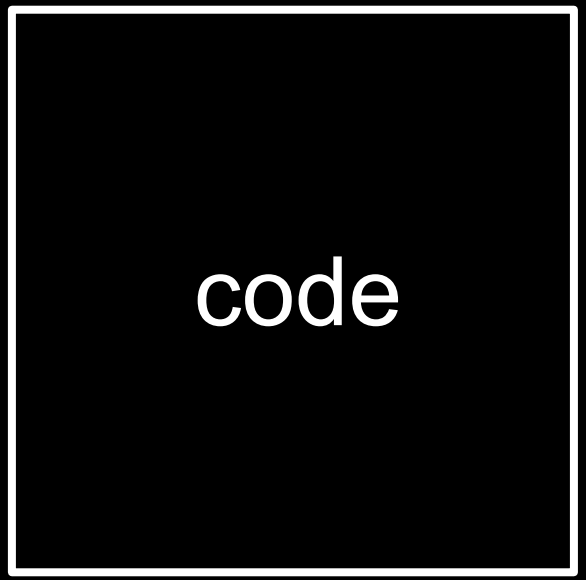
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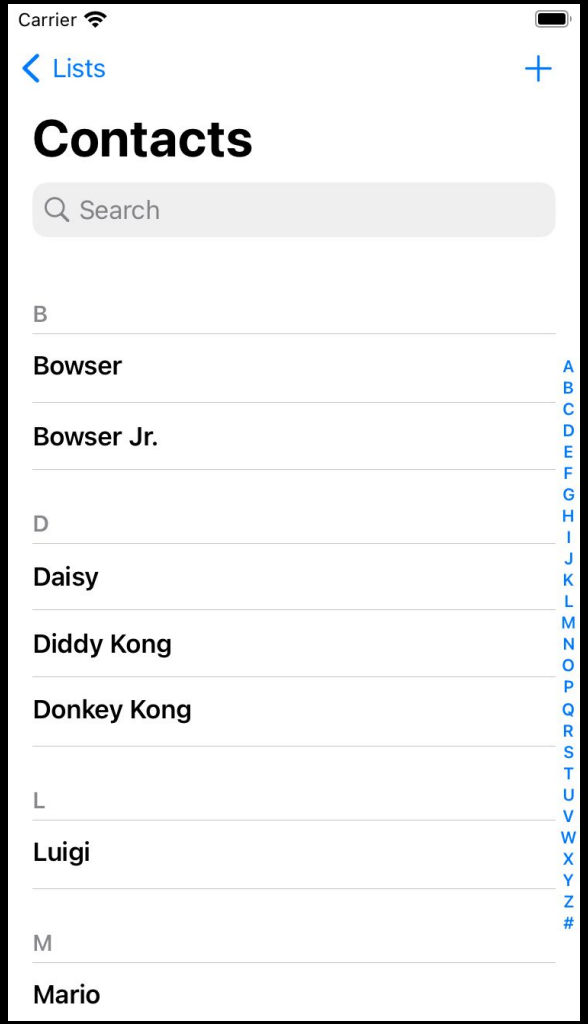
Carrier
Lists
Contacts
Search
B
Bowser
Bowser Jr.
D
Daisy
Diddy Kong
Donkey Kong
L
Luigi
M
Mario
A
B
C
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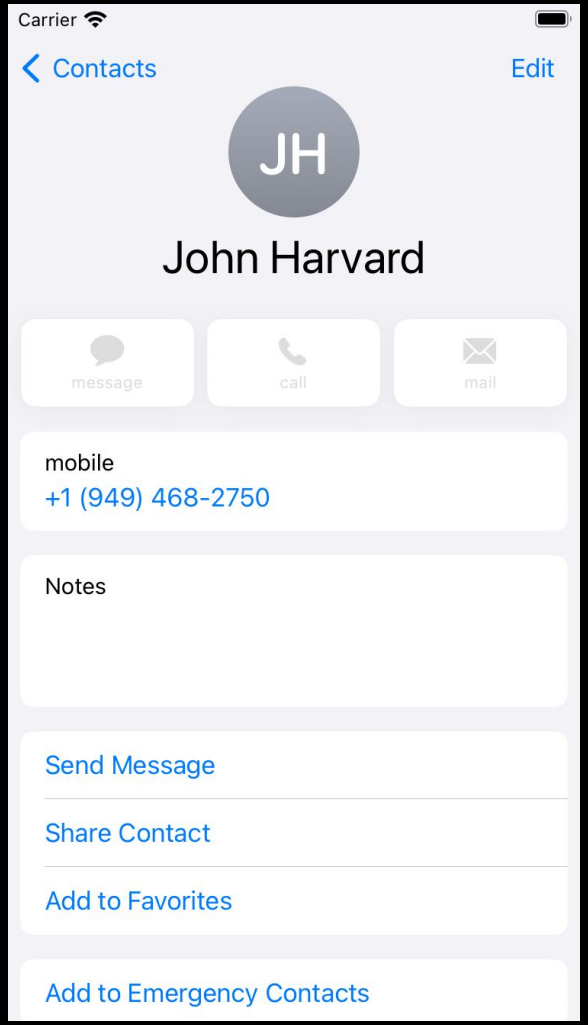
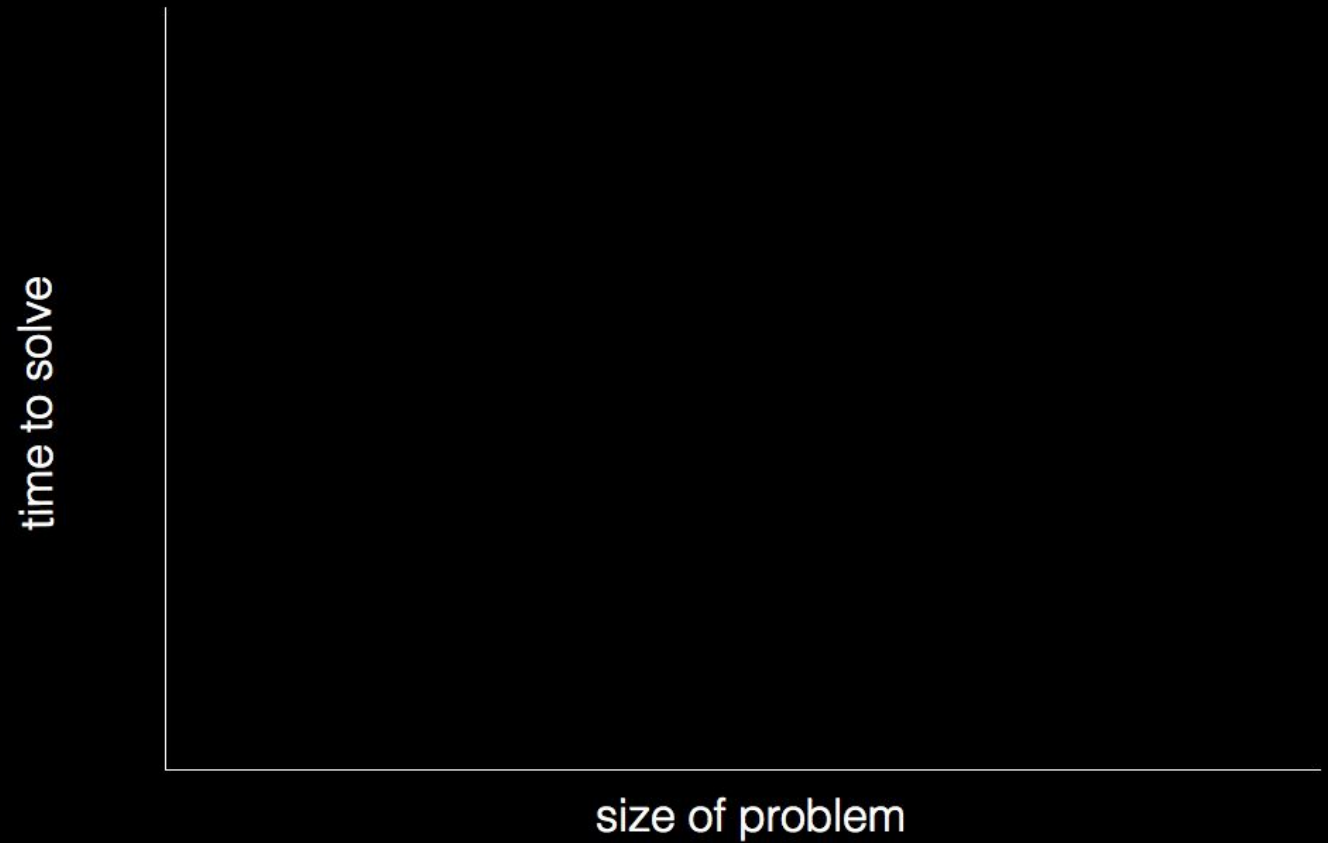
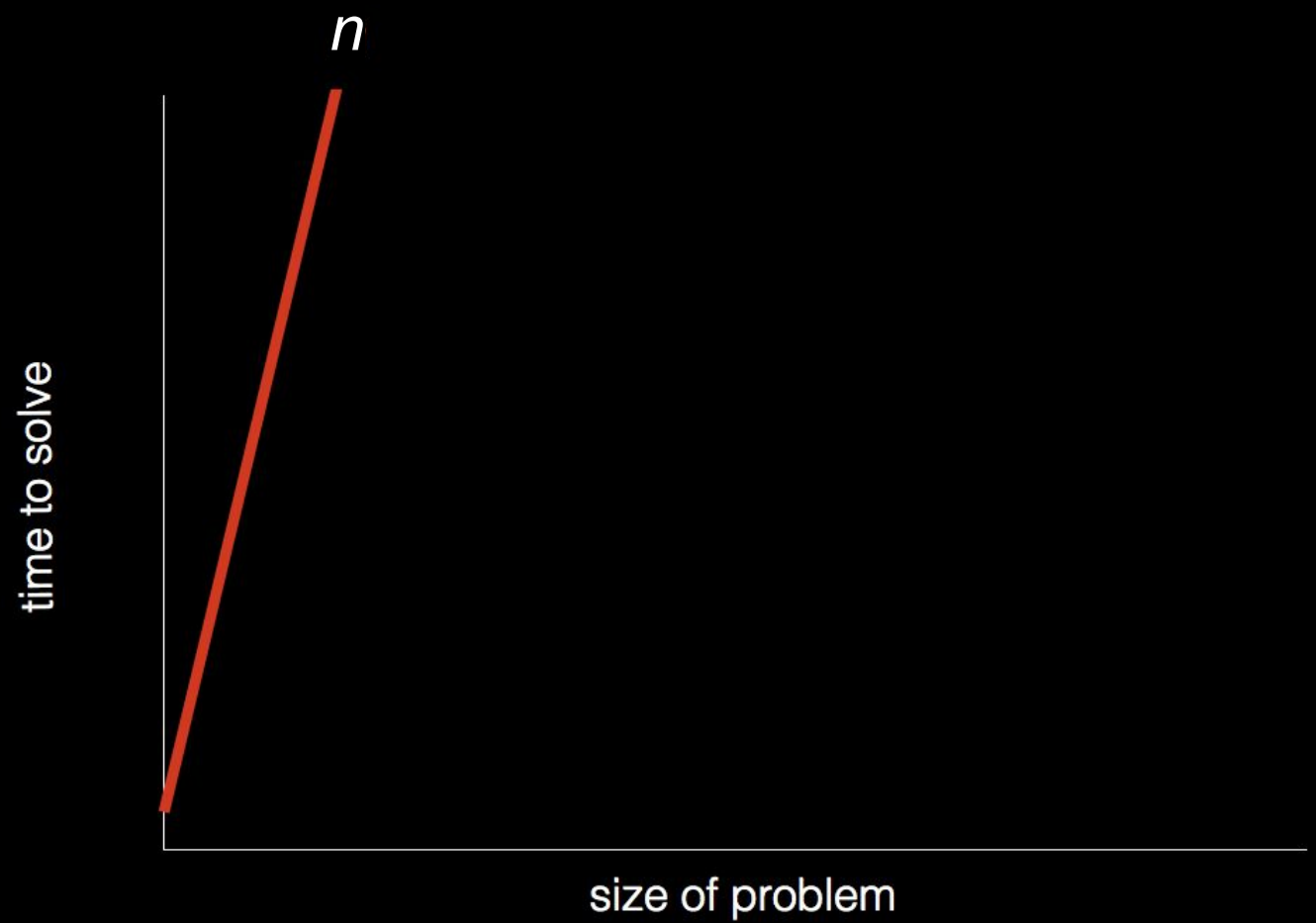
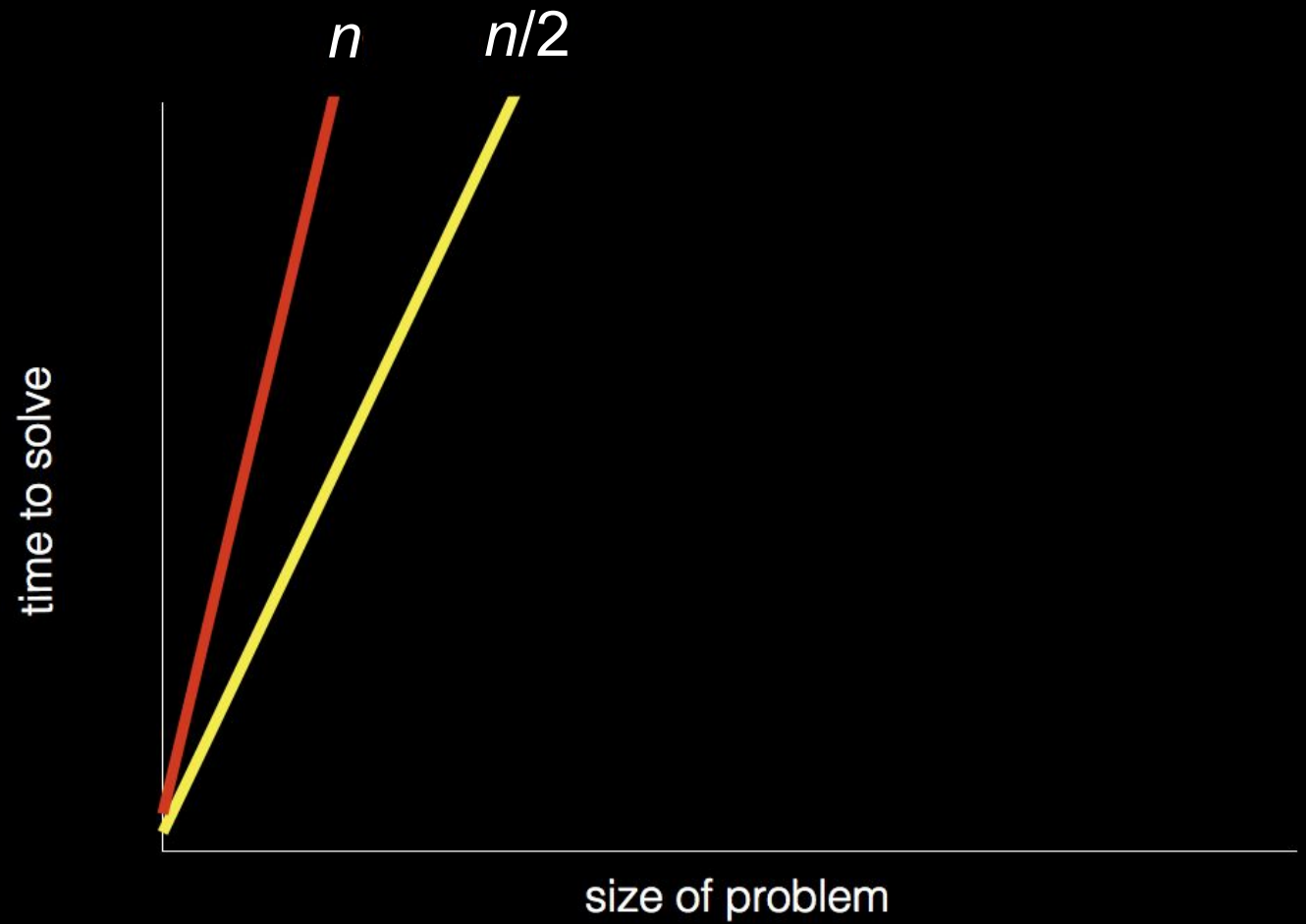
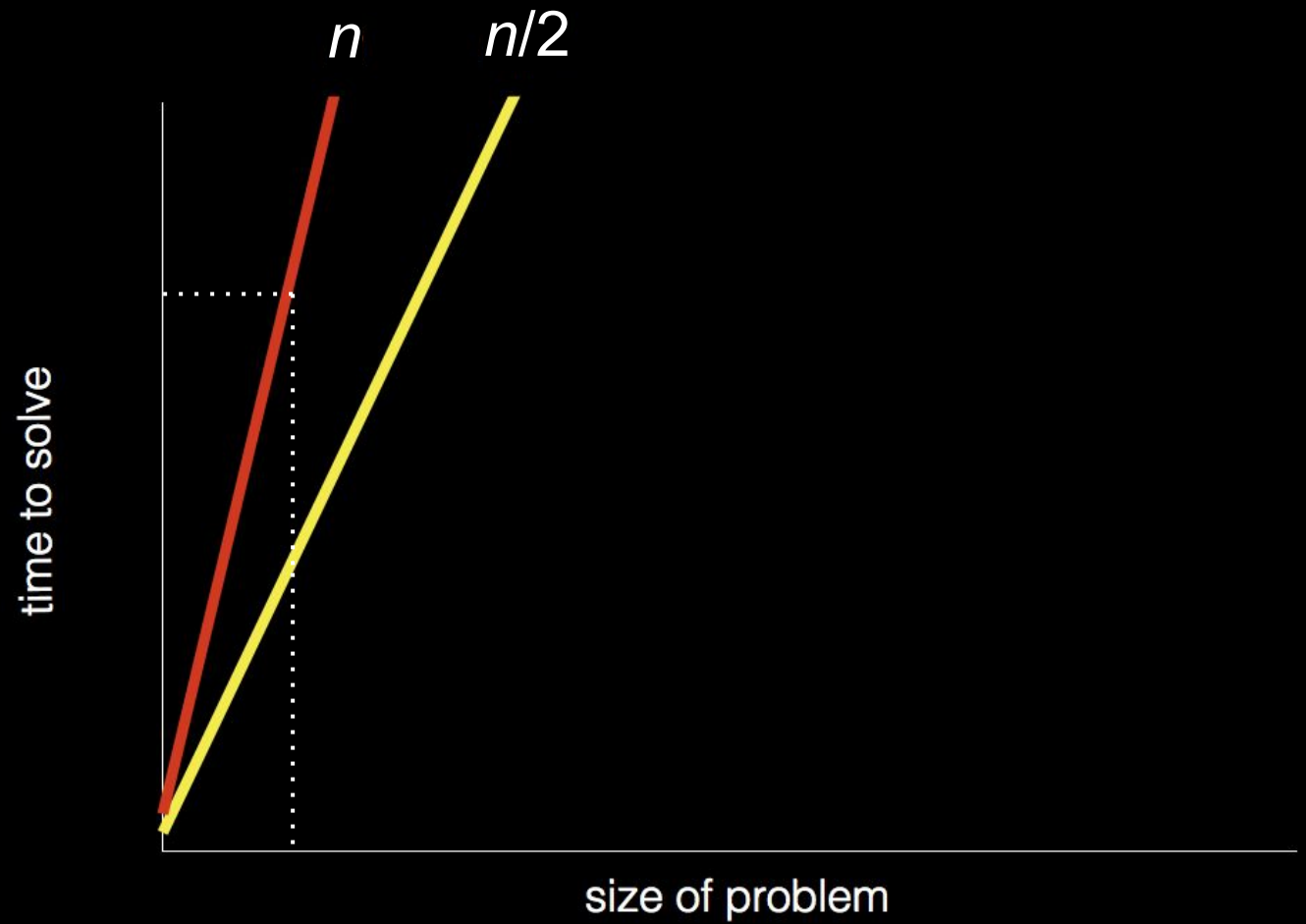
#

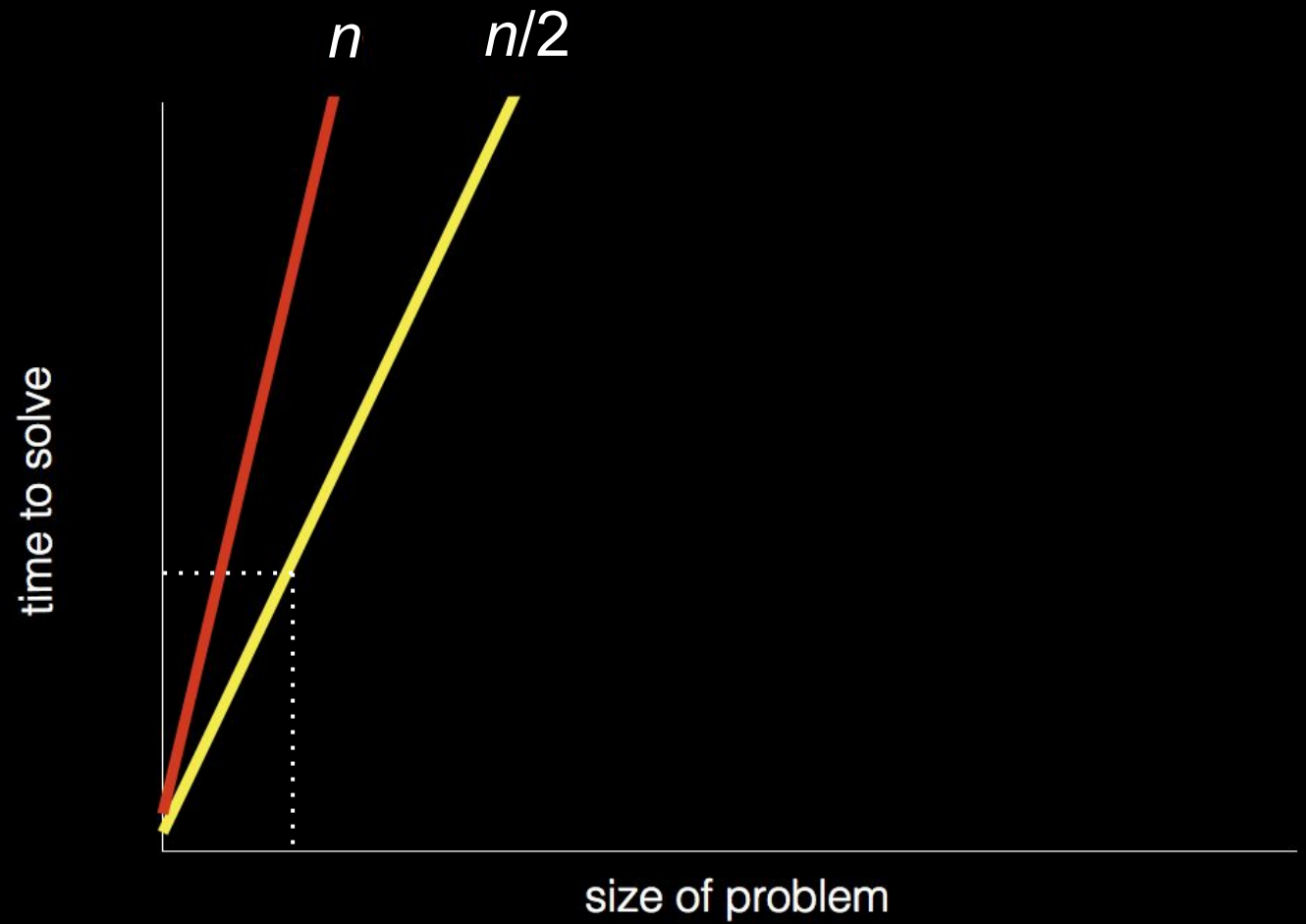

Carrier
Contacts
Edit
JH
John Harvard
message
call
mail
mobile
+1 (949) 468-2750
Notes
Send Message
Share Contact
Add to Favorites
Add to Emergency Contacts

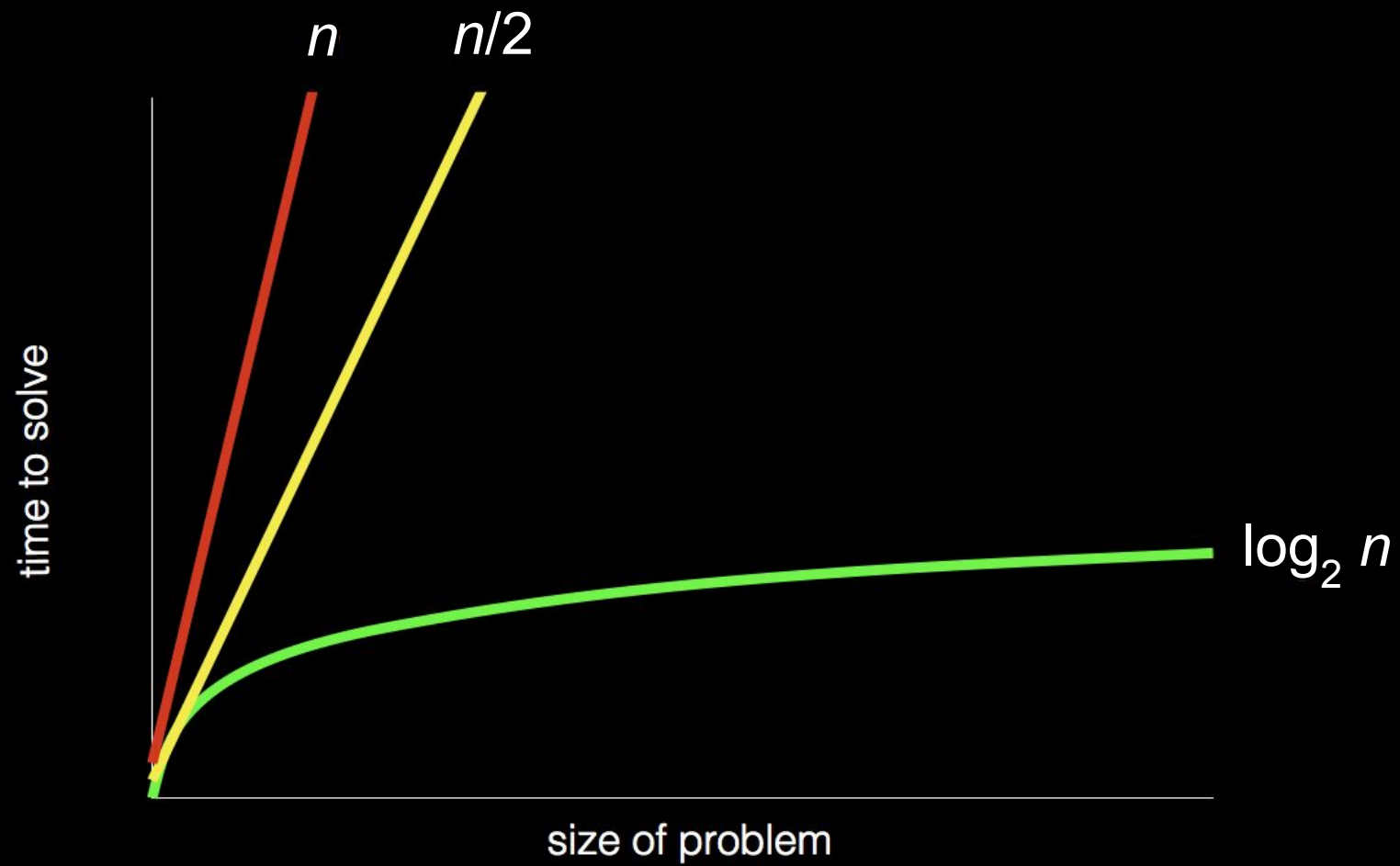

time to solve
size of problem


n
time to solve
size of problem


n
n/2
time to solve
size of problem


n
n/2
time to solve
size of problem


n
n/2
time to solve
size of problem


n
n/2
time to solve
log2 n
size of problem

pseudocode

```
1   Pick up phone book
2   Open to middle of phone book
3   Look at page
4   If person is on page
5       Call person
6   Else if person is earlier in book
7       Open to middle of left half of book
8       Go back to line 3
9   Else if person is later in book
10      Open to middle of right half of book
11      Go back to line 3
12  Else
13      Quit
```

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12  Else
13      Quit
```

functions
conditionals
Boolean expressions
loops
…

thank you

artificial intelligence

PCMag

Harvard's New Computer Science Teacher Is a Chatbot

The university is encouraging students to use 'CS50 bot' as their 24/7 learning assistant.

```
If student says hello
    Say hello back
```

```
If student says hello
    Say hello back
Else if student says goodbye
    Say goodbye back
```

```
If student says hello
    Say hello back
Else if student says goodbye
    Say goodbye back
Else if student asks how you are
    Say you're well
```

```
If student says hello
    Say hello back
Else if student says goodbye
    Say goodbye back
Else if student asks how you are
    Say you're well
Else if student asks why 111 in binary is 7 is decimal
    …
```

large language models

Not Reasonable

Using AI-based software other than CS50's own…

Reasonable

Using CS50's own AI-based software…

CS50 Duck

cs50.ai

CS50

felt like having a personal tutor…

felt like having a personal tutor… i love how AI bots will answer questions without ego and without judgment,

felt like having a personal tutor… i love how AI bots will answer questions without ego and without judgment, generally entertaining even the stupidest of questions without treating them like they're stupid.

felt like having a personal tutor… i love how AI bots will answer questions without ego and without judgment, generally entertaining even the stupidest of questions without treating them like they're stupid. it has an, as one could expect, inhuman level of patience.

Love love loved the duck. We're friends now.

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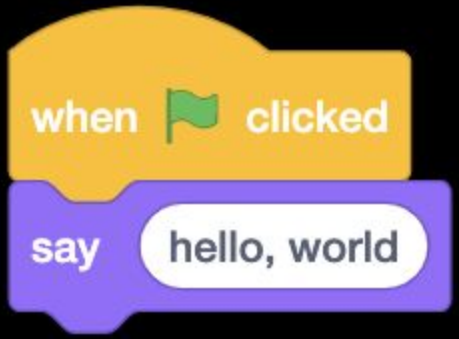
```c
#include <stdio.h>

int main(void)
{
    printf("hello, world\n");
}
```

Visual Studio Code for CS50

cs50.dev

Scratch

scratch.mit.edu


when clicked
say
hello, world

Settings File Edit Tutorials Join Scratch Sign in

Code Costumes Sounds

Motion
Looks
Sound
Events
Control
Sensing
Operators
Variables
My Blocks

Motion

move 10 steps

turn 15 degrees

turn 15 degrees

go to random position

go to x: 0 y: 0

glide 1 secs to random position

glide 1 secs to x: 0 y: 0

point in direction 90

point towards mouse-pointer

change x by 10

set x to 0

change y by 10

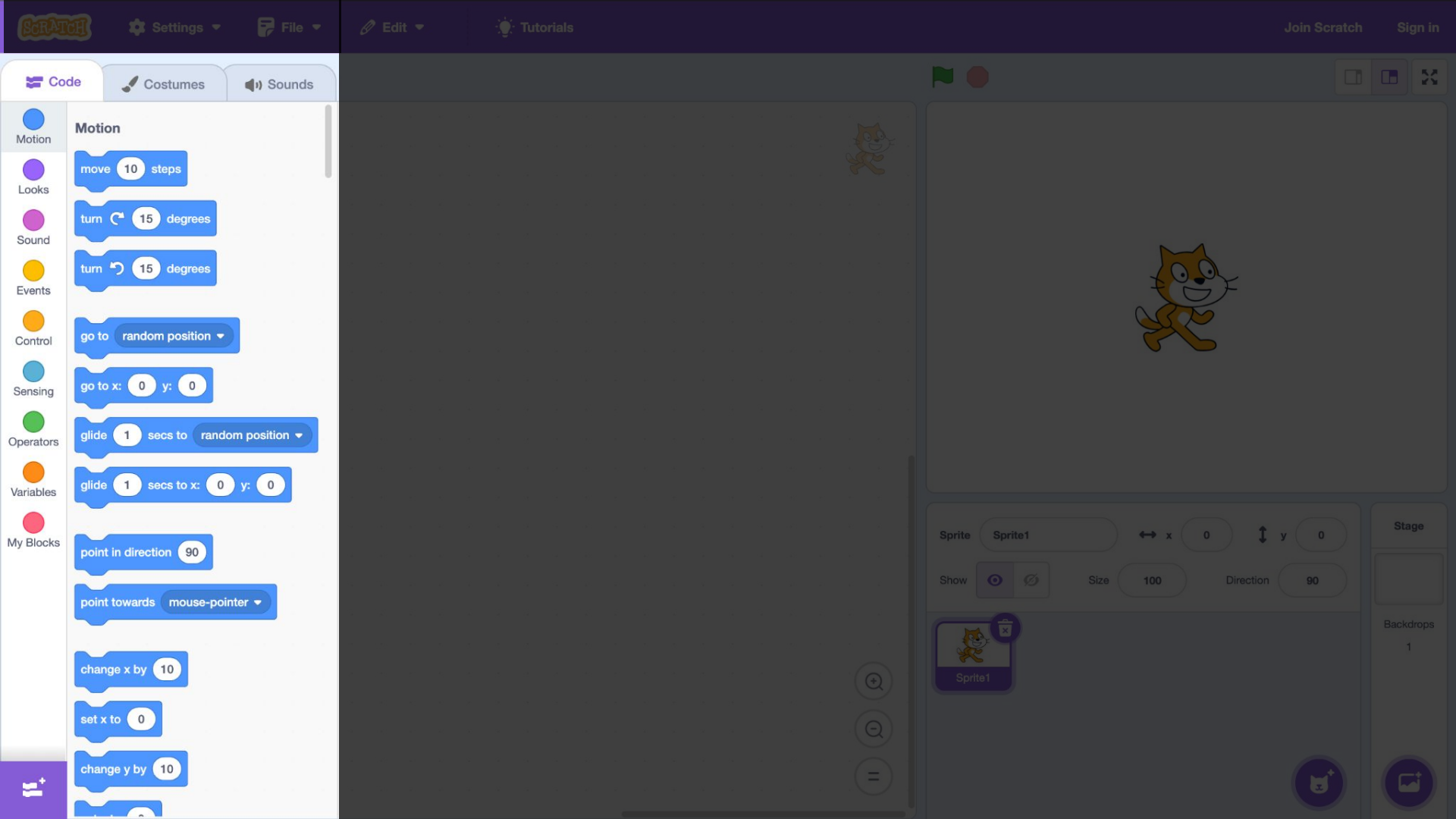
Sprite Sprite1 x 0 y 0

Show Size 100 Direction 90

Sprite1

Stage

Backdrops 1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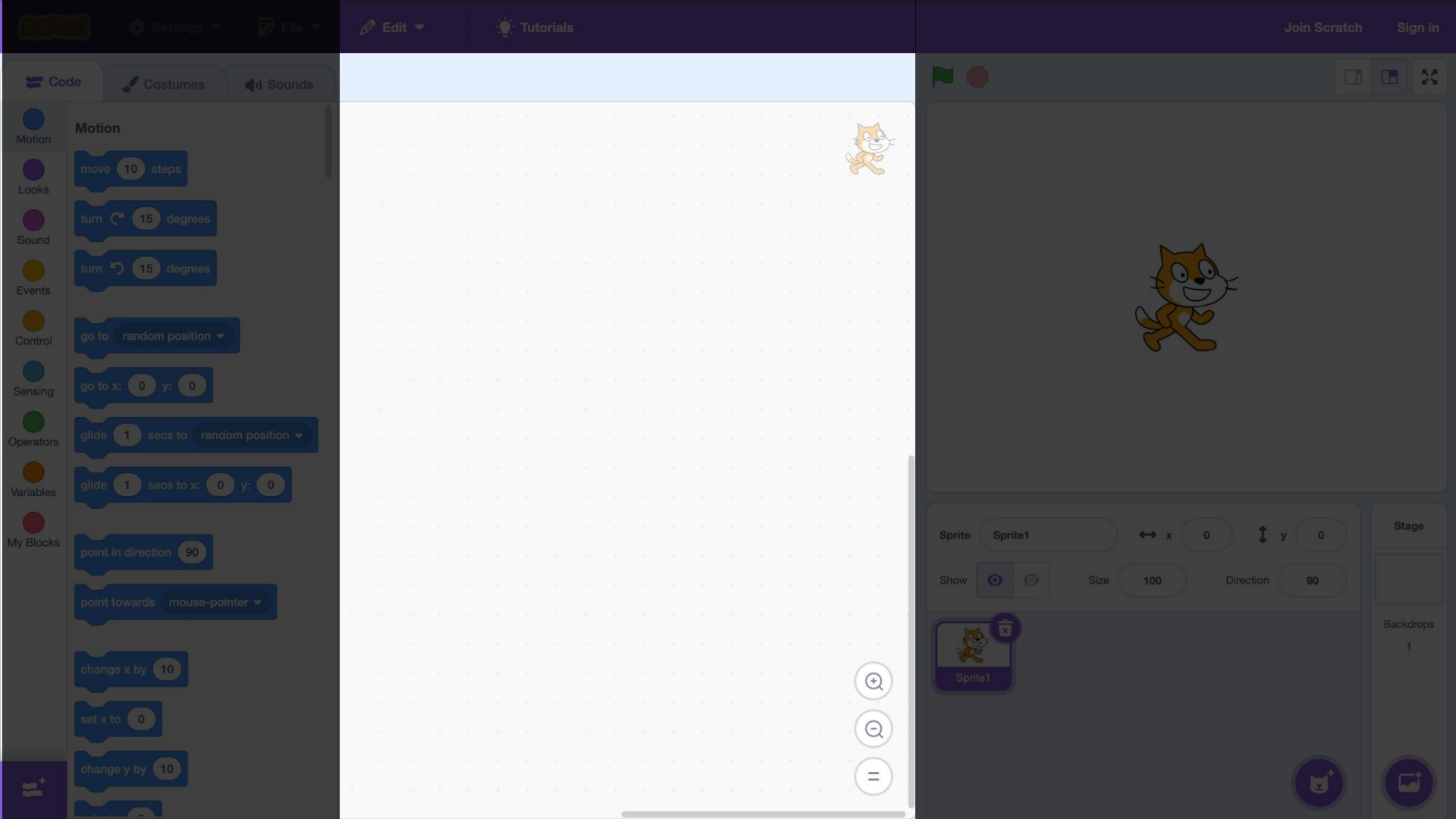
glide 1 secs to x: 0 y: 0
point in direction 90
point towards mouse-pointer
change x by 10
set x to 0
change y by 10
Sprite
Sprite1
x 0
y 0
Show
Size 100
Direction 90
Stage
Backdrops 1
Sprite1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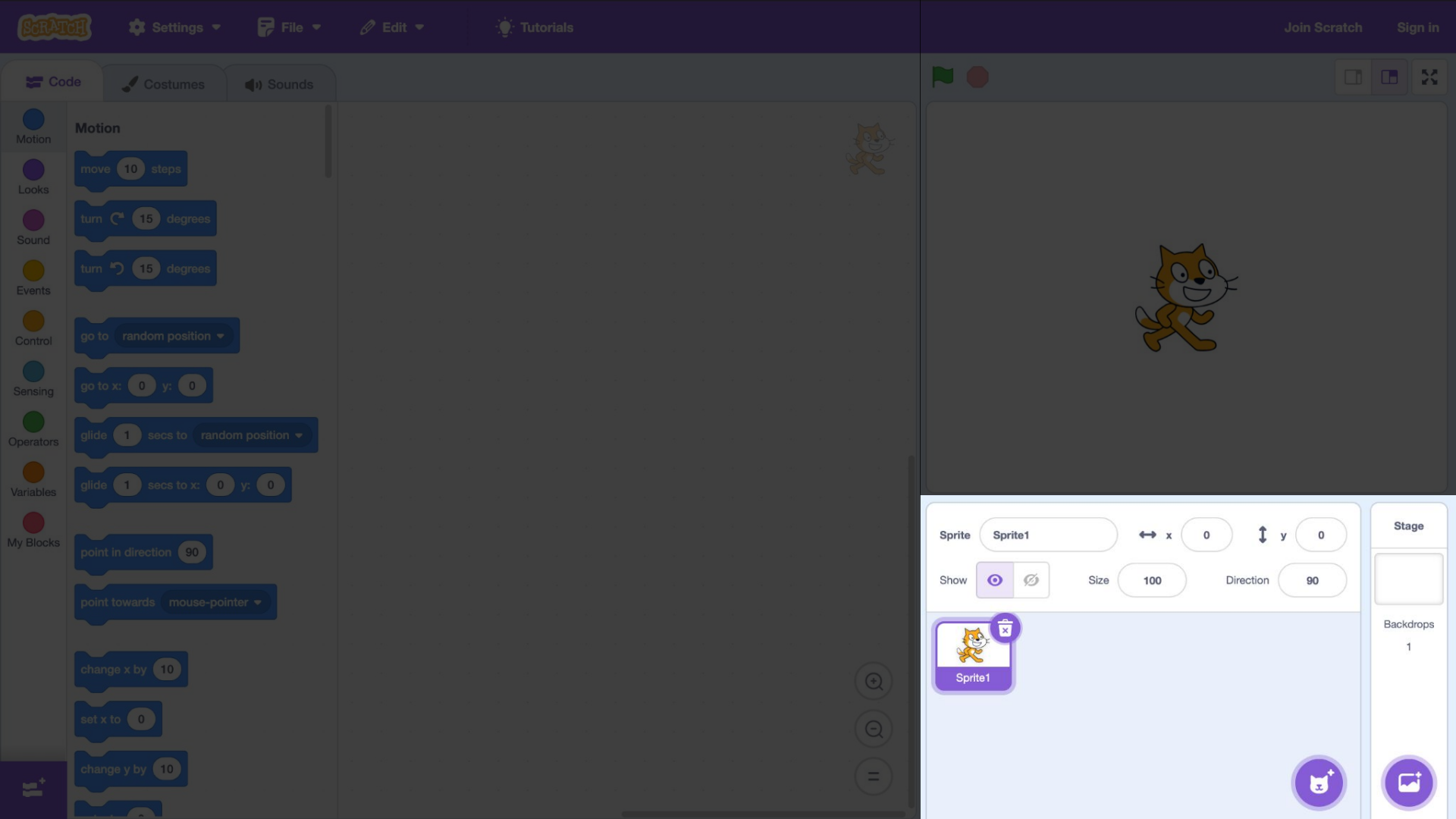
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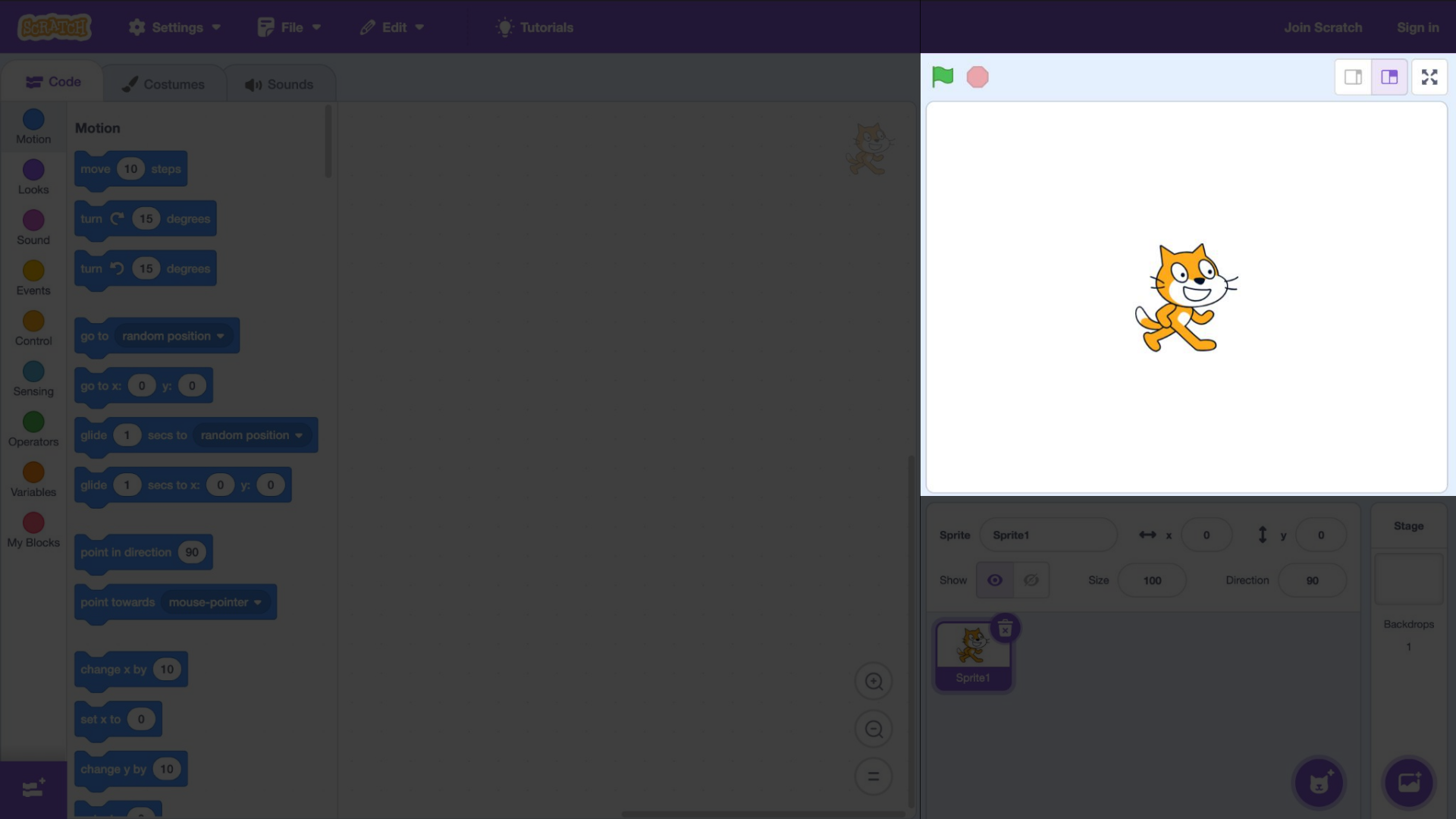
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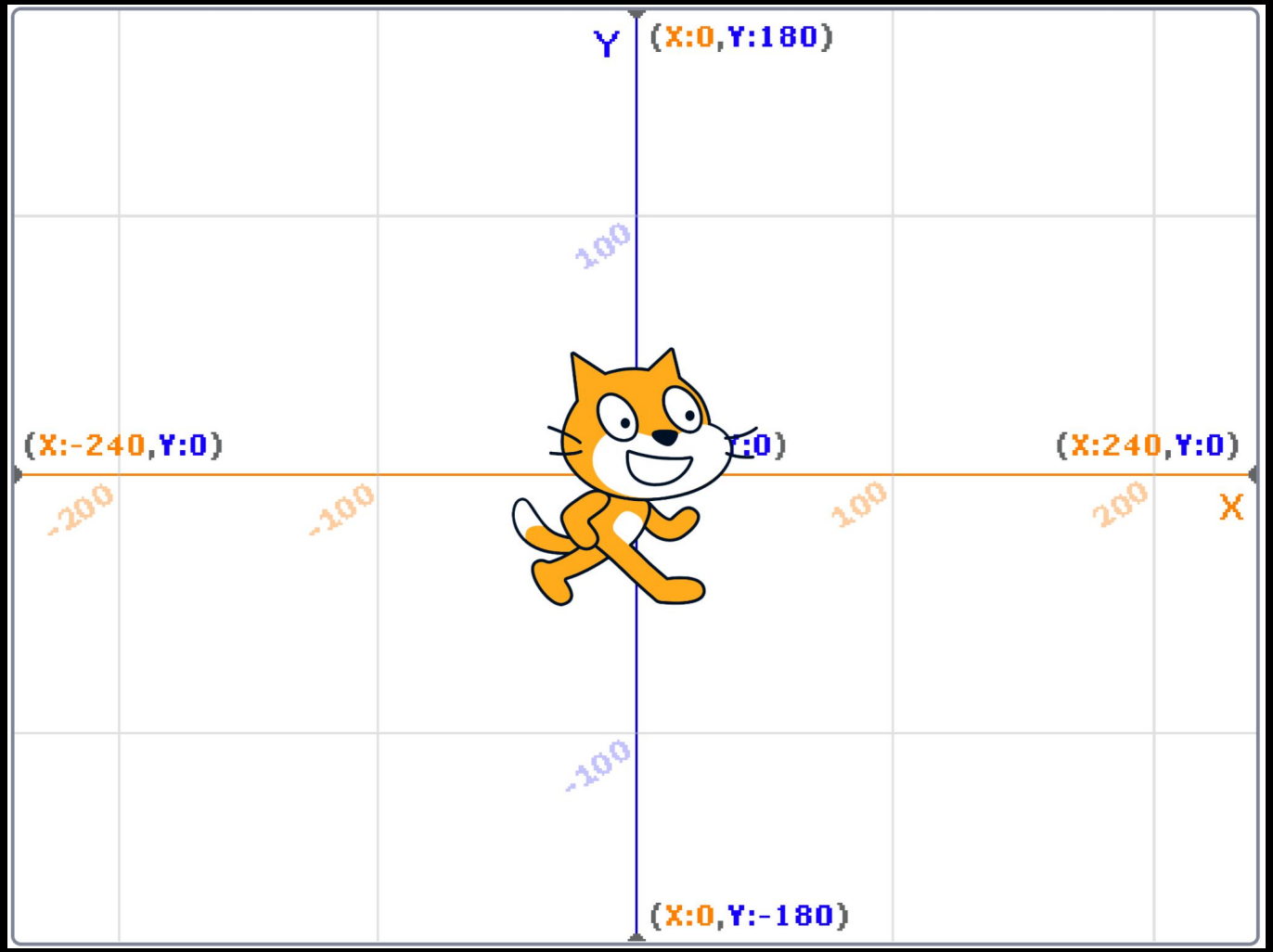
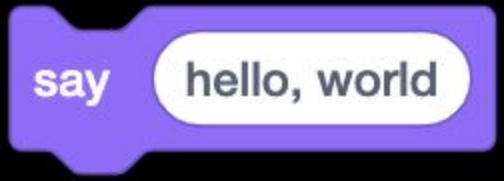
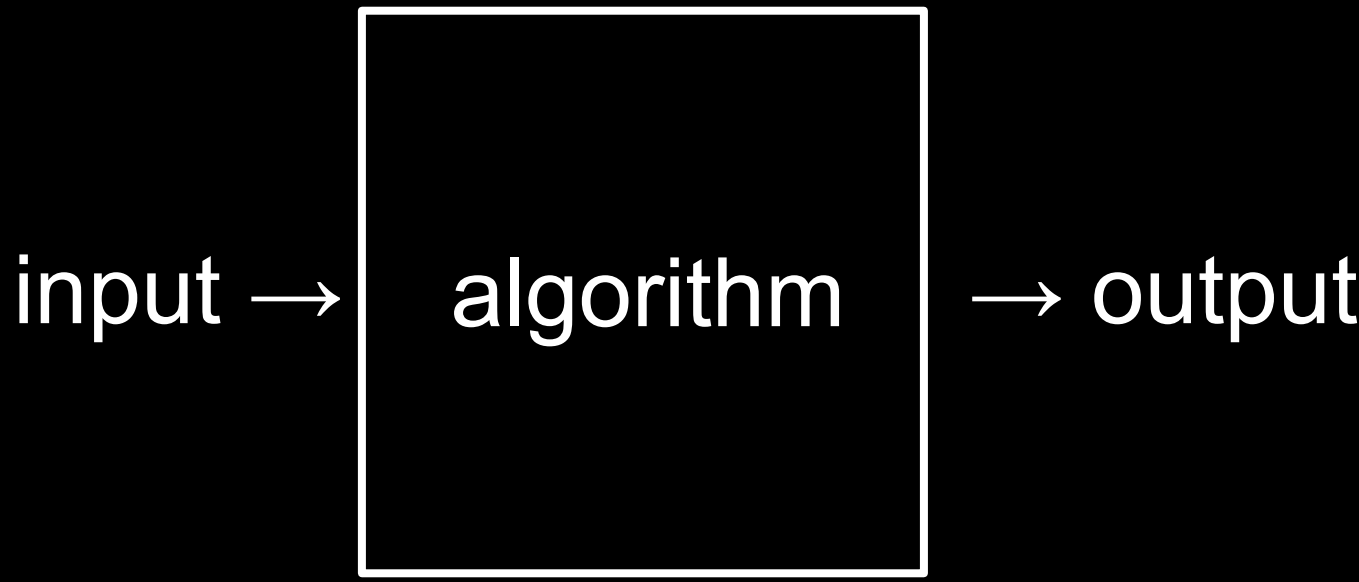
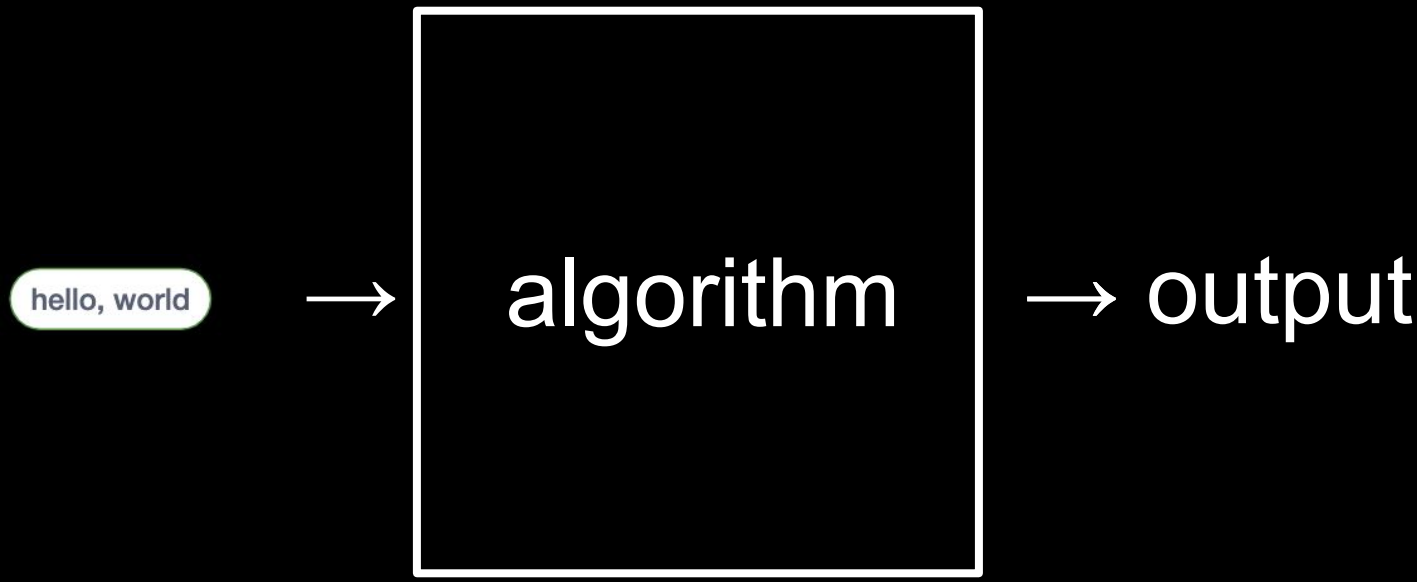
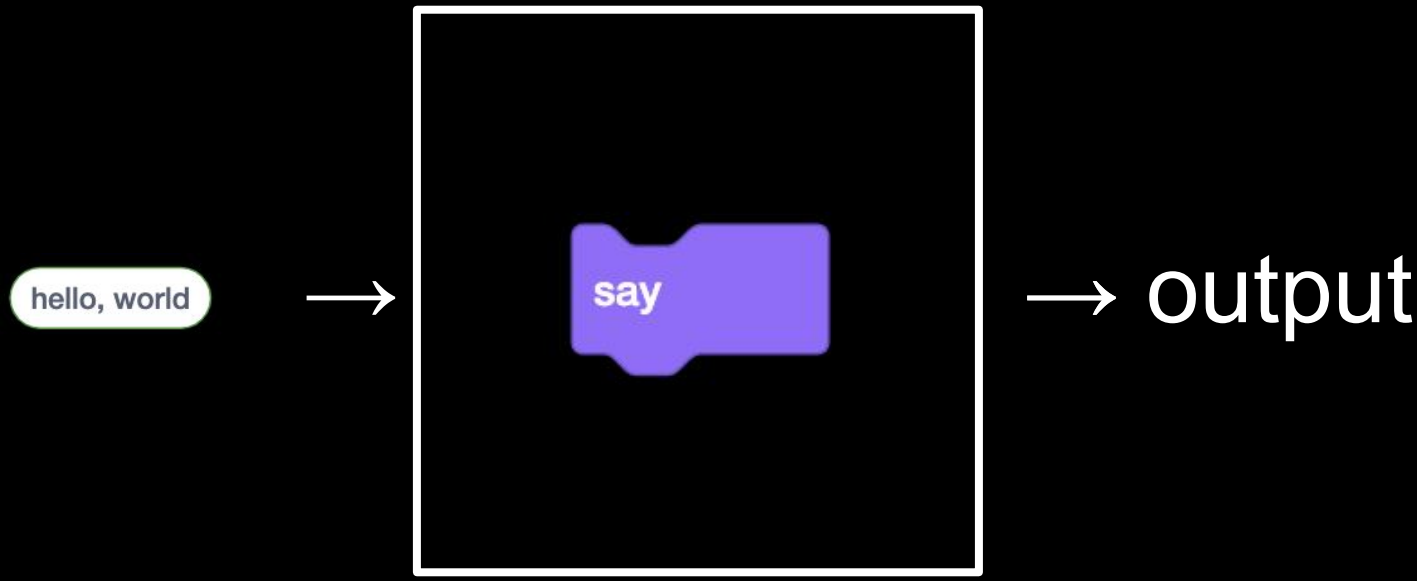
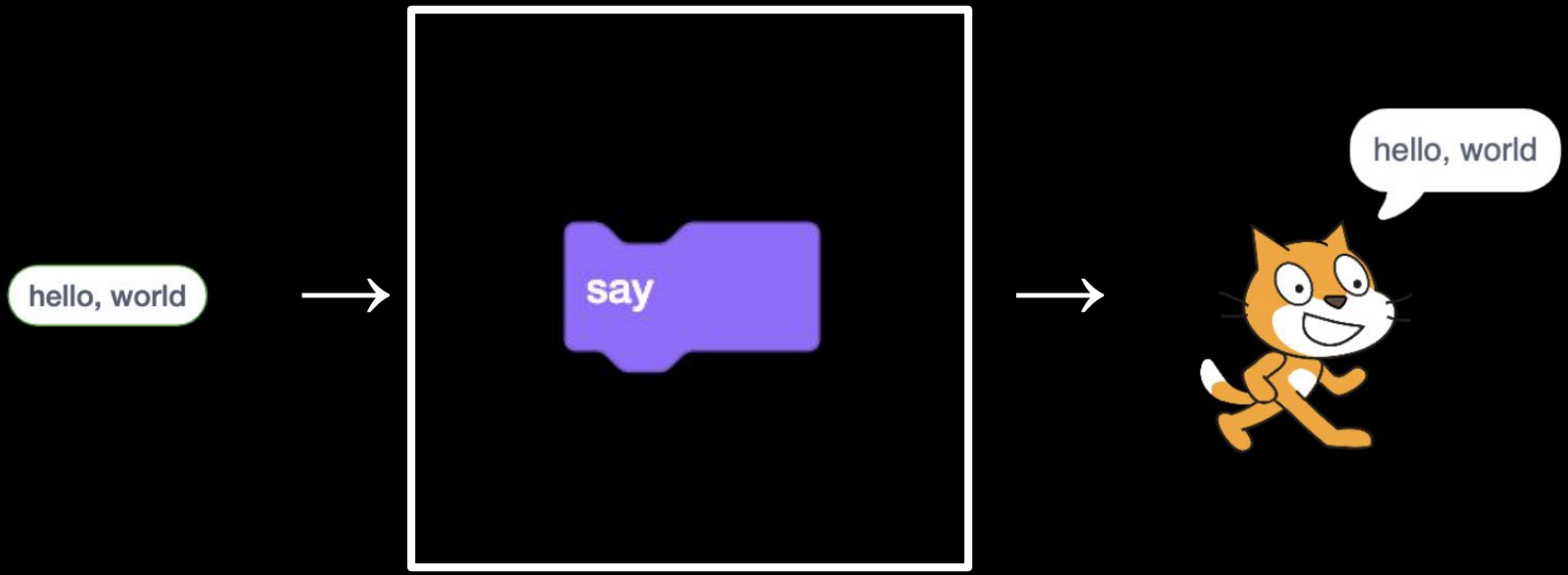

Y
(X:0,Y:180)
100
(X:-240,Y:0)
:0)
(X:240,Y:0)
-200
-100
100
200
X
-100
(X:0,Y:-180)

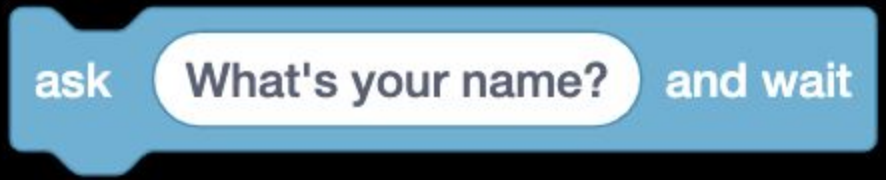

say
hello, world

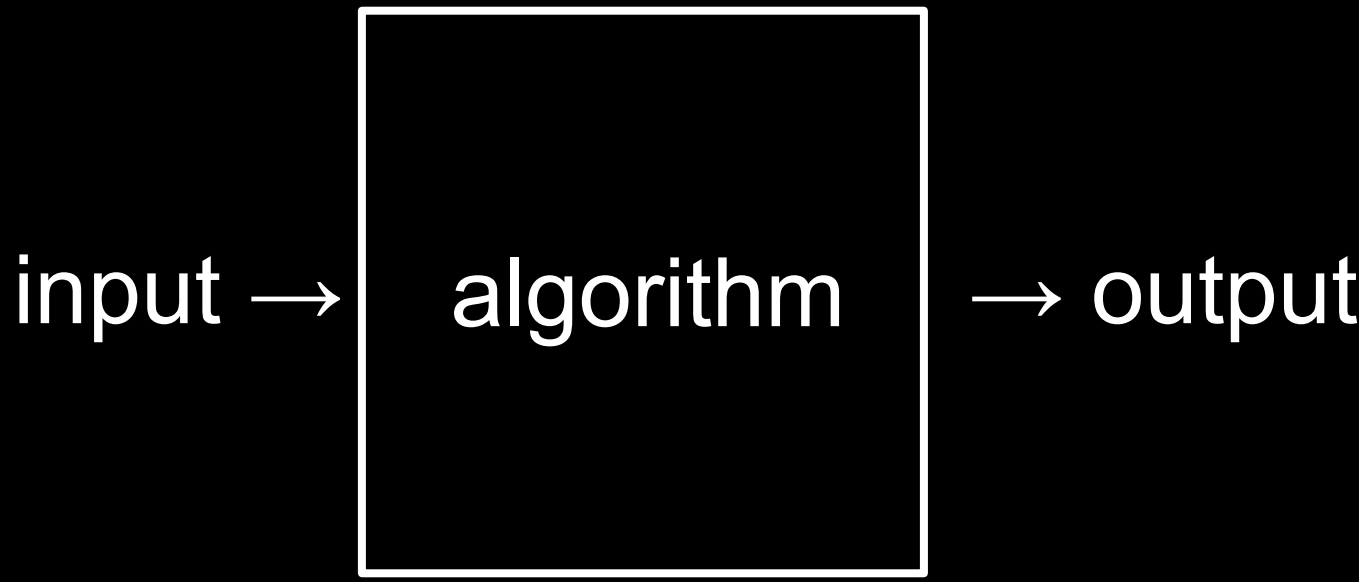

input →
algorithm
→ output

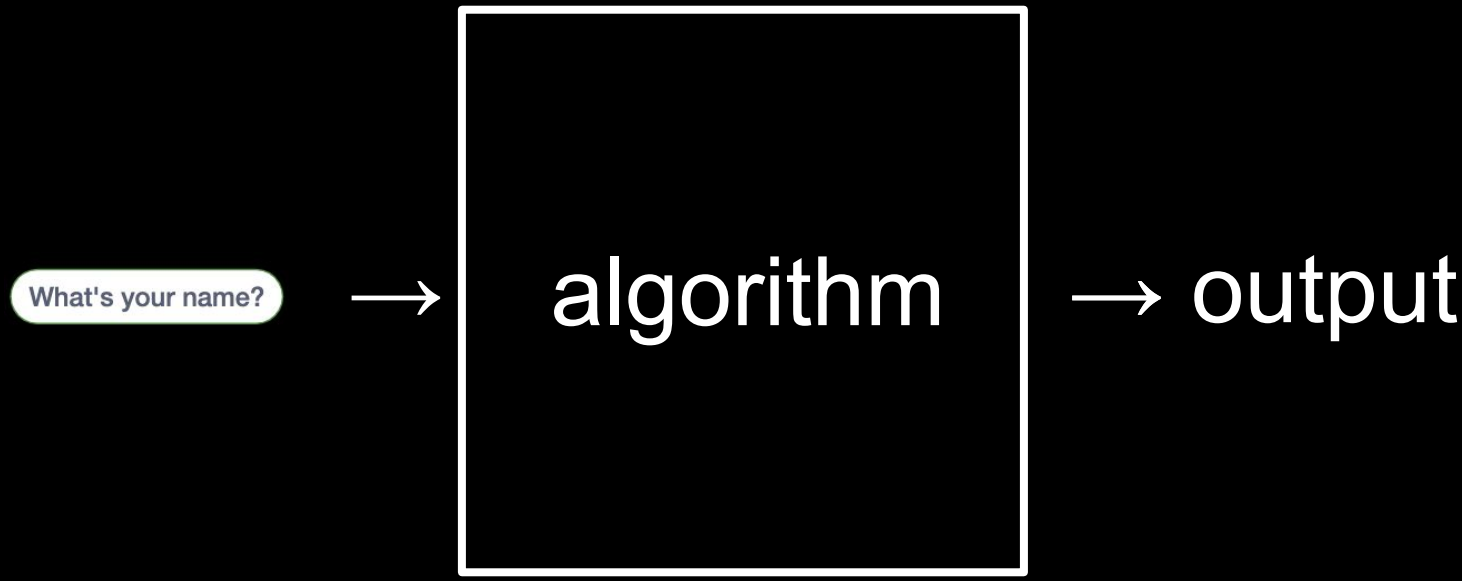

hello, world
algorithm
output

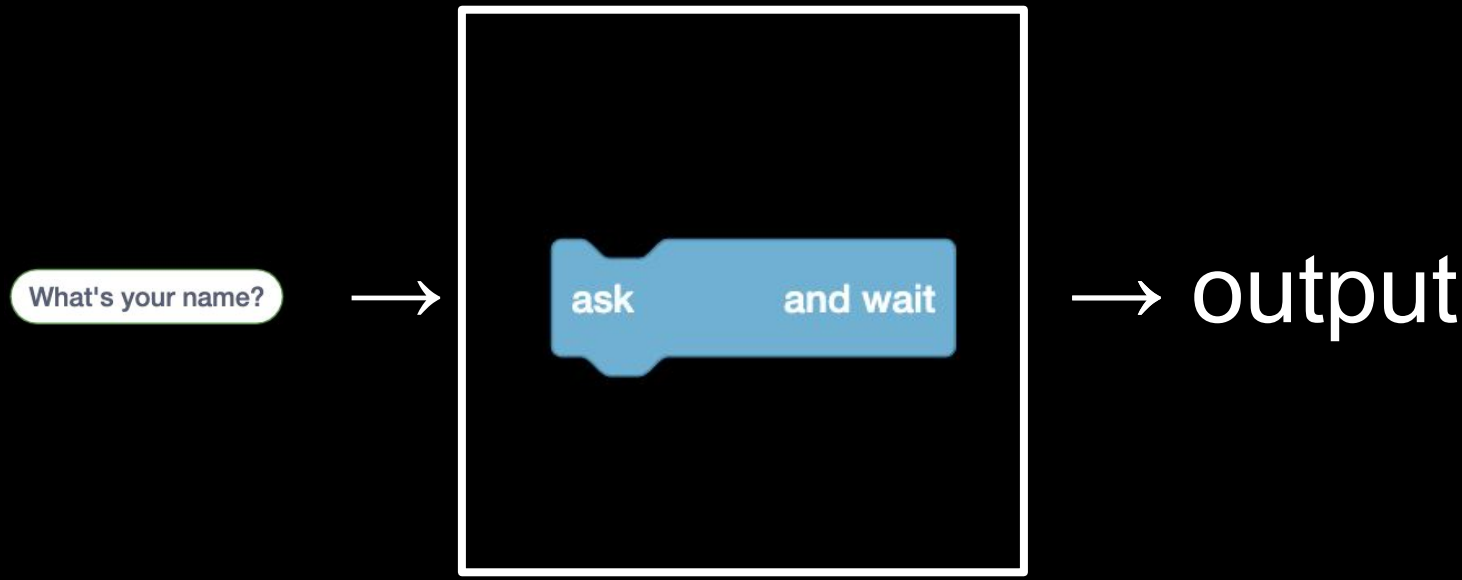

hello, world
say
output

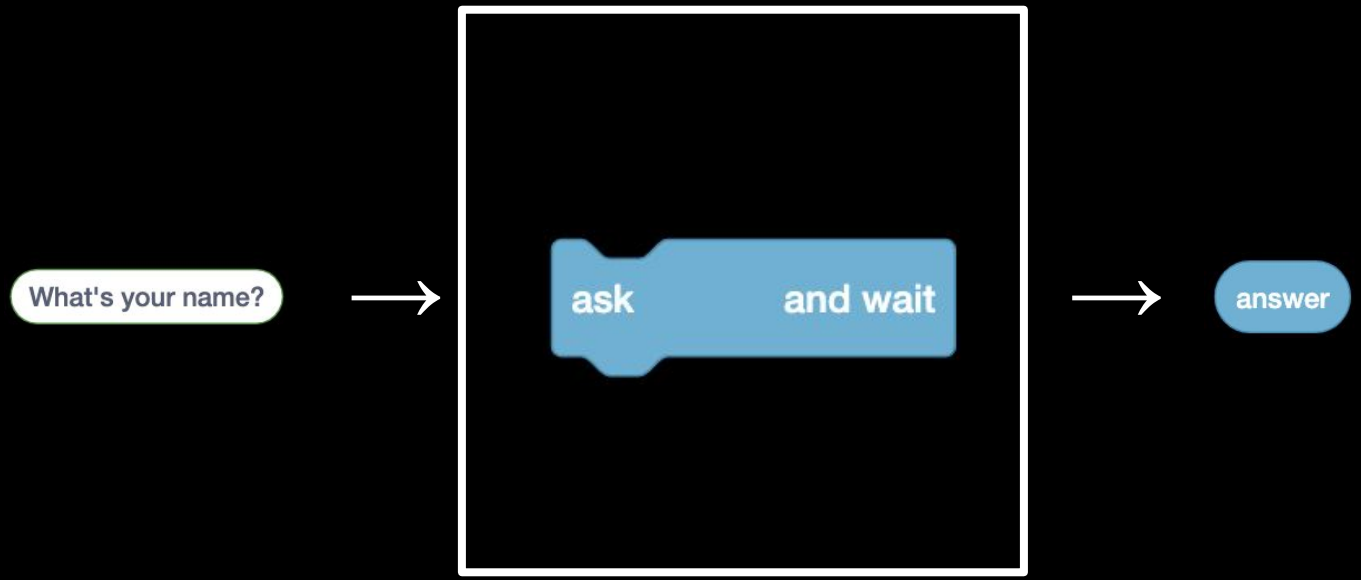

hello, world
say
hello, world

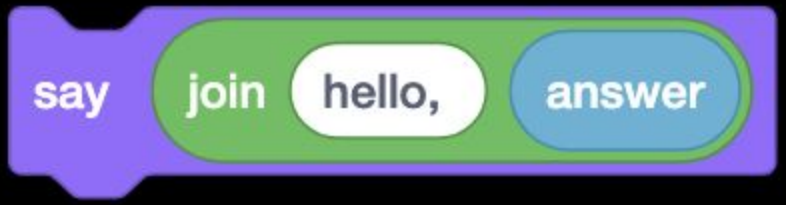

ask
What's your name?
and wait

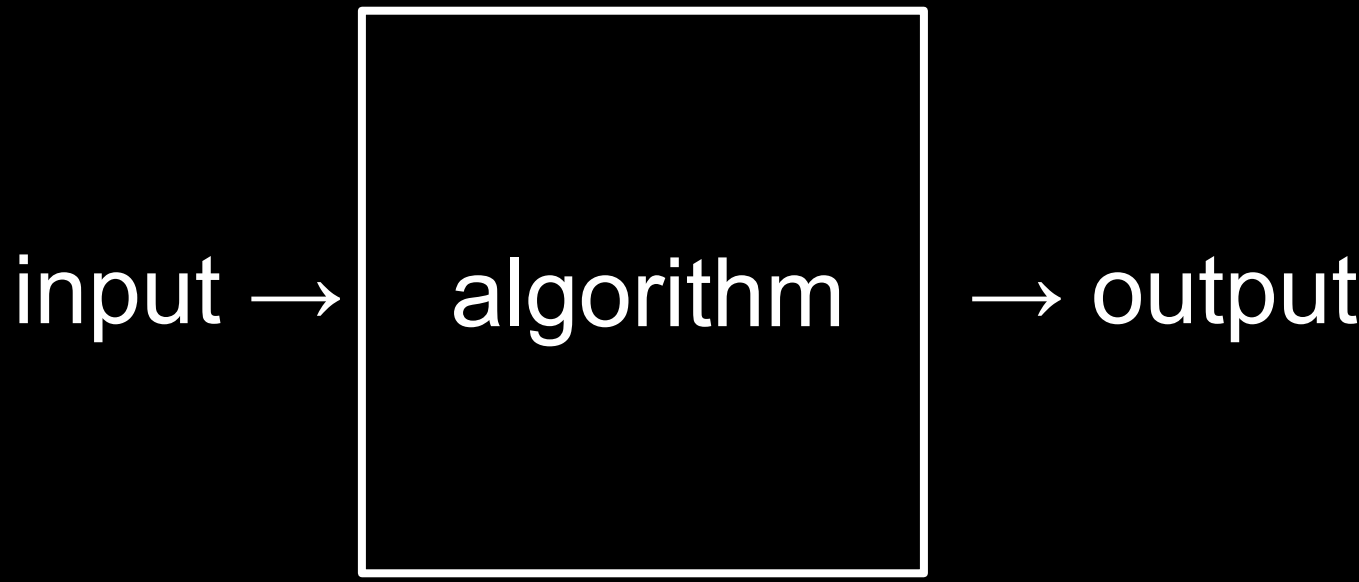

input →
algorithm
→ output

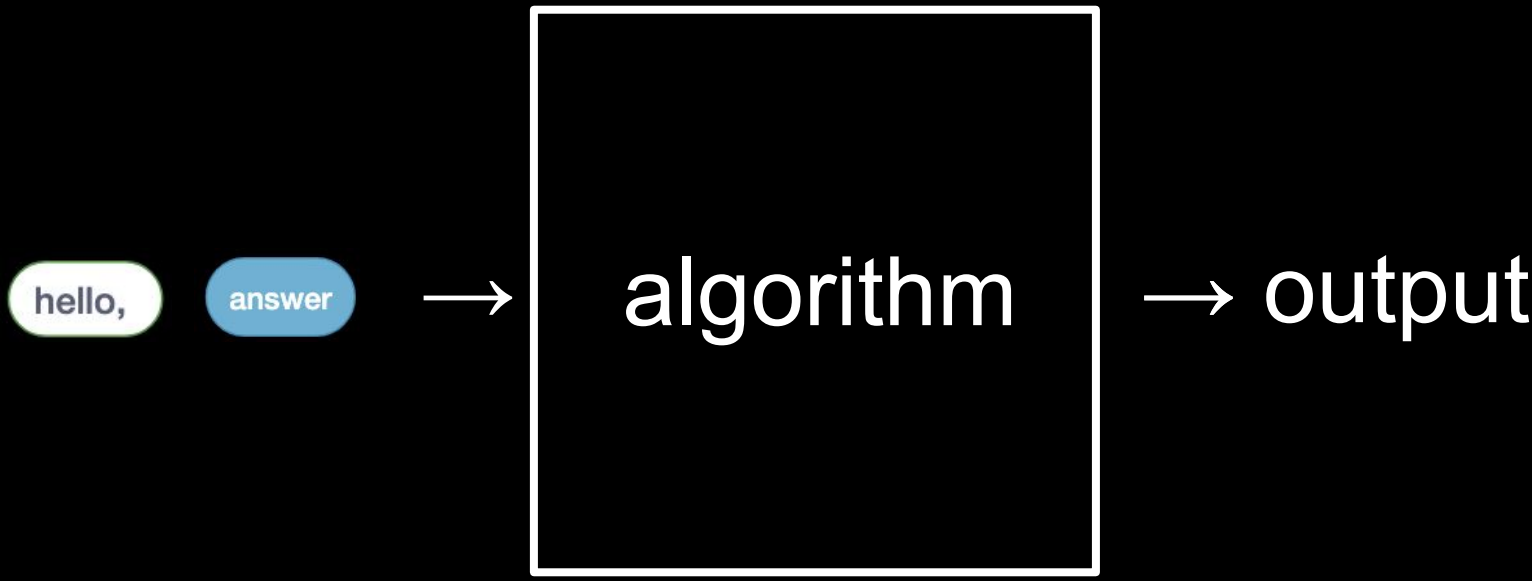

What's your name?
algorithm
output

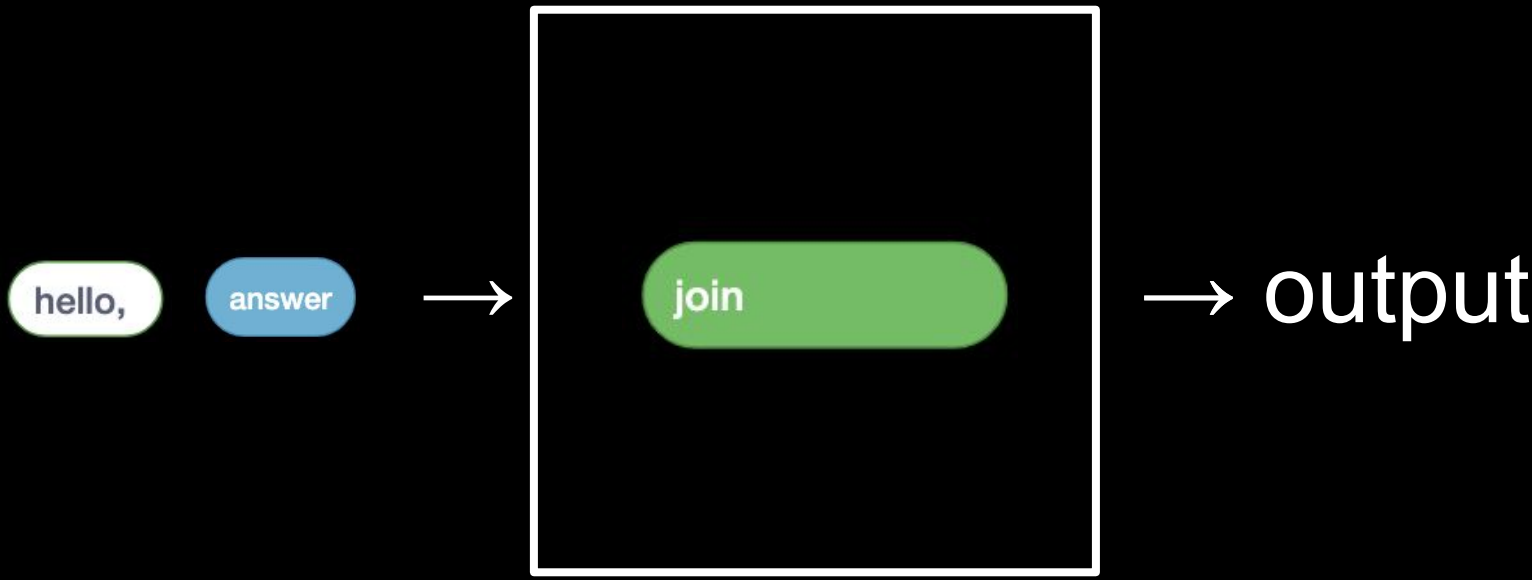

What's your name?
ask
and wait
output

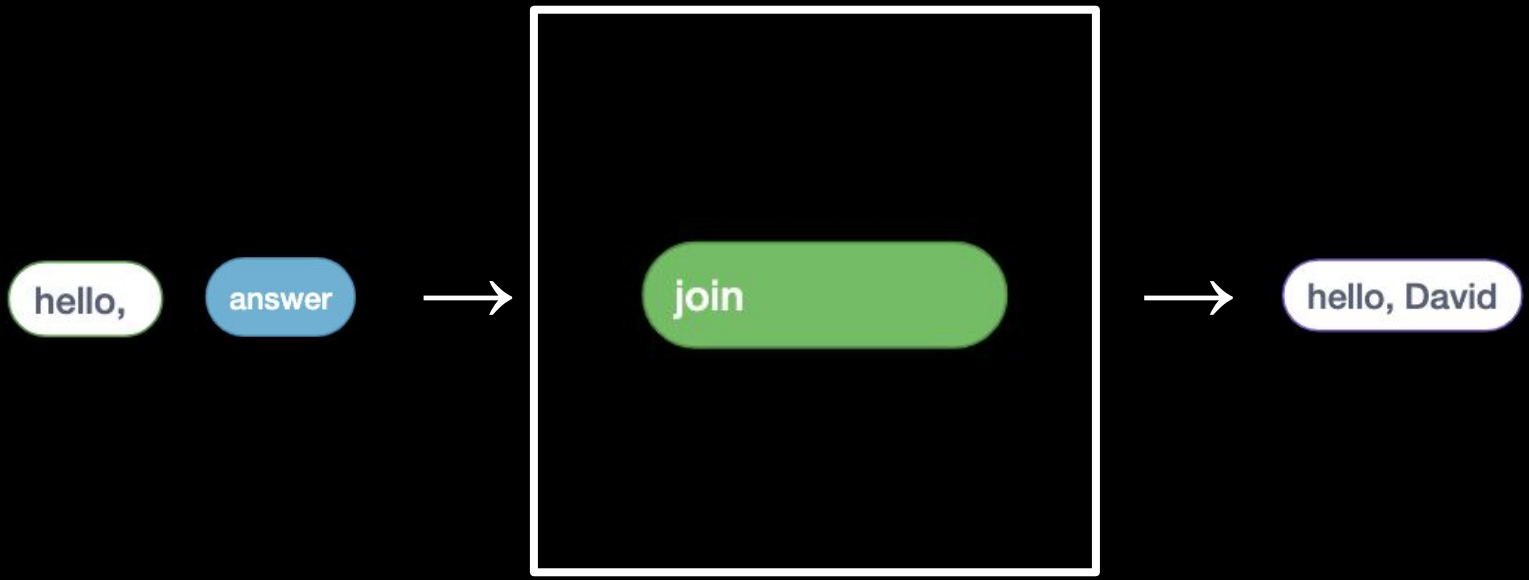

What's your name?
ask
and wait
answer


say
join
hello,
answer


input →
algorithm
→ output

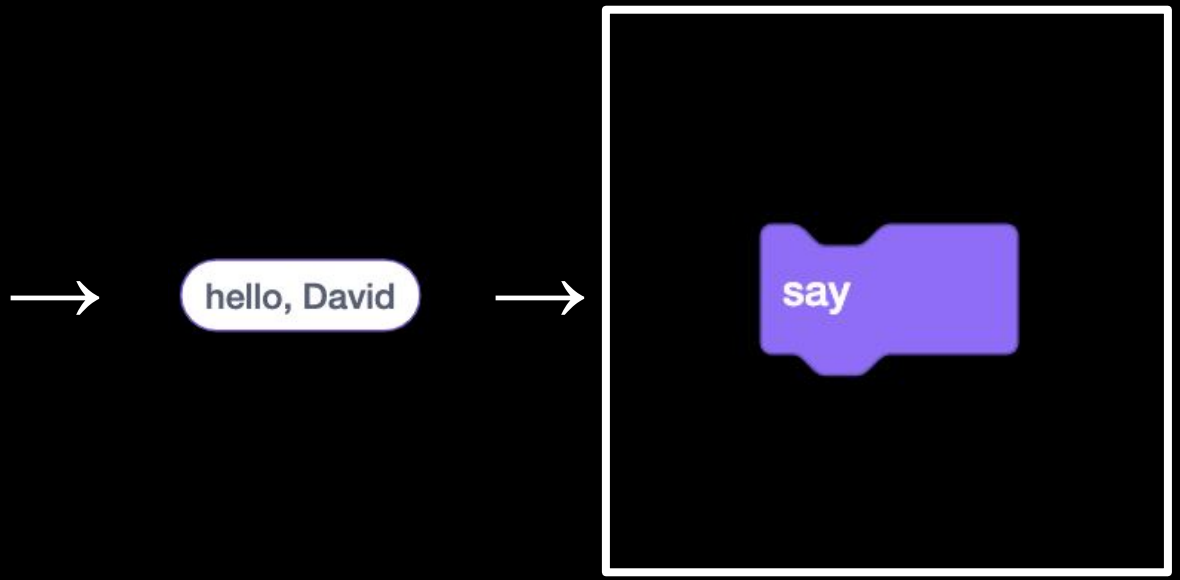

hello,
answer
algorithm
output


hello,
answer
join
output


hello,
answer
join
hello, David

hello, David

hello, David


hello, David
say

hello, David
say
hello, David

This is CS50