hello, section!

week 2

9/25/2018

warmup!

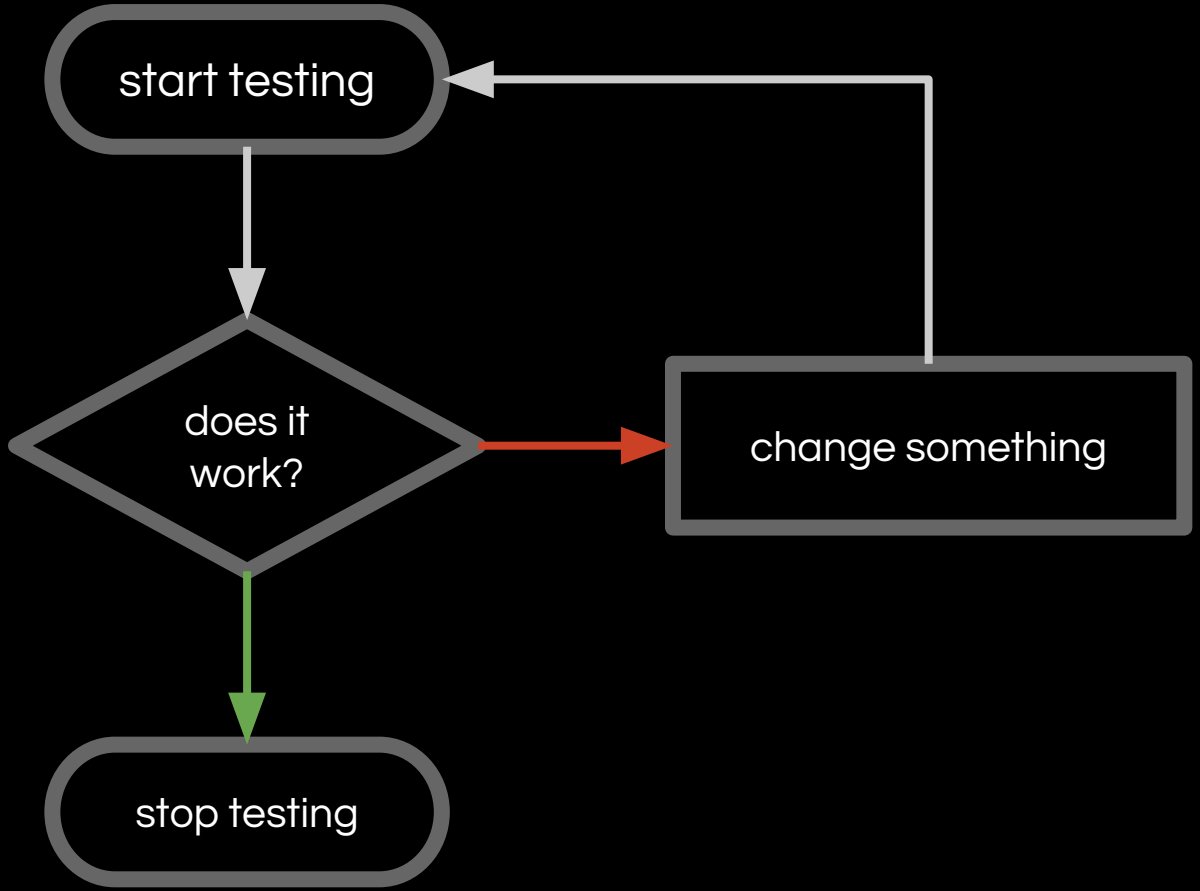
go to this link:
http://bit.ly/2NEoqAX

debugging

what is debugging?

identifying and removing errors from a computer program

debugging



talk to yourself
&
draw it out

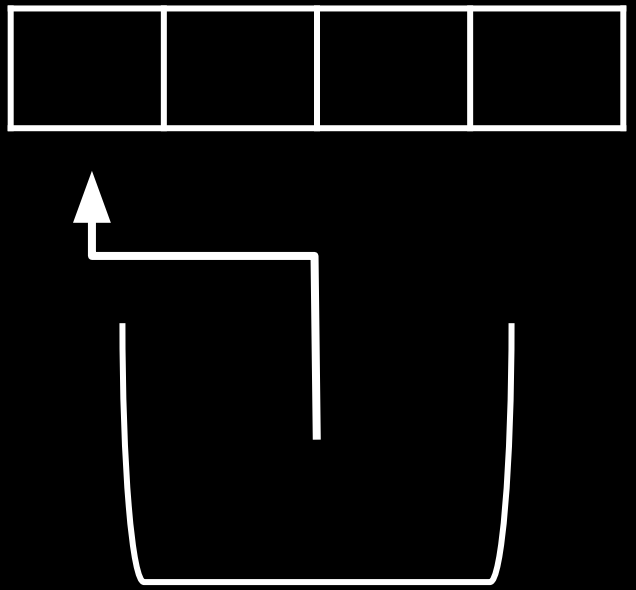
debugging

help50
printf()
style50

arrays

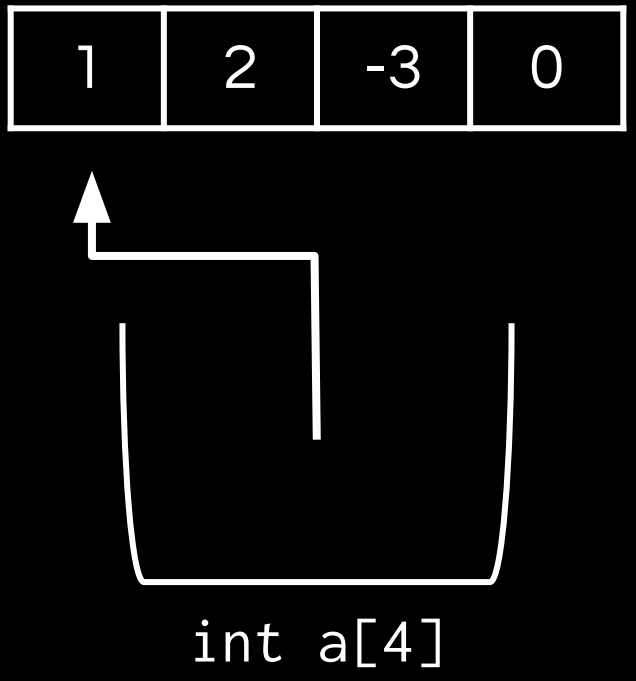
arrays

```
int a[4];
```



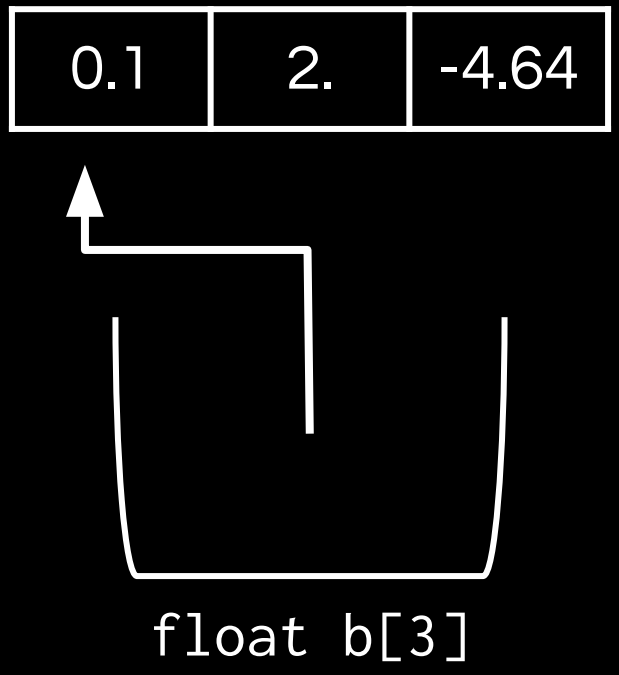
arrays

```
int a[] = {1, 2, -3, 0};
```



arrays

```
float b[] = {0.1, 2., -4.64};
```



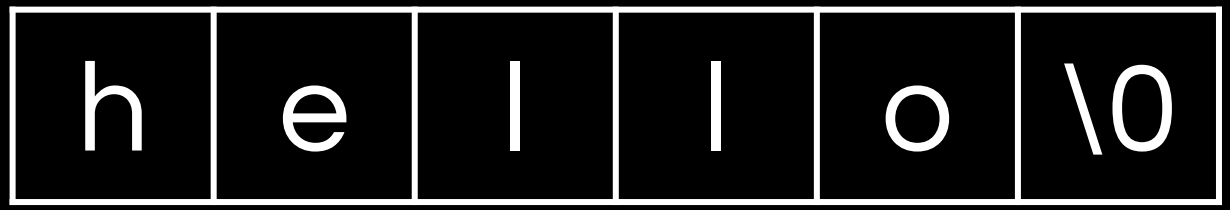
strings

special arrays

~~strings~~

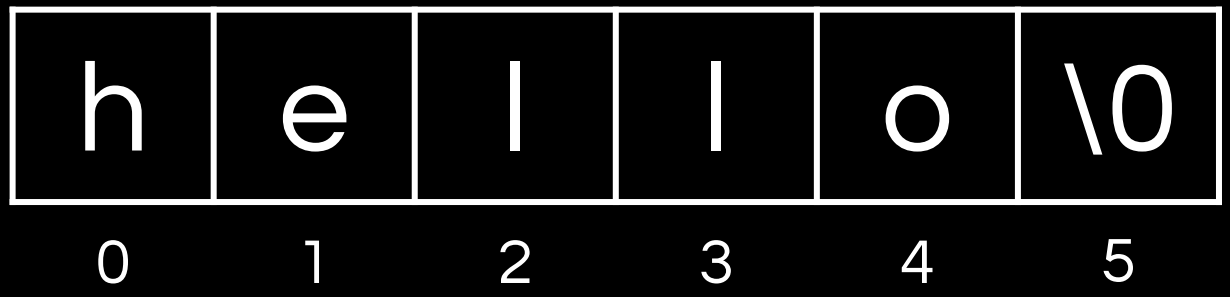
strings

```
char s[] = “hello”
```

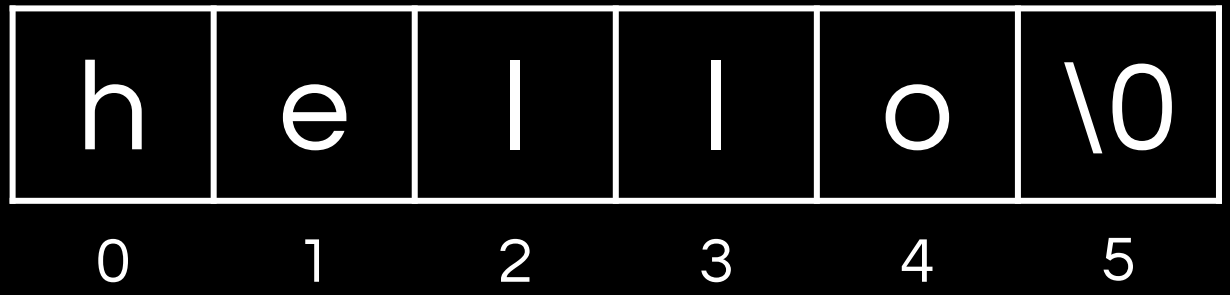


strings

```
char s[] = “hello”
```



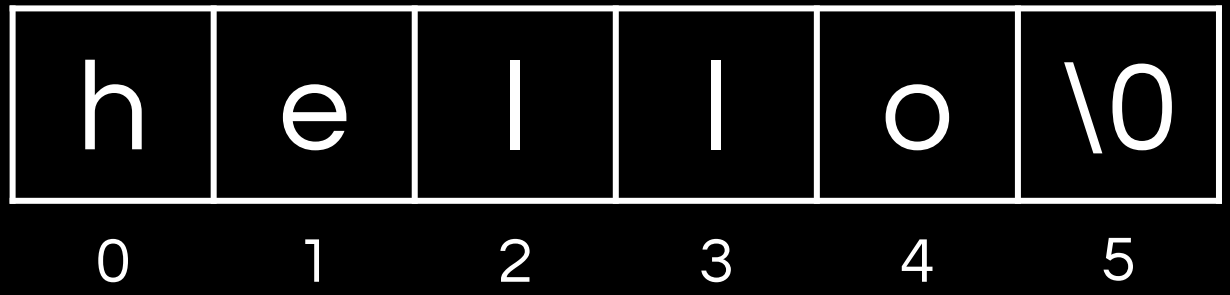
strings




```
printf("%c\n", s[0]);
```

h

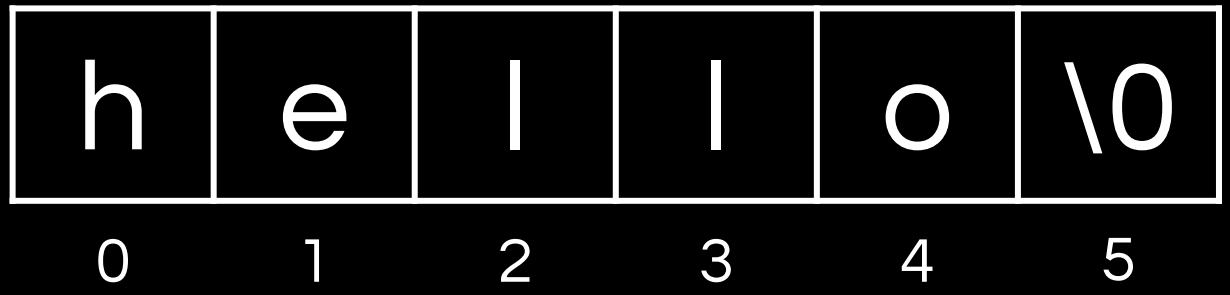
strings




```
printf("%c\n", s[4]);
```

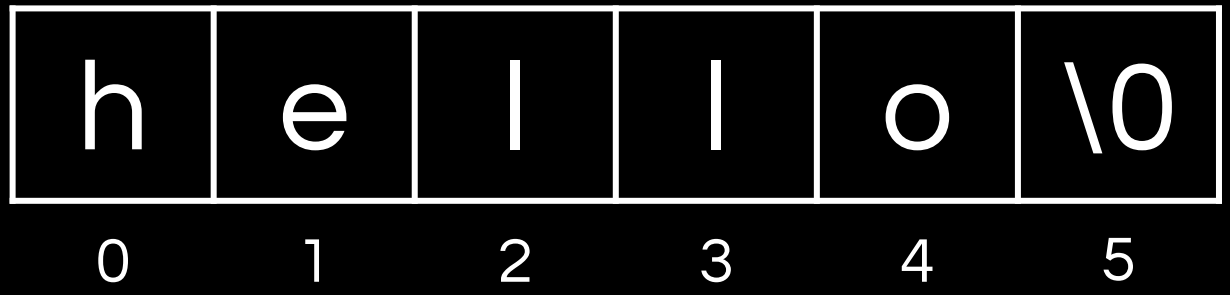
o

strings




```
printf("%c\n", s[5]);
```

strings




```
printf("%c\n", s[6]);
```

?

functions


Sun Chips
Doritos
Lay's
Rold Gold
Snickers
Fritos
Cheetos
M&M'S
HERSHEY'S


input
output

input

- cash
- snack code

output

- snack

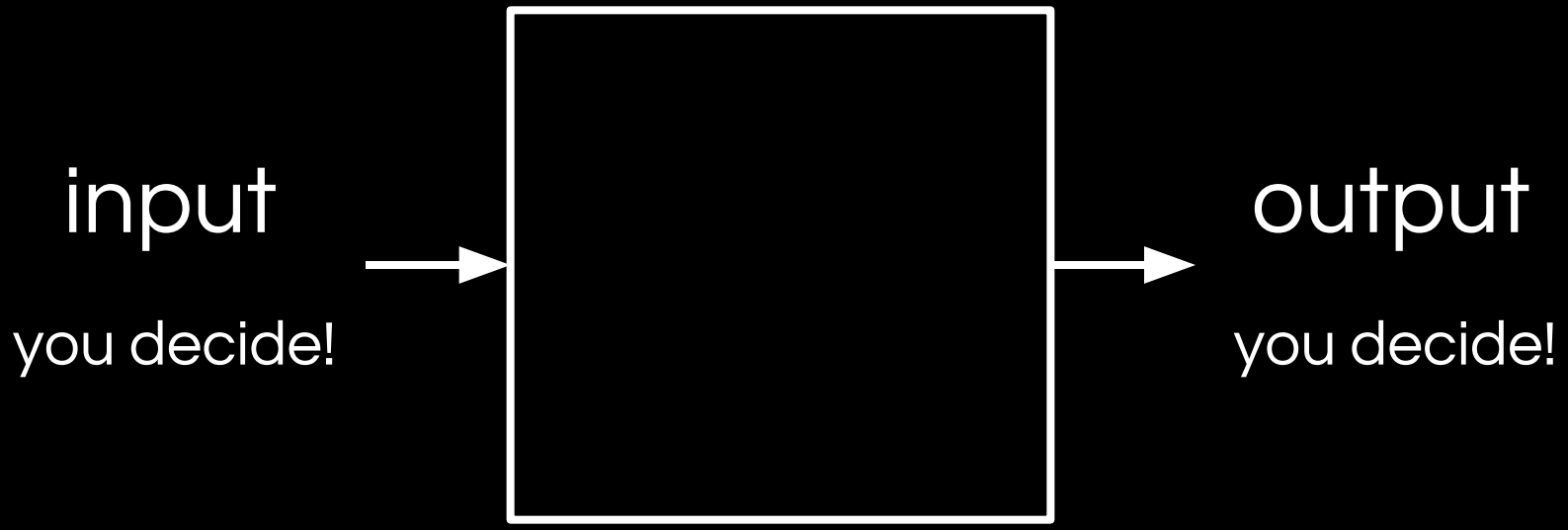
input

- (dirty) clothes
- detergent
- mode

output

- (clean) clothes

functions



why functions?

- organization
- simplification
- reusability

functions

```
// take in base & height of a triangle and return area
float area_of_triangle(int b, int h)
{
    return 0.5 * b * h;
}
```

functions

```
int main(void)
{
    ...
    return 0;
}
```

functions

```
float area_of_triangle(int b, int h);

int main(void)
{
    area_of_triangle(3, 4);
    int area = area_of_triangle(5, 4);
    ...
}
```

functions

```
int main(void)
{
    int a = 2;
    scope(a);
    printf("%i\n", a); // what will this print?
}
void scope(int a)
{
    a = 4;
    printf("%i\n", a); // what will this print?
}
```

functions

```
int main(void)
{
    scope();
}
void scope(void)
{
    {
        int a = 4;
        printf("%i\n", a); // what will this print?
    }

    {
        int a = 5;
        printf(“%i\n”, a); // what will this print?
    }
}
```

functions

```
int main(void)
{
    int a = 2;
    scope(a);
    printf("%i\n", a); // what will this print?
    a = 4;
    printf("%i\n", a); // what will this print?
}
void scope(int b)
{
    {
        int b = 4;
        printf("%i\n", b); // what will this print?
    }
}
```

command line arguments

command line arguments

```
./initials elphie carvalho
```

Run program named initials

Command-line arguments for initials

functions

```
int main(int argc, string argv[])
{
    ...
}
```

command line arguments

```
./mario 8
```

```
int main(int argc, string argv[])
{
    printf("%i\n", argc);
    for (int i = 0; i < argc; i++)
    {
        printf("%s\n", argv[i]);
    }
    ...
}
```

command line arguments

```
./mario 8
```

```
int main(int argc, string argv[])
{
    printf("%i\n", argc);
    for (int i = 0; i < argc; i++)
    {
        printf("%s\n", argv[i]);
    }
    ...
}
```

pset requirements

- command line arguments are *strings*
- `<ctype.h>`
- `%`

be sure to use CS50 Labs!

pset preview

‘C’ + 2 = ?

5 % 26 = ?

‘Z’ - ‘Y’ + ‘B’ = ?

(‘B’ - ‘A’ + 3) % 26 + ‘A’ = ?

64	@	80	P	96	`	112	p
65	A	81	Q	97	a	113	q
66	B	82	R	98	b	114	r
67	C	83	S	99	c	115	s
68	D	84	T	100	d	116	t
69	E	85	U	101	e	117	u
70	F	86	V	102	f	118	v
71	G	87	W	103	g	119	w
72	H	88	X	104	h	120	x
73	I	89	Y	105	i	121	y
74	J	90	Z	106	j	122	z
75	K	91	[	107	k	123	{
76	L	92	\	108	l	124	|
77	M	93	]	109	m	125	}
78	N	94	^	110	n	126	~
79	O	95	_	111	o	127	DEL

Need help?

Contact me:
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Office Hours everyday