

mario



```
##  
###  
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#####
```

# TODO

- prompt and validate user input
- draw the half pyramid

# TODO

- prompt and validate user input
- draw the half pyramid

# get\_int

- CS50 Library function
- ensures that the user inputs an integer
  - positive integers
  - negative integers
  - 0
  - otherwise, user is prompted to "Ret ry:".

# while loops

```
while (condition)
{
    // something happens
}
```

# do-while loops

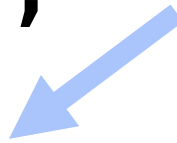
- executes the body *at least once*

```
do
{
    // something happens
}
while (condition);
```

# do-while loops

```
int n;  
do  
{  
    n = get_int();  
}  
while (n is invalid);
```

what should this  
condition be?



# validating input

- valid heights:  $[0, 23]$
- invalid heights: less than 0, more than 23
- design your condition carefully!



# do-while loops

```
int n;  
do  
{  
    n = get_int();  
}  
while (n is invalid);
```

# truth table

bool1	bool2	bool1 && bool2	bool1    bool2
false	false	false	false
false	true	false	true
true	false	false	true
true	true	true	true

# TODO

- prompt and validate user input
- draw the half pyramid

# draw the half pyramid

- for every row...
  - print spaces
  - print hashes
  - print a new line

```
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```

# find the pattern

height = 8

- first row: 2 #, 7 spaces
- second row: 3 #, 6 spaces
- third row: 4 #, 5 spaces
- ...
- $n^{\text{th}}$  row: how many #?  
how many spaces?
- 0-indexed or 1-indexed?

```
      ##  
     ###  
    ####  
   #####  
  #####  
 #####  
#####  
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#####
```

# draw the half pyramid

- for every row...
  - print spaces
  - print hashes
  - print a new line

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```

# for loops

```
for (initialization; condition; update)  
{  
    // code inside  
}  
  
// code outside
```

# for loops: repetition

initialization



```
for (int i = 0; i < 50; i++)  
{  
    printf("Hello, world!\n");  
}
```



# for loops: repetition

condition



```
for (int i = 0; i < 50; i++)  
{  
    printf("Hello, world!\n");  
}
```

# for loops: repetition

update



```
for (int i = 0; i < 50; i++)  
{  
    printf("Hello, world!\n");  
}
```

# for loops: iteration

```
for (int i = 0; i < height; i++)  
{  
    // do something for each row  
}
```

# draw the half pyramid

- for each row...
  - print spaces
  - print hashes
  - print a new line

```
##  
###  
####  
#####  
#####  
#####  
#####  
#####  
#####
```

# draw the half pyramid

```
for (int i = 0; i < height; i++)  
{  
    // print spaces  
    // print hashes  
    // print new line  
}
```

# TODO

- ☑ prompt and validate user input
- ☑ draw the half pyramid

this was mario