



# Lesson 1 | Warmup

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This is a Pixel Bots JavaScript exercise. In Pixel Bots we will program bots to paint pictures using Code Elements.

## Code Elements

<code>up()</code>	<code>down()</code>
<code>left()</code>	<code>right()</code>
<code>paint()</code>	

## Problem 1

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Pixel Bot Read Code: You are a pixel bot. Read the code and paint the picture.



```
up()  
paint()  
right()
```



```
up()  
right()  
paint()
```





# Lesson 1 | Worksheet 1

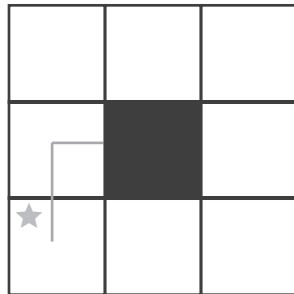
This is a Pixel Bots Javascript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

up()  
left()  
paint()

down()  
right()

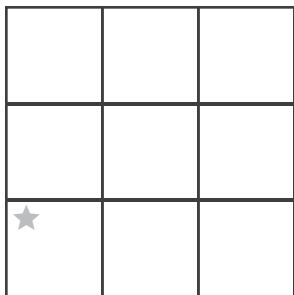
## Example



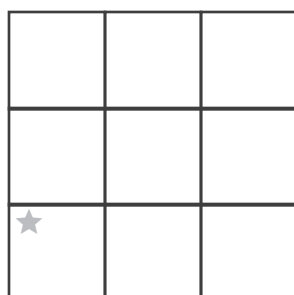
```
1 up()  
2 right()  
3 paint()
```

## Problems

You are a pixel bot. Read the code and paint the picture.



```
1 right()  
2 right()  
3 paint()  
4 up()
```



```
1 right()  
2 paint()  
3 up()  
4 paint()
```





# Lesson 1 | Worksheet 1 (cont'd)



```
1 down()  
2 paint()  
3 left()  
4 paint()
```



```
1 paint()  
2 left()  
3 paint()  
4 down()  
5 paint()
```



```
1 paint()  
2 up()  
3 paint()  
4 up()  
5 paint()
```





# Lesson 10 | Wrap up

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

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`up(steps)`

`left(steps)`

`paint(color)`

`down(steps)`

`right(steps)`

## Problems

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You are a coder. On the code line paper, write code to command the pixel bot to paint the picture.

lines of code: 16



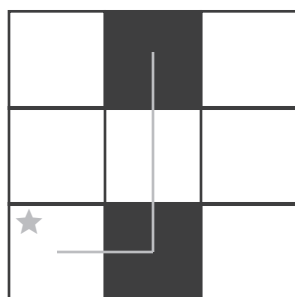
# { } Lesson 2 | Warmup

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

up()                      down()  
left()                    right()  
paint()

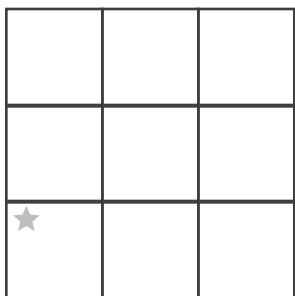
## Example



```
1 right()  
2 paint()  
3 up()  
4 up()  
5 paint()
```

## Problems

You are a pixel bot. Read the code and paint the picture.



```
1 up()  
2 right()  
3 paint()  
4 up()  
5 right()  
6 paint()  
7 down()  
8 down()  
9 paint()
```





# Lesson 2 | Worksheet 1

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This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

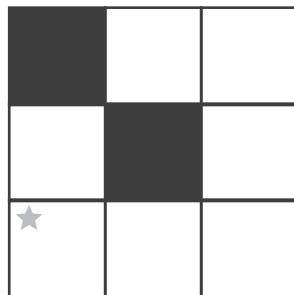
---

up()                      down()  
left()                    right()  
paint()

## Problem

---

You are a coder. Write code to command the pixel bot to paint the picture.



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## Lesson 3 | Warmup

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This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

### Code Elements

---

up()                      down()  
left()                    right()  
paint()

### Problem

---

You are a coder. Write code to command the pixel bot to paint the picture.



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# Lesson 3 | Worksheet 1

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This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

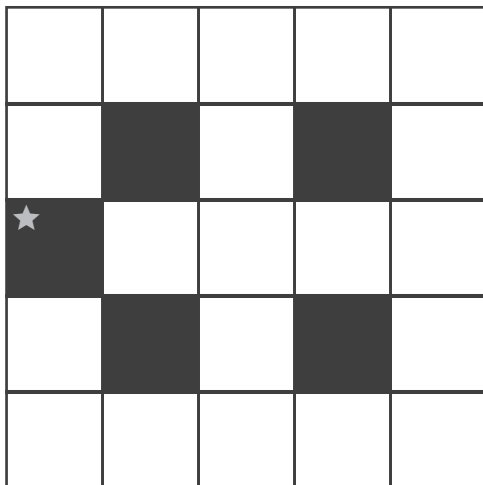
---

up()                      down()  
left()                    right()  
paint()

## Problem

---

You are a coder. Write code to command the pixel bot to paint the picture.



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# Lesson 3 | Worksheet 2

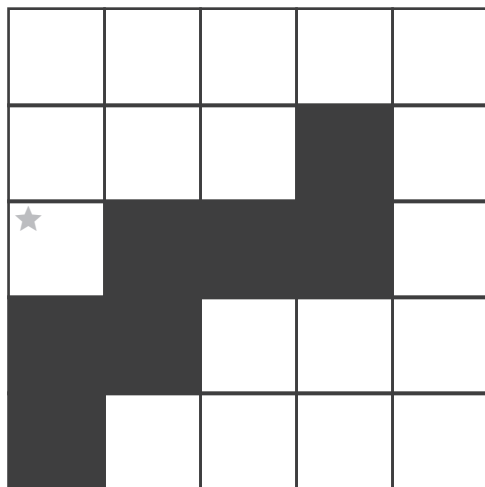
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

up()                      down()  
left()                    right()  
paint()

## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



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# Lesson 3 | Worksheet 3

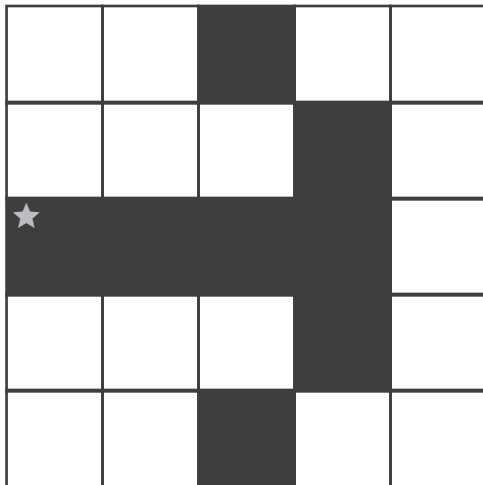
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

up()                      down()  
left()                    right()  
paint()

## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



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# Lesson 3 | Worksheet 4

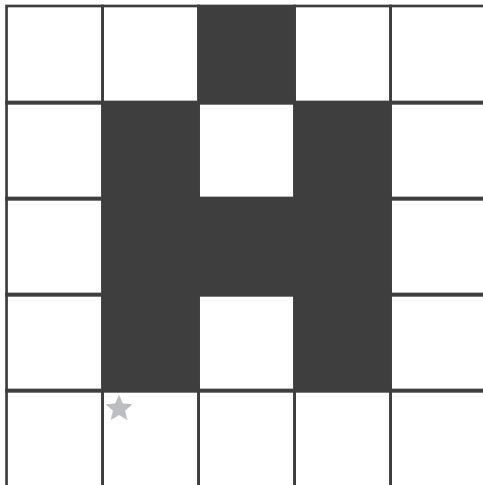
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

up()  
left()  
paint()  
down()  
right()

## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



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# Lesson 3 | Exit Ticket

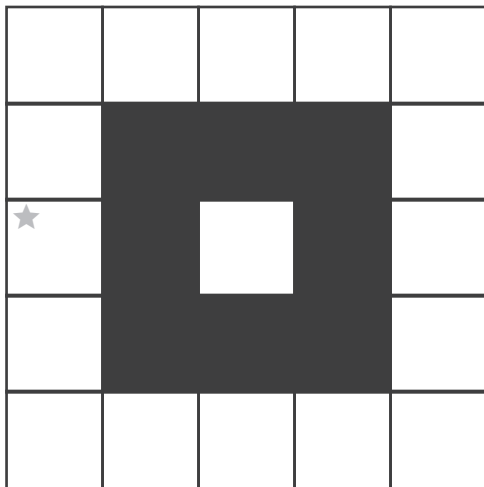
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

up()                      down()  
left()                    right()  
paint()

## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



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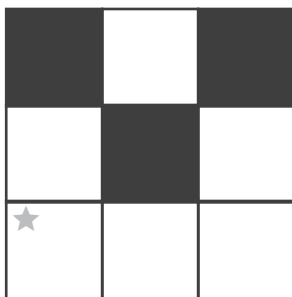


# Lesson 4 | Worksheet 1

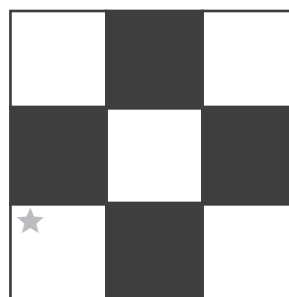
This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Problems

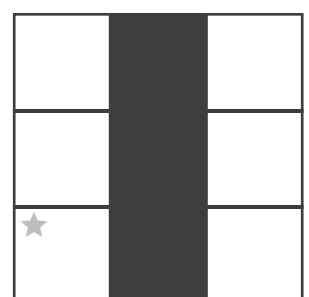
You are a coder. Write code to command the pixel bot to paint the pictures.



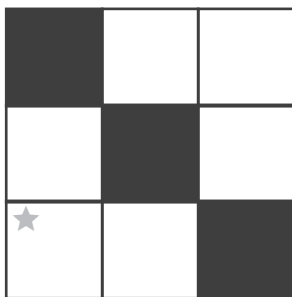
- ☐ done
- ☐ explained



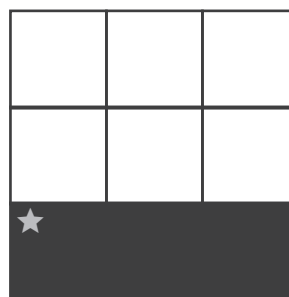
- ☐ done
- ☐ explained



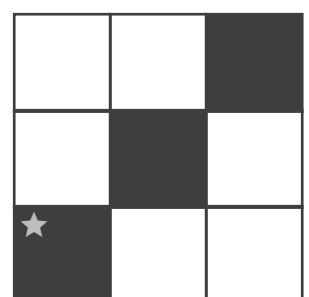
- ☐ done
- ☐ explained



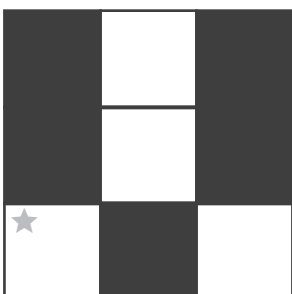
- ☐ done
- ☐ explained



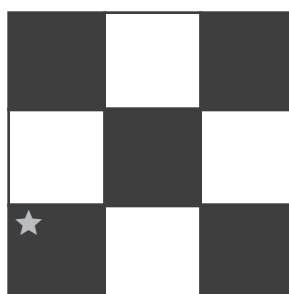
- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained





# Lesson 4 | Exit Ticket

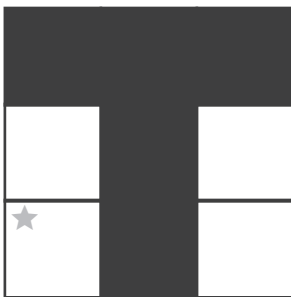
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

up()                      down()  
left()                    right()  
paint()

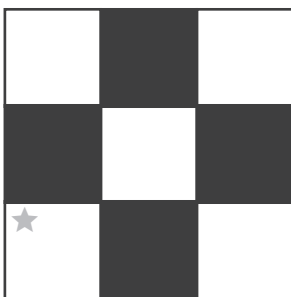
## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



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# Lesson 5 | Warm-up

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

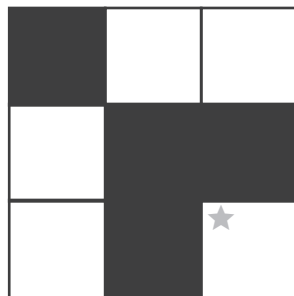
---

up()                      down()  
left()                    right()  
paint()

## Problems

---

You are a coder. Write code to command the pixel bot to paint the picture.



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# Lesson 5 | Exit Ticket

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This is a Mouse Bot JavaScript exercise. In Mouse Bot we program the bot to eat the cheese.

## Code Elements

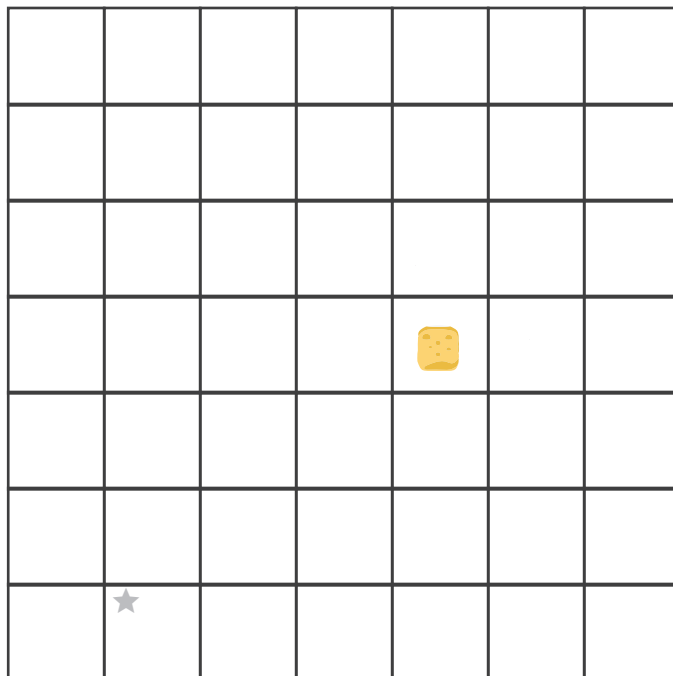
---

faceUp()      move()  
faceRight()    getCheese()

## Problems

---

You are a coder. Write code to command the pixel bot to paint the picture.



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# Lesson 6 | Warm Up

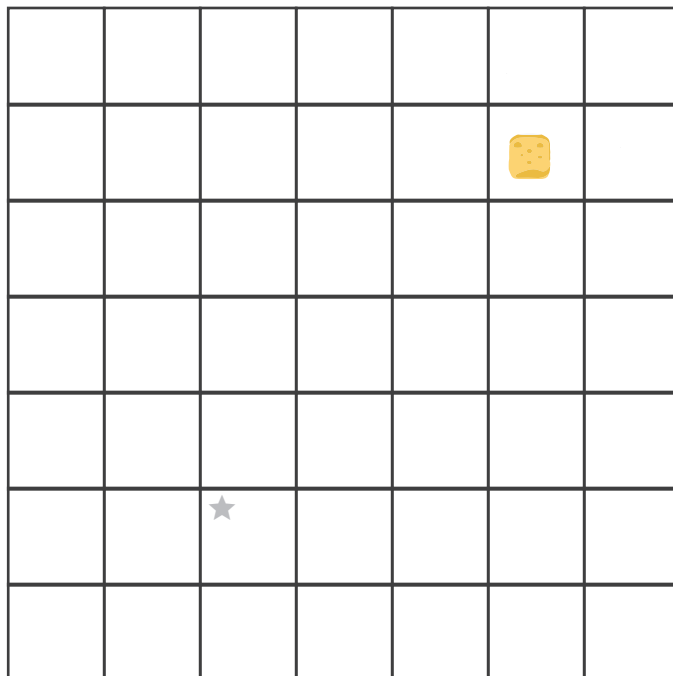
This is a Mouse Bot JavaScript exercise. In Mouse Bot we program the bot to eat the cheese.

## Code Elements

faceUp()      move()  
faceRight()    getCheese()

## Problems

You are a coder. Write code to command the pixel bot to paint the picture.



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# Lesson 7 | Warm-up

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

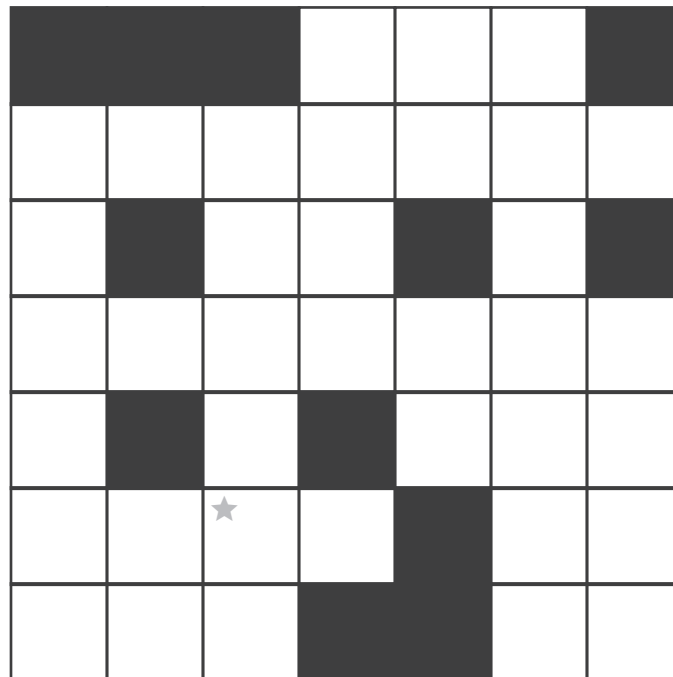
---

<code>up()</code>	<code>down()</code>
<code>left()</code>	<code>right()</code>
<code>paint()</code>	

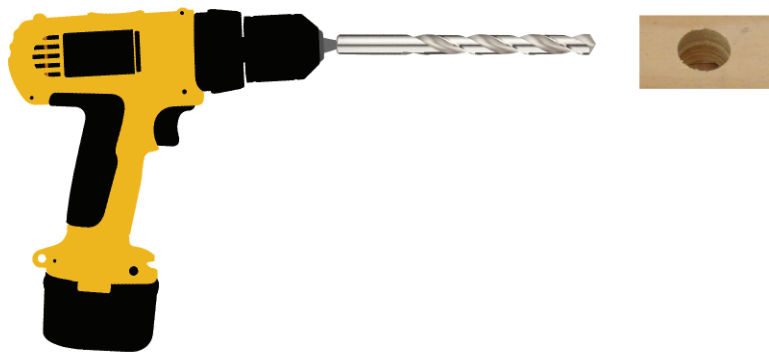
## Problems

---

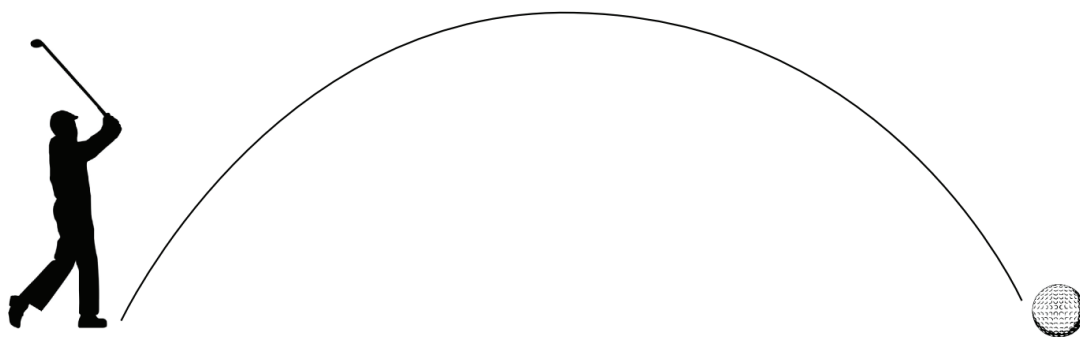
You are a coder. On the code line paper, write code to command the pixel bot to paint the picture.



# { } Lesson 7 | Worksheet 1



1) This is a drill. A drill creates holes by spinning a drill bit. How would you create a bigger hole with a drill bit? Bit creative.



2) This is a golfer. A golfer hits a golf ball with a golf club. How would the golfer hit the ball further? Be creative.



# Lesson 7 | Worksheet 1 (cont'd)

Now try programming the drill to create 3 different size holes using one coding element.

## Code Elements

`drill(size)`

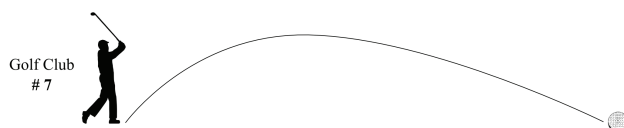
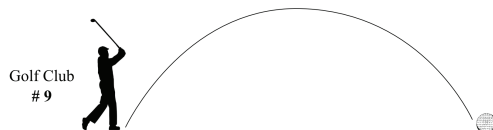


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Program the golfer to hit the ball 3 different distances.

## Code Elements

`swing(club)`

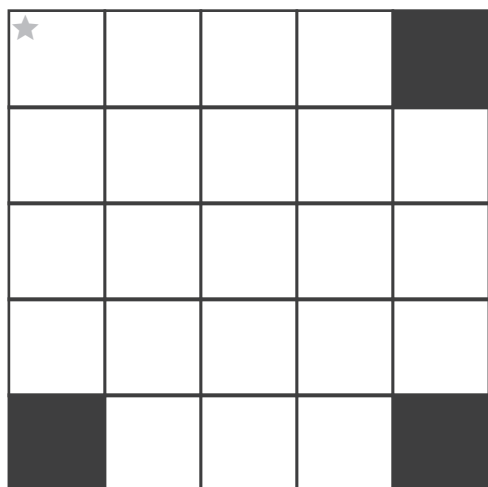


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# Lesson 7 | Worksheet 1 (cont'd)

5) Now it's time to return to Pixel Bot. Can you come up with a way to paint the picture in 6 lines? Think about problems 3 and 4.



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6) What are the similarities between drilling, golf, and moving the pixel bot multiple steps?

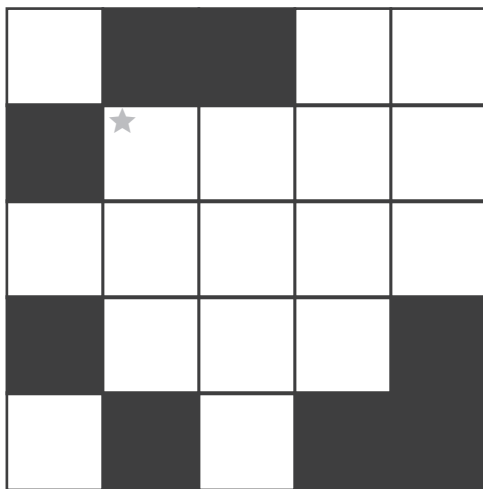


# Lesson 7 | Worksheet 2

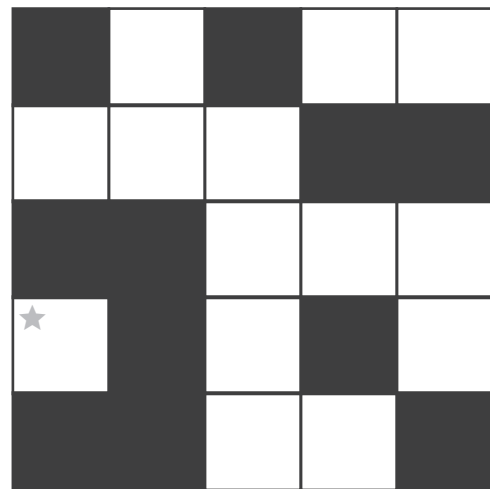
This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Problems

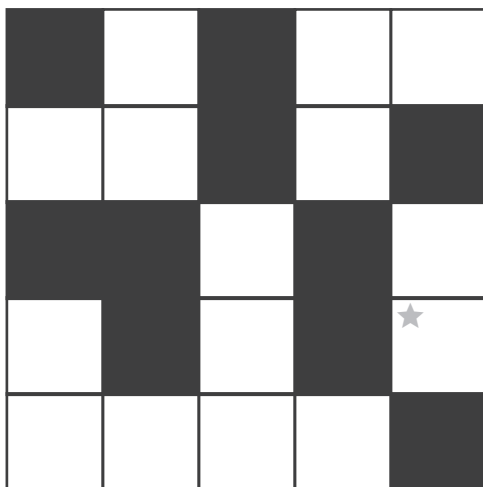
You are a coder. Write code to command the pixel bot to paint the pictures.



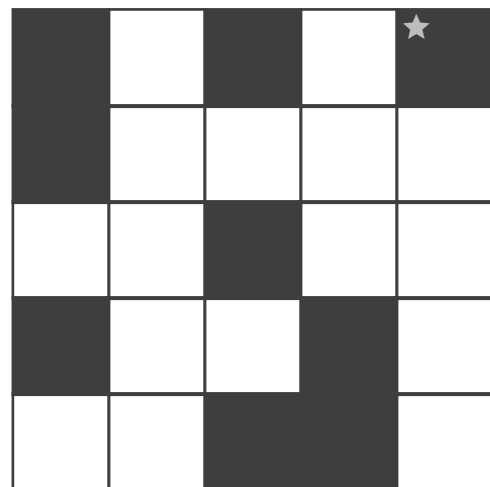
- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained





# Lesson 8 | Warm-up

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

---

`up(steps)`

`left(steps)`

`paint()`

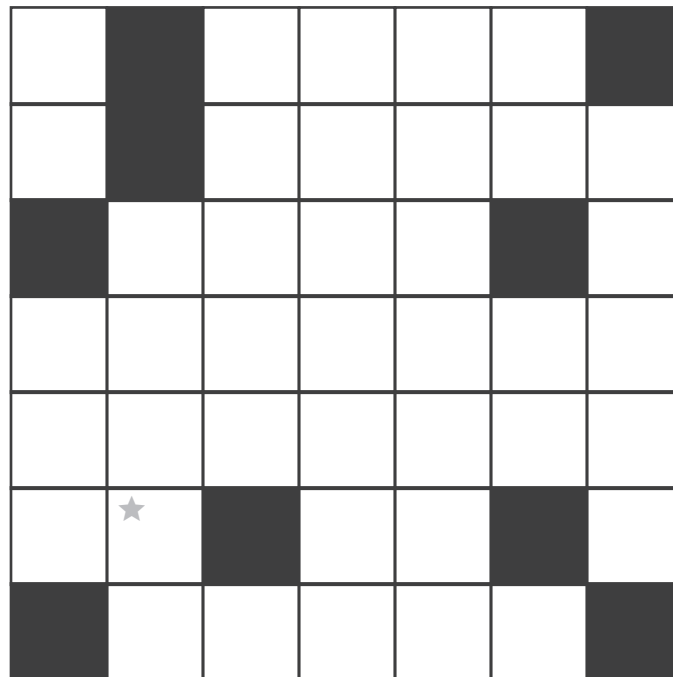
`down(steps)`

`right(steps)`

## Problems

---

You are a coder. On the code line paper, write code to command the pixel bot to paint the picture.





# Lesson 8 | Worksheet 1

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

---

`up(steps)`

`left(steps)`

`paint()`

`down(steps)`

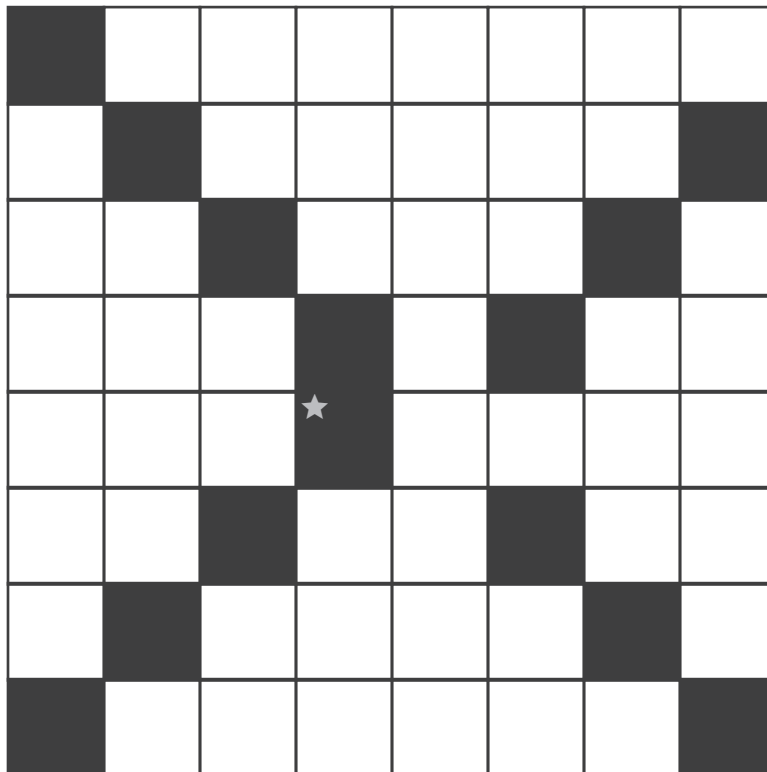
`right(steps)`

## Problems

---

You are a coder. On the code line paper, write code to command the pixel bot to paint the picture.

lines of code: 27







# Lesson 8 | Worksheet 2

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

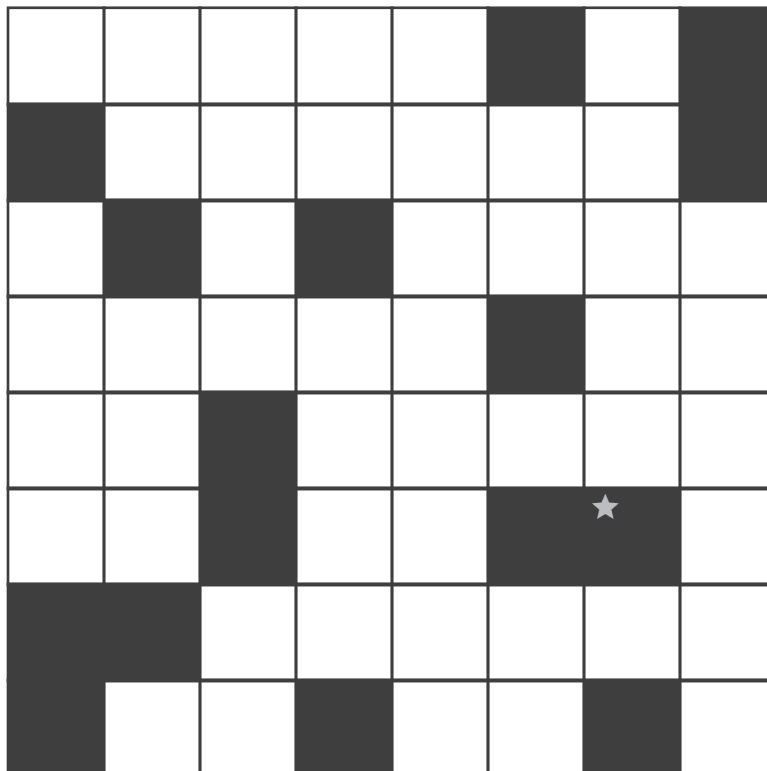
## Code Elements

<code>up(steps)</code>	<code>down(steps)</code>
<code>left(steps)</code>	<code>right(steps)</code>
<code>paint()</code>	

## Problems

You are a coder. On the code line paper, write code to command the pixel bot to paint the picture.

lines of code: 31





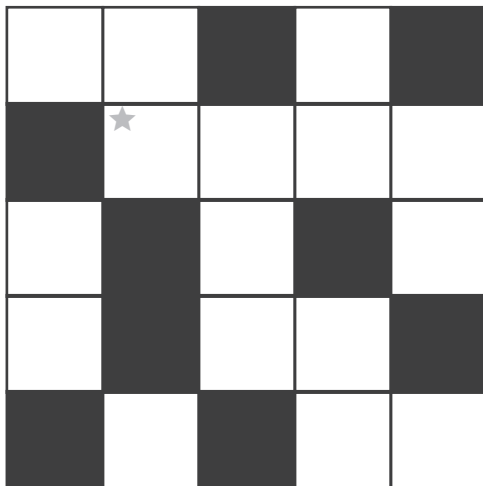
# Lesson 8 | Worksheet 3

This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Problems

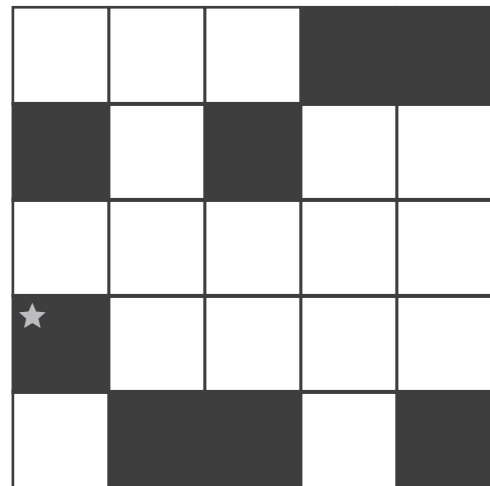
You are a coder. Write code to command the pixel bot to paint the pictures.

lines of code: 18



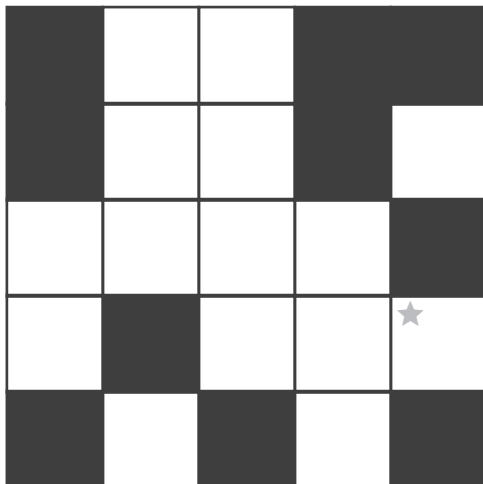
- ☐ done
- ☐ explained

lines of code: 15



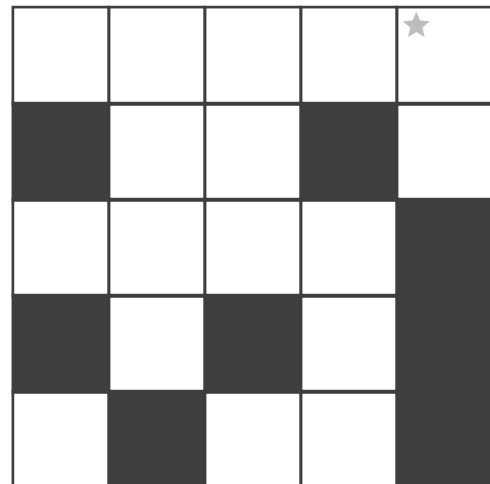
- ☐ done
- ☐ explained

lines of code: 21



- ☐ done
- ☐ explained

lines of code: 17



- ☐ done
- ☐ explained





## Lesson 9 | Warm-up

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

### Code Elements

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`up(steps)`

`down(steps)`

`left(steps)`

`right(steps)`

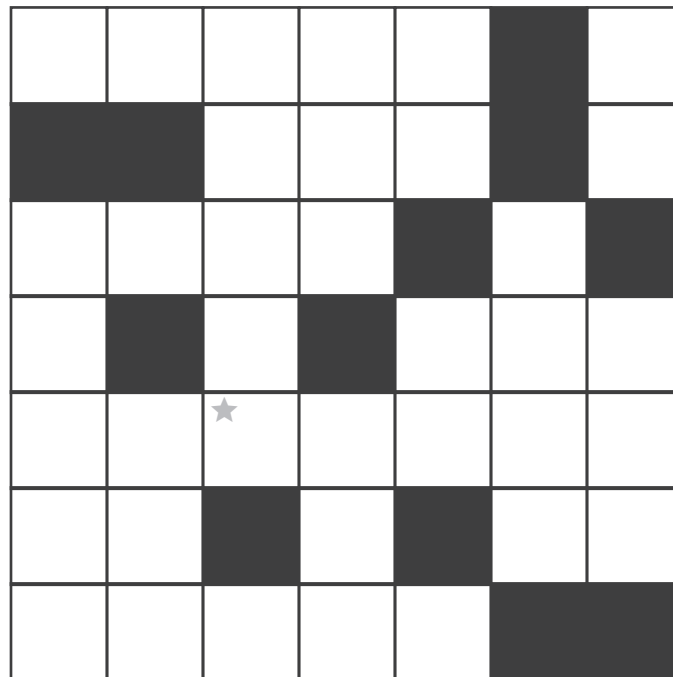
`paint()`

### Problems

---

You are a coder. On the code line paper, write code to command the pixel bot to paint the picture.

lines of code: 24





# Coders & Bots

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## Coders

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**Navigator.** You are responsible for the overall plan for the program. Guide the Writer and keep track of what your program is doing.



**Writer.** Add code to your program. Pay attention to syntax.

## Bots

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**Stepper.** Step through the program and read each step aloud. Keep your finger on the step you are reading.



**Actor.** Listen carefully to each line of code the Stepper says aloud. Using the materials available, show what each line of code does.

# { } Coding Paper

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# Coding Paper

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# Coding Paper

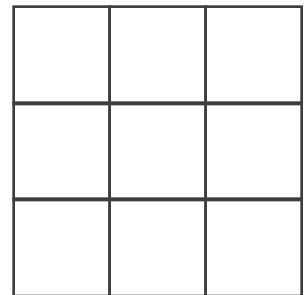
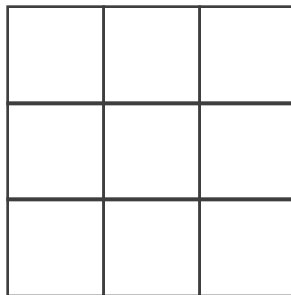
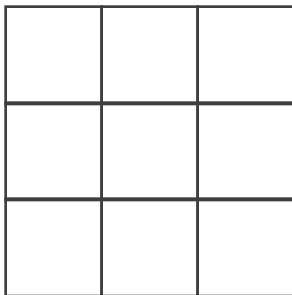
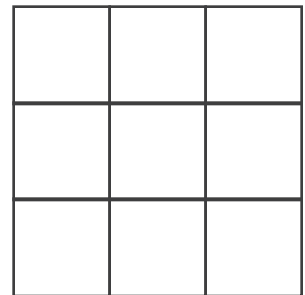
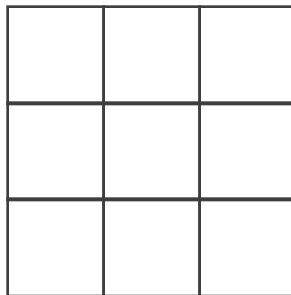
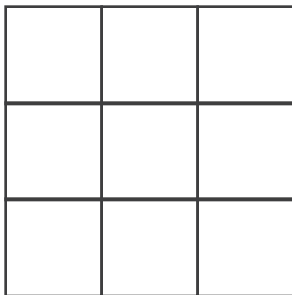
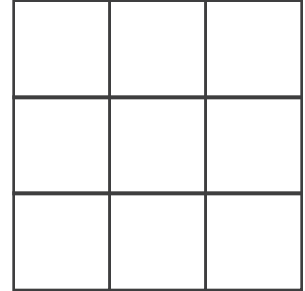
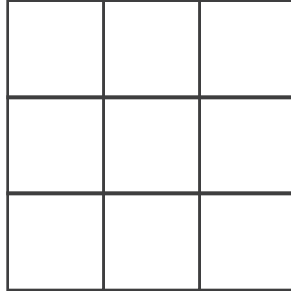
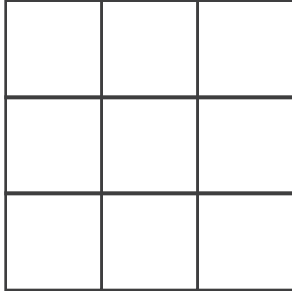
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25		55		85	
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# Small Pixel Grids

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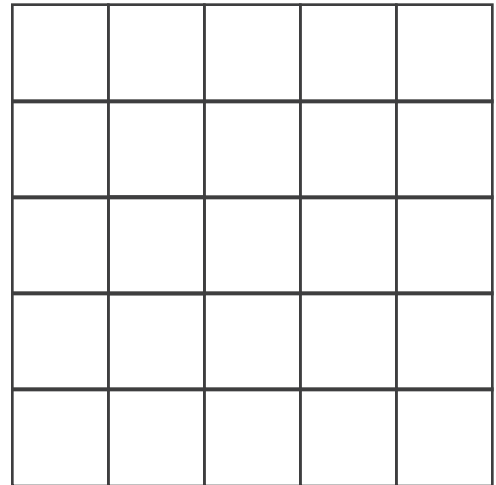
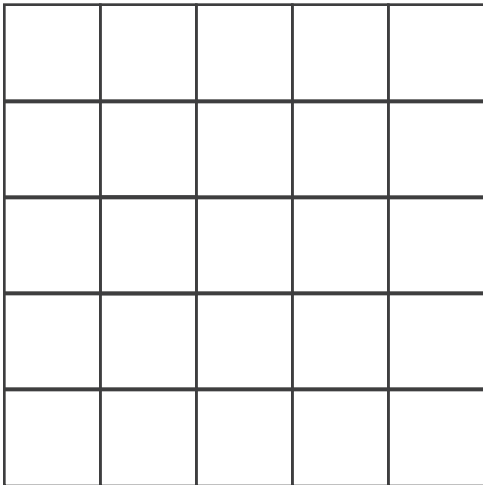
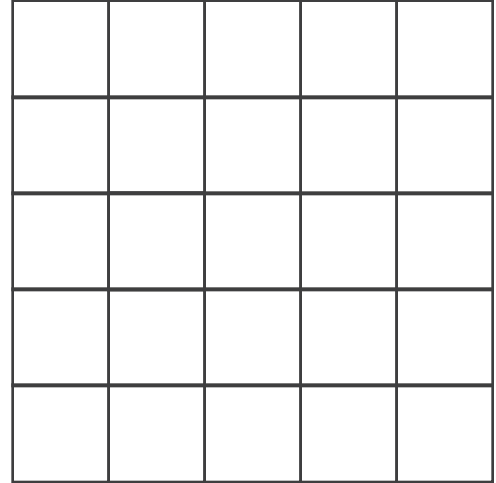
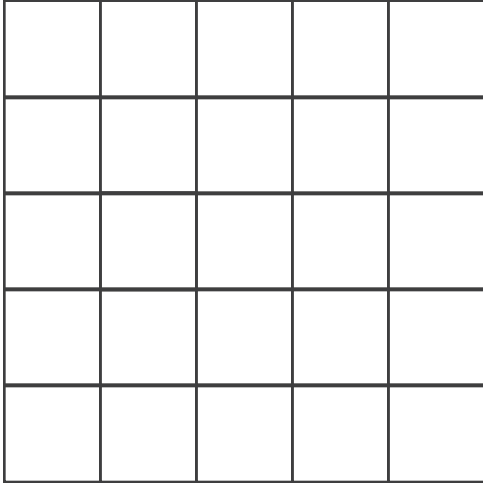






# Medium Pixel Grids

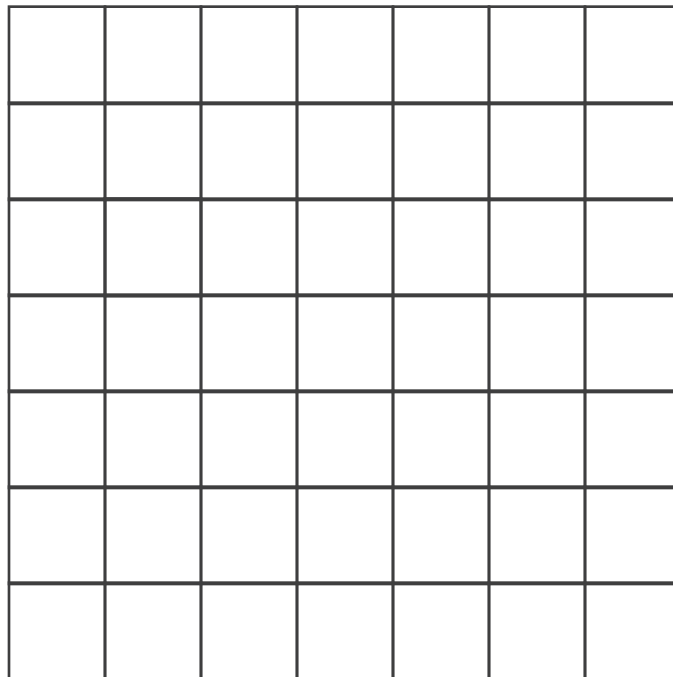
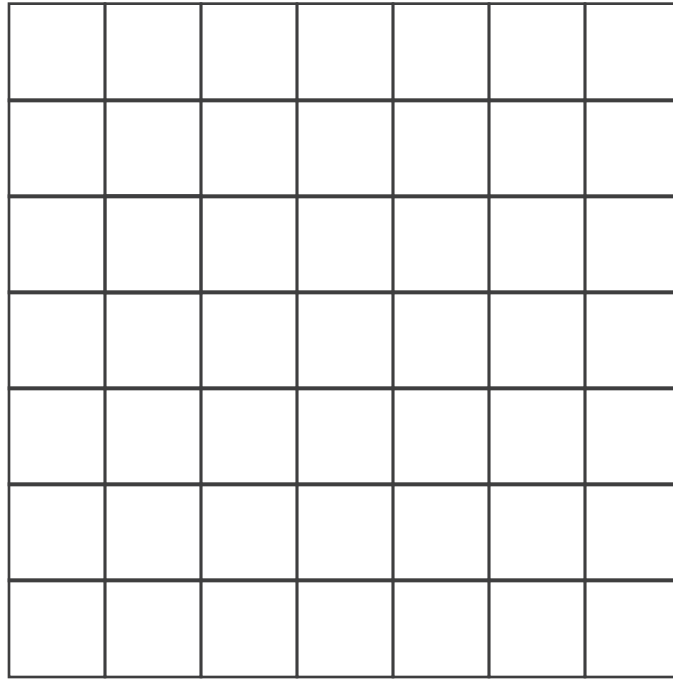
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# Large Pixel Grids

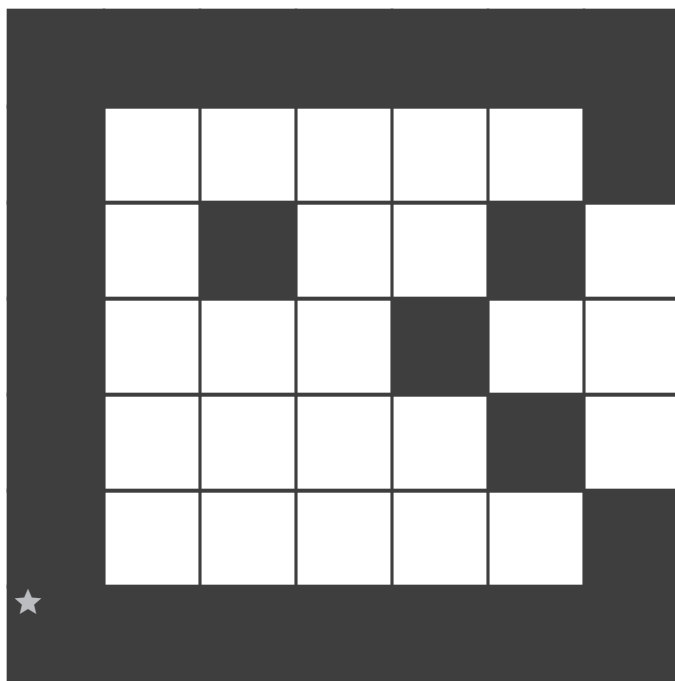
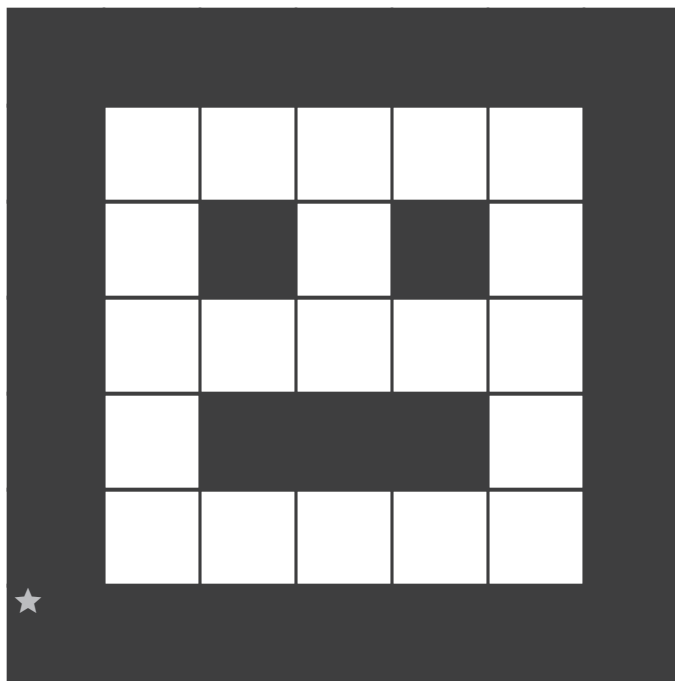
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# Challenge Problems - 1

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## Challenge Problems - 2

