Name: \_\_\_\_\_



# BOOTSTRAP: 2

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Class:



Workbook v0.9

Brought to you by the Bootstrap team:

- Emma Youndtsmith
- Emmanuel Schanzer
- Kathi Fisler
- Joe Politz
- Shriram Krishnamurthi

Visual Design: Colleen Murphy

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	Unit <sup>1</sup>	
	Racket Code	Pyret Code
	(define AGE 14)	AGE = 14
	(define A-NUMBER 0.6)	A-NUMBER = 0.6
S	(define SPEED -90)	SPEED = -90
Numbers		Two of your own:
Ž		
	(define CLASS "Bootstrap")	CLASS = "Bootstrap"
	(define PHRASE "Coding is fun!")	PHRASE = "Coding is fun!"
	(define A-STRING "2500")	A-STRING = "2500"
ngs		Two of your own:
Strings		

```
(define SHAPE
                                          SHAPE =
     (triangle 40 "outline" "red"))
                                            triangle(40, "outline", "red")
   (define OUTLINE
                                          OUTLINE =
                                           star(80, "solid", "green")
     (star 80 "solid" "green"))
   (define SQUARE
                                          SQUARE =
     (rectangle 50 50 "solid" "blue"))
                                           rectangle(50, 50, "solid", "blue")
                                                    One of your own:
   (define BOOL true)
                                          BOOL = true
Booleans
   (define BOOL2 false)
                                                    One of your own:
                                          # double : Number -> Number
   ; double : Number -> Number
                                          # Given a number, multiply by
   ; Given a number, multiply by
   ; 2 to double it
                                          # 2 to double it
   (EXAMPLE (double 5) (*
                                  5)
                                          examples:
Functions
   (EXAMPLE (double 7) (*
                                              double(5) is 2 * 5
                                  7))
                                              double(7) is 2 * 7
   (define (double n) (*
                                          end
                                  n))
                                          fun double(n):
                                              2 * n
                                          end
```

### Fast Functions!

Fill out the contract for each function, then try to write two examples and the definition by yourself.

#	double	<b>:</b>	Numbe	er → .	Number	
exar — end fun	double (  double (  double (  double  2 * n	5 ) 7 ) ( n	15	2 * 5	n ):	-
end #		•		->		
	name		domain		range	
<u> </u>	пртев•	_(	_) is			
end		_(	_) is			
fun		(			_):	
end						

### Fast Functions!

Fill out the contract for each function, then try to write two examples and the definition by yourself.

#name	:	domain	>	range	
		domain		runge	
examples:					
	(	) is			
	,				
	(	) is			
end					
£	,		<b>\</b>		
fun	(		):		
and					
end					
#	<u>:</u> :		>		
#	:	domain	>	range	
name	:	domain	->	range	
	:	domain	>	range	
name	::	domain	>	range	
name	::::::		>	range	
name		) is	>	range	
examples:	(		->	range	
name	·((	) is	->	range	
examples: end	::::	) is ) is		range	
examples:		) is ) is		range	
examples: end		) is ) is		range	
examples: end		) is ) is		range	

### Fast Functions!

Fill out the contract for each function, then try to write two examples and the definition by yourself.

#	name	• do	omain	→	range
example	es:				
	(	)	is		
	(	)	is		
end					
fun		_(		):	
end					
#		· -•		->	
	name	do	omain		range
example	es:				
	(	)	is		
end	(	)	is		
CIIG					
fun		_(		):	

### Bug Hunting: Pyret Edition SECONDS = (7)#1 STRING = my string SHAPE1 = circle(50 "solid" "blue") #2 SHAPE2 = triangle(75, outline, yellow) # triple : Number -> Number # Multiply a given number by # 3 to triple it #3 examples: triple(5) = 3 \* 5triple(7) = 3 \* 7end fun triple(n): 3 \* n #4 # ys : Number -> Number # Given a number, create a solid # yellow star of the given size examples: ys(99) is star(99, "solid", "yellow") ys(33) is star(99, "solid", "yellow") #5 ys(size): star(size "solid" "yellow") end

Unit 2

### Word Problem: double-radius

Write a function double-radius, which takes in a radius and a color. It produces an outlined circle of whatever color was passed in, whose radius is twice as big as the input.

	•		`
name	•	Domain	<b>&gt;</b>
xamples		the function do?	
	unction in action		
mples:			
	(	)	is
the user	types		
	which should beco	ome	
	1	,	is
the user t		)	15
		which should become	
		which should become	
on			
	examples, and name verything that isn't c	e the variables. ircled, and using names wh	ere you find variables!
	, 5	0	, , , , , , , , , , , , , , , , , , , ,
		(	) :

### Word Problem: double-width

Write a function double-width, which takes in a number (the length of a rectangle) and produces a rectangle whose width is twice the given length.

<u> </u>		<del>-</del>	
name	Domain		Range
	What does the function	ı do?	
xamples			
examples of your func	tion in action		
mples:			
	_(	) is	
the user types.			
the aser types.	••		
	.which should become		
	1	) is	
the user types	_ (		
the user types			
	which should bec	ome	
on			
	nples, and name the variables. thing that isn't circled, and usir		d variabl
ie code, codvilia evelv		ig names where you line	a variabi
	(		

Word Problem: next-position
Write a function next-position, which takes in two numbers (an x and ycoordinate) and returns a JumperState, increasing the x-coordinate by 5 and decreasing the y-coordinate by 5.

Every contract has				
#	:		$\rightarrow$	
name		Domain	Ranç	je
#				
		oes the function do?		
Give Examples Write examples of v	our function in actio	n		
examples:				
F =	(		) is	
	·		<i>,</i>	
tne	e user types			
	which should b	pecome		
	(		) is	
tl	he user types		·	
end		which should become		
end				
unction				
	n the examples, and no vina everythina that isn'		ames where you find variat	oles!
fun	3 - 7 - 3	_	)	:
		`	,	
end				

## Data Structure

# A CakeT is a	d flavor, layers, & is-iceCream	
data CakeT:		
cake(		
		)
end		
To make insta	inces of this structure, I would write:	
cake1 =		
cake2 =		
To access the	e fields of cake2, I would write:	

### Word Problem: taller-than

Write a function called *taller-than*, which consumes two CakeTs, and produces true if the number of layers in the first CakeT is greater than the number of layers in the second.

Jonifaci+Purp	ose Statement	
‡	:	→
·	<del></del>	
‡		
Civa Evamples		
Give Examples Vrite examples	s of your function in action	
examples	•	
<del>-</del>	(	) is
	the user types	
	,	
	which should beco	ome
	(	) is
	the user types	
		.which should become
end		
unction		
	ges in the examples, and name	
		circled, and using names where you find variables!
		():

### Word Problem: will-melt

Write a function called *will-melt*, which takes in a CakeT and a temperature, and returns true if the temperature is greater than 32 degrees, AND the CakeT is an ice cream cake.

Contract+P	urpose Statement	
#	<b>:</b>	→
#		
Give Examp		
	oles of your function in action	
exampl	es:	
	(	) is
	the user types	
	which should becom	e
	(	) is
	the user types	
end	w	hich should become
Tun otion		
	anges in the examples, and name	
		cled, and using names where you find variables!
fun _		_():
end		

Unit 3

### Identifying Animation Data Worksheet: Sunset

Sketch What things are d	changing?	Sketch B	Sketch C
Thing	How does it cha	nge?	Does it change consistently?
	ou need to represent the		ę mber, String, Image, Boolean)

(worksheet continues on the next page)

#### Define the Data Structure

end

# a \_\_\_\_\_**State** is \_\_\_\_\_

data \_\_\_\_\_State:

\_\_\_\_\_)

#### Make a sample instance for each sketch from the previous page:

\_\_\_\_\_A = \_\_\_\_

\_\_\_\_\_B = \_\_\_\_

\_\_\_\_\_c = \_\_\_\_

### draw-state

Write a function called *draw-state*, which takes in a SunsetState and returns an image In which the sun (a circle) appears at the position given in the SunsetState. The sun should be behind the horizon (the ground) once it is low in the sky.

Contract+Purpose Statement		
# draw-state : _		<del>)</del> Image
rite an expression for each	piece of your final image	
	-	
Sun		
Ground		
Sky		
Ky		
rite the draw-state function	, using put-image to combine	vour pieces
	, <u>g</u>	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
fun	(	) :
	· · · · · · · · · · · · · · · · · · ·	,
an d		
end		

17

### Word Problem: next-state-tick

Write a function called *next-state-tick*, which takes in a SunsetState and returns a SunsetState in which the new x-coordinate is 8 pixels larger than in the given SunsetState and the y-coordinate is 4 pixels smaller than in the given SunsetState.

ontract+Purpos	e Statement		
<u></u>	·	·	→
<u>-</u>			
Give Examples			
•	of your function in act	tion	
examples:			
	(		) is
	the user types		
	which should	d become	
	(		) is
	the user types		,
 end		which should bec	come
CIIG			
unction			
	s in the examples, and		ng names where you find variables!
			) :
		\	, ·
end			

### Identifying Animation Data Worksheet

		r moments of the animat		
Sketo	ch A	Sketch B		Sketch C
What things are	: changing?			
		does it change?	D	oes it change consistently?
Thing		does it change?	D	oes it change consistently?
		does it change?	D	oes it change consistently?
		does it change?	D	oes it change consistently?
		does it change?	D	oes it change consistently?
		does it change?	D	oes it change consistently?
Thing	How			oes it change consistently?
Thing  What fields do y	How o	present the things that ch	ange?	
Thing  What fields do y	How	present the things that ch	ange?	oes it change consistently?  per, String, Image, Boolean)
Thing  What fields do y	How o	present the things that ch	ange?	

(worksheet continues on the next page)

#### Define the Data Structure

# a \_\_\_\_\_**State** is \_\_\_\_\_

data \_\_\_\_\_State:

\_\_\_\_(\_\_\_\_

\_\_\_\_\_)

end

### Make a sample instance for each sketch from the previous page:

\_\_\_\_\_A = \_\_\_\_

\_\_\_\_\_B = \_\_\_\_

\_\_\_\_\_c = \_\_\_\_

### Identifying Animation Data Worksheet

			ПОП	
Sket	ch A	Sketch B		Sketch C
What things are	e changing?			
Thing	How	does it change?		Does it change consistently?
What fields do	you need to rep	present the things that ch	nange?	
	you need to replangerX, score, p	oresent the things that ch layerIMG) <b>Dataty</b>		nber, String, Image, Boolean)

(worksheet continues on the next page)

#### Define the Data Structure

# a \_\_\_\_\_**State** is \_\_\_\_\_

data \_\_\_\_\_State:

\_\_\_\_\_)

end

#### Make a sample instance for each sketch from the previous page:

\_\_\_\_\_A = \_\_\_\_

\_\_\_\_\_B = \_\_\_\_

\_\_\_\_\_c = \_\_\_\_

### Identifying Animation Data Worksheet

Draw a sketch	ioi iniee distinc	i illomenis oi il		Л	
Sket	ch A	Ske	tch B		Sketch C
What things are	e changing?				
Thing		does it change?			Does it change consistently?
What fields do	vou need to rep	oresent the thin	as that cho	ınae?	
	langerX, score, p				nber, String, Image, Boolean)

(worksheet continues on the next page)

#### Define the Data Structure

end

# a \_\_\_\_\_**State** is \_\_\_\_\_

data \_\_\_\_\_State:

\_\_\_\_\_)

#### Make a sample instance for each sketch from the previous page:

\_\_\_\_\_A = \_\_\_\_

\_\_\_\_\_B = \_\_\_\_

\_\_\_\_\_c = \_\_\_\_

### Identifying Animation Data Worksheet

		r moments of the ar	mnamon	
Sket	ch A	Sketch	В	Sketch C
What things are	changing?			
Thing	How	does it change?		Does it change consistently?
What fields do	you need to rep	present the things th	at change?	
	you need to replangerX, score, pl			nber, String, Image, Boolean)

(worksheet continues on the next page)

#### Define the Data Structure

# a \_\_\_\_\_**State** is \_\_\_\_\_

data \_\_\_\_\_State:

| \_\_\_\_\_(\_\_\_\_

\_\_\_\_\_)

end

### Make a sample instance for each sketch from the previous page:

\_\_\_\_\_A = \_\_\_\_

\_\_\_\_\_B = \_\_\_\_

\_\_\_\_\_c = \_\_\_\_

Unit 4

### Word Problem: location

Write a function called *location*, which consumes a JumperState, and produces a String representing the jumper's location: either "cliff", "beach", "water", or "air".

Contract+Purpose S	Statement		
#	<b>:</b>	→	
#			
Give Examples			
examples:			
	(	) is	
	,	) is	
	_(		
	_(	) is	
	_(	) is	

end

(worksheet continues next page)

Functi	on		
fun		(	) :
	if		
	else if		
	else if		:
	else:		
end	end		

#### Piecewise Bug-Hunting **Buggy Code** Correct Code / Explanation fun piecewisefun(n): if (n > 0): n Round 1 else: 0 fun cost(topping): if string-equal(topping, "pepperoni"): 10.50 else string-equal(topping, "cheese"): 9.00 else string-equal(topping, "chicken"): 11.25 else string-equal(topping, "broccoli"): 10.25 else: "That's not on the menu!" end end fun absolute-value(a b): Round 3 **if** a > b: a - b b - a end end fun best-function(f): if string-equal(f, "blue"): "you win!" else if string-equal(f, "blue"): "you lose!" else if string-equal(f, "red"): "Try again!" else: "Invalid entry!" end end fun my-function(x): **if** (4 < 8): x Round 5 **else:** x \* 2 end end

### Animation Extension Worksheet

Describe the goal of your change: what new feature or behavior will it add to your animation?

Draw a sketch	for three distinct r	moments of t	the animati	on, focusing	on the new beho	avior	
Ske	tch A		Sketch B		Sketa	ch C	
What NEW thin	gs are changing?	? Are they in	dependent	of existing f	ields?		
Thing	How o	loes it change	?	Does it ch	ange consistently?	Independ	lently?
What fields do	you need to repre	esent the NE	W and inde	pendent th	ings that change?	?	
Field name (c	dangerX, score, pla	yerIMG)	Date	atype (Numb	er, String, Image, Bo	oolean)	
	List, and check of When is there we			you finish e	ach one.	To-Do	Dono
Component  Data Structure	If any new field(s)			romovod		וט-טט	Done
Daid siluciole	il driy new neid(s)	were added,	. criarigea oi	removed			
draw-state	If something is disp	played in a ne	ew way or po	sition			
next-state-tick	If the Data Structu	ure changed,	or the animo	ntion happen	s automatically		
next-state-key	If the Data Structu	ure changed,	or a keypres	s triggers the	animation		
reactor	If either next-state	e function is ne	ew				

Make a sample instance for each sketch from the previous page:	
Make a sample instance for each sketch from the previous page.	
A =	
B =	
. –	
c =	_
Write at least one NEW example for one of the functions on your To-Do list	
If you have another function on your To-Do list , write at least one NEW example	
	_

### Word Problem: draw-sun

Write a function called *draw-sun*, which consumes a SunsetState, and produces an image of a sun (a solid, 25 pixel circle), whose color is "yellow", when the sun's y-coordinate is greater than 225, "orange", when its y-coordinate is between 150 and 225, and "red" otherwise.

Contract+Po	urpose Statement		
#	<b>:</b>	<del></del>	
#			
Give Examp	bles		
exampl			
	(	) is	
_			

end

(worksheet continues next page)

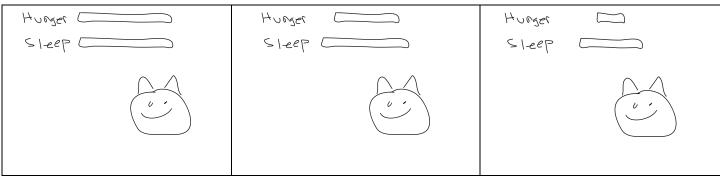
Function fun		 3
	if	:
	else if	_:
	else if	:
	else:	-
end	end	

Unit 5

Describe the goal of your change: what new feature or behavior will it add to your animation?

Make the bars get smaller on each tick. Decrease hunger by 2 and sleep by 1.

#### Draw a sketch for three distinct moments of the animation, focusing on the new behavior



Sketch A Sketch B Sketch C

What NEW things are changing? Are they independent of existing fields?				
Thing	How does it change?	Does it change consistently? Independently?		
Hunger	Gets smaller by 2 each tick	Consistently, uses existing field		
Sleep	Gets smaller by 1 each tick	Consistently, uses existing field		

What fields do you need to represent the NE	EW and independent things that change?
Field name (dangerX, score, playerIMG)	Datatype (Number, String, Image, Boolean)
N/A	
N/A	

Make a To-Do l	ake a To-Do List, and check off each as "Done" when you finish each one.			
Component	When is there work to be done?	To-Do	Done	
Data Structure	If any new field(s) were added, changed or removed			
draw-state	If something is displayed in a new way or position	<b></b>		
next-state-tick	If the Data Structure changed, or the animation happens automatically	<b>√</b>		
next-state-key	If the Data Structure changed, or a keypress triggers the animation	<b>√</b>		
reactor	If either next-state function is new			

# Make a sample instance for each sketch from the previous page: **petA** = \_\_pet(100, 100)\_\_\_\_\_ **petB** = \_\_\_ pet(90, 95)\_\_\_\_\_ petC = \_\_\_ pet(30, 65) \_\_\_\_ Write at least one NEW example for one of the functions on your To-Do list next-state-tick(petB) is pet(petB.hunger - 2, petB.sleep - 1) next-state-tick(petC) is pet(petC.hunger - 2, petC.sleep - 1) If you have another function on your To-Do list , write at least one NEW example

Describe the goal of your change: what new feature or behavior will it add to your animation?

Diaw a skelen	TOI TITEE distiller I	11011101113 01 1110	arminan	711, 10003II I <u>g</u>	on the new bene	7 1 0 1	
Ske	tch A	Ske	etch B		Sketo	ch C	
What NEW thin	gs are changing?	Are they indep	endent	of existing f	ields?		
Thing	How d	loes it change?		Does it ch	ange consistently?	Independ	lently?
	you need to repredangerX, score, play				ngs that change? er, String, Image, Bo		
riela name (c	adrigerx, score, pia	yeniwiG)	Daid	alype (Norno	er, siling, image, bo	olean)	
Make a Te De	List, and check of	focab as "Dona	all suban	vou finish o	ach and		
Component	When is there we		wilen	you lillish e	acii one.	To-Do	Done
Data Structure	If any new field(s)	d(s) were added, changed or removed					
draw-state	If something is disp	something is displayed in a new way or position					
next-state-tick	If the Data Structu	ıre changed, or th	ne animo	tion happen	s automatically		
next-state-key	If the Data Structu	ta Structure changed, or a keypress triggers the animation					
reactor	If either next-state	function is new					

Make a sample instance for each sketch from the previous page:	
Make a sample instance for each sketch from the previous page.	
A =	
B =	
. –	
c =	_
Write at least one NEW example for one of the functions on your To-Do list	
If you have another function on your To-Do list , write at least one NEW example	
	_

Describe the goal of your change: what new feature or behavior will it add to your animation?

Draw a sketch	for three distinct r	moments of	the animati	on, focusing	on the new beho	avior	
Ske	tch A		Sketch B		Sketo	ch C	
What NEW thin	gs are changing?	Are they in	ıdependent	of existing f	ields?		
Thing		loes it change			ange consistently?	Independ	lently?
What fields do	you need to repre	esent the NE	W and inde	pendent th	ings that change?	?	
Field name (c	dangerX, score, pla	yerlMG)	Date	atype (Numb	er, String, Image, Bo	oolean)	
Make a To-Do	List, and check of	f each as "D	one" when	you finish e	ach one.		
Component	When is there we	ork to be do	ne?			To-Do	Done
Data Structure	If any new field(s) were added, changed or removed						
draw-state	If something is displayed in a new way or position						
next-state-tick	If the Data Structure changed, or the animation happens automatically						
next-state-key	If the Data Structure changed, or a keypress triggers the animation						
reactor	If either next-state	function is n	ew				

Make a sample instance for each sketch from the previous page:	
Make a sample instance for each sketch from the previous page.	
A =	
B =	
. –	
c =	_
Write at least one NEW example for one of the functions on your To-Do list	
If you have another function on your To-Do list , write at least one NEW example	
	_

Build Your Own Animation

# Animation Design Worksheet

Sketch A Sketch B Sketch C  What things are changing?  Thing How does it change? Does it change consistently?  What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG) Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off when you finish each.	Draw	a sketch	for three disting	ct moments of	the animati	on	
What things are changing?  Thing How does it change?  Does it change consistently?  What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off	Diaw	a skerem	TOF THICC CISTIFIC		me amman	OH	
What things are changing?  Thing How does it change?  Does it change consistently?  What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off							
What things are changing?  Thing How does it change?  Does it change consistently?  What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off							
What things are changing?  Thing How does it change?  Does it change consistently?  What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off							
What things are changing?  Thing How does it change?  Does it change consistently?  What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off							
What things are changing?  Thing How does it change?  Does it change consistently?  What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off							
What things are changing?  Thing How does it change?  Does it change consistently?  What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off		Clast	- l- A	CI.	- 1 - I- D		Clastic C
Thing How does it change?  Does it change consistently?  What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off		2Ke1	Ch A	2K6	etch B		sketch C
What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off	Wha				- 2		Described and a constitution of the
Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off		Ining	поч	w aces it chang	e:		Does it change consistently?
Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off							
Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off							
Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off							
Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)  Circle the items below that you will need to write or edit. Check them off							
Circle the items below that you will need to write or edit. <b>Check them off</b>							
·	Fie	eld name (c	dangerX, score, p	olayerIMG)	Datatyp	e (Num	nber, String, Image, Boolean)
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·	Circ	le the ite	ems below t	that vou wil	I need to	write	or edit. <b>Check them off</b>
				,			
□ Sample instances		Sample	e instances				
□ draw-state : → Image		draw-:	state : _		→ Im	age	
□ reactor							

#### Define the Data Structure

# a	State is
data	State:
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	)
end	
	stance for each sketch from the previous page:
D	=
	=
	: =
	: =
	: =

Collision

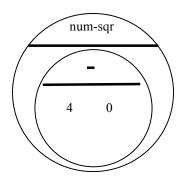
#### Distance:

The Player is at (4, 2) and the Target is at (0, 5). Distance takes in the player's x, player's y, character's x and character's y.

Use the formula below to fill in the EXAMPLE:

$$\sqrt{(4-0)^2+(2-5)^2}$$

Convert it into a Circle of Evaluation. (We've already gotten you started!)



Convert it into Pyret code:

# Word Problem: distance Write a function distance, which takes FOUR inputs: px: The x-coordinate of the player py: The y-coordinate of the player

□ cx: The x-coordinate of another game character
 □ cy: The y-coordinate of another game character

It should return the distance between the two, using the Distance formula:

ontract+Purpose	Distance <sup>2</sup>	= (px - c	(x) <sup>2</sup> + (py - cy	) <sup>2</sup>	
	·			>	
ve Examples ite examples of	your function in actic	on			
xamples:	(	)	is		
	(	)	is		
nd nction					
	(		):		

end

# Word Problem: is-collision Write a function is-collision, which takes FOUR inputs:

	px: The x-coordinate of the play py: The y-coordinate of the play cx: The x-coordinate of another cy: The y-coordinate of another It should return true if the coordi coordinates of the other characteristics.	yer game character game character inates of the play	er yer are within <b>50 pixe</b>	<b>Is</b> of the
Contro	act+Purpose Statement			
#	·		>	
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Give E	xamples			
	examples of your function in acti			
exa	mples:	(	,	2.2
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		(	)	is
			,	10
end				
Functi	on			
fun	(		):	
			,	
end				

#### Design Recipe

Contra	ct+Purpose Statement				
Every c	contract has three parts:				
11					
	·			>	
r	name	Dom	iain	Range	
#					
	WI	nat does the function	on do?		
	camples				
write e	xamples of your function in c	noitac			
exan	mples:				
C21GI1	(	,	is		
-	the user types	/	TP		
	,,				
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	which sh	ould become			
	,				
-	•	)	is		
	the user types				
_	w	hich should become	e		
end					
Functio					
Circle th	ne changes in the examples, ar	nd name the var	iables.		
fun			):		
ı alı			/·		
and					

#### DESIGN RECIPE

Cont	ract+Purpose Statemer	t			
Every	contract has three par	ts:			
,,					
#	·			>	
	name		Domain	Range	
#					
<i>''</i>		What does the fur	nction do?		
	Examples				
Write	examples of your funct	ion in action			
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ехс	amples:	,			
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	the changes in the exam	ples, and name the	variables.		
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# Animation Design Worksheet

Dray	w a sketch	for three distinc	st moments of	the animati	on	
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	Sket	ch A	Sla	etch B		Sketch C
			3Kt	eich b		3KeiCri C
Who	at things are Thing	e changing?	w does it chang	62		Does it change consistently?
	······································	110	w does il cliding	<b>C</b> :		Does il Clidinge Consistentity :
		you need to re dangerX, score, p				nber, String, Image, Boolean)
	old flame (c	<u> </u>	51470111110,	Daid.yp	(11011	
<u> </u>					.1.	
		ems below t nish each.	nat you wii	i need to	write	or edit. <b>Check them off</b>
****	-					
	Sample	e instances				
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	next-	state-tic	:		· -	
	next-	state-key	:		Str	ing →
	reacto	or				

#### Define the Data Structure

# a	_State is	
data	State:	
	(	
		-
		)
end		
Make a sample instanc	e for each sketch from the previous page:	
c =		
Write an example for or	ne of the functions on the previous page:	
wille an example for or	le of the folicilons off the previous page.	

# Animation Design Worksheet

Sketch A Sketch B Sketch C  What things are changing?  Thing How does it change? Does it change consistently?  What fields do you need to represent the things that change?  Field name (dangerX, score, playerIMG)  Datatype (Number, String, Image, Boolean)
What things are changing?  Thing How does it change? Does it change consistently?  What fields do you need to represent the things that change?
What things are changing?  Thing How does it change? Does it change consistently?  What fields do you need to represent the things that change?
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Thing How does it change? Does it change consistently?  What fields do you need to represent the things that change?
What fields do you need to represent the things that change?
Circle the items below that you will need to write or edit. Check them off
when you finish each.
□ Sample instances
☐ draw-state : → Image
□ next-state-tick : →
<del></del>
□ next-state-key :, String →

#### Define the Data Structure

# a	_State is	_
data	State:	
		_
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		_
		_)
end		
Make a sample instanc	ce for each sketch from the previous page:	
	ge for edelt sketert frem the previous page.	
Write an example for o	ne of the functions on the previous page:	

# Animation Design Worksheet

Dray	v a sketch	for three distinc	rt moments of	the animati	on	
DIGV	V G SKCICIT	TOI TITICO GISTIFIC	CI IIIOIIICIII3 OI	me animan	OH	
	Sket	ch A	Ske	etch B		   Sketch C
\						
wnc	Things Ore	e changing?	w does it chang	e?		Does it change consistently?
Who	et fields de	you need to re	prosent the thi	inas that ch	anao2	
		dangerX, score, p				nber, String, Image, Boolean)
Circ	ala tha iti	oms bolows	hat vou wil	l nood to	writo	or adit Chack them off
		nish each.	riai yoo wii	i need io	wille	or edit. <b>Check them off</b>
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	•	e instances				
		state : _				
	next-	state-tic	:		·	
	next-	state-key	:		Str	ing →
	reacto	or				

#### Define the Data Structure

# a	_ <b>State</b> is	
data	State:	
	(	
		-
	)	)
end		
Make a sample instanc	ce for each sketch from the previous page:	
	te for each sketch from the previous page.	
Write an example for o	ne of the functions on the previous page:	

Describe the goal of your change: what new feature or behavior will it add to your animation?

Draw a sketch	for three distinct r	moments of t	he animati	on, focusing	on the new beho	avior	
Ske	tch A		Sketch B		Sketo	ch C	
What NEW thin	gs are changing?	Are they inc	dependent	of existing f	ields?		
Thing	How d	loes it change	?	Does it ch	ange consistently?	Independ	lently?
	you need to repre dangerX, score, pla				ings that change? er, String, Image, Bo		
				•		·	
Make a To-Do	List, and check of	f each as "D	one" when	you finish e	ach one.		
Component	When is there we					To-Do	Done
Data Structure	If any new field(s)	If any new field(s) were added, changed or removed					
draw-state	If something is displayed in a new way or position						
next-state-tick	If the Data Structure changed, or the animation happens automatically			s automatically			
next-state-key	If the Data Structu	re changed,	or a keypres	s triggers the	animation		
reactor	tor If either next-state function is new						

Make a sample instance for each sketch from the previous page:	
Make a sample instance for each sketch from the previous page.	
A =	
B =	
. –	
c =	_
Write at least one NEW example for one of the functions on your To-Do list	
If you have another function on your To-Do list , write at least one NEW example	
	_

Describe the goal of your change: what new feature or behavior will it add to your animation?

Diaw a skelen	TOT THICE distiller I	noments of the arm	11411011, 10C03111 <u>0</u>	g on the new bene	A V I O I	•
Ske	tch A	Sketch	n B	Sketo	ch C	
What NEW thin	gs are changing?	Are they independ	dent of existing	fields?		
Thing	How d	loes it change?	Does it ch	ange consistently?	Independ	lently?
		esent the NEW and i				
Field name (c	dangerX, score, play	yerIMG)	<b>Datatype</b> (Numb	per, String, Image, Bo	oolean)	
		f each as "Done" w	hen you finish e	each one.	To Do	Dana
Component	When is there we				To-Do	Done
Data Structure	if any new fiela(s)	were added, change	ea or removea			
draw-state	If something is disp	olayed in a new way o	or position			
next-state-tick	If the Data Structu	ure changed, or the a	nimation happer	ns automatically		
next-state-key	If the Data Structu	ure changed, or a key	press triggers the	animation		
reactor	If either next-state	function is new				

Make a sample instance for each sketch from the previous page:	
Make a sample instance for each sketch from the previous page.	
A =	
B =	
. –	
c =	_
Write at least one NEW example for one of the functions on your To-Do list	
If you have another function on your To-Do list , write at least one NEW example	

# Contracts

Name	Domain	Range	example
#		•	
#		•	
#		•	
#		•	
#		•	
#		•	
#		•	
#	:	•	
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# Contracts

Name	Domain	Range	example
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