Name:



BOOTSTRAP: REACTIVE

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Class:



Workbook v0.9

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	Unit ¹	
	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 :	Number →	Number
examples: double (5) double (7) end	is 2 * 5 n is 2 * 7 n	
fun double (<u>n</u>):	
2 * n		
end		
#:	->	range
examples:		
(_) 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
examples:				
	() is		
	() is		
end				
fun	():	
end				
#	::	domain	->	range
examples:				
	() is		
	() is		
end				
fun	():	
end				

Fast Functions!

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

#nam	• •	domain	→	range
examples	:			
	(·		
	() is		
end				
fun	():	
end				
#nam	••	domain	->	range
#		domain	>	range
#nam		domain) is		range
#nam				range
#examples) is		range

Syntax and Style 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		Range
		at does the function do		
xamples				
	our function in a	iction		
mples:				
	,			
	()	
the	user types			
•				
is	which sho			
)	
the us	ser types			
is				
		which should become		
on		discount the second state of		
		d name the variables. It isn't circled, and using n	ames where you	ı find variables!
		· ·	·	
		() :

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.

name		 Domain		Range
name		Domain		range
	What do	es the function do?)	
e Examples				
•	s of your function in action	1		
examples	; :			
	()	
	the user types			
is				
	which should become			
	()	
	the user types			
is				
nd		which should become		
o otio n				
nction	ges in the examples, and nar	me the variables.		
		circled, and using no	ames where you	u find variable
	copying everyining marish i	•		

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

what does the function do? What does the function do? We Examples ite examples of your function in action Examples: (What does the function do? your function in action (:		→	
what does the function do? Examples e examples of your function in action camples: (what does the function do? your function in action (name				Range
what does the function do? The Examples of your function in action to the user types Is	what does the function do? your function in action (
the user types is	the user types which should become			does the function do?		
the user types is	the user types which should become		of your function in actio			
the user types is	which should become			ווכ		
the user types is	which should become	_	,		`	
is	which should become		()	
is	which should become the user types which should become in the examples, and name the variables. bying everything that isn't circled, and using names where you find variables!		the user types			
which should become () the user types	which should become the user types which should become in the examples, and name the variables. bying everything that isn't circled, and using names where you find variables!	÷ ~				
is	which should become In the examples, and name the variables. Bying everything that isn't circled, and using names where you find variables!	TS				
is endwhich should become Unction ircle the changes in the examples, and name the variables.	which should become In the examples, and name the variables. Bying everything that isn't circled, and using names where you find variables!		,			
is	which should become In the examples, and name the variables. Bying everything that isn't circled, and using names where you find variables!)	
which should become unction rcle the changes in the examples, and name the variables.	which should become in the examples, and name the variables. bying everything that isn't circled, and using names where you find variables!		the user types			
unction ircle the changes in the examples, and name the variables.	which should become in the examples, and name the variables. bying everything that isn't circled, and using names where you find variables!	is				
Unction ircle the changes in the examples, and name the variables.	ying everything that isn't circled, and using names where you find variables!					
ircle the changes in the examples, and name the variables.	ying everything that isn't circled, and using names where you find variables!					
	ying everything that isn't circled, and using names where you find variables!		es in the eventual as and n	ana tha variables		
	(nes where you find vo	ariables!
fun ()	,	fun		(:

Data Structure

# A CakeTyp	e is a flavor, layers, & is-iceCream	
data CakeTy	pe:	
cake		
)
end		
To make insta	ances 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 CakeTypes, and produces true if the number of layers in the first CakeType is greater than the number of layers in the second.

Officered	rpose Statement	
<u> </u>	· · · · · · · · · · · · · · · · · · ·	→
: 		
ive Example		
	les of your function in action	
example	es:	
	()
	the user types	
is	which should become	
	which should become	
	()
	the user types	
is		
end	which should beco	ome
function		wie le le e
	inges in the examples, and name the va e, copying everything that isn't circled, o	inables. and using names where you find variables!
ville ine coat		
	() :

Word Problem: will-melt

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

the user types is	ntract+Purpo	se Statement	
e examples re examples of your function in action xamples: (:	>
the user types is			
the examples of your function in action xamples:	re Fxamples		
the user types is		of your function in action	
the user types is	xamples	:	
is		()
the user types is andwhich should becomewhich should become		the user types	
the user types is endwhich should become unction rcle the changes in the examples, and name the variables. rite the code, copying everything that isn't circled, and using names where you find variables.	is	·	
the user types is		which should become	
is		()
which should become Inction Incle the changes in the examples, and name the variables. Incle the code, copying everything that isn't circled, and using names where you find variables.		the user types	·
endwhich should become unction rcle the changes in the examples, and name the variables. rite the code, copying everything that isn't circled, and using names where you find variab	ia		
nction rcle the changes in the examples, and name the variables. rite the code, copying everything that isn't circled, and using names where you find variab			should become
rcle the changes in the examples, and name the variables. rite the code, copying everything that isn't circled, and using names where you find variab	and .		
rite the code, copying everything that isn't circled, and using names where you find variab			
1 U N () :	fun		
	end		

Vocabulary Practice

Below is a new structure definition:

```
data MediaType:
   book (
      title :: String,
      author :: String,
      pubyear :: Number)
end
# an example book:
book1 = book("1984", "Orwell", 1949)
Fill in the blanks below with the vocabulary term that applies to each
name. Here are the terms to choose from:
          - contract - example
          - header
                   - field
          - datatype - instance
          - constructor - data block
          - name
                   - purpose
  author is a _____
  book is a _____
  MediaType is a
  book1 is a _____
  title is a
  data ... end is a
```

Unit 3

Identifying Animation Data Worksheet: Sunset

Draw a sketch for three distinc	raw a sketch for three distinct moments of the animation							
Sketch A	Sketch B	Sketch C						

What things are changi	/hat things are changing?								
Thing	Describe how it changes								

What fields do you need to represent the things that change?							
Field name (dangerX, score, playerIMG) Datatype (Number, String, Image, Boolean)							

(worksheet continues on the next page)

Define the Data Structure

# a	State is	
data	State:	
	(
)
end		

Λ	∕Iak	(e)	a	Sai	m	ρle	e i	ns	tc:	nr	C	\ominus	to	r e	ЭС	C	:h	Sk	e	tc	h	tro	on	٦ ٔ	the)	ore	e۷	ΊO	US	po	g	e:

 =_			
			_
=			
 _			

Word Problem: 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 Sto					T
# draw-state	e :			. →	Image
<u></u>					
/rite an expression fo	r each piece of	your final image			
SUN =					
GROUND =					
SKY =					
31.1 -					
Vrite the draw-state f	unction, using p	ut-image to combin	e vour pieces		
Vrite the draw-state f	unction, using p	ut-image to combin	e your pieces		
) :
		ut-image to combin			_) :
					_) :
					_) :
					_) :
					_) :
					_) :
					_) :
					_) :
					_) :
					_) :

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.

Contract+Purp	ose Statement			
#	:)	
·	•		′	
#				
Sive Examples				
	s of your function in a	ction		
examples	3:			
	()	
	the user types			
is				
	which sho	ould become		
	,		•	
)	
	the user types			
is				
end		which should bec	come	
ena				
unction				
Circle the chang	ges in the examples, an	d name the variables		
			ng names where you find var	
fun		()	:
end				

Identifying Animation Data Worksheet

Sketch A	Sketch B	Sketch C
t things are changing? Thing	Describe ho	ow it changes
at fields do vou need to r	epresent the things that cho	ange?
eld name (dangerX, score,		e (Number, String, Image, Boolean

(worksheet continues on the next page)

Define the Data Structure

# a	State is	
data	_State:	
(
end)	

Make a sample instar	nce for each sketch from the previous page:
=	
_	
-	
_	

Identifying Animation Data Worksheet

aw a sketch for three d	stinct moments of the	animation	
Sketch A	Sketc	h B	Sketch C
nat things are changing	İŚ		
Thing	De	escribe how it ch	nanges
nat fields do you need	o represent the things	that change?	
Field name (dangerX, sca			nber, String, Image, Boolean)

(worksheet continues on the next page)

Define the Data Structure

# a	State is	
data	State:	
	(
)
end		
Make a sample in	nstance for each sketch from the previous page:	
маке а заттріе п	istance for each sketch from the previous page.	
	=	
	=	

Identifying Animation Data Worksheet

Draw a sketch for th	nree distinc	t moments of t	the animation		
Cleadala	A	Class	tala D	Clean	+ a la . C
Sketch A		2K6	etch B	2KG	tch C
What things are cho	anaina?				
			Describe how it	changes	
9			2000112011011111	<u></u>	
What fields do you					
Field name (dangerX, score, playerIMG)			Datatype (No	umber, String, Imag	ge, Boolean)

(worksheet continues on the next page)

Define the Data Structure

# a	State is	
data	State:	
	_(
)
end		
Make a sample instar	nce for each sketch from the previous page:	
=		
=		

Identifying Animation Data Worksheet

w a sketch for three	e distinct moments of	the animation		
Clastala A	Cla	adala D	Clastala C	
Sketch A	5K	etch B	Sketch C	
it things are chang	ing?			
Thing		Describe how it cl	hanges	
rt fields de veu see		in on the ort orborn and 2		
eld name (dangerX,	ed to represent the the score, playerIMG)		nber, String, Image, Boolean)	
		2 37 37 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		
		1		

(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:				
=				
_				

Unit 4

Word Problem: location

Write a function called *location*, which consumes a DeliveryState, and produces a String representing the location of a box: either "road", "delivery zone", "house", or "air".

Contract+Pu	rpose Statement		
#	:	→	
#			
Give Example			
	() is	

end

(worksheet continues next page)

Function	on			
fun			() :
	if			 :
	else if	·		
	else if			:
	else: _			
end	end			

Syntax and Style Bug Hunting: Piecewise Edition Buggy Code Correct Code / Explanation fun piecewisefun(n): if (n > 0): n 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): **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

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 distinc	ct moments of the animation		
Sket	ch A	Sketch B Sketch	С	
What things are	e changing?			
Thing		Describe how it changes		
	you need to re dangerX, score, p	present the things that change? Datatype (Number, String, Image, Bo	oolean.)
Make a To-Do Component		off each as "Done" when you finish each one. work to be done?	To-Do	Done
Data Structure		(s) were added, changed or removed	П	
draw-state	If something is displayed in a new way or position			
next-state-tick	If the Data Struc	Data Structure changed, or the animation happens automatically		
next-state-key	If the Data Struc	cture changed, or a keypress triggers the animation		
reactor	If either next-sto	ate function is new		

Make a sample	instance for ec	ach sketch from	n the previous p	oage:	
	=				
					-
	=				
					_
	=				
					_
Write at least on	ne NEW exampl	e for one of the	e functions on	vour To-Do list	
				,	
If you have ano	ther function or	n your To-Do list	t , write at leas	t one NEW examp	le

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+Purpose S	tatement		
#	:		_ →
#			
Give Examples			
examples:			
	_() is	
	_() is	
	_() is	
end			

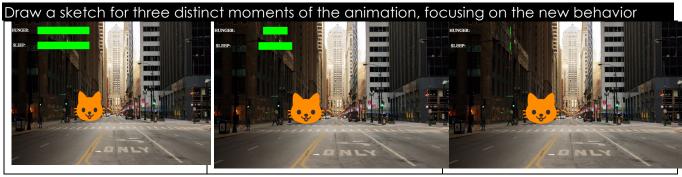
(worksheet continues next page)

Func [·]	tion				
fu	n	(_)	:
	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?

Decrease the cat's hunger level by 2 and sleep level by 1 on each tick.



Sketch A Sketch B Sketch C

What things are changing?						
Thing	Describe how it changes					

What fields do you need to represent the things that change?					
Field name (dangerX, score, playerIMG) Datatype (Number, String, Image, Boolean)					

Make 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	V					
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 new						

Make a sample	instance for each sketch from the previous page:
FULLPET = _	pet(100, 100)
MIDPET = _	pet(50, 75)
LOSEPET =	pet(0, 0)
Write at least or	ne NEW example for one of the functions on your To-Do list
n <u>ext-state-ti</u>	ck(FULLPET) is pet(FULLPET.hunger - 2, FULLPET.sleep - 1
next-state-t	cick(MIDPET) is pet(MIDPET.hunger - 2, MIDPET.sleep - 1)
next-state-	tick(LOSEPET) is LOSEPET
If you have and	other function on your To-Do list , write at least one NEW example
_	

Draw a sketch	for three distinc	ct moments of the animation		
Sket	ch A	Sketch B Sketch	С	
What things are	e changing?			
Thing		Describe how it changes		
	you need to re langerX, score, p	present the things that change? Datatype (Number, String, Image, Bo	oolean.)
,		, , , , , , , , , , , , , , , , , , , ,		,
		off each as "Done" when you finish each one.		
Component			To-Do	Done
Data Structure	If any new field	(s) were added, changed or removed		
draw-state	If something is a	displayed in a new way or position		
next-state-tick	If the Data Struc	cture changed, or the animation happens automatically		
next-state-key	If the Data Struc	cture changed, or a keypress triggers the animation		
reactor	If either next-sto	ate function is new		

Make a sample insta	ance for each sketc	h from the previo	us page:	
•		•	, 0	
= _				
=				
=				
Write at least one NE	-W example for one	of the functions	on vour Io-Do list	
Wille at least offe NL	.w example for one	Of the folichors		
If you have another t	tunction on your to-	-Do list , write at le	east one NEW exa	mple

Draw a sketch	for three distinc	t moments of	the animation			
Sketo	ch A	Ske	etch B	Sketch	С	
What things are	obanaina?					
What things are Thing	e changing ?		Describe how it ch	anges		
				`		
	you need to replangerX, score, p		ngs that change?	ber, String, Image, Bo	nolean	1
Tield fidine (e	idi 19017, 30010, p	nayonivio,	Daidiype (Nom	, boi, 51111g, 1111ago, be	ologii.	•••
Make a To-Do I	List, and check	off each as "D	Done" when you fir	nish each one.		
Component	When is there	work to be do	ne?		To-Do	Done
Data Structure	If any new field	(s) were added	, changed or remov	ed		
draw-state	If something is c	displayed in a ne	ew way or position			
next-state-tick	If the Data Struc	cture changed,	or the animation ha	ppens automatically		
next-state-key	If the Data Struc	cture changed,	or a keypress trigger	rs the animation		
reactor	If either next-stc	ate function is ne	ew			

Make a sample	instance for ec	ach sketch from	n the previous p	page:	
	=				
	=				
					_
	=				
					_
Write at least on	ne NEW exampl	e for one of the	e functions on	vour To-Do list	
				,	
If you have ano	ther function o	n your To-Do list	t , write at leas	t one NEW examp	le

Build Your Own Animation

Draw a sketch	for three distinc	t moments of the animation				
Sket	ch A	Sketch B Ske	tch C			
What things are	e changing?					
Thing		Describe how it changes				
			_			
What fields do	vou need to re	oresent the things that change?				
	dangerX, score, p		ge, Boolean)		
		off each as "Done" when you finish each one. work to be done?		Done		
Component			10-00	Done		
Data Structure	ii any new iieia	(s) were added, changed or removed				
draw-state	If something is a	If something is displayed in a new way or position				
next-state-tick	If the Data Stru	ically \Box				
next-state-key	If the Data Structure changed, or a keypress triggers the animation					
reactor	If either next-sto	Ite function is new		T_{\Box}		

a	State is	
ta	State:	
	(
)
d		
e a sample	e instance for each sketch from the previous page:	
	_ =	
	_ =	
an exam	ple for one of the functions on the previous page: '	
an exam	ple for one of the functions on the previous page:	
an exam	ple for one of the functions on the previous page:	
an exam	ple for one of the functions on the previous page:	

Collision

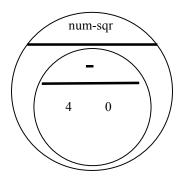
Distance:

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:
Distance ² = $(px - cx)^2 + (py - cy)^2$
Contract+Purpose Statement
#>
#
Give Examples
Write examples of your function in action
examples:
()
is
(
is
end
Function
fun():
,
end

Word Problem: is-collision Write a function is-collision, 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 true if the coordinates of the player are within 50 pixels of the coordinates of the other character. Otherwise, false. Contract+Purpose Statement	
#	
#	
Give Examples Write examples of your function in action	
examples:()	
is	
()	
is	
end	
Function	
fun():	
end	

DESIGN RECIPE

	act+Purpose Statemer		
Every	contract has three pa	rts:	
#	:		->
	name	Domain	Range
#			
		What does the function do?	
	Examples examples of your func	tion in action	
exa	imples:		
0 - 1 - 0	-)	
	the user types.	 	
	is		
		.which should become	
	()	
	the user types)	
	ia		
	TS		
end	1	which should become	
Funct	ion		
Circle	the changes in the exan	nples, and name the variables.	
fun	L	():	
end			

DESIGN RECIPE

Contract+Purpose Statemer		
very contract has three pa	rts:	
<u>:</u>		->
name	Domain	Range
t		
	What does the function do?	
Five Examples Vrite examples of your func	tion in action	
examples:		
the user types.)	
is		
	which should become	
((()	
	which should become	
end		
unction Circle the changes in the exam	nples, and name the variables.	
	(_):
 and		

Draw a sketch	for three distinc	t moments of the animation			
Sket	ch A	Sketch B Sk	etch (С	
What things are	a chanaina?				
Thing	eriariging ?	Describe how it changes			
_					
What fields do	you need to re	present the things that change?			
Field name (c	dangerX, score, p	layerIMG) Datatype (Number, String, Ima	age, Boo	olean.)
Make a To-Do	List, and check	off each as "Done" when you finish each one			
Component	When is there	work to be done?	T	o-Do	Done
Data Structure	If any new field	s) were added, changed or removed			
draw-state	If something is a	lisplayed in a new way or position			
next-state-tick	If the Data Stru	cture changed, or the animation happens automo	atically		
next-state-key	If the Data Stru	cture changed, or a keypress triggers the animatic	on		
reactor	If either next-sto	te function is new			

a	State is	
ta	State:	
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	e instance for each sketch from the previous page	
	_ =	
	_ =	
	_ =	
an exam	ple for one of the functions on the previous page:	

Draw a sketch	for three distinc	t moments of the animation			
Sket	ch A	Sketch B Ske	etch C	,	
What things are	a chanaina?				
Thing	eriariging ?	Describe how it changes			
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What fields do	you need to re	oresent the things that change?			
Field name (c	dangerX, score, p	layerIMG) Datatype (Number, String, Ima	ge, Bool	lean.)
Make a To-Do	List, and check	off each as "Done" when you finish each one			
Component	When is there	work to be done?	То)-Do	Done
Data Structure	If any new field	(s) were added, changed or removed			
draw-state	If something is a	lisplayed in a new way or position			
next-state-tick	If the Data Stru	cture changed, or the animation happens automa	tically		
next-state-key	If the Data Stru	cture changed, or a keypress triggers the animation	า		
reactor	If either next-sto	Ite function is new			

Define the Dat	a Structure	
# a	State is	
data	State:	
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end		
	e instance for each sketch from the previous page:	
	_ =	
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Write an exam	ple for one of the functions on the previous page:	

Draw a sketch	for three distinc	t moments of the animation			
Sket	ch A	Sketch B Sk	etch	С	
What things are	e changing?				
Thing		Describe how it changes			
What fields do	vou need to re	oresent the things that change?			
	dangerX, score, p		age, Bo	olean.)
		off each as "Done" when you finish each one			
Component		work to be done?		lo-Do	Done
Data Structure	If any new field	(s) were added, changed or removed			
draw-state	If something is a	lisplayed in a new way or position			
next-state-tick	If the Data Stru	cture changed, or the animation happens automo	atically		
next-state-key	If the Data Stru	cture changed, or a keypress triggers the animatic	on		
reactor	If either next-sto	Ite function is new			

fine the Data	a Structure	
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nd		,
ke a sample	instance for each sketch from the previous page:	
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e an examp	ole for one of the functions on the previous page:	

Sketo	ch A	Sketch B Sketch	С					
What things are	e changing?							
Thing	e changing ?	Describe how it changes						
What fields do	vou need to re	present the things that change?						
	langerX, score, p		oolean.)				
Make a To-Do I	ist, and check	off each as "Done" when you finish each one.						
Component			To-Do	Done				
Data Structure	If any new field							
draw-state	If something is a							
next-state-tick	If the Data Struc							
next-state-key	If the Data Structure changed, or a keypress triggers the animation							

Make a sample	instance for ec	ach sketch fron	n the previous	page:	
			•		
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Write at least on	ne NEW exampl	e for one of the	e functions on	vour To-Do list	
				, , , , , , , , , , , , , , , , , , , ,	
If you have ano	ther function or	n your To-Do lis	t , write at lea	st one NEW exam	ple

Sket	ch A	Sketch B Sketch	С				
What things are Thing	e changing?	Describe how it changes					
		oresent the things that change?					
Field name (c	Field name (dangerX, score, playerIMG) Datatype (Number, String, Image						
Make a To-Do l Component		off each as "Done" when you finish each one. work to be done?	To-Do	Done			
Data Structure	If any new field	(s) were added, changed or removed					
draw-state	If something is o						
next-state-tick	If the Data Struc						
next-state-key	If the Data Struc	cture changed, or a keypress triggers the animation					
reactor	If either next-sto	ate function is new					

Make a sample insta	nce for each sketch fro	m the previous pag	e:
		, ,	
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Write at least one NE	EW example for one of the	ne functions on your	r Io-Do list
wille at least offe M	w example for one of the	TE TOTICTIONS OF YOUR	
It you have another	function on your To-Do I	ist , write at least on	e NEW example

Contracts

* * * * * * * * * * * * * * * * * * *	Name	Domain	Range	example
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Contracts

example																		
Range	^	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Domain	••																	
Name	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#