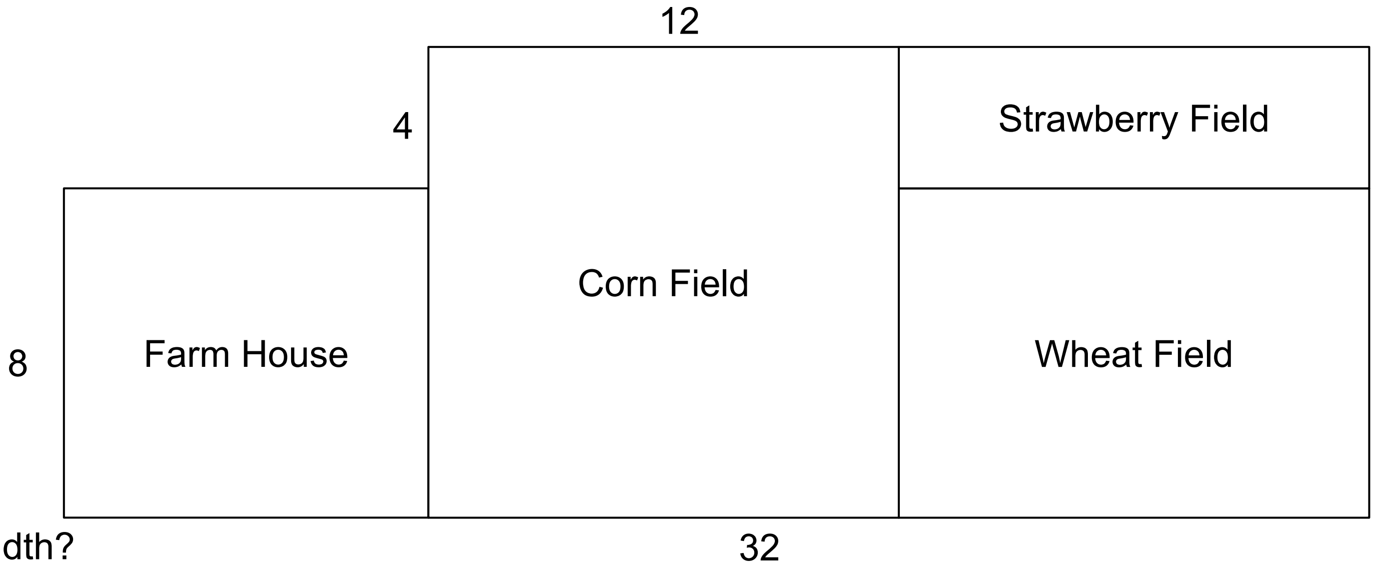
Introduction to GUI

Location, location, location

Start with a word problem

What is the area of the Strawberry Field?

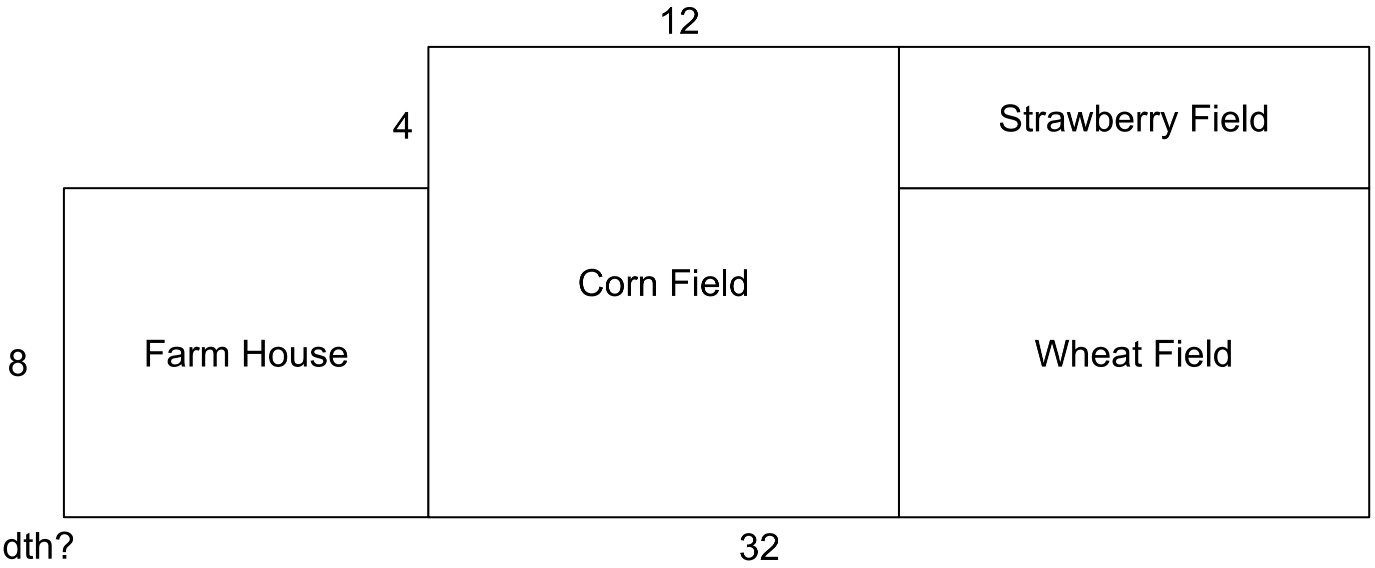


What is the height and width? (Express in forms of **x**), x = 2.

Start with a word problem

What is the area of the Strawberry Field?

48 sq. units.

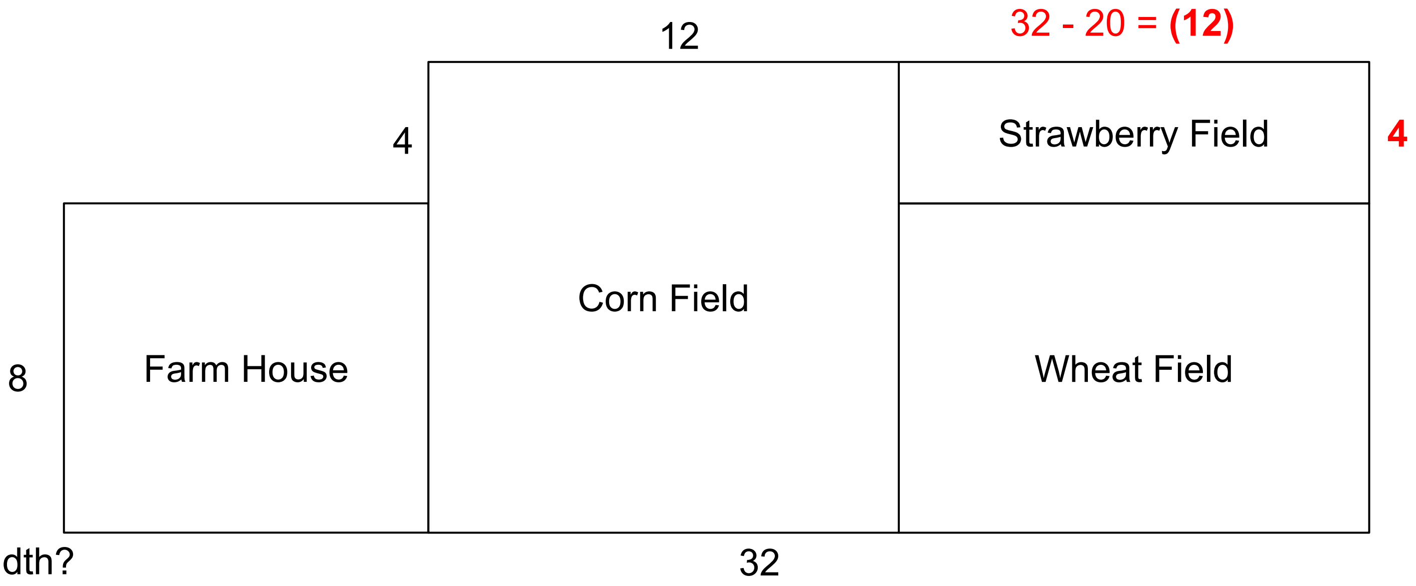


What is the height and width?
(Express in forms of **x**), x = 2.

Start with a word problem

What is the area of the Strawberry Field?

48 sq. units.



12

32 - 20 = **(12)**

4

Strawberry Field

4

Corn Field

8

Farm House

Wheat Field

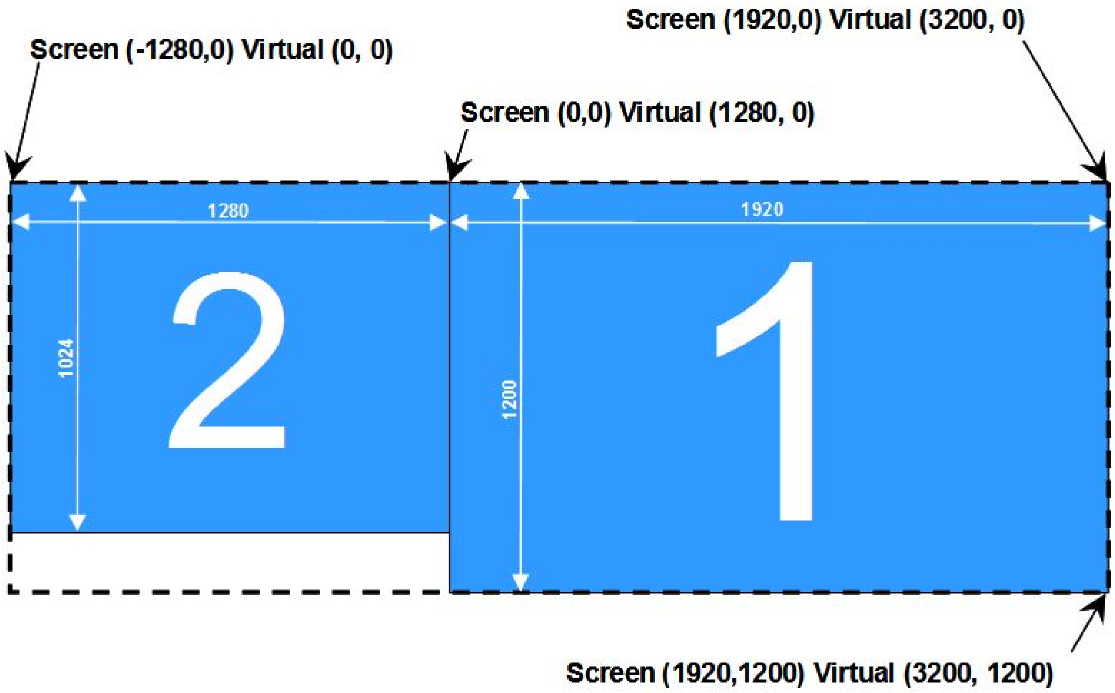
32

What is the height and width? (Express in forms of **x**), x = 2.

Height = **2x**;

Width = **6x**;

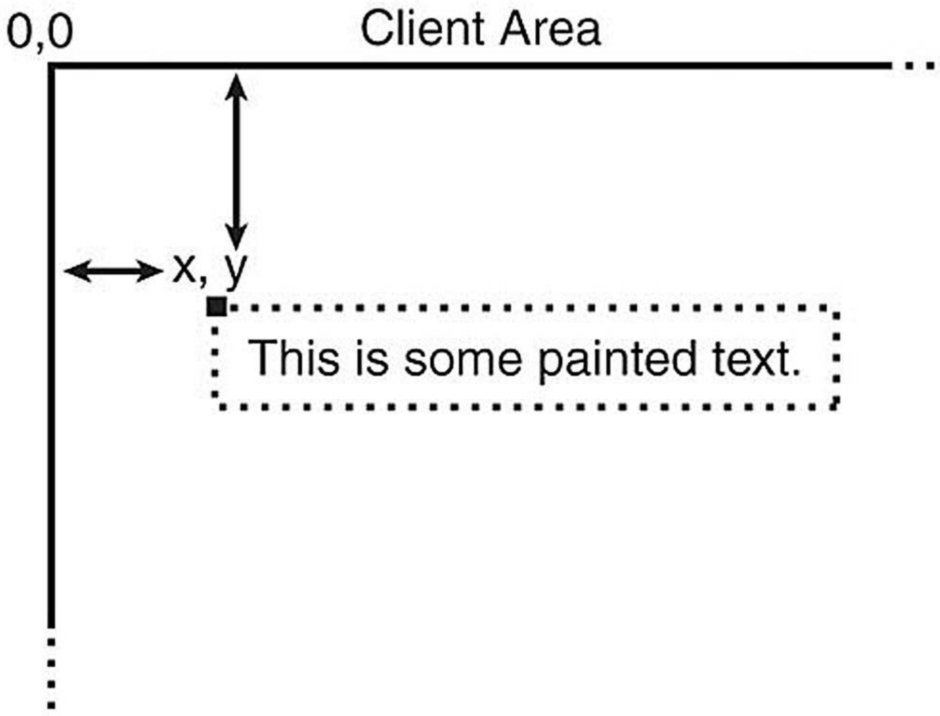
Traditional Positioning


Screen (-1280,0) Virtual (0, 0)
Screen (1920,0) Virtual (3200, 0)
Screen (0,0) Virtual (1280, 0)
1280
1920
1024
1200
2
1
Screen (1920,1200) Virtual (3200, 1200)

All **x** and **y** position.

Based on pixel count.

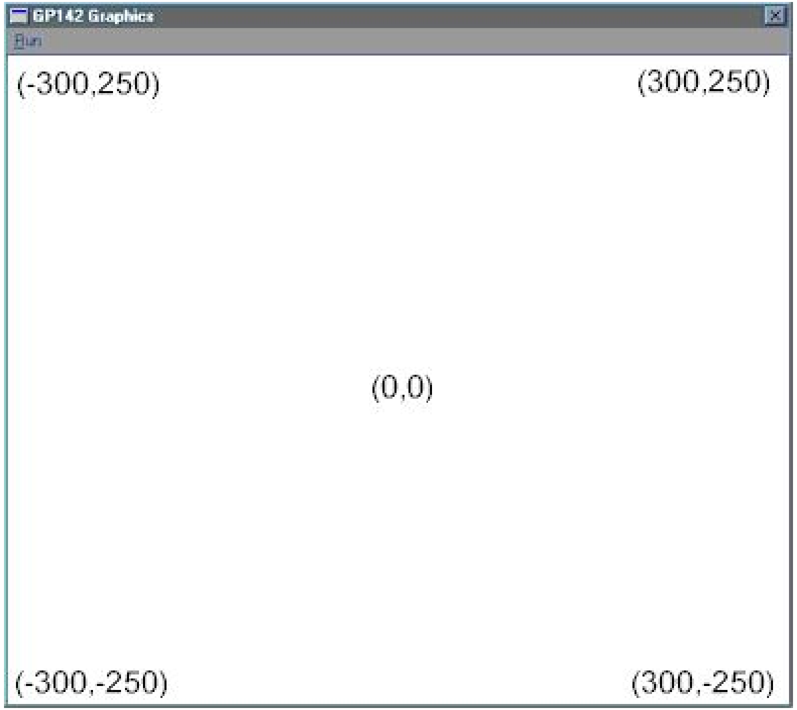
Origin Point



The origin point determines the start location to count from.

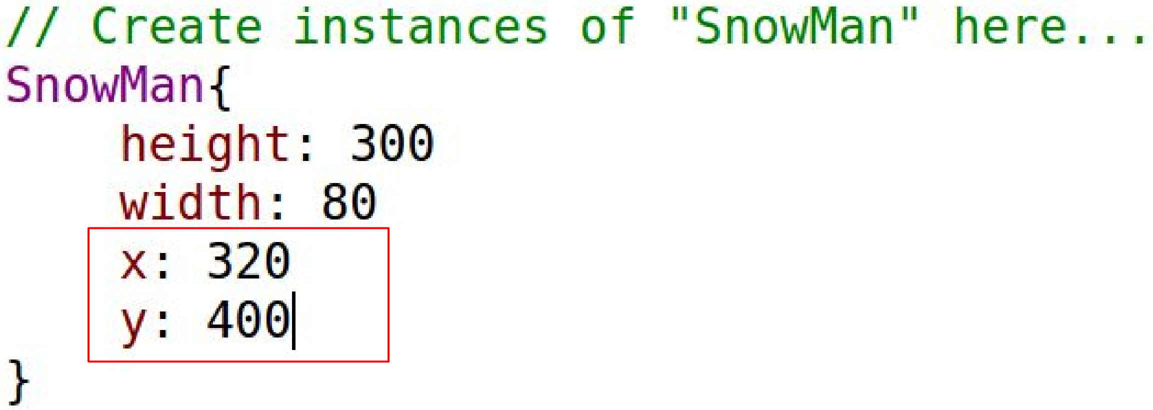
LEFT-to-RIGHT
&
TOP-to-BOTTOM

Origin Point



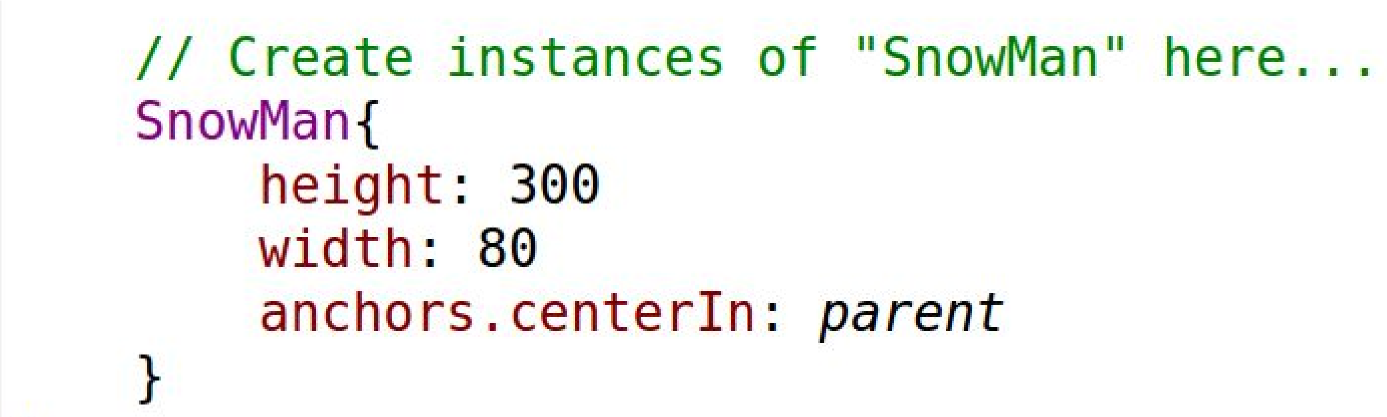
The origin can be changed.

Avoiding hardcoded coordinates



```
// Create instances of "SnowMan" here...
SnowMan{
    height: 300
    width: 80
    x: 320
    y: 400
}
```

Anchors to the Rescue!



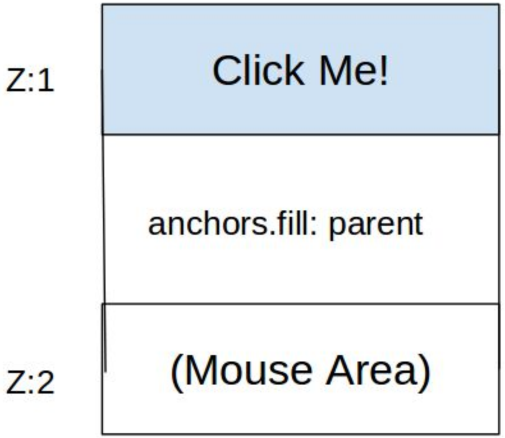
```
// Create instances of "SnowMan" here...
SnowMan{
    height: 300
    width: 80
    anchors.centerIn: parent
}
```

http://doc.qt.io/qt-5/qtquick-positioning-topic.html

Synchronize visual with input

User expects the entire button to function.

But you have the power to change all the rules (beware user may experience issues)



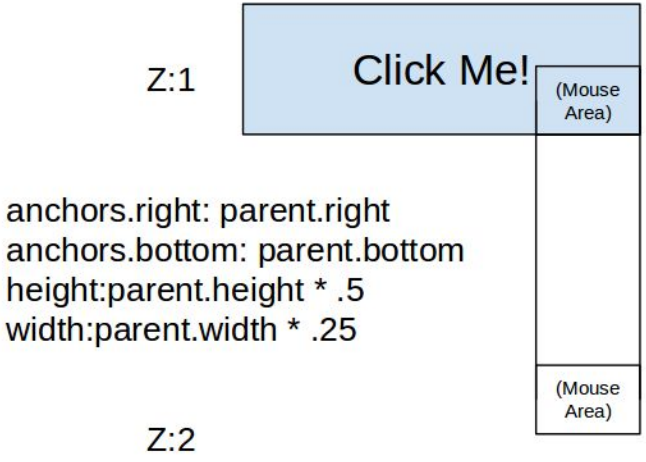
Z:1

Click Me!

```
anchors.fill: parent
```

Z:2

(Mouse Area)



Z:1

Click Me!

(Mouse Area)

```
anchors.right: parent.right
anchors.bottom: parent.bottom
height:parent.height * .5
width:parent.width * .25
```

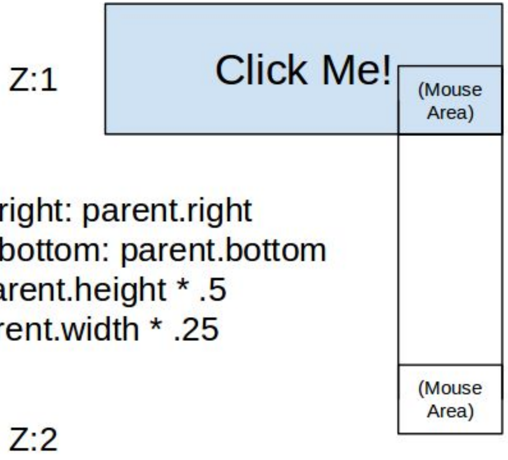
(Mouse Area)

Z:2

Synchronize visual with input

Works as the User *Expects*

But you have the power to change all the rules (beware user may experience issues)



```
anchors.right: parent.right
anchors.bottom: parent.bottom
height:parent.height * .5
width:parent.width * .25
```

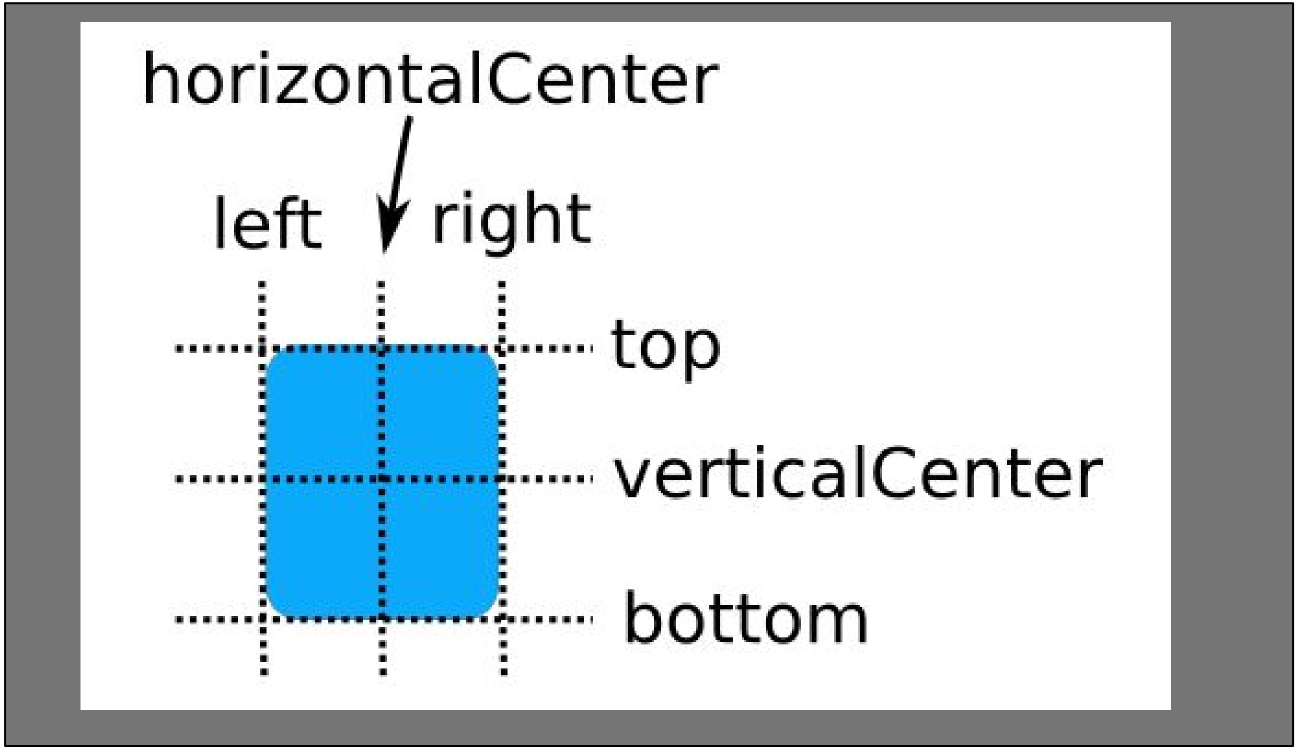
Synchronize visual with input

Works as the User *Expects*

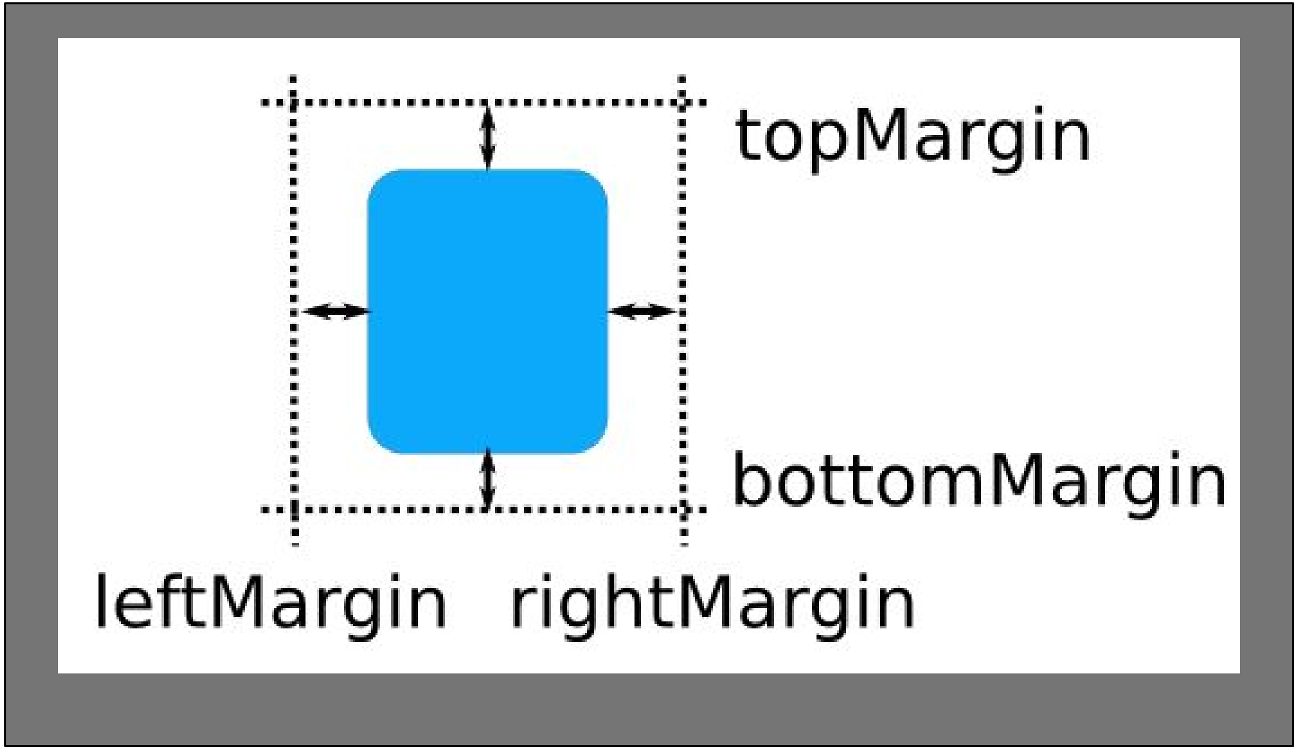
User assumes there is a BUG in the program!

How might you implement anchors?

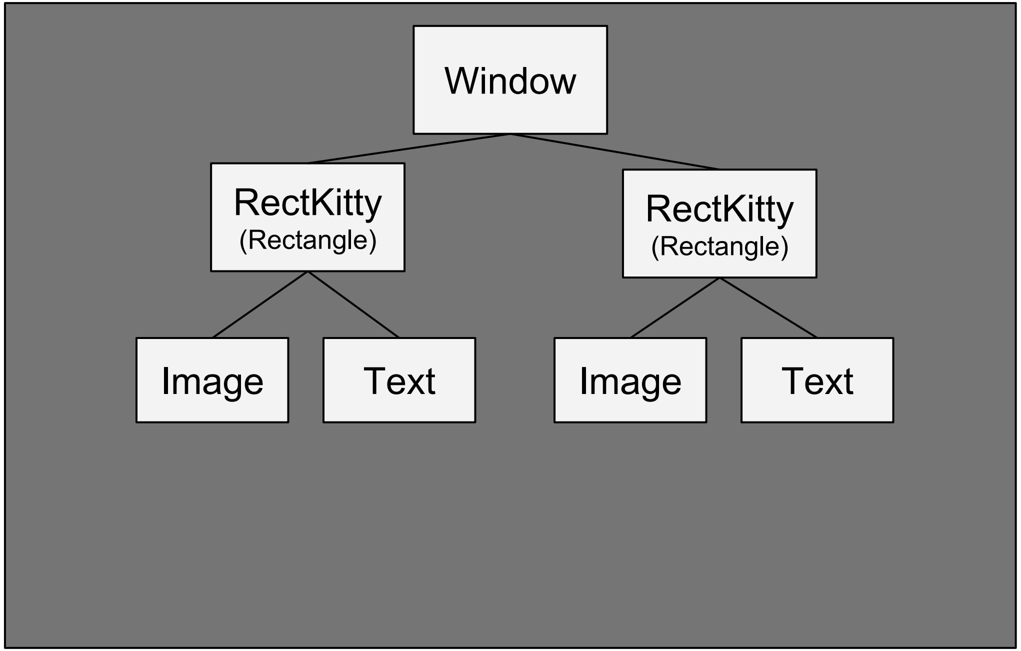
How might you implement anchors?



How might you implement anchors?



How might you implement anchors?



Window

RectKitty
(Rectangle)

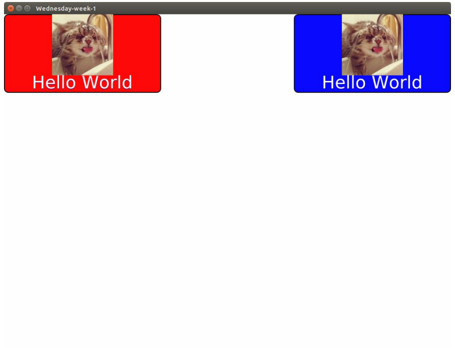
RectKitty
(Rectangle)

Image

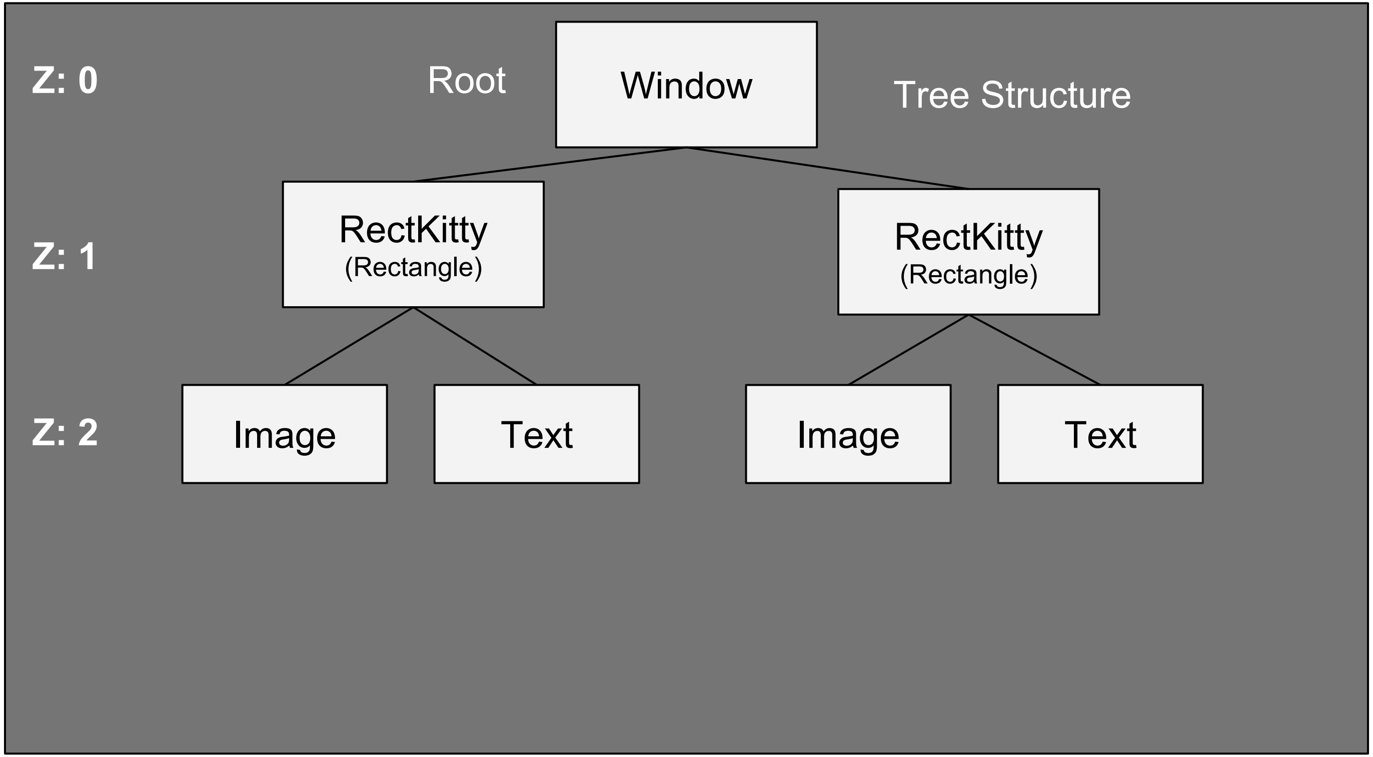
Text

Image

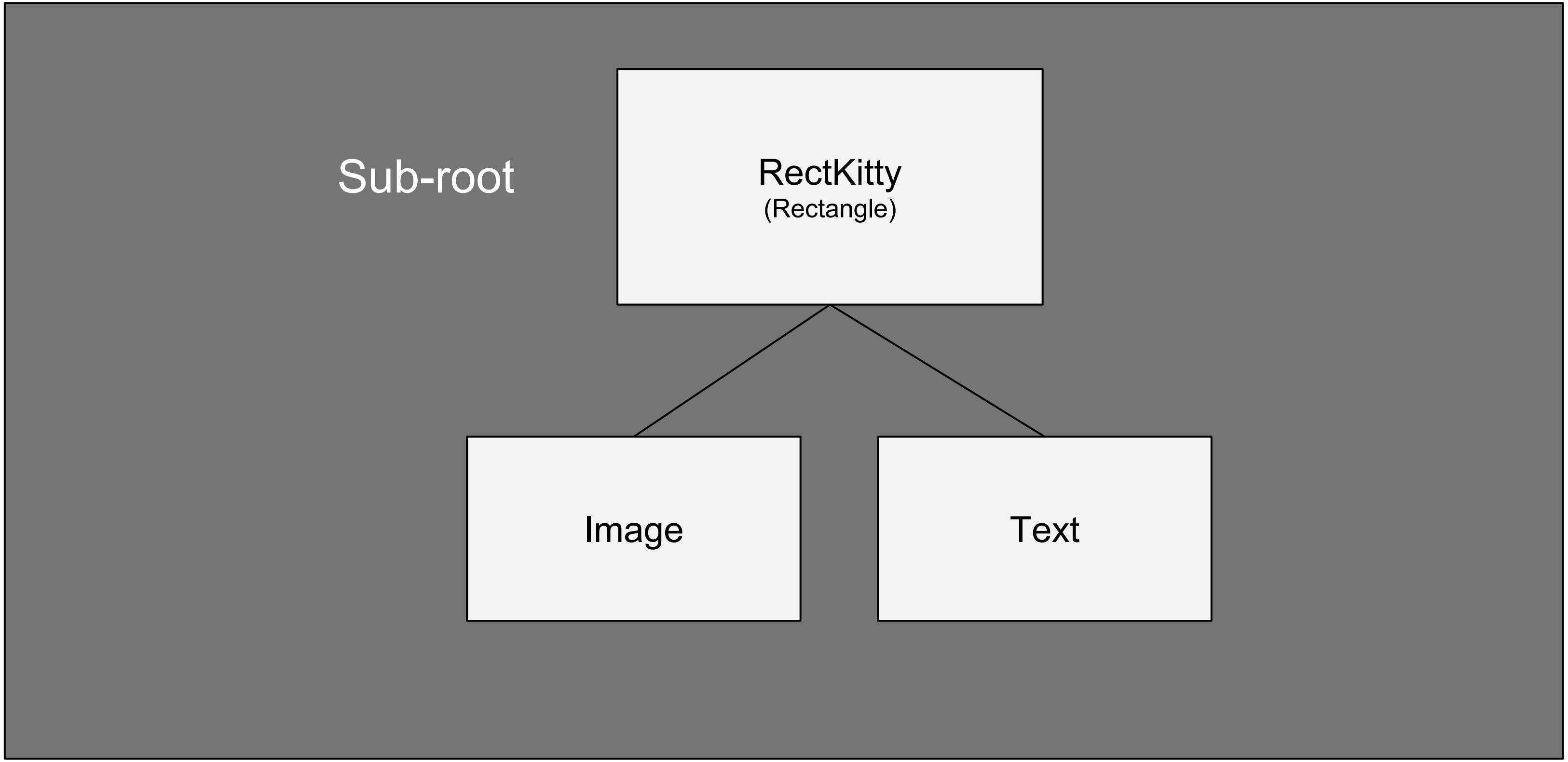
Text



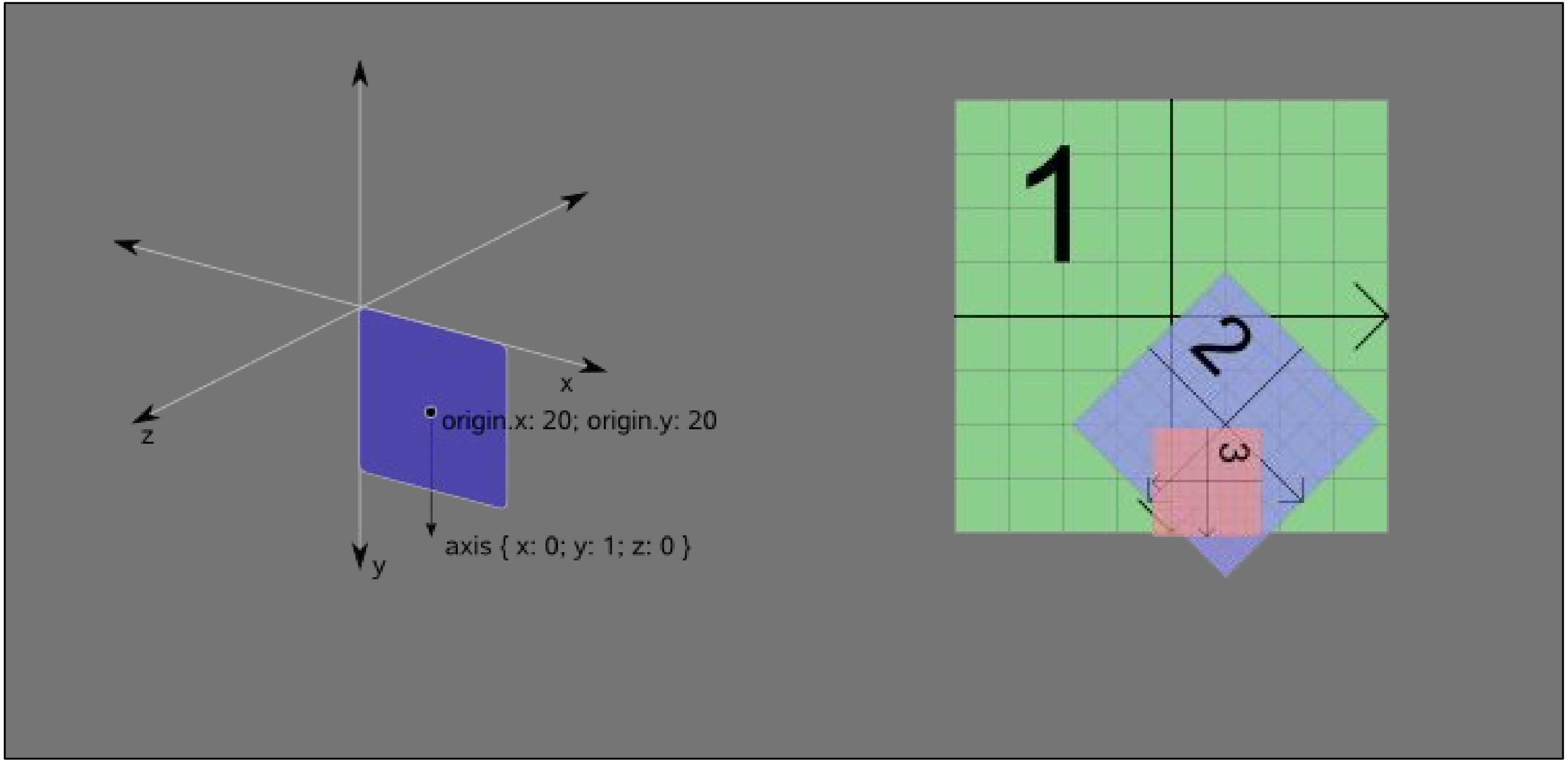
How might you implement anchors?



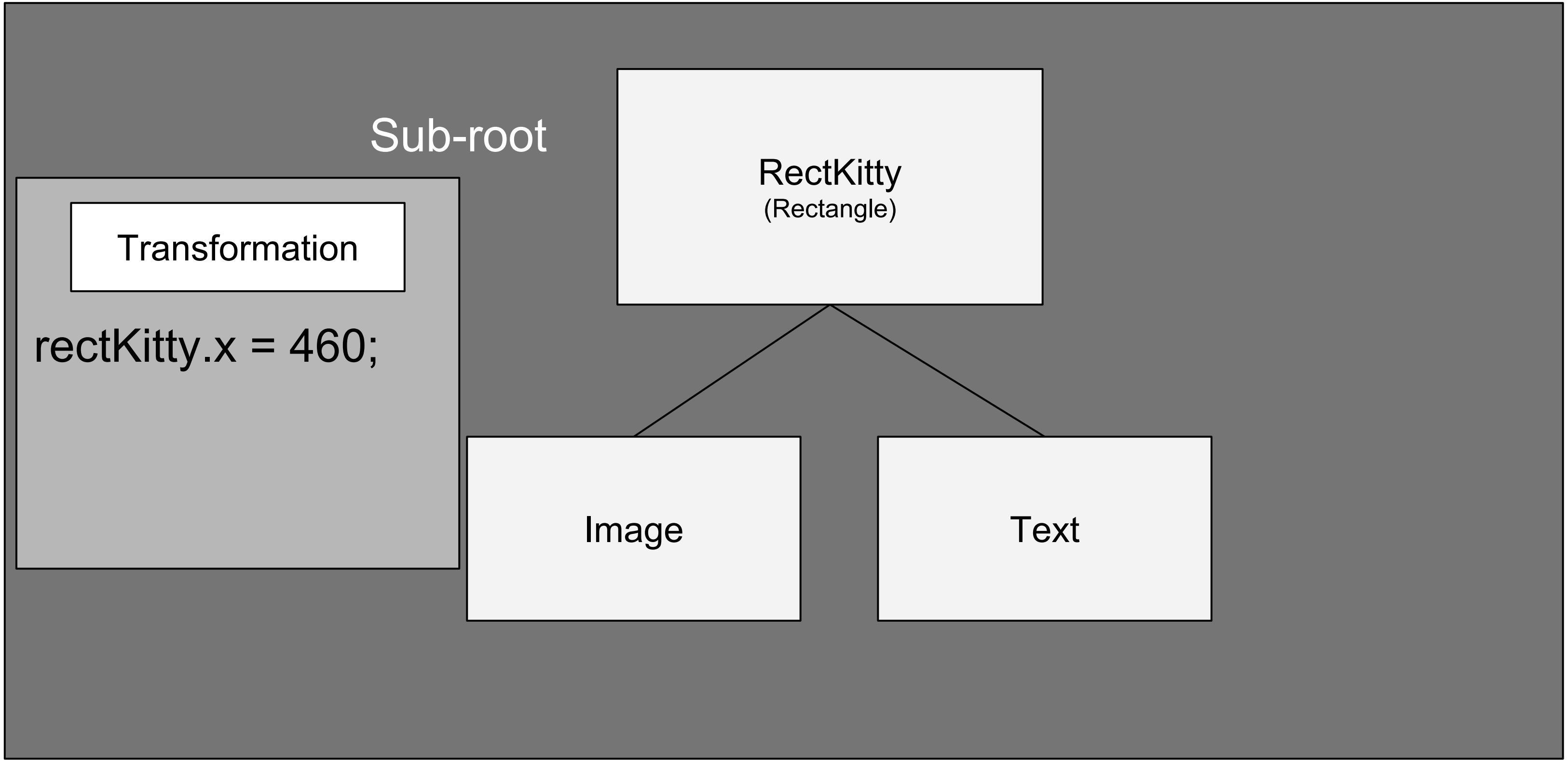
How might you implement anchors?



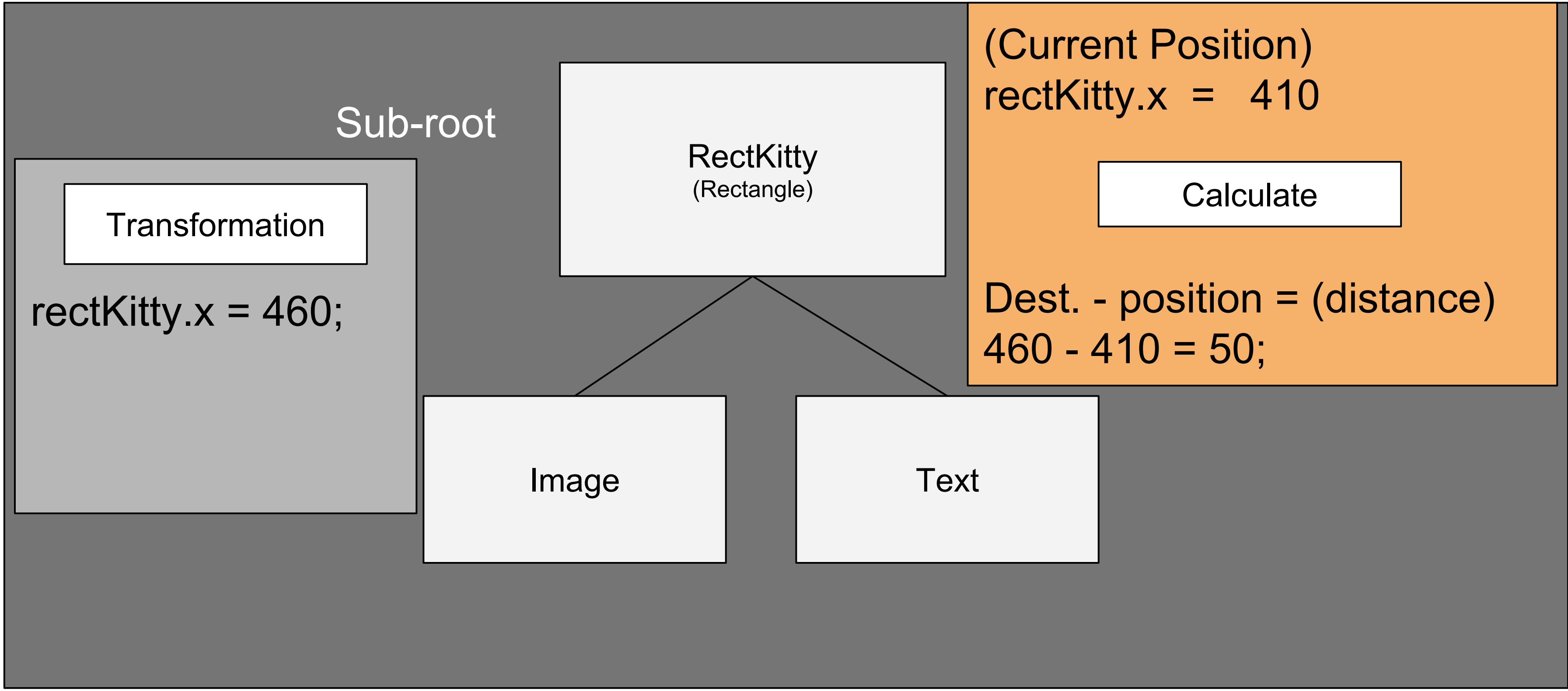
What is a Transformation?



Transform object (Position)?



Transformation is *Acceleration*.

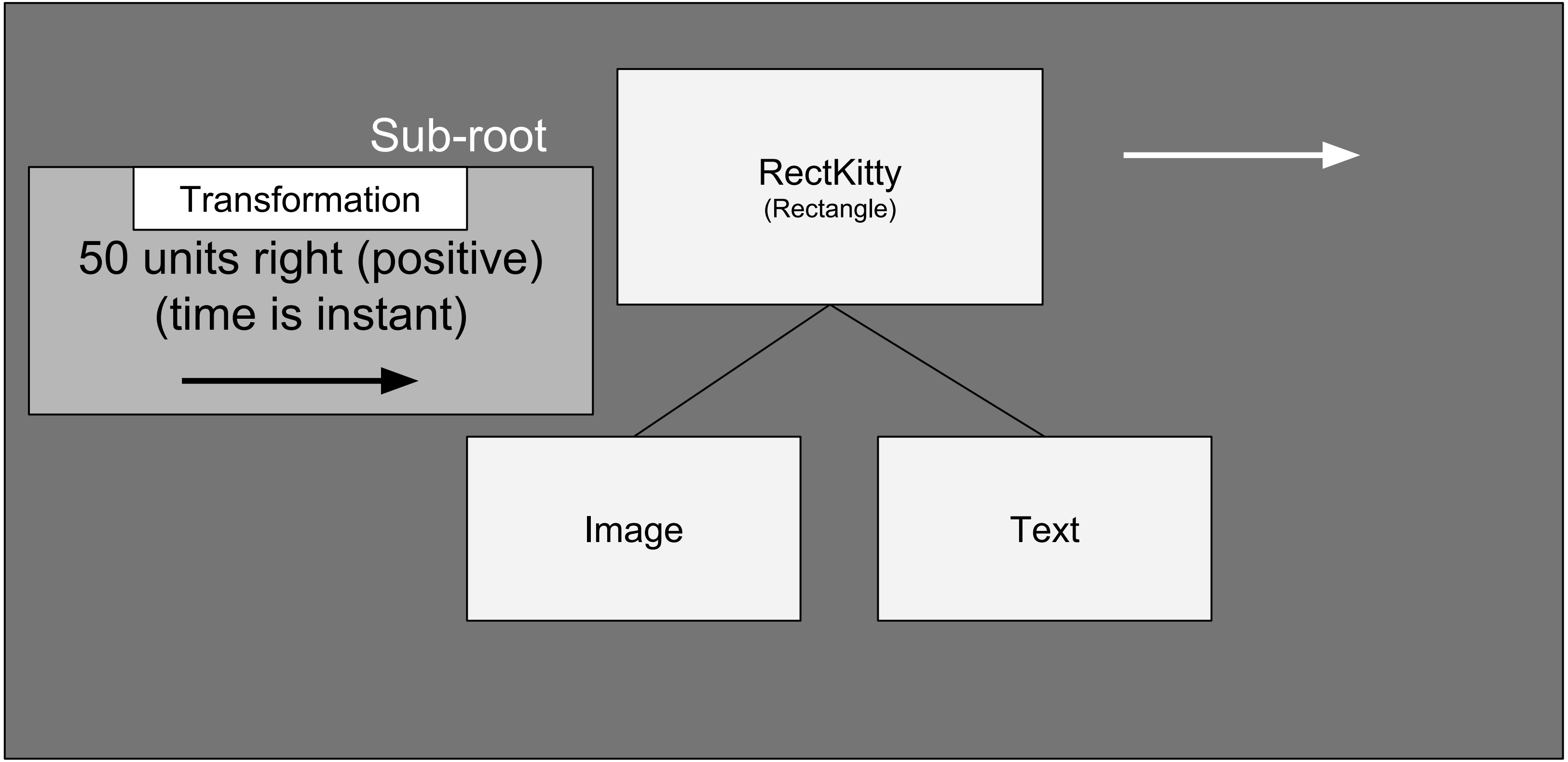


rectKitty.x = 460;

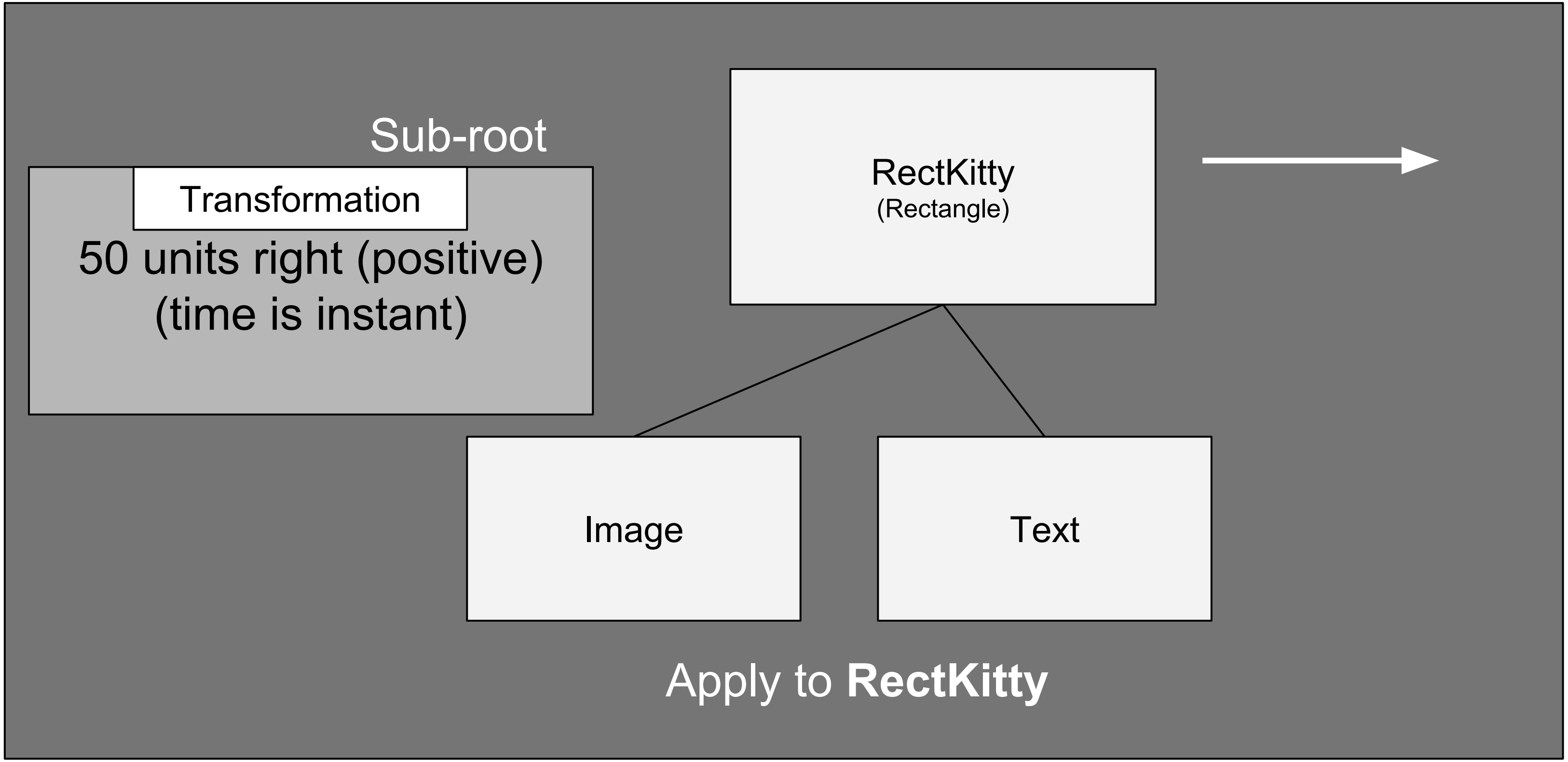
(Current Position)
rectKitty.x = 410

Dest. - position = (distance)
460 - 410 = 50;

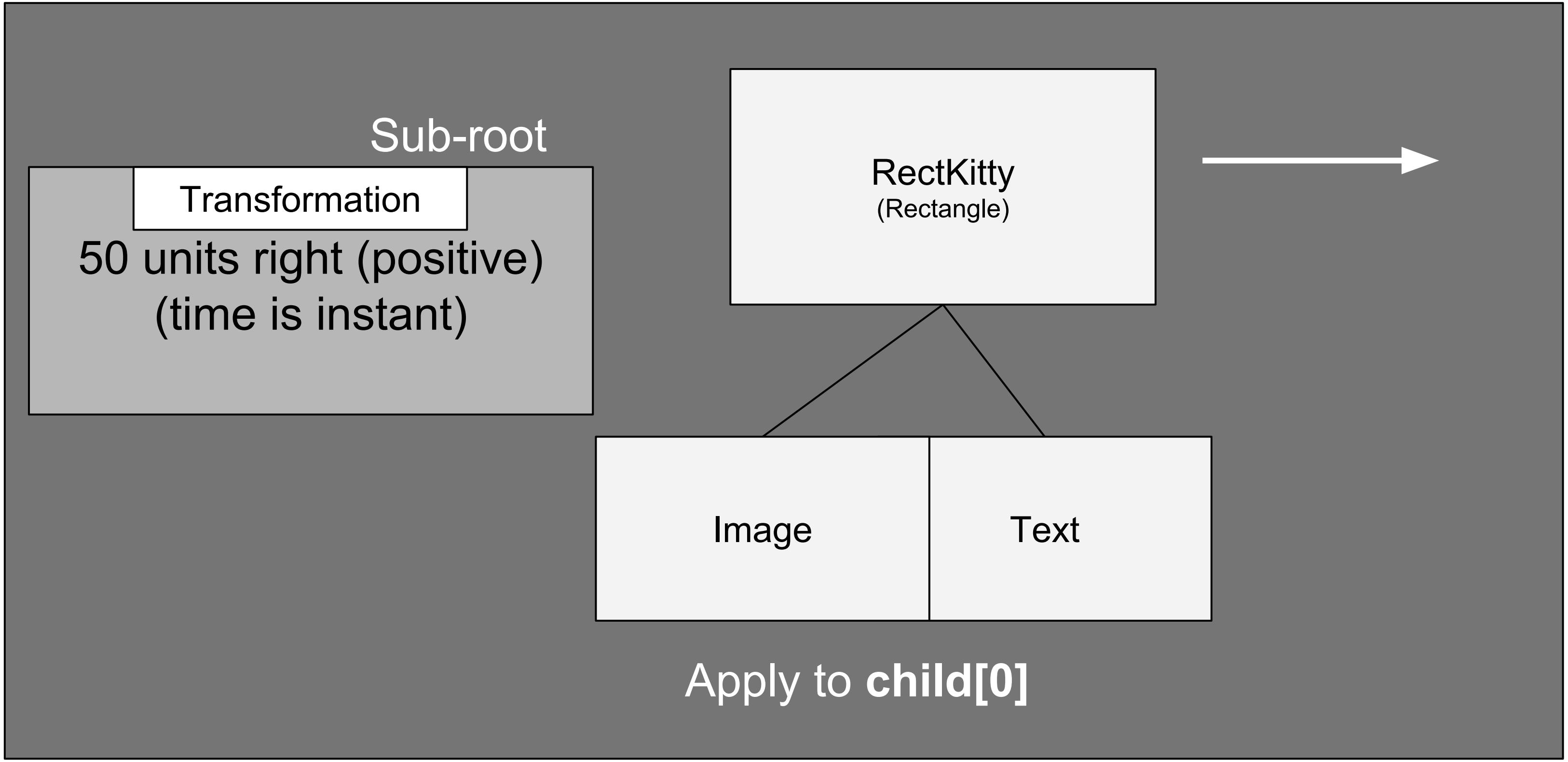
Transform object (Position)?



Transform object (Position)?



Transform object (Position)?



Sub-root

Transformation

50 units right (positive)
(time is instant)

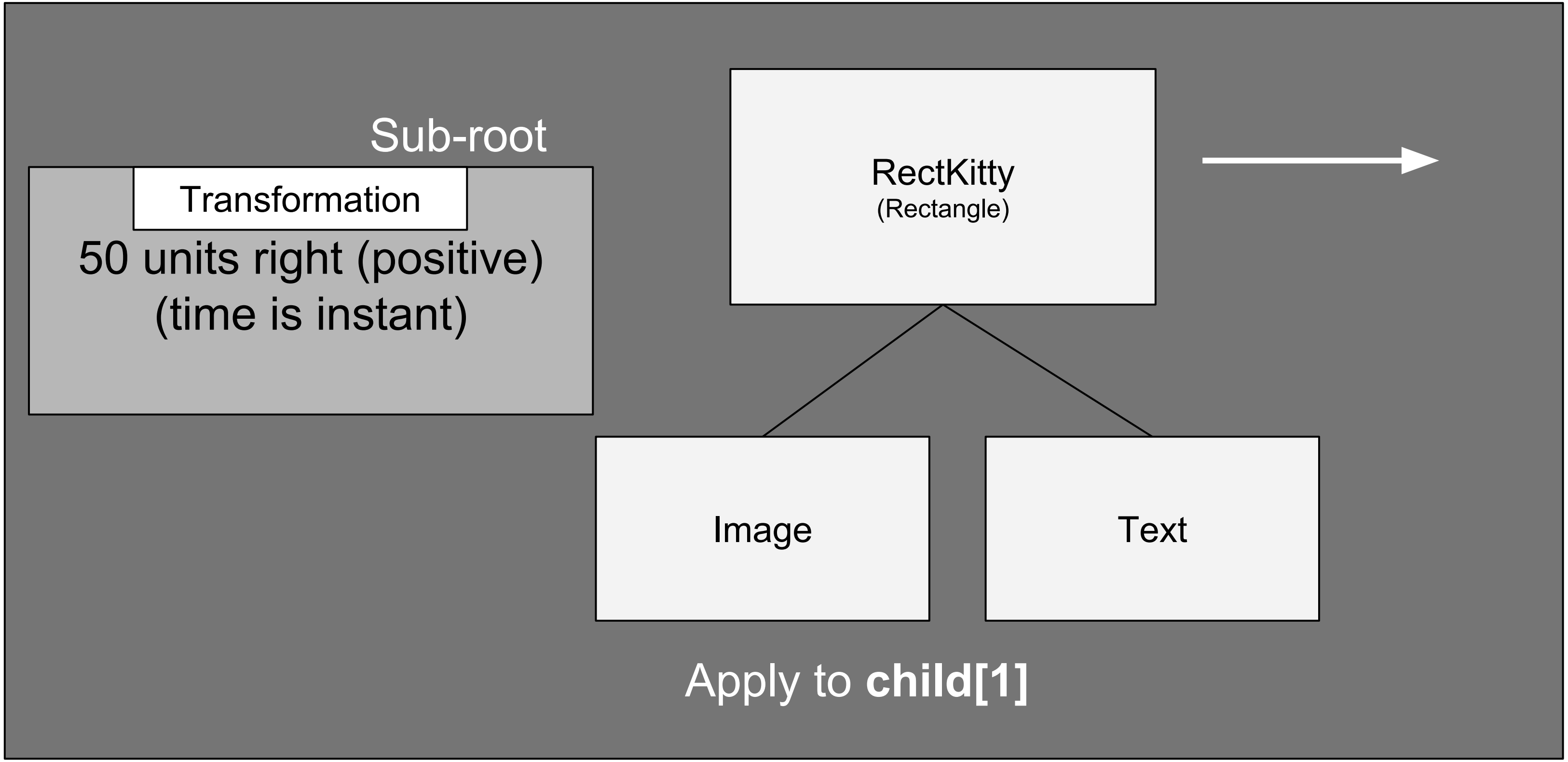
RectKitty
(Rectangle)

Image

Text

Apply to **child[0]**

Transform object (Position)?



Sub-root

Transformation

50 units right (positive)
(time is instant)

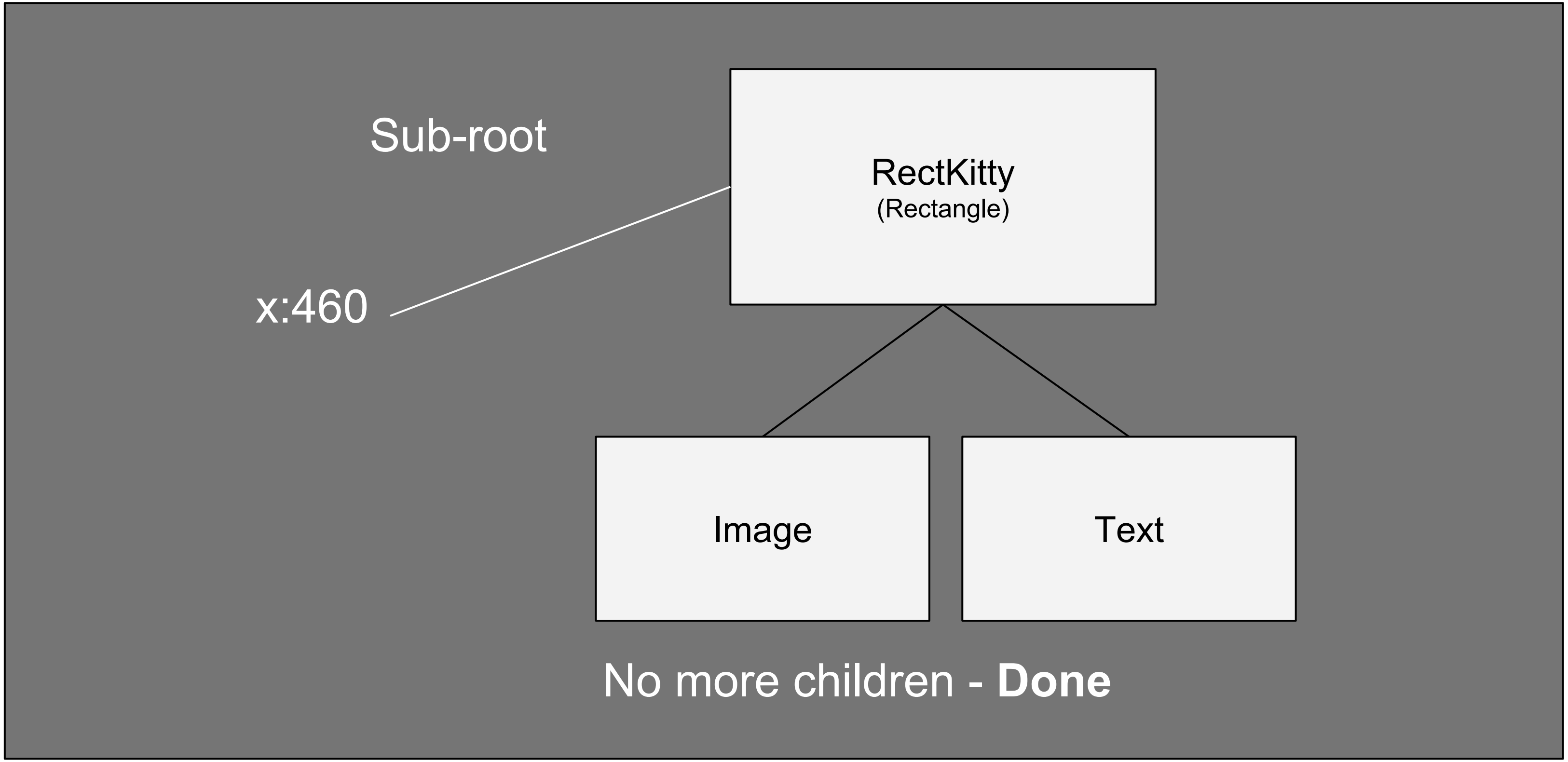
RectKitty
(Rectangle)

Image

Text

Apply to **child[1]**

Transform object (Position)?



Sub-root

RectKitty
(Rectangle)

x:460

Image

Text

No more children - **Done**

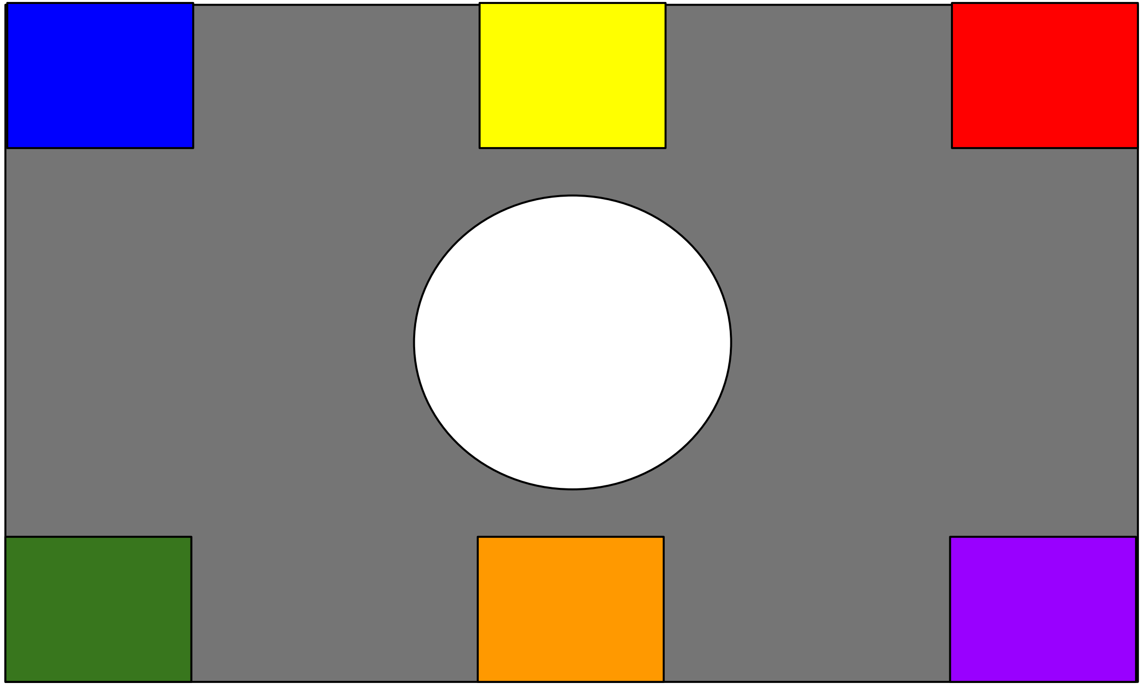
Coding Lesson - Property Bindings

Build this scene using only Property bindings

(zero Hard Coded values)

Suggested Reading
(QML Book)

4.1 - 4.4



http://qmlbook.github.io/en/ch04/index.html