Programming with Python

CMU TechNight

http://shoutkey.com/rear
What is Python?
Our First Program!

Hello World
def myFunction():
    return 42

myFunction()
print(myFunction())
Functions - providing arguments

def myFunction(x):
    return x * 5

print(myFunction(10))
print(myFunction(15))
def myFunction(x):
    result = 5
    return result + x

print(myFunction(10))
print(myFunction(15))
def myFunction(myList):
    total = 0
    for element in myList:
        total = total + element
    return total

print(myFunction([1,2,3,4,5]))
for Loops

def myFunction(myList, x):
    total = 0
    for element in myList:
        if element < x:
            total = total + element
    return total

print(myFunction([1,2,3,4,5], 4))
Draw the Fish!

Make the fish appear on the screen!
**Draw the Fish - Functions**

Functions you should implement:
`draw(canvas, myFish, otherFishes)`

Functions you can use:
`drawFish(canvas, fish)`
def draw(canvas, myFish, otherFishes):
    drawFish(canvas, myFish)
    for fish in otherFishes:
        drawFish(canvas, fish)
Move with Arrow Keys!

onUpArrow(myFish)

onLeftArrow(myFish)

onRightArrow(myFish)

onDownArrow(myFish)
Move with Arrow Keys - Functions

Functions you should implement:

onUpArrow(myFish)
onDownArrow(myFish)
onLeftArrow(myFish)
onRightArrow(myFish)

Functions you can use:

moveUp(myFish, change)
movedown(myFish, change)
movyleft(myFish, change)
moveright(myFish, change)
Move with Arrow Keys - Code

```python
def onUpArrow(myFish):
    moveUp(myFish, 10)

def onDownArrow(myFish):
    moveDown(myFish, 10)

def onLeftArrow(myFish):
    moveLeft(myFish, 10)

def onRightArrow(myFish):
    moveRight(myFish, 10)
```
The `makeFish(width, height, fishList)` function will be called every so often for you to add more fish to the page!
Make more fish appear - Functions

Functions you should implement:
makeFish(width, height, fishList)

Functions you can use:
randomInteger(lower, upper)
randomChoice(elements)
makeNewFish(color, x, y, fishList)

Fish colors: red, gray, and green
for i in range(10):
    x = randomInteger(0, width)
    y = randomInteger(0, height)
    color = randomChoice(["red", "gray", "green"])  
    makeNewFish(color, x, y, fishList)
Eat other fish!

Now that we can see the fish, and generator other fish, let's eat them!
Eat other fish - Functions

Functions you should implement:

checkToEatFish(data, myFish, otherFishes)

Functions you can use:

collidedWith(myFish, otherFish)
eatFish(data, myFish, otherFish)
def checkToEatFish(data, myFish, otherFishes):
    for otherFish in otherFishes:
        if collidedWith(myFish, otherFish):
            eatFish(data, myFish, otherFish)
Thanks for coming!

Have fun programming games :)