**Brandon Donato 10/9/15**

**CS Pre-Lab**

**1)**

qimport random

import turtle

def isInScreen(w,t):

leftBound = - w.window\_width() / 2

rightBound = w.window\_width() / 2

topBound = w.window\_height() / 2

bottomBound = -w.window\_height() / 2

turtleX = t.xcor()

turtleY = t.ycor()

stillIn = True

if turtleX > rightBound or turtleX < leftBound:

stillIn = False

if turtleY > topBound or turtleY < bottomBound:

stillIn = False

return stillIn

t = turtle.Turtle()

wn = turtle.Screen()

t.shape('turtle')

while isInScreen(wn,t):

coin = random.randrange(0, 2)

if coin == 0:

t.left(random.randrange(0,91))

else:

t.right(random.randrange(0,91))

t.forward(50)

wn.exitonclick()

**2)**

import random

import turtle

def isInScreen(w,t,z):

leftBound = - w.window\_width() / 2

rightBound = w.window\_width() / 2

topBound = w.window\_height() / 2

bottomBound = -w.window\_height() / 2

turtleX = t.xcor()

turtleY = t.ycor()

turtleXX = z.xcor()

turtleYY = z.ycor()

stillIn = True

if turtleX > rightBound or turtleX < leftBound:

stillIn = False

if turtleY > topBound or turtleY < bottomBound:

stillIn = False

if turtleXX > rightBound or turtleX < leftBound:

stillIn = False

if turtleYY > topBound or turtleY < bottomBound:

stillIn = False

return stillIn

t = turtle.Turtle()

tu = turtle.Turtle()

wn = turtle.Screen()

leftBound = - wn.window\_width() / 2

rightBound = wn.window\_width() / 2

topBound = wn.window\_height() / 2

bottomBound = -wn.window\_height() / 2

randX = random.randrange(leftBound, rightBound +1)

randY = random.randrange(bottomBound, topBound +1)

randXX = random.randrange(leftBound, rightBound +1)

randYY = random.randrange(bottomBound, topBound +1)

t.up()

tu.up()

t.goto(randX, randY)

tu.goto(randXX, randYY)

t.down()

tu.down()

t.shape('turtle')

tu.shape('turtle')

while isInScreen(wn,t,tu):

coin = random.randrange(0, 2)

if coin == 0:

t.left(random.randrange(0,91))

tu.left(random.randrange(0,91))

else:

t.right(random.randrange(0,91))

tu.right(random.randrange(0,91))

t.forward(50)

tu.forward(50)

wn.exitonclick()

**3)**

import random

import turtle

def isInScreen(w,t,z):

leftBound = - w.window\_width() / 2

rightBound = w.window\_width() / 2

topBound = w.window\_height() / 2

bottomBound = -w.window\_height() / 2

turtleX = t.xcor()

turtleY = t.ycor()

turtleXX = z.xcor()

turtleYY = z.ycor()

stillIn = True

if turtleX > rightBound or turtleX < leftBound:

stillIn = False

if turtleY > topBound or turtleY < bottomBound:

stillIn = False

if turtleXX > rightBound or turtleX < leftBound:

stillIn = False

if turtleYY > topBound or turtleY < bottomBound:

stillIn = False

return stillIn

t = turtle.Turtle()

tu = turtle.Turtle()

wn = turtle.Screen()

leftBound = - wn.window\_width() / 2

rightBound = wn.window\_width() / 2

topBound = wn.window\_height() / 2

bottomBound = -wn.window\_height() / 2

randX = random.randrange(leftBound, rightBound +1)

randY = random.randrange(bottomBound, topBound +1)

randXX = random.randrange(leftBound, rightBound +1)

randYY = random.randrange(bottomBound, topBound +1)

t.up()

tu.up()

t.goto(randX, randY)

tu.goto(randXX, randYY)

t.down()

tu.down()

t.shape('turtle')

tu.shape('turtle')

while isInScreen(wn,t,tu):

coin = random.randrange(0, 2)

if coin == 0:

t.left(random.randrange(0,91))

tu.left(random.randrange(0,91))

else:

t.right(random.randrange(0,91))

tu.right(random.randrange(0,91))

t.forward(50)

tu.forward(50)

if (randX, randY) == (randXX, randYY):

tu.left(180)

tu.forward(20)

if ((randX <= leftBound) or (randX >= rightBound)):

t.left(180)

t.forward(20)

if ((randY >= topBound) or (randY <= bottomBound)):

t.left(180)

t.forward(20)

if ((randXX <= leftBound) or (randXX >= rightBound)):

tu.left(180)

tu.forward(20)

if ((randYY >= topBound) or (randYY <= bottomBound)):

tu.left(180)

tu.forward(20)

wn.exitonclick()