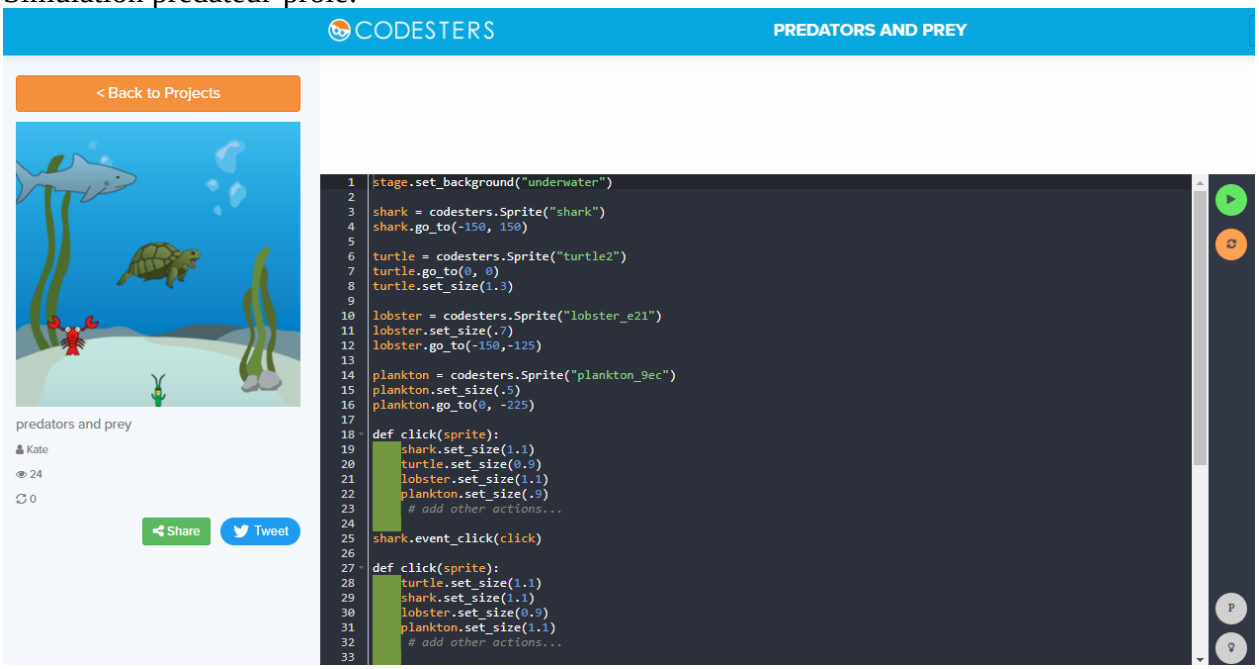
Fiche de code

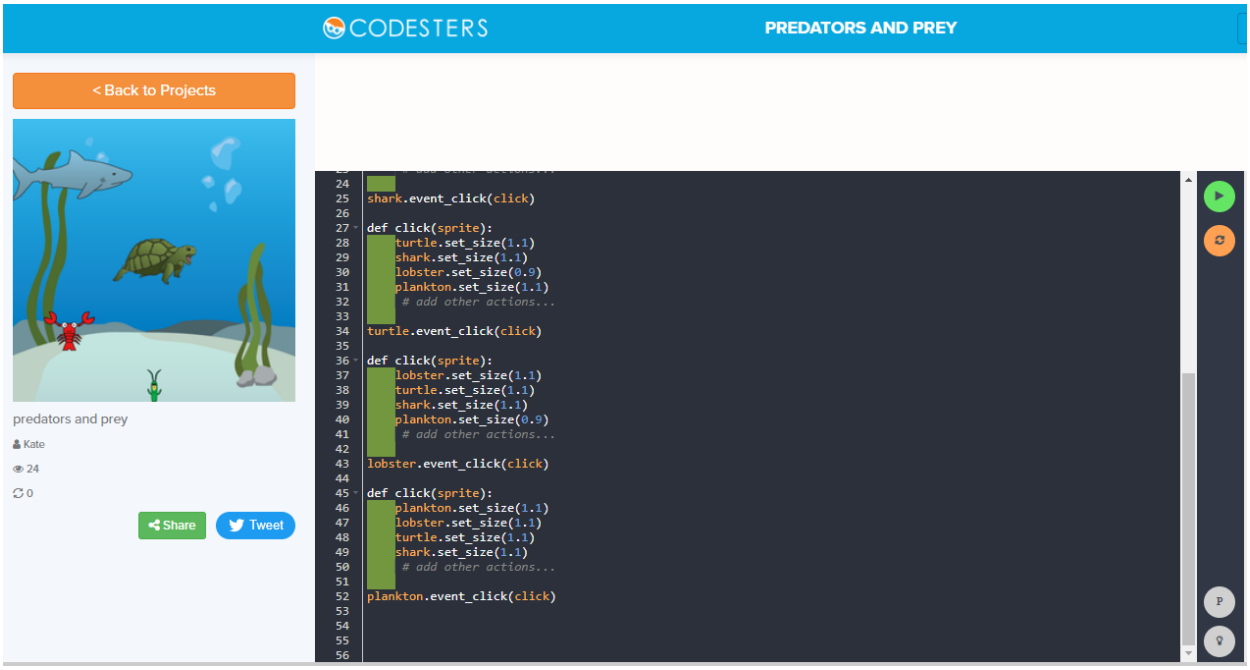
Description

Vous trouverez ici des captures d'écran du code utilisé dans les simulations. Les étudiants peuvent utiliser ce code pour réaliser la simulation prédateur-proie qui est une représentation graphique de ce qui se passe lorsque la population de certaines espèces est modifiée. Il y a également des captures d'écran de la simulation qui permet aux étudiants d'entrer des nombres et de voir ce qui se passe avec les populations de prédateurs et de proies au fil du temps.
https://www.codesters.com/preview/ef72685cc1054a30aab873f67ca804dc/

Les deux simulations sont codées en Python à l'aide de la plateforme Codesters disponible ici :
https://www.codesters.com/project/

Simulation prédateur-proie:





Représenter graphiquement les populations:

```
# Get USR Input:
goodX0 = 0
while goodX0 == 0:
    print("Enter Starting Prey Population:")
    x0 = int(input("(There must be at least one prey!)"))
    if x0 > 0:
        goodX0 = 1

goodY0 = 0
while goodY0 == 0:
    print("Enter Starting Predator Population:")
    y0 = int(input("(There must be at least one predator!)"))
    if y0 > 0:
        goodY0 = 1

goodB = 0
while goodB == 0:
    print("Enter Prey Birth Rate (enter whole number ie, 75% = '75'):")
    b = int(input("(Birth rate cannot be above 99% or below 1%!)"))
    if b > 0:
        if b < 100:
            goodB = 1

goodH = 0
while goodH == 0:
    print("How many prey must a predator eat to survive a year?")
    H = int(input("(Predators must eat at least one prey to survive!)"))
    if H > 0:
        goodH = 1


print("Starting Prey: " + str(x0))
print("Starting Predator: " + str(y0))
```

```
print("Starting Prey: " + str(x0))
print("Starting Predator: " + str(y0))


gen = 0
xT = x0
yT = y0
xTemp = 0
yTemp = 0

while gen < 15:
    print("Year: " + str(gen + 1))
    xTemp = xT + b*xT/100
    #print("TEST 1 " +str(xTemp))
    xTemp = xTemp - H*yT
    #print("TEST 2 " +str(xTemp))
    yTemp = yT / 4
    #print("TEST 1y " +str(yTemp))
    yTemp = yTemp + xT/H
    #print("TEST 2y " +str(yTemp))

    if xTemp <= 0:
        xTemp = 0

    if yTemp <= 0:
        yTemp = 0


    print("     Prey: " + str(xTemp))
    print(" Predator: " + str(yTemp))
    xT=xTemp
    yT=yTemp
    gen += 1
```

Exemple de données générées :

```
Enter Starting Prey Population:
(There must be at least one prey!)

  100000
Enter Starting Predator Population:
(There must be at least one predator!)

  50
Enter Prey Birth Rate (enter whole number ie, 75% = '75'):
(Birth rate cannot be above 99% or below 1%!)

  90
How many prey must a predator eat to survive a year?
(Predators must eat at least one prey to survive!)

  2
Starting Prey: 100000
Starting Predator: 50
Year: 1
     Prey: 189900.0
 Predator: 50012.5
Year: 2
     Prey: 260785.0
 Predator: 107453.125
Year: 3
     Prey: 280585.25
```