

Examen 2020 juin - Corrigé

```
import pygame, sys
from pygame.locals import *
from math import sqrt
from random import randint

pygame.init()
width, height = 600, 400
screen = pygame.display.set_mode((width, height))
pygame.display.set_caption("Snake - LXY_CB1_13")
screen.fill(Color("white"))

FPS = 15
clock = pygame.time.Clock()

class Element:

    def __init__(self, x, y, border_color, fill_color):
        self.x = x
        self.y = y
        self.border_color = border_color
        self.fill_color = fill_color

    def draw(self):
        pygame.draw.circle(screen, self.fill_color, (self.x, self.y), 7, 0)
        pygame.draw.circle(screen, self.border_color, (self.x, self.y), 7, 1)

    def move(self, dx, dy):
        self.x += dx
        self.y += dy

    def has_touched(self, other):
        if sqrt((self.x - other.x) ** 2 + (self.y - other.y) ** 2) < 10:
            return True
        return False

class Snake:

    def __init__(self, x, y):
        self.head = Element(x, y, Color("purple4"), Color("purple1"))
        self.body = []
        for i in range(1, 6):
            self.body.append(Element(x + i * 10, y, Color("gold4"),
            Color("gold1")))
        self.energy = 200
        self.direction = (-1, 0)

    def move(self):
        self.body.insert(0, Element(self.head.x, self.head.y, Color("gold4"),
        Color("gold1")))
        del self.body[-1]
        self.head.move(10 * self.direction[0], 10 * self.direction[1])
        self.energy -= 1

    def draw(self):
        pygame.draw.rect(screen, Color("blue"), (5, 5, 200, 5), 0)
        pygame.draw.rect(screen, Color("yellow"), (5, 5, self.energy, 5), 0)
        for element in self.body:
            element.draw()
        self.head.draw()

    def grow(self):
```



```
        snake.energy = 200
elif len(food) == 0:
    is_running = False
    game_color = Color("khaki")

    if snake.has_touched(poison) or snake.has_touched(snake.body) or
snake.has_hit_wall(width, height) or snake.energy == 0:
        is_running = False
        game_color = Color("magenta")

    screen.fill(game_color)
    for p in poison:
        p.draw()
    if len(food) > 0:
        food[0].draw()
    snake.draw()
    pygame.display.update()
    clock.tick(FPS)

pygame.display.update()
clock.tick(FPS)

pygame.quit()
sys.exit()
```