Cécile Godefroy

Projet 3

AIDEZ MACGYVER À S'ÉCHAPPER !

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Powered by Pygame et pourquoi Random ?

Projet 3 : Aidez MacGyver à s'échapper !

L’uniformisation des images pour le jeu.

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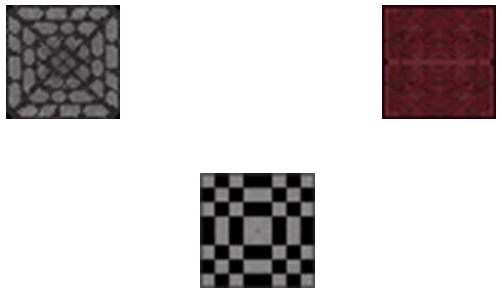
Création des sprites une par une.

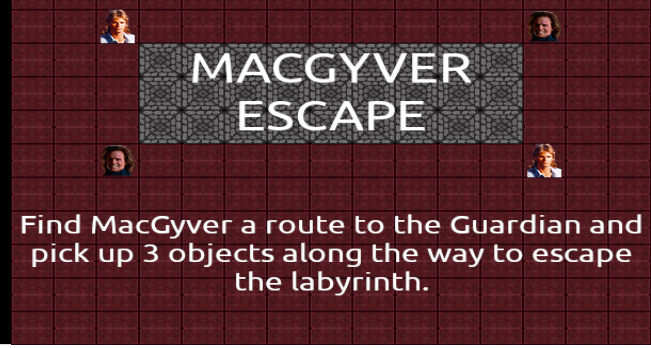
Aあ

Un peu de texte pour le menu.

Une heure de copier-coller avec Gimp.



Les personnages et les objets.



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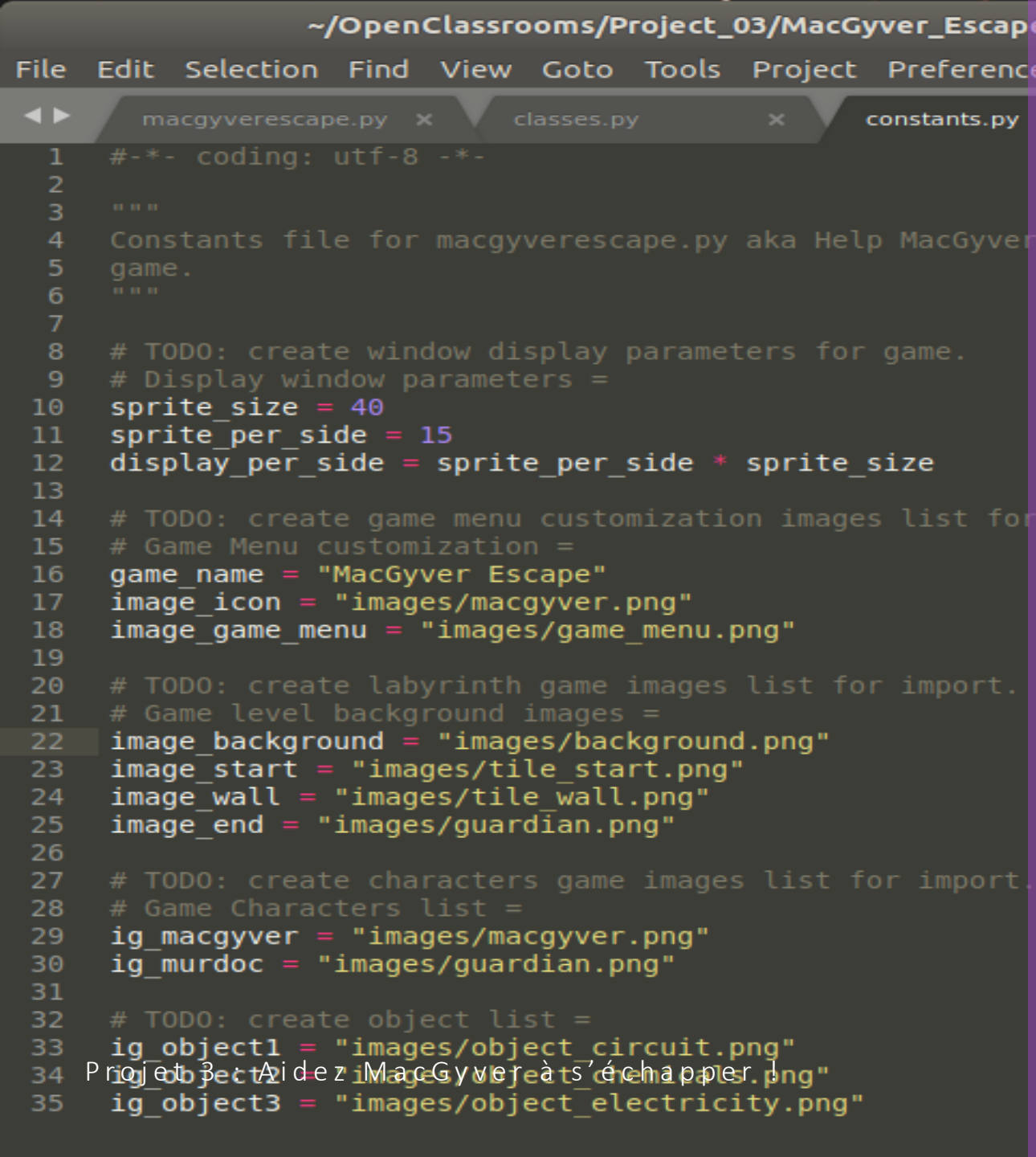

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La Gestion des Constantes et de leurs Images.

Le Script de la Carte du Labyrinthe.

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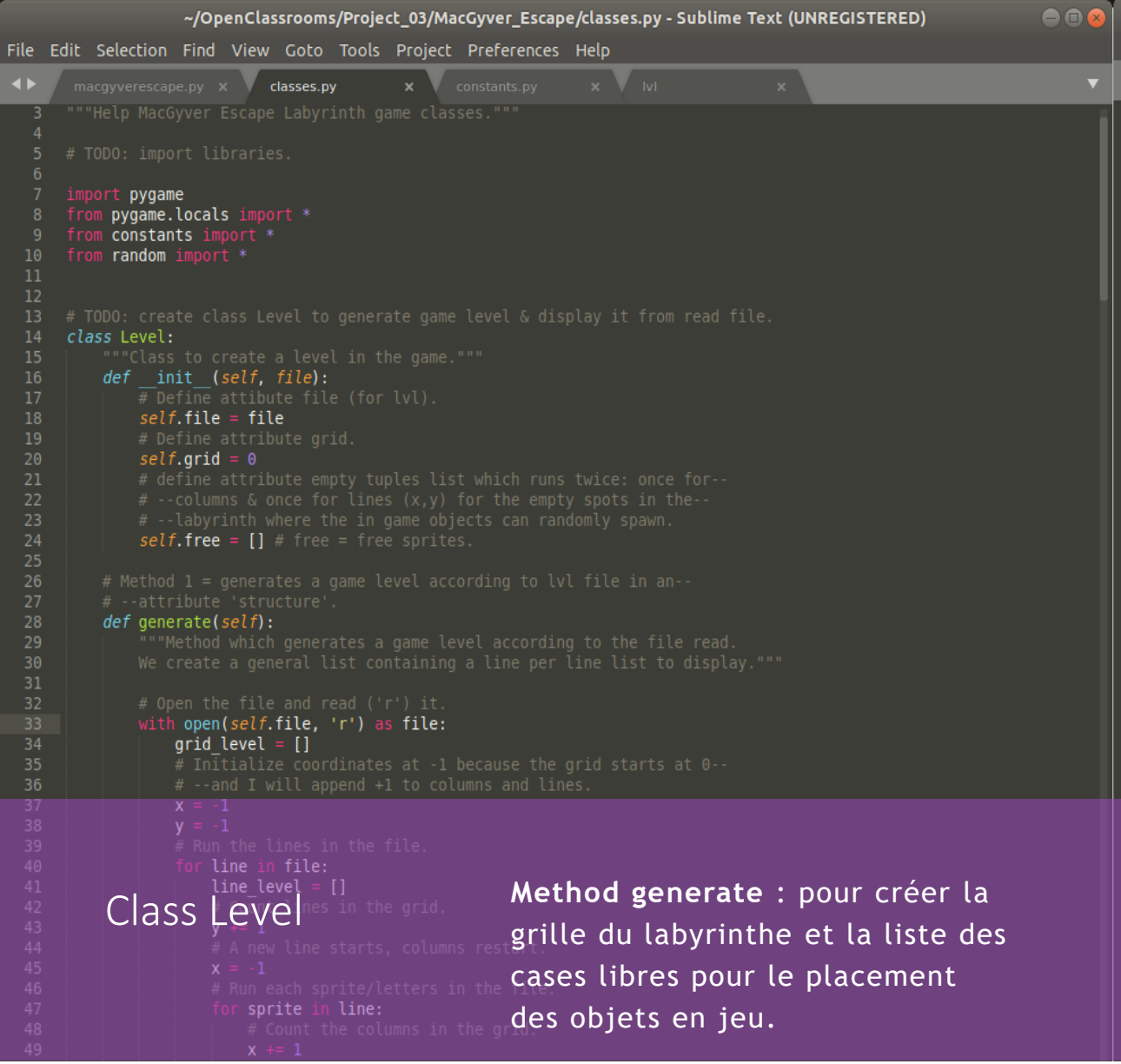
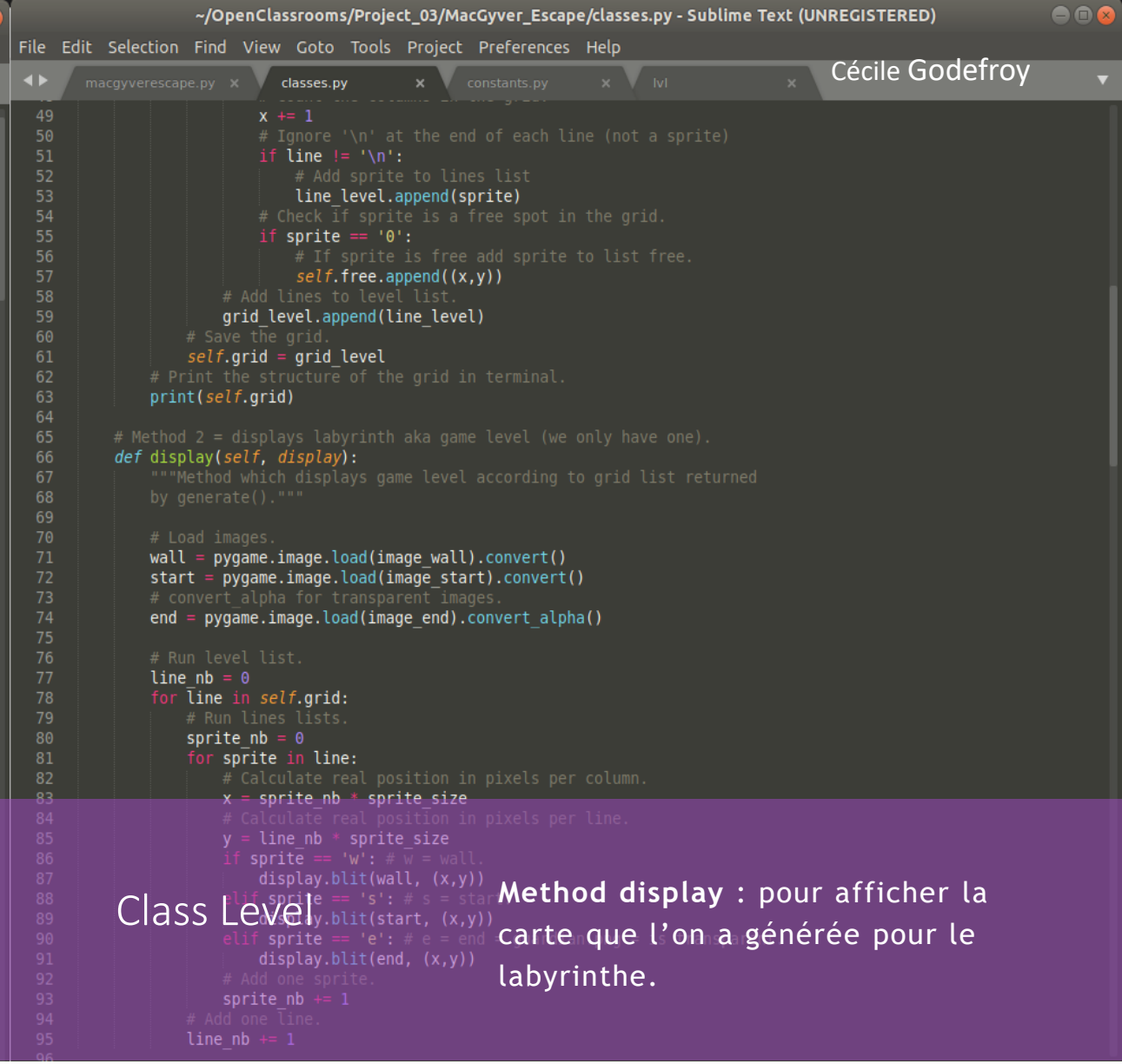


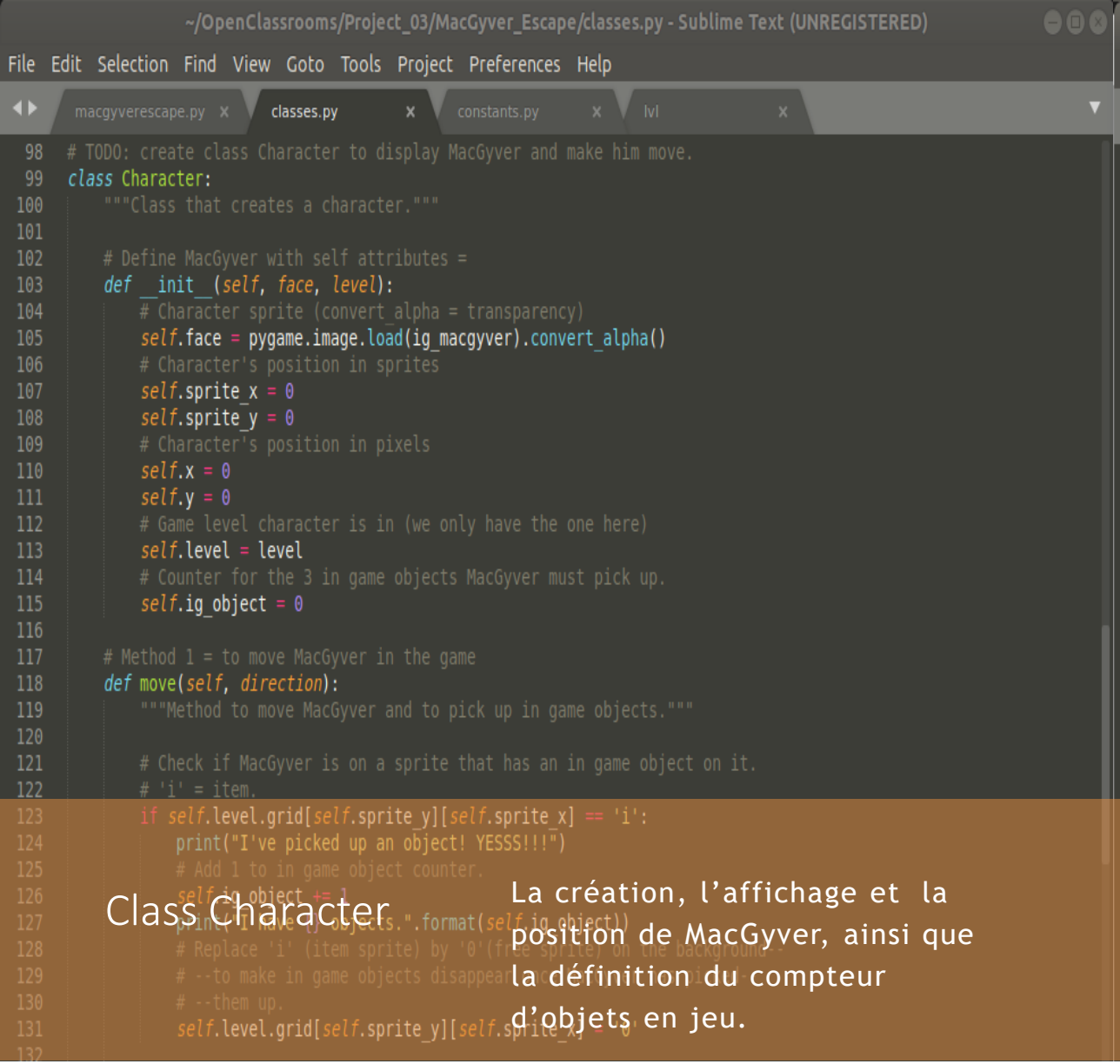
Class Level

Method generate : pour créer la grille du labyrinthe et la liste des cases libres pour le placement des objets en jeu.



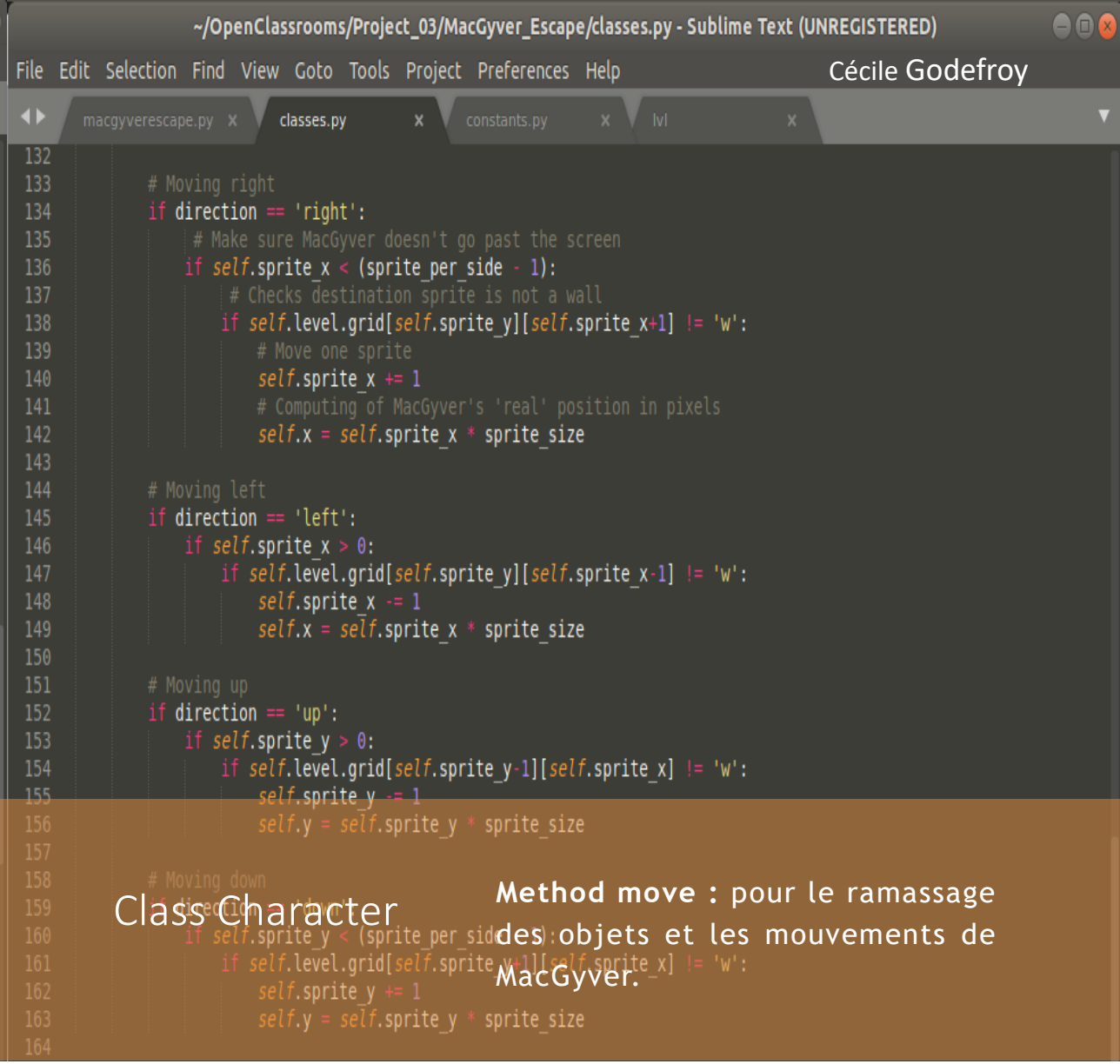
Class Level

Method display : pour afficher la carte que l'on a générée pour le labyrinthe.



Class Character

La création, l'affichage et la position de MacGyver, ainsi que la définition du compteur d'objets en jeu.



Class Character

Method move : pour le ramassage des objets et les mouvements de MacGyver.

~/OpenClassrooms/Project_03/MacGyver_Escape/classes.py - Sublime Text (UNREGISTERED)

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macgyverescape.py | classes.py | constants.py | lvl

```
165
166 class Item:
167     """Class that creates the in games items useful to the hero."""
168
169     # Define 3 objects =
170     def __init__(self, level, n):
171
172         # Choose a random sprite in list free for a random spot the in game--
173         # --object can spawn on.
174         position = choice(level.free) # Choice = random library.
175         # Define position x for random in game object
176         self.sprite_x = position[0]
177         # Define position y for random in game object
178         self.sprite_y = position[1]
179
180         # Change sprite type '0' for sprite type 'i' so that in game objects--
181         # --do not spawn on top of each other and they disappear when--
182         # --MacGyver picks them up.
183         # Grid is a list of list with form [[ line1], [line2],..., [line15]]--
184         # --where each line is a list.
185         # New line y and column x.
186         level.grid[self.sprite_y][self.sprite_x] = 'i'
187         # Print grid to visualize the free sprites 'i'.
188         print(level.grid)
189
190         # n means number and represents an attribute number strictly between--
191         # --1 and 3 that are the in game objects/items.
192         if n == 1 : # ig_object1.
193             self.face = pygame.image.load(ig_object1).convert_alpha()
194
195         elif n == 2 : # ig_object2.
196             self.face = pygame.image.load(ig_object2).convert_alpha()
197
198         elif n == 3 : #ig_object3.
199             self.face = pygame.image.load(ig_object3).convert_alpha()
200
201         # Item position in pixels.
202         self.x = self.sprite_x * sprite_size
203         self.y = self.sprite_y * sprite_size
204         # Game level items are in (we only have the one here).
205         self.level = level
```

Class Item

Le choix aléatoire de la position des objets et leur affichage.

~/OpenClassrooms/Project_03/MacGyver_Escape/macgyverescape.py - Sublime Text (UNREGISTERED)

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macgyverescape.py | classes.py | constants.py | lvl

```
#-*- coding: utf-8 -*-

"""
Helping MacGyver Escape Labyrinth Game.

In this game, the player must pick up 3 objects along the way in the labyrinth
then progress to face the guardian so they can escape and end the game.

Script: Python3
Files: macgyverescape.py, classes.py, constants.py, lvl + images
"""

# TODO: import libraries.
import pygame
from pygame.locals import *
from random import *

from classes import *
from constants import *

# TODO: initialize Pygame library.
pygame.init()

# TODO: open game display window.
display = pygame.display.set_mode((display_per_side, display_per_side))
# Game icon.
icon = pygame.image.load(image_icon)
pygame.display.set_icon(icon)
# Game title.
pygame.display.set_caption(game_name)
# Allow continuous pressing of movement keys in the game display window.
pygame.key.set_repeat(400, 30) # Delay in millisec of how long a key is--
# --pressed before char. mvt & time in millisec between each char. mvt.
```

L'affichage Initial du Jeu.

~/OpenClassrooms/Project_03/MacGyver_Escape/macgyverescape.py - Sublime Text (UNREGISTERED)

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macgyverescape.py × classes.py × constants.py × lvl ×

```
34
35  # TODO: create game global loop = algorithm.
36  carry_on = 1
37  while carry_on:
38      # Load and display game menu.
39      game_menu = pygame.image.load(image_game_menu).convert()
40      display.blit(game_menu, (0,0))
41
42      # Refresh.
43      pygame.display.flip()
44
45      # Reset variables to 1 every lap of the loop.
46      carry_on_game = 1
47      carry_on_game_menu = 1
48
49      # TODO: create game menu loop.
50      while carry_on_game_menu:
51
52          # Limit loop speed.
53          pygame.time.Clock().tick(30)
54
55          # TODO: give user possibility to choose event in game menu.
56          for event in pygame.event.get():
57
58              # If user quits, variables in game menu loop all go to 0.
59              if event.type == QUIT or event.type == KEYDOWN and event.key == K_ESCAPE:
60                  carry_on_game_menu = 0
61                  carry_on_game = 0
62                  carry_on = 0
63                  choice = 0 # Variable for choice in game menu.
64
65              # Launch game level aka labyrinth.
66              elif event.type == KEYDOWN and event.key == K_RETURN:
67                  # User leaves game_menu and starts to play.
68                  carry_on_game_menu = 0
69                  # Loads labyrinth as designed in file read 'lvl'.
70                  choice = 'lvl'
```

Le Menu du Jeu et le Choix de l'Utilisateur.

~/OpenClassrooms/Project_03/MacGyver_Escape/macgyverescape.py - Sublime Text (UNREGISTERED)

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macgyverescape.py | classes.py | constants.py | lvl

```
71
72      # While in loop, check if user chose to play so as not to load the game.
73      # If they chose to quit.
74      if choice != 0:
75          # Then load background.
76          background = pygame.image.load(image_background).convert()
77
78          # Generate game level from file.
79          level = Level(choice)
80          level.generate()
81          level.display(display)
82
83          # Generate MacGyver.
84          macgyver = Character(ig_macgyver, level)
85
86          # Generate the items MacGyver must pick up.
87          object1 = Item(level,1)
88          object2 = Item(level,2)
89          object3 = Item(level,3)
90
```

Générer le Labyrinthe, MacGyver et les Objets en Jeu.

Projet 3 : Aidez MacGyver à s'échapper !

~/OpenClassrooms/Project_03/MacGyver_Escape/macgyverescape.py - Sublime Text (UNREGISTERED)

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macgyverescape.py | classes.py | constants.py | lvl

```
91      # TODO: Create game loop.
92      while carry_on_game:
93
94          # Limit loop speed.
95          pygame.time.Clock().tick(30)
96
97          for event in pygame.event.get():
98
99              # If user quits game then turn carry_on_game & carry_on to 0 to -
100             # --close display window.
101             if event.type == QUIT:
102                 carry_on_game = 0
103                 carry_on = 0
104
105             elif event.type == KEYDOWN:
106                 # If user presses ESCAPE = return to Game_Menu.
107                 if event.key == K_ESCAPE:
108                     carry_on_game = 0
109                     carry_on = 1
110
111                 # If user uses arrow keys then move MacGyver.
112                 elif event.key == K_RIGHT:
113                     macgyver.move('right')
114                 elif event.key == K_LEFT:
115                     macgyver.move('left')
116                 elif event.key == K_UP:
117                     macgyver.move('up')
118                 elif event.key == K_DOWN:
119                     macgyver.move('down')
120
121         # Display new positions.
122         display.blit(background, (0,0))
123         level.display(display)
124         display.blit(macgyver.face, (macgyver.x, macgyver.y))
125
```

Boucle for pour les Mouvements de MacGyver.

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macgyverescape.py | classes.py | constants.py | lvl

```
125
126         # Display in game objects only if there is 'i' for free item sprite.
127         if level.grid[object1.sprite_y][object1.sprite_x] == 'i':
128             display.blit(object1.face, (object1.x, object1.y))
129         if level.grid[object2.sprite_y][object2.sprite_x] == 'i':
130             display.blit(object2.face, (object2.x, object2.y))
131         if level.grid[object3.sprite_y][object3.sprite_x] == 'i':
132             display.blit(object3.face, (object3.x, object3.y))
133
134         # Refresh.
135         pygame.display.flip()
136
137         # TODO: Victory Loop.
138         # MacGyver is on the end sprite.
139         if level.grid[macgyver.sprite_y][macgyver.sprite_x] == 'e':
140                 # Labyrinth loop ends.
141                 carry_on_game = 0
142                 # Global game loop carries on.
143                 carry_on = 1
144                 # Back to game menu for user choice.
145                 carry_on_game_menu = 1
146                 # If MacGyver has collected 3 in game objects.
147                 if macgyver.ig_object == 3:
148                     print("You won!")
149                 else:
150                     print("You lost...")
151                 # Resetting in game object counter to 0.
152                 macgyver.ig_object = 0
153
154         # Display new position.
155         display.blit(game_menu, (0,0))
```

Affichage des Objets en Jeu et la Boucle de la Victoire.

Projet 3 : Aidez MacGyver à s'échapper !

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Developed on Linux Ubuntu 1804.

cecilesg@C-U1804:~/OpenClassrooms/Project_03/MacGyver_Escape$

python3 macgyver escape.py

Powered by Pygame.

Projet 3 : Aidez MacGyver à s'échapper !

La difficulté qui n’en finissait pas : l’intégration des objets en jeu !

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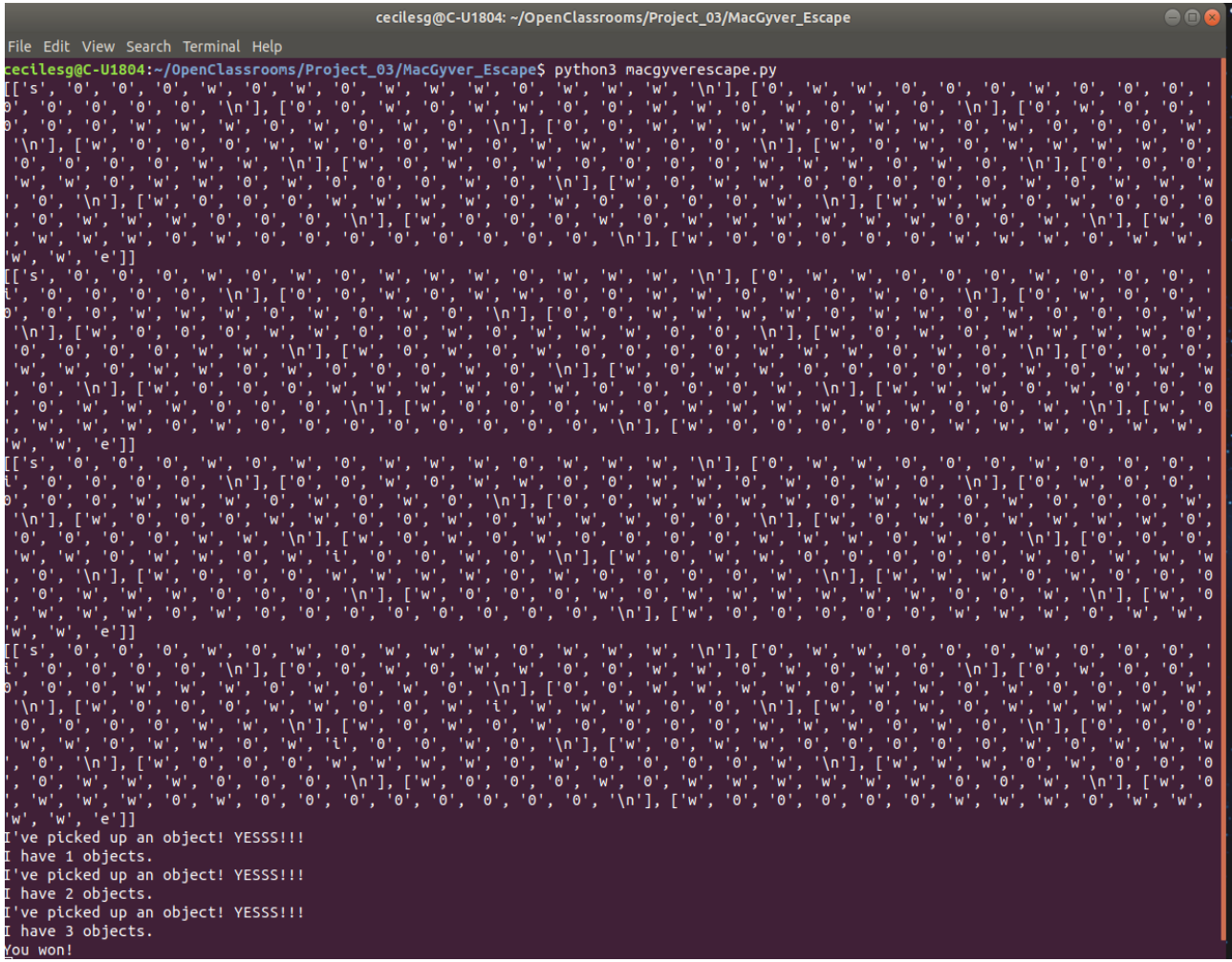
1. Génération des objets en jeu.
2. Ramassage des objets en jeu ou leur disparition.
3. Affichage aléatoire des objets en jeu.



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3

1

Pression continue des touches de déplacement.

2

Retour de l’utilisateur au menu qu’il perde ou qu’il gagne.

3

Messages dans la console.

Petites choses qui améliorent le jeu !

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Trois Idées.

1. Un compteur des vies de Macgyver et pour les objets ramassés.

2. Tuer MacGyver et un visuel de défaite si l'utilisateur ne remplit pas les conditions pour la victoire.

3. Générer, afficher et rendre aléatoire plus que 3 objets pour rendre le jeu plus intéressant.

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The end! Merci.