Python Programming and Interactive Game Design

Lab 7

Due 12:00, Friday, August 6, 2021

No Late Submission

注意事項：

1. Lab 的時間為授課結束後至下午十二點。
2. Lab 的分數分配：出席 20%，兩題練習 80%，Bonus 50%。
3. 請儘量於 Lab 時段完成練習，完成後請找助教檢查，經助教檢查後沒問題者請用你的學號與 Lab number 做一個檔案夾 (e.g., N96091350-Lab1), 將你的全部檔案 放入檔案夾，壓縮後上傳至課程網站(e.g.,N96091350Lab3.zip)。
4. 上傳後即可離開。
5. 未完成者可於隔日 11:55 am 前上傳至 Moodle，逾期不受理。

Exercise 1 (40%): The file "start_menu.py" is a program that create a start menu for the game. As you can see, the screen, the image and the buttons are defined in the constructor. If we click the buttons, the game should play the music/be muted/enter the main game. So now complete this program.

1. Complete the code in the event loop so that we can play the music or mute the game when we click the corresponding button.
2. Complete the code in the while loop so that the buttons can show a white frame when we move the cursor to the button, Below is the sample run.

Exercise 2 (40%): Continued from the previous question, complete "view.py" and "controller.py" in the "game" folder. Class `GameView()` is an executor which renders the images on the screen. For example, the function `draw_tower()` draws the towers on the screen. On the other hand, class `GameControl()` is the commander which tells `GameView()` what to do/render.

Please complete the (1) `draw_money()` and (2) `draw_wave()` in `GameView()`, and also complete the (3) `update_view()` in `GameControl()` so as to show the information on the black region. Below is the sample run.
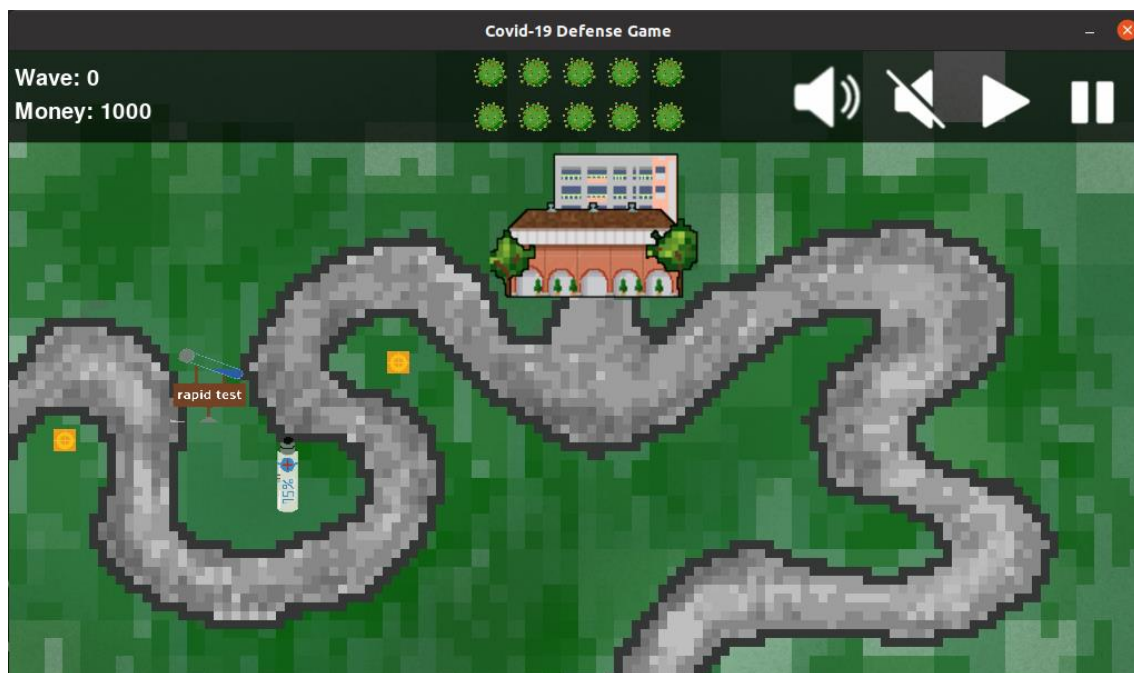
Bonus (50%):

We should further consider the money system to complete our game. So modify the code in "user_request.py" and "enemies.py" in the "game" folder and the "enemy" folder respectively.

The "user_request.py" handle all the user request, such as upgrade, sell, or add new tower. For example, `TowerSeller()` handle all the event behind selling a tower (get paid, remove the tower, etc.)

Please (1) complete the class `TowerDeveloper()` in "user_request.py" which is responsible for the upgrade events. Notice that this time you should consider the how much you can afford. (2) complete the function `advance()` in "enemies.py". When an enemy is killed, we get 15 unit of money; When an enemy reach the base, our hp drop 1 unit. Below is the sample run: