Python Programming and Interactive Game Design

Lab 4

Due 12:00, Friday, July 30, 2021

No Late Submission

注意事項：

1. Lab 的時間為授課結束後至下午一點。

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 (30%): Open the file "tower.py" and complete the `draw_transparent()` method in class `Circle()` to show the effected range of the tower. Notice that the radius and the center of the circle is exactly the value of the instance attributes: `self.radius` and `self.center`. Below is the sample run:
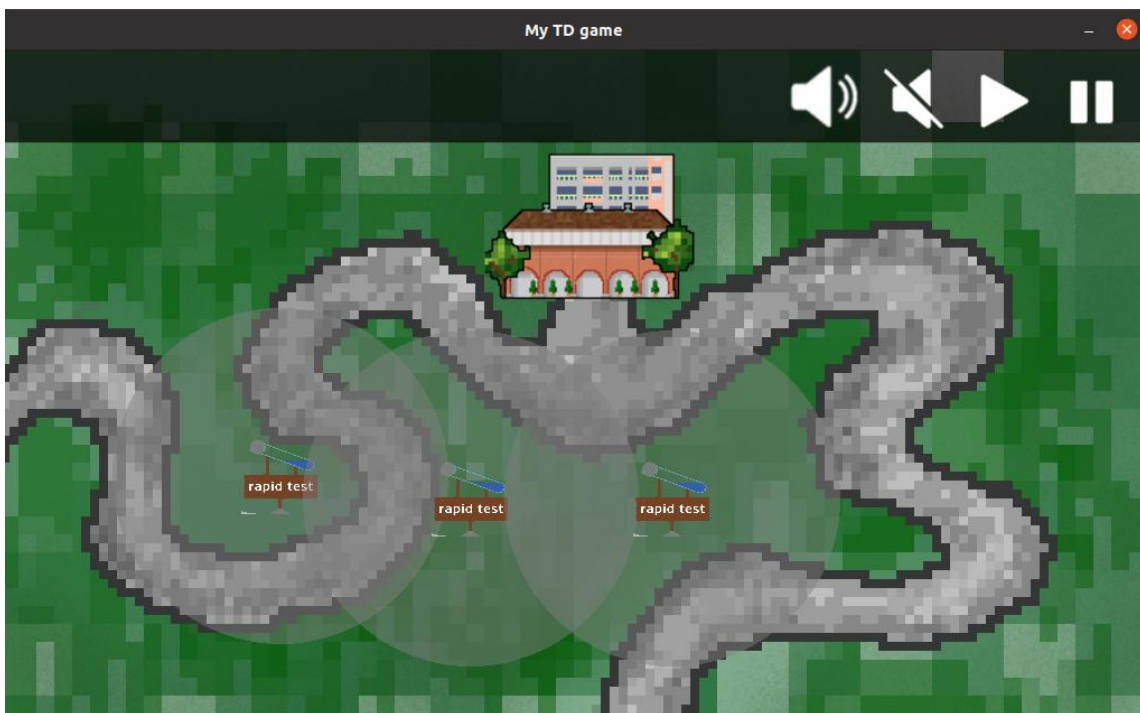
Hint:

1. Refer to the "draw transparent.py"

Exercise 2 (50%): Continued from the previous question, complete (1) the `is_cool_down()` method in class `Tower()` to let the tower attack once 60 frames. Subsequently, (2) complete the `collide()` method in class `Circle()` to check whether an enemy is in the circle (i.e. in tower attack range). Finally, complete the `attack()` method in class `Tower()` to drop enemy health. Notice that the tower attack single enemy once a time. Below is the sample run:
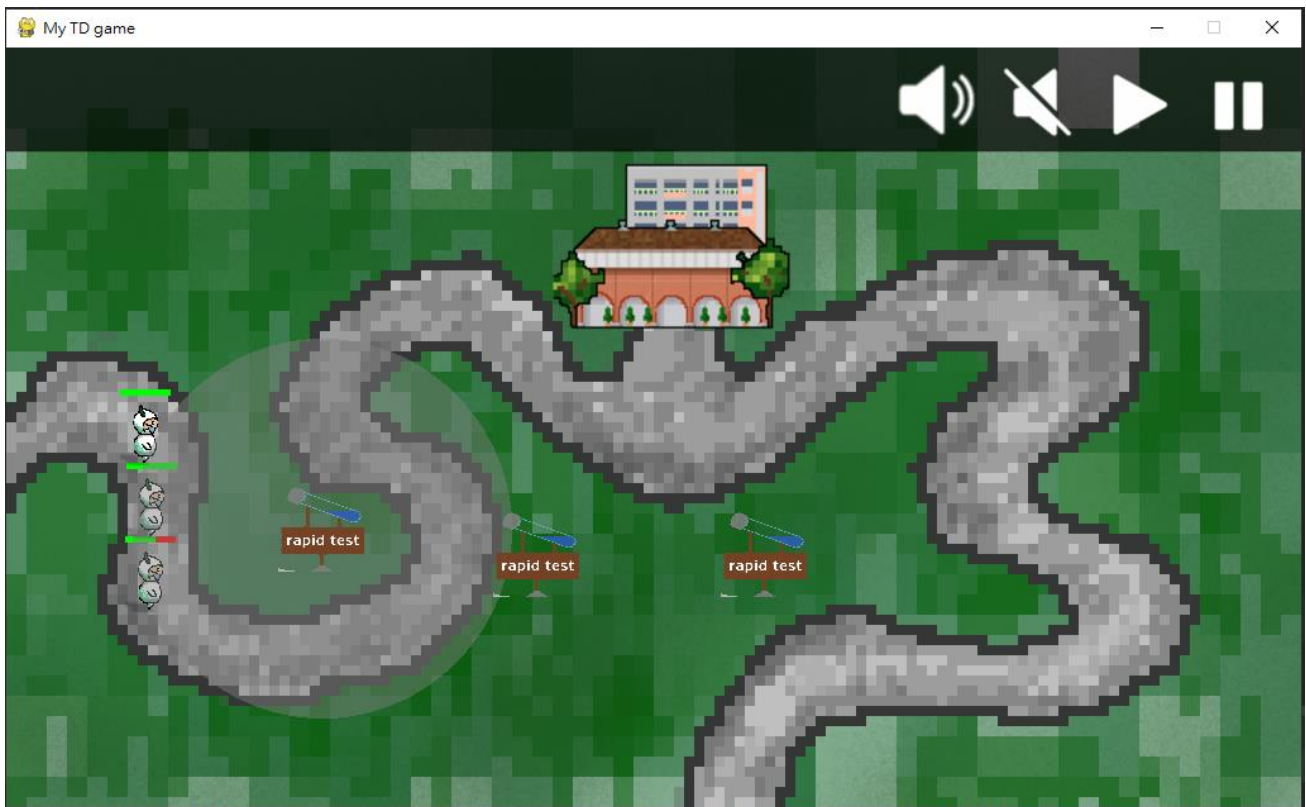
Hint:

1. To complete the `is_cool_down()` method, use the attribute `self.cd_count` and `self.cd_max_count`.
2. To complete the `collide()` method, compute the distance between the enemy and the circle center.
3. To complete the `attack()` method, use the attribute `self.is_cool_down()`, `range_circle.collide()` and `enemy.get_hurt()`.

Bonus (50%):

Continued from the previous question, complete the `is_clicked()` method in class `Tower()` and the `select()` method in "main.py". After that the effected range appear when we click the tower. In

contrast, the effected range disappear when we click elsewhere.