國立虎尾科技大學
機械設計工程系-計算機程式
BG9　專題報告

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Ggame 遊戲範例改良-松鼠吃吃

老師給我們 ggame 遊戲範例並且要我們自行研究改良當作專題作業,於是參考了每個範例,經過思考許久後,以下為講解過程。

導入老師給的 ggame 範例模組

```
@language python
from random import random, randint
from ggame import (
    App,
    Color,
    LineStyle,
    Sprite,
    RectangleAsset,
    ImageAsset,
    CircleAsset,
    EllipseAsset,
    PolygonAsset,
    Frame,
    MouseEvent,
    SoundAsset,
    Sound,
    TextAsset,
)
import math
from time import time
```

設定方位(設定方向的函數及變數)

```
up = 0
down = 0
right = 0
left = 0
pg = 0
gg = 0

def w(event):
    global up
    global down
    global right
    global life
    global pg
    pg = 4
    up = 1
    down = 0
    right = 0
    life = 0

def s(event):
    global up
    global down
    global right
    global life
    global pg
    pg = 1
    up = 0
    down = 1
    right = 0
    life = 0
```

```
def d(event):
    global up
    global down
    global right
    global life
    global pg
    pg = 0
    up = 0
    down = 0
    right = 1
    life = 0

def a(event):
    global up
    global down
    global right
    global life
    global pg
    pg = 4
    up = 0
    down = 0
    right = 0
    life = 1
```

為後續設定的前置作業

物件設定

```
class GG(Sprite):

    asset = ImageAsset("images/pass.png")

    def __init__(self, position):
        super().__init__(GG.asset, position)
        self.scale = 1
        self.visible = False

    def step(self):
        if gg:
            self.visible = True
```

要插入一個物件前面必須加上 class 定義一個類別名稱，def __init__(self):

這邊代表宣告時會自動執行的函式。

```
class G(Sprite):
    asset = ImageAsset("images/x.png")
    def __init__(self, position):
        super().__init__(G.asset, position)
        self.scale = 0.5
```

上圖的 self.scale =0.5　　0.5 為變數可以調整大小

```
    def step(self):
        if random() < 0.1:
            self.x += randint(-25,25)
            self.y += randint(-25,25)
```

上圖的 self.x += randint(-25,25)，其中括弧內為變數，可以調整跳動範圍

```
class Bunny(Sprite):
    asset = ImageAsset("images/rat.png",Frame(0,0,500,500), 1)
    def __init__(self, position):
        super().__init__(Bunny.asset, position)
        App.listenKeyEvent('keydown', 'w', w)
        App.listenKeyEvent('keydown', 's', s)
        App.listenKeyEvent('keydown', 'd', d)
        App.listenKeyEvent('keydown', 'a', a)
        self.scale = 0.3
```

上圖定義 w a s d 為按鍵 為前置作業的後續作業

```
    def step(self):
        global up
        global down
        global right
        global life
        global pg
        global gg
        self.G = app.G
        if up and self.y > 0:
            self.setImage(pg)
            self.y -= 10
        if down and self.y < 770:
            self.setImage(pg)
            self.y += 10
        if right and self.x < 1710:
            self.setImage(pg)
            self.x += 10
        if life and self.x > 0:
            self.setImage(pg)
            self.x -= 10
        if self.G.x + self.G.width >= self.x >=self.G.x and self.G.y + self.G.height >= self.y >= self.G.y:
            self.visible = False
            gg = 1


class A(Sprite):

    asset = ImageAsset("images/food.png")

    def __init__(self, position):
        super().__init__(A.asset, position)
        self.scale = 0.08
```

```
    def step(self):
        self.Bunny = app.Bunny
        if self.Bunny.x + self.Bunny.width >= self.x >=self.Bunny.x and self.Bunny.y + self.Bunny.height >=
    self.y >= self.Bunny.y:
            self.visible = False

    class AA(Sprite):

        asset = ImageAsset("images/food.png")

        def __init__(self, position):
            super().__init__(AA.asset, position)
            self.scale = 0.15

        def step(self):
            self.Bunny = app.Bunny
            if self.Bunny.x + self.Bunny.width >= self.x >=self.Bunny.x and self.Bunny.y + self.Bunny.height >=
    self.y >= self.Bunny.y:
                self.visible = False
                self.Bunny.scale =0.5


    class Bg(Sprite):

        asset = ImageAsset("images/white.png")

        def __init__(self, position):
            super().__init__(Bg.asset, position)

        def step(self):
            self.x = 0
            self.y = 0
```

```
class DemoApp(App):

    def __init__(self):
        super().__init__()
        Bg((self.width/2, self.height/2))
        for i in range(10):
            A((randint(50,1680),randint(50,750)))
        for c in range(10):
            AA((randint(50,1680),randint(50,750)))
        self.Bunny = Bunny((50,50))
        self.G = G((840, 250))
        self.GG = GG((740, 250))

    def step(self):
        for bunny in self.spritelist:
            bunny.step()


app = DemoApp()
app.run()
```

上圖為啟動程式參數，讓程式可以順利執行及圖片定位位置。