Python 중간 과제

주제 : 길 건너기 게임

과목 : 영상처리시스템

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1. 변경 항목 및 변경 이유

어렸을 때 많이했던 길 건너기 게임 생각이 나서 기존 교수님 코드에 새롭게 추가했습니다.

기본 컨트롤은 상, 하, 좌, 우 이며 스테이지를 클리어 하면 s,a를 입력받아 object의 위치와 장애물들의 위치, 속도를 증가 시킨다. 장애물에 맞을 경우 space bar를 눌러 게임을 재시작 할 수 있다.

2. 변경 소스코드

```
import turtle as t
import random as r
flag = True
location= [0,-200]
def move(obj,x,y):
    obj.pu()#팬을 들고
    obj.goto(x,y)#x,y위치로
    obj.pd()#다시 팬을 내려
def left():#왼쪽
    global location
    location[0]-= term
    move(obj,location[0],location[1])
def right():#오른쪽
    global location
    location[0]+= term
    move(obj,location[0],location[1])
def up():#위
    texter.clear()
    global location
    location[1]+= term
    move(obj,location[0],location[1])
def down():# 아래
    global location
    location[1]-= term
    move(obj,location[0],location[1])
def newTrial():#새로운 시작
    global location,cnt
    global ball_speed,ball2_speed,ball3_speed,ball4_speed,ball5_speed
    global ball_size,ball2_size,ball3_size,ball4_size,ball5_size
    cnt =0
    texter3.clear();texter3.write(cnt,font=("Arial",10,'bold'))
```

```
    #ball_speed 리셋
    ball_speed = r.randint(10,25);ball2_speed = r.randint(10,25)
    ball3_speed = r.randint(10,25);ball4_speed = r.randint(10,25)
    ball5_speed = r.randint(10,25)

    #ball _size 재설정
    ball_size = r.randint(1,3);ball2_size = r.randint(1,3);
    ball3_size = r.randint(1,3);ball4_size = r.randint(1,3)
    ball5_size = r.randint(1,3)
    ball.turtlesize(ball_size);ball2.turtlesize(ball2_size)
    ball3.turtlesize(ball3_size);ball4.turtlesize(ball4_size)
    ball5.turtlesize(ball5_size)

    move(texter,-150,150)
    texter.write('시작하려면 A를 누르세요',font=("Arial",20,'bold'))
    move(obj,0,-200);location=[0,-200]; # object 위치 초기화

    ball_y =0 #r.randrange(-250,251,250)
    move(ball,ball_x,ball_y)
def next_stage():
    texter.clear();texter3.clear()
    global cnt
    global ball_speed,ball2_speed,ball3_speed,ball4_speed,ball5_speed
    global location
    cnt+=1;texter3.write(cnt,font=("Arial",10,'bold'))
    global ball_size,ball2_size,ball3_size,ball4_size,ball5_size
    ball_size = r.randint(1,3);ball2_size = r.randint(1,3);
    ball3_size = r.randint(1,3);ball4_size = r.randint(1,3)
    ball5_size = r.randint(1,3)
    ball.turtlesize(ball_size)
    ball2.turtlesize(ball2_size)
    ball3.turtlesize(ball3_size)
    ball4.turtlesize(ball4_size)
    ball5.turtlesize(ball5_size)
    #ball_speed 증가
    ball_speed +=10;ball2_speed +=10;ball3_speed +=10
    ball4_speed +=10;ball5_speed +=10
    move(obj,0,-200);location=[0,-200]
```

```
def start():
    texter.clear()
    global cnt; texter2.write('STAGE : ',font=("Arial",10,'bold'))
    texter3.write(cnt,font=("Arial",10,'bold'))
    global ball_x;ball_x2=ball_x;ball_x3=ball_x-50;ball_x4=ball_x-100;ball_x5=ball_x+50
    global ball_speed,ball2_speed,ball3_speed,ball4_speed,ball5_speed
    #ball y축 좌표값
    ball_y = r.randint(-200,0)
    ball_y2 = ball_y + 100;ball_y3 = ball_y + 150
    ball_y4 = ball_y +50;ball_y5 = ball_y + 200
    #ball 방향 설정값
    ball_dir = r.choice('LR')
    ball_dir2 = r.choice('LR')
    ball_dir3 = r.choice('LR')
    ball_dir4 = r.choice('LR')
    ball_dir5 = r.choice('LR')
    while flag is True:
        #ball 방향 설정
        if ball_x+20 > srn.window_width()/2: ball_dir = 'L'
        if ball_x-20 < -srn.window_width()/2: ball_dir = 'R'
        if ball_x2+20 > srn.window_width()/2: ball_dir2 = 'L'
        if ball_x2-20 < -srn.window_width()/2: ball_dir2 = 'R'
        if ball_x3+20 > srn.window_width()/2: ball_dir3 = 'L'
        if ball_x3-20 < -srn.window_width()/2: ball_dir3 = 'R'
        if ball_x4+20 > srn.window_width()/2: ball_dir4 = 'L'
        if ball_x4-20 < -srn.window_width()/2: ball_dir4 = 'R'
        if ball_x5+20 > srn.window_width()/2: ball_dir5 = 'L'
        if ball_x5-20 < -srn.window_width()/2: ball_dir5 = 'R'
        ##ball 속도
        if ball_dir=='L': ball_x -=ball_speed
        if ball_dir=='R': ball_x +=ball_speed
        if ball_dir2=='L': ball_x2 -=ball2_speed
        if ball_dir2=='R': ball_x2 +=ball2_speed
        if ball_dir3=='L': ball_x3 -=ball3_speed
        if ball_dir3=='R': ball_x3 +=ball3_speed
        if ball_dir4=='L': ball_x4 -=ball4_speed
        if ball_dir4=='R': ball_x4 +=ball4_speed
        if ball_dir5=='L': ball_x5 -=ball5_speed
```

```
        if ball_dir5=='R': ball_x5 +=ball5_speed
        #ball 움직임
        move(ball,ball_x,ball_y)
        move(ball2,ball_x2,ball_y2)
        move(ball3,ball_x3,ball_y3)
        move(ball4,ball_x4,ball_y4)
        move(ball5,ball_x5,ball_y5)

        if obj.distance(ball)<ball_size*15 or obj.distance(ball2)<ball2_size*15 or
obj.distance(ball3)<ball3_size*15 or obj.distance(ball4)<ball4_size*15 or
obj.distance(ball5)<ball5_size*15:
            move(texter,-170,0)
            texter.write('실패! ''space bar를 누르세요!',font=("Arial",20,'bold'))
            srn.bgcolor('red')
            break
        if location[1] >= srn.window_width()/2:
            move(texter,-170,0)
            texter.write('성공! 다음 단계로 이동! s,a 입력',font=("Arial",20,'bold'))

#ball_size 설정
ball_size = r.randint(1,3);ball2_size = r.randint(1,3);
ball3_size = r.randint(1,3);ball4_size = r.randint(1,3)
ball5_size = r.randint(1,3)
#ball 객체 설정
srn_ball1 = t.Screen();srn_ball1.addshape("ball1.gif")
ball = t.Turtle();ball.shape("ball1.gif");ball.turtlesize(ball_size);ball.color('ivory')
ball2 = t.Turtle();ball2.shape("circle");ball2.turtlesize(ball2_size);ball2.color('ivory')
ball3 = t.Turtle();ball3.shape("circle");ball3.turtlesize(ball3_size);ball3.color('ivory')
ball4 = t.Turtle();ball4.shape("circle");ball4.turtlesize(ball4_size);ball4.color('ivory')
ball5 = t.Turtle();ball5.shape("circle");ball5.turtlesize(ball5_size);ball5.color('ivory')

#ball_speed 설정
ball_speed = r.randint(10,25);ball2_speed = r.randint(10,25)
ball3_speed = r.randint(10,25);ball4_speed = r.randint(10,25)
ball5_speed = r.randint(10,25)
ball_x = r.randint(-250,251)

#스크린 객체 설정
srn = t.Screen()
```

```
srn.setup(500,500)
srn.addshape('universe.gif')
srn.bgpic('universe.gif')

#object 객체 설정
srn_obj = t.Screen()
srn_obj.addshape('object.gif')
obj = t.Turtle()
obj.shape('object.gif');obj.left(90)
term = 10

# texter 객체 설정
texter=t.Turtle()
texter.hideturtle();
texter.color('yellow','red')
move(texter,-150,100)
#texter2 설정 stage 표시용
cnt=0 #stage 표시용 count
texter2=t.Turtle();texter3 =t.Turtle()
texter2.ht();texter3.ht()
texter2.color('white'),texter3.color('white')
move(texter2,150,200);move(texter3,210,200)
#시작화면
texter.write('시작하려면 A를 누르세요',font=("Arial",20,'bold'))
move(obj,0,-200)

#키입력 이벤트
srn.onkey(right,"Right")
srn.onkey(left, "Left")
srn.onkey(up, "Up")
srn.onkey(down,"Down")
srn.onkey(newTrial, "space")
srn.onkey(start,"a")
srn.onkey(next_stage,"s")
srn.listen() # 이벤트 관리시작
srn.mainloop() # 이벤트 서비스 루프
```

3. 게임 실행 장면

https://www.youtube.com/watch?v=ZyE96Aapprc