SI@UCF Computer Science Camp
Object Oriented Python and pyGame
Quiz #2
Date: 6/25/2025

Name: _____

1) (15 pts) The first version of the fruit game showed used inheritance. In particular, the class pictoken inherited from the class token. Here is a listing of the methods in each of the classes. Five of these methods were unnecessary for the correct operation of this version of the fruit game. Please list which method from which class was not needed in the space provided below, along with the reason it was not needed.

```
class token:

    def __init__(self,myx,myy,mydx,mydy,width,height,mycolor)
    def move(self)
    def hit(self, mypos)
    def bounceLeft(self)
    def bounceRight(self, SCREEN_W)
    def bounceUp(self)
    def bounceDown(self, SCREEN_H)
    def draw(self, DISPLAYSURF)

class pictoken(token):

    def __init__(self,myx,myy,mydx,mydy,mycolor,mypic,mypts)
    def hit(self, mypos)
    def draw(self, DISPLAYSURF)
```

Method/Class Not Needed	Reason
1. _____	
2. _____	
3. _____	
4. _____	
5. _____	

2) (20 pts) Pygame provides a method to check if a point is within an axis-aligned rectangle. The logic for this method isn't beyond our understanding. (It can be implemented with basic Python tools.) Write a function that takes in a rectangle (left, top, width, height) and a point (x, y), and returns true if the point is contained in the rectangle and false otherwise. (Return true if the point is on the boundary of the rectangle.)

```
# rect[0] is the topleft x value, rect[1] is the topleft y value
# rect[2] is the width, rect[3] is the height
# pos[0] is the x value, pos[1] the y value of the point
def inrect(rect, pos):
```

3) (10 pts) Let the width and height of a pyGame surface be SCREEN_W and SCREEN_H, respectively. If you want to draw a rectangle with width, w, and height, h, perfectly centered on the surface (so the left and right borders are the same width and the top and bottom borders are the same height), what would be the x and y coordinates of the top left corner of the rectangle, in terms of SCREEN_W, SCREEN_H, w and h? Please use only integer operations.

```
topleft_X = _____________________________

topleft_Y = _____________________________
```

4) (20 pts) The following code below is the entire code from updatescores.py from the second version of the Fruit Game. Answer the questions after the code about it. Several lines are numbered to aid in the questions.

```
MAXSCORES = 10
def main():
    scores = open("highscores.txt", "r")
    n = int(scores.readline())                  # line 4
    best = []
    for i in range(n):
        toks = scores.readline().split()
        item = []
        item.append(int(toks[1]))               # line 9
        item.append(toks[0])
        best.append(item)
    scores.close()
    newname = input("What is your name?\n")
    newscore = int(input("What was your score on the game?\n"))
    newitem = [newscore, newname]
    best.append(newitem)
    best.sort(reverse=True)                     # line 17
    newscores = open("highscores.txt", "w")
    cnt = min(MAXSCORES, len(best))             # line 19
    newscores.write(str(cnt)+"\n")              # line 20
    for i in range(cnt):
        newscores.write(best[i][1]+"\t"+str(best[i][0])+"\n")
    newscores.close()
main()
```

(a) (3 pts) What is the largest number that could be read in for n on line 4?

_____

(b) (7 pts) Why do we append int(toks[1]) on line 9 instead of toks[0]?

(c) (3 pts) Why do we put reverse=True on line 17?

(d) (4 pts) Why do we use the min function on line 19?

(e) (3 pts) Why can't we put a comma between cnt and "\n" on line 20?

5) (5 pts) What does the following segment of code do to the image person:

```
curW = 2*person.get_width())
curH = 2*person.get_height())
person = pygame.transform.scale(person, (curW, curH))
```

6) (5 pts) Why is the method shown in question 5 from pygame.transform useful in making games?

7) (10 pts) In the minesweeper game shown in class, a timer printed how many seconds in the game had elapsed since the player started. How was this timer implemented? Provide as many details as possible, including what data was stored, when, what type that data was and how it was used to display the time elapsed?

8) (10 pts) In the sushi game, there are two classes that inherit from pygame.Sprite.sprite. These classes are Obj and Player. In particular, these two classes have different update functions. Why do they have different update functions and what do each of the two update functions do differently?

9) (5 pts) What animal appears on the Panda Express logo?

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pyGame Documentation

```
# A rectangle is specified as a 4-tuple where the x pixel value
# of the top left corner is left. The y pixel value of the top
# left corner is top. The width of the rectangle is width (in the
# x direction) and the height of the rectangle is height (in the
# y direction).
Rect(left, top, width, height)
```

Scratch Page – Please clearly mark any work on this page you would like graded.