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Assignment Cover Letter

(Individual Work)

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Course Code	**: COMP6502**	**Course Name**	**: Introduction to Programming**
Class	**: L1AC**	**Name of Lecturer(s)**	**:** 1. Ida Bagus Kerthyayana 2. Tri Asih Budiono
Major	**: CS**		
Title of Assignment (if any)	:BIRDOP		
Type of Assignment	**: Final Project**		
Submission Pattern			
Due Date	**: 6-11-2016**	**Submission Date**	**: 6-11-2016**

The assignment should meet the below requirements.

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2. Soft copy assignment also requires the signed (hardcopy) submission of this form, which automatically validates the softcopy submission.
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Signature of Student: (Name of Student)

1. Brian Moses Weku

“BIRDOP”

Name : Brian Moses Weku

ID : 2101709995

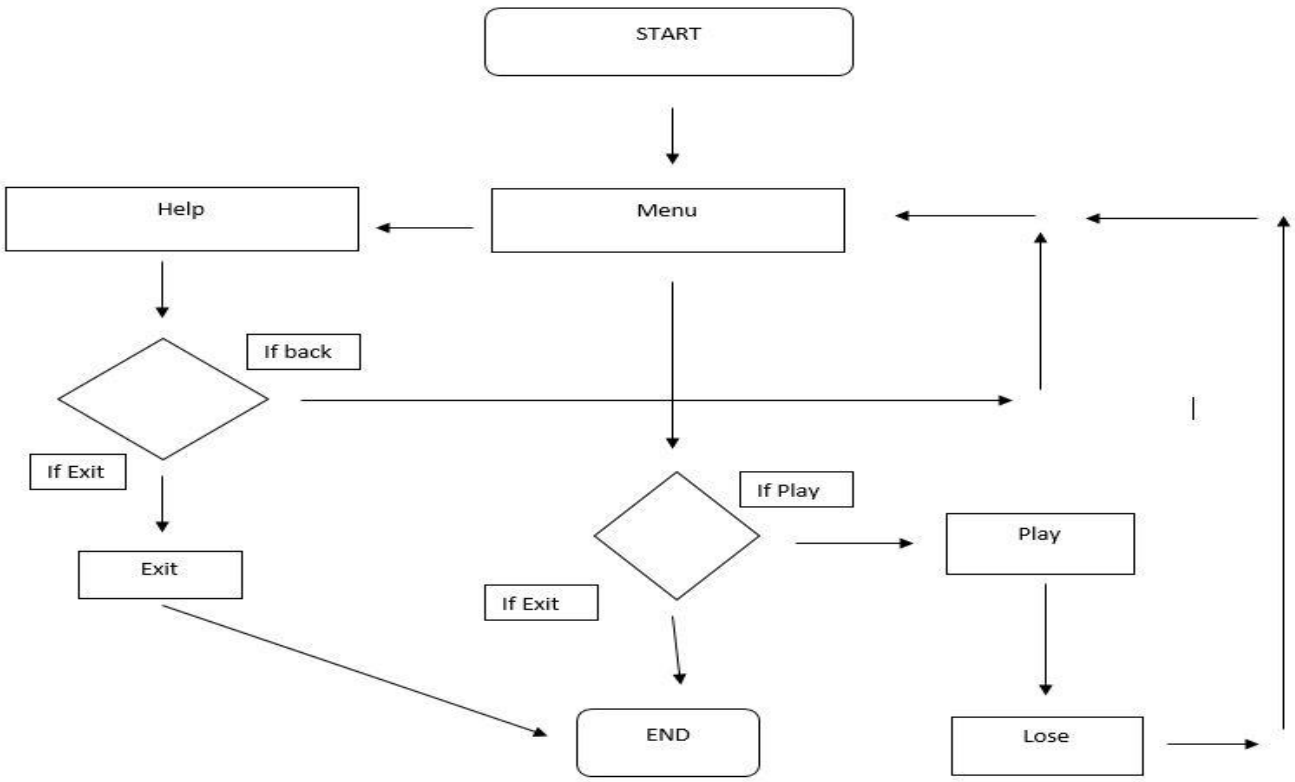
I. Description

The function of this program:

This program is built to entertain users. The game type is endless and if you die it resets from the beginning. With simple gameplay, the user can interact with the object in the screen and could have a fun moment and could be used as a competition to be played with others in search of higher scores

II. Design/Plan

Project’s Hierarchy Chart



II. Explanation of Each function and Lessons that Have Been Learned

22nd of October,

I searched for ideas and decided to create a game through pygame. At first, I was trying to create an endless game that involves alien and obstacles.

```
from pygame import *
from pygame.mixer import *
from pygame.sprite import *
import random

class text_box(Sprite):
    def __init__(self, message, x, y, font):
        Sprite.__init__(self)
        self.x=x
        self.y=y
        self.font=pygame.font.Font(None, font)
        self.image=self.font.render(message,1,black,white)
        self.rect=self.image.get_rect()
        self.rect.center=(x, y)

class Alien(Sprite):
    def __init__(self):
        Sprite.__init__(self)
        self.image=image.load('alien2.png')
        self.rect=self.image.get_rect()
        self.a=100
        self.b=350
        self.rect.center=((self.a, self.b))
    def move(self, a, b):
        self.a+=a
        self.b+=b
        self.rect.center=((self.a, self.b))
```

This day I learned plenty of basic things to create a game and the logic to it. Such as, if you were a human when you ride a car, when the car accelerates and goes forward the view from your car will go backwards while you gain distance, but for a programmer it's different, we manipulate the image background and let the main object still as if it was moving forward. As starters we need to import the required packages such as pygame. Next, I learned to create text boxes as sprites through class. The class involves position, the message, and color. Self.x and self.y serves as the position that will be input to locate the file position, message is the words that will be shown inside, and font is for how big is the size to create the text_box. Render means making so when you insert a message it will built the message, while self.rect is where it will get the rectangle size so if you will click on the rectangle it can create a command or do a command. For the Alien class, the definition of init() is initializing the program for starters so it's the basic of it and for the self. A and self. B it is similar to the text_box self.x and self.y and self.image is the loading of the picture that I wanted. For def move it is a function where I can control the object and can change its location.

24th of October,

On Wednesday, I changed my mind into creating a bird but have the ability to become an alien. While bird will go unalterable, the alien is more flexible to control. Think of the alien as a power up.

```
#the bird
class Bird(Sprite):
    def __init__(self,x,y):
        Sprite.__init__(self)
        self.image=image.load('bird.png')
        self.rect=self.image.get_rect()
        self.a=x
        self.b=y
        self.rect.center=((self.a, self.b))

    def move(self, b):
        self.b+=b
        self.rect.center=((self.a, self.b))

```

This part is similar to the alien but the difference is the image that I want to load and the movement, because the bird movement is only allowed to go upwards and goes down through time. This class requires position.

```
#screen resolution and its title of game
screen=display.set_mode((1080,800))
pygame.display.set_caption("BIRDOP")
```

This is the name of the game and its resolution. The width of the screen is 1080 pixels and the height is 800 pixels. The name of this endless game is BIRDOP. It is a combination of bird that drops.

```
#colors
black=(0,0,0)
white=(255,255,255)
brown=(160,82,45)

```

RGB codes to be input in on the class text_box for colors.

```
menubg=image.load('bgground.png')
```

Image of the loading screen background.

```
36  def playon():
37      active1 = True
38      while active1:
39          screen.blit(menubg, (0,0))
40          first.draw(screen)
41          display.update()
42
43          for i in event.get():
44              if i.type==QUIT:
45                  pygame.quit()
46                  exit()
```

This is the main menu I insert it inside a function so it will be easy for me to call the function. I name the function playon() inside the playon there is active1=True this means while the program is still true it will run over and over until I quit the program. With the menubg as my preferred background picture I blit or insert it into my screen with the postion 0,0 that means my top left corner and because of my image is as big as my screen resolution it will fit right in (the first.draw(screen) will be explained later. Display.update() means that everytime it passes this stage it will be updated. Then I created a loop, this loop will take every command there is and choose it and in this program when you pressed the close button (usually on top right if in windows) it will close and quit the program.

26th of October,

I made more sprites or buttons. The button will be displayed in different location and has different function

```
94  #back button
95  class Bbutton(Sprite):
96      def __init__(self):
97          Sprite.__init__(self)
98          self.x=100
99          self.y=700
100         self.image=image.load('backbutton.png')
101         self.rect=self.image.get_rect()
102         self.rect.center=(self.x, self.y)
103 #start button
104 class Sbutton(Sprite):
105     def __init__(self):
106         Sprite.__init__(self)
107         self.x=540
108         self.y=370
109         self.image=image.load('startbutton.png')
110         self.rect=self.image.get_rect()
111         self.rect.center=(self.x, self.y)
```

```
112 #help button
113 class Hbutton(Sprite):
114     def __init__(self):
115         Sprite.__init__(self)
116         self.x=540
117         self.y=450
118         self.image=image.load('Helpbutton.png')
119         self.rect=self.image.get_rect()
120         self.rect.center=(self.x, self.y)
121 #exit button
122 class Ebutton(Sprite):
123     def __init__(self):
124         Sprite.__init__(self)
125         self.x=900
126         self.y=700
127         self.image=image.load('exitbutton.png')
128         self.rect=self.image.get_rect()
129         self.rect.center=(self.x, self.y)
130
```

I learned that you can create buttons through pictures, so I decided to make buttons so that it will be different and look more game like. The first button that I create is back button this button will be used to get back to previous page, start button to start the game, help button is to go to the help screen, and exit button same as the close button on your window but I will insert it in the main menu too for easier access. The self.x and self.y is similar to the class text_box this will determine its location.

```
#importing pygame, timer, music, random function, and other folder
from pygame import *
from pygame.sprite import *
import random
import burung_etc as b
import time
```

This is the part that I imported again because basically I used 2 files, first is the classes named burung_etc and second is the main file named burung. From the first file I imported it to the second by typing import burung_etc as b so the b will tell you that I imported the function from the burung_etc file.

```
#sprites and pictures in the main menu
start=b.Sbutton()
inst=b.Hbutton()
bye=b.Ebutton()
```

In the second file I call the class from the burung_etc to burung. So I can summon it in my menu and others.

```
first=Group(start,inst,bye,sound,sound1)
```

```
def playon():
    active1 = True
    while active1:
        screen.blit(menubg, (0,0))
        first.draw(screen)
        display.update()
```

First, I group my sprites inside a variable and the first.draw(screen), the created button such as start, insst, bye will be inserted in my main menu.

```
#picure in the help menu
direction=image.load('instructions.png')
back_button=b.Bbutton()
third=Group(back_button)

def help():
    active3=True
    while active3:
        screen.blit(direction, (0,0))
        third.draw(screen)

        display.update()

        for i in event.get():
            if i.type==QUIT:
                pygame.quit()
                exit()
```

This is the help menu as you can see it is similar with the main menu it uses active and uses direction as an image to load the background. The function to call this help menu is help().

```
back_button=b.Bbutton()
third=Group(back_button)

def help():
    active3=True
    while active3:
        screen.blit(direction, (0,0))
        third.draw(screen)

        display.update()
```

While the back button is similar to the other buttons and inserting it

```
268             if i.type==MOUSEBUTTONDOWN:
269                 if back_button.rect.collidepoint(mouse.get_pos()):
270                     active3=False
```

I.type==MOUSEBUTTONDOWN this means that if you click your mouse down and if you touched the rectangle or part of the image it will deactivate the while so it will return to the activated program which is the main menu.

2nd of November,

Figuring out the moving objects. The objects that is required to set the background moving in my program is the pipes and the background itself.

```
#moving backgrounds
class Bg1(Sprite):
    def __init__(self, x):
        Sprite.__init__(self)
        self.image=image.load('gamebg1.png')
        self.rect=self.image.get_rect()
        self.x=x
        self.rect.top=0
        self.rect.left=x
    def move_left(self):
        self.rect.left-=4
class Bg2(Sprite):
    def __init__(self,x):
        Sprite.__init__(self)
        self.image=image.load('gamebg2.png')
        self.rect=self.image.get_rect()
        self.x=x
        self.rect.top=0
        self.rect.left=x
    def move_left(self):
        self.rect.left-=4
class Bg3(Sprite):
    def __init__(self, x):
        Sprite.__init__(self)
        self.image=image.load('gamebg3.png')
        self.rect=self.image.get_rect()
        self.x=x
        self.rect.top=0
        self.rect.left=x
    def move_left(self):
        self.rect.left-=4
class Bg4(Sprite):
    def __init__(self, x):
        Sprite.__init__(self)
        self.image=image.load('gamebg4.png')
        self.rect=self.image.get_rect()
        self.x=x
        self.rect.top=0
        self.rect.left=x
    def move_left(self):
        self.rect.left-=4
```

```
class Pipeup(Sprite):#first pair of pipes
    def __init__(self):
        Sprite.__init__(self)
        self.image=image.load('pipeup.png')
        self.rect=self.image.get_rect()
        self.rect.top=-700
        self.rect.left=1000
    def move_left(self):
        self.rect.left-=4.5
    def nextpos(self, top):
        self.rect.left = 1080
        self.rect.top = top
class Pipedown(Sprite): #first pair of pipes
    def __init__(self):
        Sprite.__init__(self)
        self.image=image.load('pipedown.png')
        self.rect=self.image.get_rect()
        self.rect.bottom=1500
        self.rect.left=1000
    def move_left(self):
        self.rect.left-=4.5
    def nextpos(self, bottom):
        self.rect.left = 1080
        self.rect.bottom = bottom

class Pipeup1(Sprite): #second pair of pipes
    def __init__(self):
        Sprite.__init__(self)
        self.image=image.load('pipeup.png')
        self.rect=self.image.get_rect()
        self.rect.top=-500
        self.rect.left=1600
    def move_left(self):
        self.rect.left-=4.5
    def nextpos(self, top):
        self.rect.left = 1080
        self.rect.top = top
class Pipedown1(Sprite): #second pair of pipes
    def __init__(self):
        Sprite.__init__(self)
        self.image=image.load('pipedown.png')
        self.rect=self.image.get_rect()
        self.rect.bottom=1300
        self.rect.left=1600
    def move_left(self):
        self.rect.left-=4.5
    def nextpos(self, bottom):
        self.rect.left = 1080
        self.rect.bottom = bottom
```

The pipes that is used is in this class Pipeup and Pipedown. Pipeup is the pipe on top and Pipedown is on bottom. The function move_left is so the pipe will decrease its x axis location and nextpos is the scramble of location after it touches a corner.

The background that is use is similar to the pipes it uses images and decreases its location's x-axis for the background I uses different colors of background to make it look better.

```
        pipeup.move_left()
        pipedown.move_left()
        pipeup1.move_left()
        pipedown1.move_left()
        bg1.move_left()
        bg2.move_left()
        bg3.move_left()
        bg4.move_left()
```

These function will move the backgrounds and pipes to the left.

```
    pipeup=b.Pipeup()
    pipeup1=b.Pipeup1()
    pipedown=b.Pipedown()
    pipedown1=b.Pipedown1()
    bg1=b.Bg1(0)
    bg2=b.Bg2(1080)
    bg3=b.Bg3(2160)
    bg4=b.Bg4(3240)
```

Inserted the classes in my main file. Bg1 too bg4 has inputs because the class requires their starting position

```
184         if bg1.rect.right<=0:
185             bg1=b.Bg1(3240)
186         if bg2.rect.right<=0:
187             bg2=b.Bg2(3240)
188         if bg3.rect.right<=0:
189             bg3=b.Bg3(3240)
190         if bg4.rect.right<=0:
191             bg4=b.Bg4(3240)
```

This is the function if the background reaches 0 it will have a new set position to start and move to the left.

```
157         if pipeup.rect.right<=0:
158             if pipedown.rect.bottom>=1350:
159                 newpos=random.randint(-125,0)
160             elif pipeup.rect.top<=-200:
161                 newpos=random.randint(0,125)
162             else:
163                 newpos=random.randint(-125,125)
164             postop+=newpos
165             postbottom+=newpos
166             pipeup.nextpos(postop)
167             pipedown.nextpos(postbottom)
168             score+=1
169             point.play()
170 
171         if pipeup1.rect.right<=0:
172             if pipedown1.rect.bottom>=1350:
173                 newpos1=random.randint(-125,0)
174             elif pipeup1.rect.top<=-200:
175                 newpos1=random.randint(0,125)
176             else:
177                 newpos1=random.randint(-125,125)
178             posttop1+=newpos1
179             postbottom1+=newpos1
180             pipeup1.nextpos(posttop1)
181             pipedown1.nextpos(postbottom1)
182             score+=1
183             point.play()
```

For the pipes it is slightly different from the background. First I set the pipes as big as my screen resolution and so I just need to manipulate the space in between and how it will change its y axis. So after it reaches the left part of the screen the position will be either increase or decrease, in order to have no misconduct I set a limit of how much it can decrease and how much it will increase. For example if you reach a top part of the position it will be forced to go low.

3th of November,

Creating the scoreboard that updates every time.

```
score=0
```

```
while active2:
    scoreboard=b.text_box("%d"%score, 540, 100, 35, white)
    second=Group(bg1, bg2, bg3, bg4, bird,pipedown,pipeup,pipedown1,pipeup1, scoreboard)
    second.draw(screen)
```

```
157         if pipeup.rect.right<=0:
158             if pipedown.rect.bottom>=1350:
159                 newpos=random.randint(-125,0)
160             elif pipeup.rect.top<=-200:
161                 newpos=random.randint(0,125)
162             else:
163                 newpos=random.randint(-125,125)
164             postop+=newpos
165             postbottom+=newpos
166             pipeup.nextpos(postop)
167             pipedown.nextpos(postbottom)
168             score+=1
169             point.play()
170 
171         if pipeup1.rect.right<=0:
172             if pipedown1.rect.bottom>=1350:
173                 newpos1=random.randint(-125,0)
174             elif pipeup1.rect.top<=-200:
175                 newpos1=random.randint(0,125)
176             else:
177                 newpos1=random.randint(-125,125)
178             posttop1+=newpos1
179             postbottom1+=newpos1
180             pipeup1.nextpos(posttop1)
181             pipedown1.nextpos(postbottom1)
182             score+=1
```

First, I set my score=0 so every time it starts it will be 0. For scoreboard I insert the text_box class function. “%d”%score is the score replaces the d so for example the score is 5 it will show five. The position is set on 540 and 100, font size is 35 and the background color is white. Next is I inserted it inside the loop so every time it will be updated. The difference is when you put inside the loop the score will update over and over. Next, when the right part of the pipe touches the left screen the score will be added by one.

4th of October,

Creating my main object. The object will be a bird that can go up.

```
72      bird=b.Bird(100,350)
```

```
moveup=False
```

```
if i.key==K_SPACE:
    start_time=pygame.time.get_ticks()
    moveup=True
    flap.play()
```

```
if isinstance(bird,b.Alien):
    if moveup==True:
        bird.move(0,-3)

    if movedown==True:
        bird.move(0,3)

if isinstance(bird,b.Bird):
    if pygame.time.get_ticks()-start_time>=500:
        moveup=False
        bird.normal()
    if pygame.time.get_ticks()-start_time>=700:
        moveup=False
        bird.down()
    if moveup==True:
        if bird.rect.top>=0:
            bird.move(-5.81)
            bird.up()
    if moveup==False:
        if bird.rect.bottom<=800:
            bird.move(4)
```

First I inserted the class and I set its first location and I set a variable named moveup to be False. If I pressed space start_time will start taking time and moveup which is before false becomes True. After that I specified that if it is true it will move up. If it will go up it will load different images so it will look better and when it will fall it will be different. For the time if the time reaches 500 millisecond it will stop and it will go down, I also inserted pictures to set if it is falling and if its at the highest point.

```
if bird.rect.colliderect(pipeup) or bird.rect.colliderect(pipedown) or bird.rect.colliderect(pipeup1) or bird.rect.colliderect(pipedown1):
    hover.stop()
    screen.fill(white)
    second.draw(screen)
    screen.blit(gover,(340, 300))
    display.update()
    crash.play()
    time.sleep(3)
    active2=False
```

In this part if the object collide with the obstacle it will stop all the screen action because I sleep it for 3 seconds and when it doess active2 becomes False so it will go back to the menu.

5th of October,

I added the alien as power up with some music.

```
fourth=Group()
```

```
if isinstance(bird, b.Bird):
    if pygame.time.get_ticks()-spawn>=17000:
        spawn=pygame.time.get_ticks()
        tempalien=b.Alien(1080,random.randint(300,500))
        fourth.add(tempalien)
```

Fourth is an empty grup. Then for every 17 seconds it will spawn an alien icon by inserting it in the fourth group so it can be drawn

```
if spritecollideany(bird, fourth):
    alientimer=pygame.time.get_ticks()
    moveup=False
    bird = b.Alien(bird.rect.centerx,bird.rect.centery)
    hover.play()
```

When the bird collides with the alien it will become the alien by taking its last position.

```
if i.key==K_UP:
    moveup=True

if i.key==K_DOWN:
    movedown=True
```

```
if i.type==KEYUP:
    if i.key==K_UP:
        moveup=False

    if i.key==K_DOWN:
        movedown=False
```

```
if moveup==True:
    bird.move(0,-3)

if movedown==True:
    bird.move(0,3)
```

When the bird inherits the alien it will have different types of movement. So when you hold a button down it will be directed always and if you llet go of the button it stops.

```
groupcollide(fifth,fourth,False,True)
```

To improve my code I will delete the alien if it touches the pipes, so the alien will not get inside the pipes.

```
if pygame.time.get_ticks()-alientimer>=7000:
    bird=b.Bird(bird.rect.centerx,bird.rect.centery)
    movedown = False
    moveup = False
```

This is the timer for how long the bird can be an alien. After the timer reaches 7 seconds it will return the bird and its location.

```
if isinstance(bird, b.Bird):
```

```
if isinstance(bird,b.Alien):
```

If instance means that if the bird is in the class b.Bird it will give a True. So, while it is an alien the if instance (bird,b.Bird) it will give a False so it will no use the program but if it is true it will run the program.

```
#the alien icon and when it became one
class Alien(Sprite):
    def __init__(self,x,y):
        Sprite.__init__(self)
        self.count=3
        self.image=image.load('images/alien3.png')

        self.rect=self.image.get_rect()
        self.a=x
        self.b=y
        self.rect.center=((self.a, self.b))
    def move(self, a, b):
        self.a+=a
        self.b+=b
        self.rect.center=((self.a, self.b))
    def move_left(self):
        self.rect.left-=4.5
    def Add(self):
        self.count += .25
    def checkcount(self):
        if self.count<=5:
            self.image=image.load('images/alien3.png')
        if self.count >= 5:
            self.image = image.load ('images/alien0.png')
        if self.count >= 10:
            self.image = image.load ('images/alien1.png')

        if self.count >=15:
            self.count=0
```

```
if isinstance(bird,b.Alien):

    bird.Add()
    bird.checkcount()
```

Self.add and self.checkcount will work together to make the alien animation. So when the count is less than 5 it will load the first image and if it is more than 5 it will load the second image and this will go on until it reaches 15, if it is greater than 15 it will start from 0 again so this will go on and on.

Last but not least I included music to the game so the game will not be so silent.

```
10  pygame.mixer.init()
11  pygame.mixer.music.load('pixel.mp3')
12  pygame.mixer.music.play(-1)
13
14
```

The init will initialize the music while the music.load loads the doccument and play will play the music but it will be asked to play how many time because I wanted it to be played forever I run the program I set it too -1.

```
#play music button
class Playbutton(Sprite):
    def __init__(self):
        Sprite.__init__(self)
        self.x=100
        self.y=100
        self.image=image.load('play.png')
        self.rect=self.image.get_rect()
        self.rect.center=(self.x, self.y)
#pause mmusic button
class Pausebutton(Sprite):
    def __init__(self):
        Sprite.__init__(self)
        self.x=155
        self.y=100
        self.image=image.load('pause.png')
        self.rect=self.image.get_rect()
        self.rect.center=(self.x, self.y)
```

```
if sound1.rect.collidepoint(mouse.get_pos()):
    pygame.mixer.music.pause()
if sound.rect.collidepoint(mouse.get_pos()):
    pygame.mixer.music.unpause()
```

Playbutton is the new sprite class that I will give a function if it's clicked it will play the music and if pausebutton is another sprite class that gives the pause function

```
flap=pygame.mixer.Sound('flap.ogg')
point=pygame.mixer.Sound('point.ogg')
crash=pygame.mixer.Sound('crash.ogg')
hover=pygame.mixer.Sound('hover.ogg')
```

```
if i.key==K_SPACE:
    start_time=pygame.time.get_ticks()
    moveup=True
    flap.play()
```

```
if pipeup.rect.right<=0:
    if pipedown.rect.bottom>=1350:
        newpos=random.randint(-125,0)
    elif pipeup.rect.top<=-200:
        newpos=random.randint(0,125)
    else:
        newpos=random.randint(-125,125)
    postop+=newpos
    postbottom+=newpos
    pipeup.nextpos(postop)
    pipedown.nextpos(postbottom)
    score+=1
    point.play()
```

```
if bird.rect.colliderect(pipeup) 
    hover.stop()

    second.draw(screen)
    screen.blit(gover,(340, 300))
    display.update()
    crash.play()
    time.sleep(3)
    active2=False
```

```
if pygame.sprite.groupcollide(birdgroup, fourth, False, True):
    alientimer=pygame.time.get_ticks()
    moveup=False
    bird = b.Alien(bird.rect.centerx,bird.rect.centery)
    hover.play()

if isinstance(bird, b.Bird):
    hover.stop()
```

These are some other files that will be played whenever I did a function whether if I became an alien, when I tap space to fly, when it crashes, or when you receive a score

III. Problem that Have Been Overcome

There are many problem that I have trouble with and after some help I was able to overcome it. Here are problems and some ways that I overcome it.

Problems that I encounter:

1.) score

My problem with the score is that the score wont update, it only updates the score when the bird die. For example on the first game you played, you received 5 points, but the score above it still shows zero. The second time I played the game the point then shows five, where it should be zero.

```
scoreboard=b.text_box("%d"%score, 540, 100, 35, white)
while active2:

    second=Group(bg1, bg2, bg3, bg4,bird, pipedown,pipeup,pipedown1,pipeup1, scoreboard)
    birdgroup.draw(screen)
    second.draw(screen)
    fourth.draw(screen)
    display.update()
    for i in event.get():

        if i.type==QUIT:
            pygame.quit()
            exit()

        if i.type==KEYDOWN:
```

The mistake on that code is that the scoreboard is outside the loop and so it will not be updated so otherwise I put it inside the loop then it worked.

```
while active2:
    scoreboard=b.text_box("%d"%score, 540, 100, 35, white)
    second=Group(bg1, bg2, bg3, bg4,bird, pipedown,pipeup,pipedown1,pipeup1, scoreboa
    birdgroup.draw(screen)
    second.draw(screen)
    fourth.draw(screen)
    display.update()
    for i in event.get():

        if i.type==QUIT:
            pygame.quit()
            exit()

        if i.type==KEYDOWN:
            if i.key==K_ESCAPE:
```

2.) alien popping

At first when I scramble my alien to be drawn inside the screen, sometimes its random and the icon alien is in the pipes where the bird cannot touch the pipe because if it did it will die.

```
    groupcollide(fifth,fourth,False,True)
```

Fifth is groups of objects which is the pipes whether it is the upper part of the part or lower, while the fourth is the group of the alien. So this code will make that if the pipes touches the alien the pipes will stay and the icon will die.

3.) Changing the bird form

At first I was not impressed with my bird that can only go up and down but is still in motion, so instead I play through the time and the code.

```
#the bird
class Bird(Sprite):
    def __init__(self,x,y):
        Sprite.__init__(self)
        self.image=image.load('bird.png')
        self.rect=self.image.get_rect()
        self.a=x
        self.b=y
        self.rect.center=((self.a, self.b))

    def move(self, b):
        self.b+=b
        self.rect.center=((self.a, self.b))

    def up(self):
        self.image=image.load('birdup.png')
        self.rect=self.image.get_rect()
        self.rect.center=((self.a, self.b))

    def normal(self):
        self.image=image.load('bird.png')
        self.rect=self.image.get_rect()
        self.rect.center=((self.a, self.b))

    def down(self):
        self.image=image.load('birddown.png')
        self.rect=self.image.get_rect()
        self.rect.center=((self.a, self.b))
```

In here you can see that up, normal, down loads a different file or picture.

```
if isinstance(bird, b.Bird):
    if i.key==K_SPACE:
        start_time=pygame.time.get_ticks()
        moveup=True
        flap.play()
```

So when you pressed space button it will start the time.

```
if isinstance(bird,b.Bird):
    if pygame.time.get_ticks()-start_time>=500:
        moveup=False
        bird.normal()
    if pygame.time.get_ticks()-start_time>=700:
        moveup=False
        bird.down()
    if moveup==True:
        if bird.rect.top>=0:
            bird.move(-5.6)
            bird.up()
    if moveup==False:
        if bird.rect.bottom<=800:
            bird.move(4)
```

And in here this showed that if it is greater than 500 ms it will load the bird.normal, and if it’s more it will load the bird.down.

III. Screen Shots:

```python
#importing pygame, timer, music, random function, and other folder
from pygame import *
from pygame.sprite import *
import random
import burung_etc as b
import time

#start
pygame.init()
pygame.mixer.init()
pygame.mixer.music.load('pixel.mp3')
pygame.mixer.music.play(-1)


#screen resolution and its title of game
screen=display.set_mode((1080,800))
pygame.display.set_caption("BIRDOP")

#colors
black=(0,0,0)
white=(255,255,255)
brown=(160,82,45)




#sprites and pictures in the main menu
start=b.Sbutton()
inst=b.Hbutton()
bye=b.Ebutton()
menubg=image.load('bgground.png')
sound=b.Playbutton()
sound1=b.Pausebutton()
first=Group(start,inst,bye,sound,sound1)
#the main menu
def playon():
    active1 = True
    while active1:
        screen.blit(menubg, (0,0))
        first.draw(screen)
        display.update()

        for i in event.get():
            if i.type==QUIT:
                pygame.quit()
                exit()

            if i.type==KEYDOWN:
                if i.key==K_SPACE:
                    play()
                if i.key==K_ESCAPE:
                    pygame.quit()
                    exit()

            if i.type==MOUSEBUTTONDOWN:
                if bye.rect.collidepoint(mouse.get_pos()):
                    pygame.quit()
                    exit()
                if inst.rect.collidepoint(mouse.get_pos()):
                    help()
                if start.rect.collidepoint(mouse.get_pos()):
                    play()
```

```
                if sound1.rect.collidepoint(mouse.get_pos()):
                    pygame.mixer.music.pause()
                if sound.rect.collidepoint(mouse.get_pos()):
                    pygame.mixer.music.unpause()

#where the game starts
def play():
    #variables, classes
    score=0
    bird=b.Bird(100,350)
    pipeup=b.Pipeup()
    pipeup1=b.Pipeup1()
    pipedown=b.Pipedown()
    pipedown1=b.Pipedown1()
    bg1=b.Bg1(0)
    bg2=b.Bg2(1080)
    bg3=b.Bg3(2160)
    bg4=b.Bg4(3240)
    gover=image.load('gameover.png')
    flap=pygame.mixer.Sound('flap.ogg')
    point=pygame.mixer.Sound('point.ogg')
    crash=pygame.mixer.Sound('crash.ogg')
    hover=pygame.mixer.Sound('hover.ogg')
    active2 = True
    moveup=False
    movedown = False
    start_time=0
    postop=-500
    postbottom=1300
    posttop1=-700
    postbottom1=1100
    alientimer=0
    spawn=pygame.time.get_ticks()
    fourth=Group()
    fifth=(pipedown,pipeup,pipedown1,pipeup1)
    birdgroup = Group(bird)
    while active2:
        scoreboard=b.text_box("%d"%score, 540, 100, 35, white)
        second=Group(bg1, bg2, bg3, bg4,bird, pipedown,pipeup,pipedown1,pipeup1, scoreboard)
        birdgroup.draw(screen)
        second.draw(screen)
        fourth.draw(screen)
        display.update()
        for i in event.get():

            if i.type==QUIT:
                pygame.quit()
                exit()

            if i.type==KEYDOWN:
                if i.key==K_ESCAPE:
                        pygame.quit()
                        exit()

                if isinstance(bird, b.Bird):
                    if i.key==K_SPACE:
                        start_time=pygame.time.get_ticks()
                        moveup=True
                        flap.play()
```

```
                if isinstance(bird, b.Alien):
                    if i.key==K_UP:
                        moveup=True

                    if i.key==K_DOWN:
                        movedown=True

            if isinstance(bird,b.Alien):
                if i.type==KEYUP:
                    if i.key==K_UP:
                        moveup=False

                    if i.key==K_DOWN:
                        movedown=False

        if isinstance(bird,b.Alien):
            if moveup==True:
                bird.move(0,-3)

            if movedown==True:
                bird.move(0,3)

        if isinstance(bird,b.Bird):
            if pygame.time.get_ticks()-start_time>=500:
                moveup=False
                bird.normal()
            if pygame.time.get_ticks()-start_time>=700:
                moveup=False
                bird.down()
            if moveup==True:
                if bird.rect.top>=0:
                    bird.move(-5.6)
                    bird.up()
            if moveup==False:
                if bird.rect.bottom<=800:
                    bird.move(4)
        if pipeup.rect.right<=0:
            if pipedown.rect.bottom>=1350:
                newpos=random.randint(-125,0)
            elif pipeup.rect.top<=-200:
                newpos=random.randint(0,125)
            else:
                newpos=random.randint(-125,125)
            postop+=newpos
            postbottom+=newpos
            pipeup.nextpos(postop)
            pipedown.nextpos(postbottom)
            score+=1
            point.play()

        if pipeup1.rect.right<=0:
            if pipedown1.rect.bottom>=1350:
                newpos1=random.randint(-125,0)
            elif pipeup1.rect.top<=-200:
                newpos1=random.randint(0,125)
            else:
                newpos1=random.randint(-125,125)
            posttop1+=newpos1
            postbottom1+=newpos1
            pipeup1.nextpos(posttop1)
            pipedown1.nextpos(postbottom1)
```

```
            pipedown1.nextpos(postbottom1)
            score+=1
            point.play()
        if bg1.rect.right<=0:
            bg1=b.Bg1(3240)
        if bg2.rect.right<=0:
            bg2=b.Bg2(3240)
        if bg3.rect.right<=0:
            bg3=b.Bg3(3240)
        if bg4.rect.right<=0:
            bg4=b.Bg4(3240)


        if bird.rect.colliderect(pipeup) or bird.rect.colliderect(pipedown) or bird.rect.colliderect(pipeup1) or bird.rect.colliderect(pipedown1):
            hover.stop()

            second.draw(screen)
            screen.blit(gover,(340, 300))
            display.update()
            crash.play()
            time.sleep(3)
            active2=False


        if pygame.sprite.groupcollide(birdgroup, fourth, False, True):
            alientimer=pygame.time.get_ticks()
            moveup=False
            bird = b.Alien(bird.rect.centerx,bird.rect.centery)
            hover.play()

        if isinstance(bird, b.Bird):
            hover.stop()

        if isinstance(bird,b.Alien):

            bird.Add()
            bird.checkcount()

        if isinstance(bird,b.Alien):
            if pygame.time.get_ticks()-alientimer>=7000:
                bird=b.Bird(bird.rect.centerx,bird.rect.centery)
                movedown = False
                moveup = False

        if isinstance(bird, b.Bird):
            if pygame.time.get_ticks()-spawn>=17000:
                spawn=pygame.time.get_ticks()
                tempalien=b.Alien(1080,random.randint(300,500))
                fourth.add(tempalien)

        groupcollide(fifth,fourth,False,True)

        pipeup.move_left()
        pipedown.move_left()
        pipeup1.move_left()
        pipedown1.move_left()
        bg1.move_left()
        bg2.move_left()
        bg3.move_left()
        bg4.move_left()
```

```
243
244             for alien in fourth:
245                 alien.move_left()
246
247     #picure in the help menu
248     direction=image.load('instructions.png')
249     back_button=b.Bbutton()
250     third=Group(back_button)
251
252     def help():
253         active3=True
254         while active3:
255             screen.blit(direction, (0,0))
256             third.draw(screen)
257
258             display.update()
259
260             for i in event.get():
261                 if i.type==QUIT:
262                     pygame.quit()
263                     exit()
264
265                 if i.type==KEYDOWN:
266                     if i.key==K_ESCAPE:
267                             pygame.quit()
268                             exit()
269
270                 if i.type==MOUSEBUTTONDOWN:
271                     if back_button.rect.collidepoint(mouse.get_pos()):
272                         active3=False
273
274
275     #PLAY
276     playon()
277
```

```python
#importing pygame
from pygame import *
from pygame.sprite import *

#creating classes to be called on another file

#the bird
class Bird(Sprite):
    def __init__(self,x,y):
        Sprite.__init__(self)
        self.image=image.load('bird.png')
        self.rect=self.image.get_rect()
        self.a=x
        self.b=y
        self.rect.center=((self.a, self.b))

    def move(self, b):
        self.b+=b
        self.rect.center=((self.a, self.b))

    def up(self):
        self.image=image.load('birdup.png')
        self.rect=self.image.get_rect()
        self.rect.center=((self.a, self.b))

    def normal(self):
        self.image=image.load('bird.png')
        self.rect=self.image.get_rect()
        self.rect.center=((self.a, self.b))

    def down(self):
        self.image=image.load('birddown.png')
        self.rect=self.image.get_rect()
        self.rect.center=((self.a, self.b))

#the alien icon and when it became one
class Alien(Sprite):
    def __init__(self,x,y):
        Sprite.__init__(self)
        self.count=3
        self.image=image.load('images/alien3.png')

        self.rect=self.image.get_rect()
        self.a=x
        self.b=y
        self.rect.center=((self.a, self.b))
    def move(self, a, b):
        self.a+=a
        self.b+=b
        self.rect.center=((self.a, self.b))
    def move_left(self):
        self.rect.left-=4.5
    def Add(self):
        self.count += .25
    def checkcount(self):
        if self.count<=5:
            self.image=image.load('images/alien3.png')
        if self.count >= 5:
            self.image = image.load ('images/alien0.png')
        if self.count >= 10:
            self.image = image.load ('images/alien1.png')

```

```
62
63              if self.count >=15:
64                  self.count=0
65
66      #if i want to add a text box button
67      class text_box(Sprite):
68          def __init__(self, message, x, y, font, color):
69              Sprite.__init__(self)
70              self.x=x
71              self.y=y
72              self.font=pygame.font.Font(None, font)
73              self.image=self.font.render(message,1,black,color)
74              self.rect=self.image.get_rect()
75              self.rect.center=(x, y)
76      #play music button
77      class Playbutton(Sprite):
78          def __init__(self):
79              Sprite.__init__(self)
80              self.x=100
81              self.y=100
82              self.image=image.load('play.png')
83              self.rect=self.image.get_rect()
84              self.rect.center=(self.x, self.y)
85      #pause mmusic button
86      class Pausebutton(Sprite):
87          def __init__(self):
88              Sprite.__init__(self)
89              self.x=155
90              self.y=100
91              self.image=image.load('pause.png')
92              self.rect=self.image.get_rect()
93              self.rect.center=(self.x, self.y)
94      #back button
95      class Bbutton(Sprite):
96          def __init__(self):
97              Sprite.__init__(self)
98              self.x=100
99              self.y=700
100             self.image=image.load('backbutton.png')
101             self.rect=self.image.get_rect()
102             self.rect.center=(self.x, self.y)
103     #start button
104     class Sbutton(Sprite):
105         def __init__(self):
106             Sprite.__init__(self)
107             self.x=540
108             self.y=370
109             self.image=image.load('startbutton.png')
110             self.rect=self.image.get_rect()
111             self.rect.center=(self.x, self.y)
112     #help button
113     class Hbutton(Sprite):
114         def __init__(self):
115             Sprite.__init__(self)
116             self.x=540
117             self.y=450
118             self.image=image.load('Helpbutton.png')
119             self.rect=self.image.get_rect()
120             self.rect.center=(self.x, self.y)
```

```
#exit button
class Ebutton(Sprite):
    def __init__(self):
        Sprite.__init__(self)
        self.x=900
        self.y=700
        self.image=image.load('exitbutton.png')
        self.rect=self.image.get_rect()
        self.rect.center=(self.x, self.y)

#moving backgrounds
class Bg1(Sprite):
    def __init__(self, x):
        Sprite.__init__(self)
        self.image=image.load('gamebg1.png')
        self.rect=self.image.get_rect()
        self.x=x
        self.rect.top=0
        self.rect.left=x
    def move_left(self):
        self.rect.left-=4
class Bg2(Sprite):
    def __init__(self,x):
        Sprite.__init__(self)
        self.image=image.load('gamebg2.png')
        self.rect=self.image.get_rect()
        self.x=x
        self.rect.top=0
        self.rect.left=x
    def move_left(self):
        self.rect.left-=4
class Bg3(Sprite):
    def __init__(self, x):
        Sprite.__init__(self)
        self.image=image.load('gamebg3.png')
        self.rect=self.image.get_rect()
        self.x=x
        self.rect.top=0
        self.rect.left=x
    def move_left(self):
        self.rect.left-=4
class Bg4(Sprite):
    def __init__(self, x):
        Sprite.__init__(self)
        self.image=image.load('gamebg4.png')
        self.rect=self.image.get_rect()
        self.x=x
        self.rect.top=0
        self.rect.left=x
    def move_left(self):
        self.rect.left-=4


class Pipeup(Sprite):#first pair of pipes
    def __init__(self):
        Sprite.__init__(self)
        self.image=image.load('pipeup.png')
        self.rect=self.image.get_rect()
        self.rect.top=-700
        self.rect.left=1000
    def move_left(self):
        self.rect.left-=4.5
```

```
183         def nextpos(self, top):
184             self.rect.left = 1080
185             self.rect.top = top
186     class Pipedown(Sprite): #first pair of pipes
187         def __init__(self):
188             Sprite.__init__(self)
189             self.image=image.load('pipedown.png')
190             self.rect=self.image.get_rect()
191             self.rect.bottom=1500
192             self.rect.left=1000
193         def move_left(self):
194             self.rect.left-=4.5
195         def nextpos(self, bottom):
196             self.rect.left = 1080
197             self.rect.bottom = bottom
198 
199     class Pipeup1(Sprite): #second pair of pipes
200         def __init__(self):
201             Sprite.__init__(self)
202             self.image=image.load('pipeup.png')
203             self.rect=self.image.get_rect()
204             self.rect.top=-500
205             self.rect.left=1600
206         def move_left(self):
207             self.rect.left-=4.5
208         def nextpos(self, top):
209             self.rect.left = 1080
210             self.rect.top = top
211     class Pipedown1(Sprite): #second pair of pipes
212         def __init__(self):
213             Sprite.__init__(self)
214             self.image=image.load('pipedown.png')
215             self.rect=self.image.get_rect()
216             self.rect.bottom=1300
217             self.rect.left=1600
218         def move_left(self):
219             self.rect.left-=4.5
220         def nextpos(self, bottom):
221             self.rect.left = 1080
222             self.rect.bottom = bottom
223 
224     #color RGB code
225     black=(0,0,0)
226     white=(255,255,255)
227     brown=(160,82,45)
228 
229 
```