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Assignment Cover Letter

(Individual Work)

Student Information:	**Surname**	**Given Names**	**Student ID Number**
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Course Code	: COMP6502	**Course Name**	: **Introduction to Programming**
Class	: **L1AC**	**Name of Lecturer(s)**	: 1. Bagus Kerthyayana 2. Tri Asih Budiono
Major	: **CS**		
Title of Assignment (if any)	: brick breaker		
Type of Assignment	**: Final Project**		
Submission Pattern			
Due Date	: **6-11-2017**	**Submission Date**	: **6-11-2017**

The assignment should meet the below requirements.

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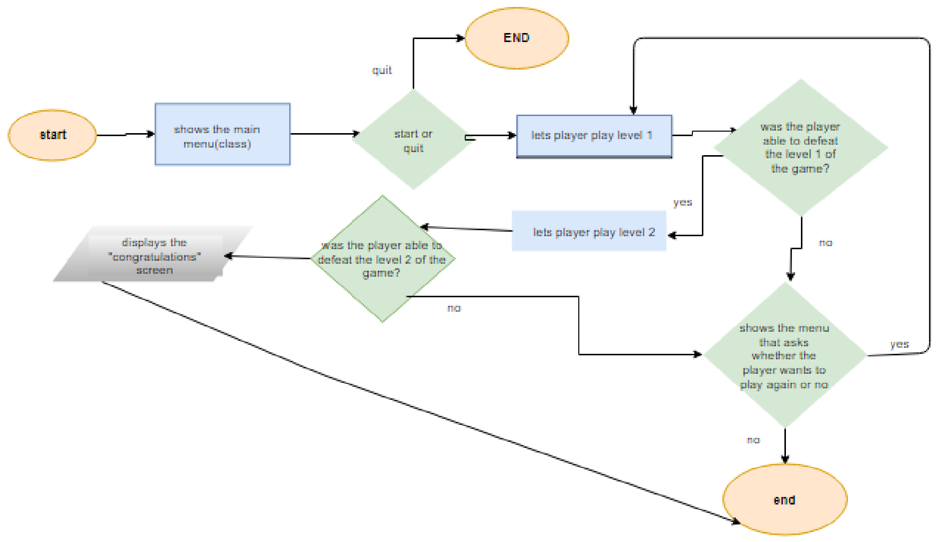
Signature of Student: (Name of Student) Krishita Sukhani

<u>"Brick Breaker"</u>

Name :Krishita Sukhani

ID : 2101716773

Flowchart


start
shows the main menu(class)
start or quit
quit
END
lets player play level 1
was the player able to defeat the level 1 of the game?
yes
no
lets player play level 2
was the player able to defeat the level 2 of the game?
displays the "congratulations" screen
no
shows the menu that asks whether the player wants to play again or no
yes
no
end

I. <u>Description</u>

The function of this program:

This is a classic Brick breaker game, the point of the game is to break all the bricks(blocks) and catching the ball with the paddle without the ball falling out of the game as that would immediately end the game.

There are 2 levels of the game the 1st one has less bricks ,more spaces between the bricks , a longer paddle as well as a slower ball movement making it easier for players to catch it and a longer distance between the brick and the paddle

II. <u>what was implemented and how it works</u>

1. the menu():

- is a function that works by giving you 2 options
- if you choose to play the game it calls the level 1 of the game
- if you choose to quit then it calls the pygame.quit()

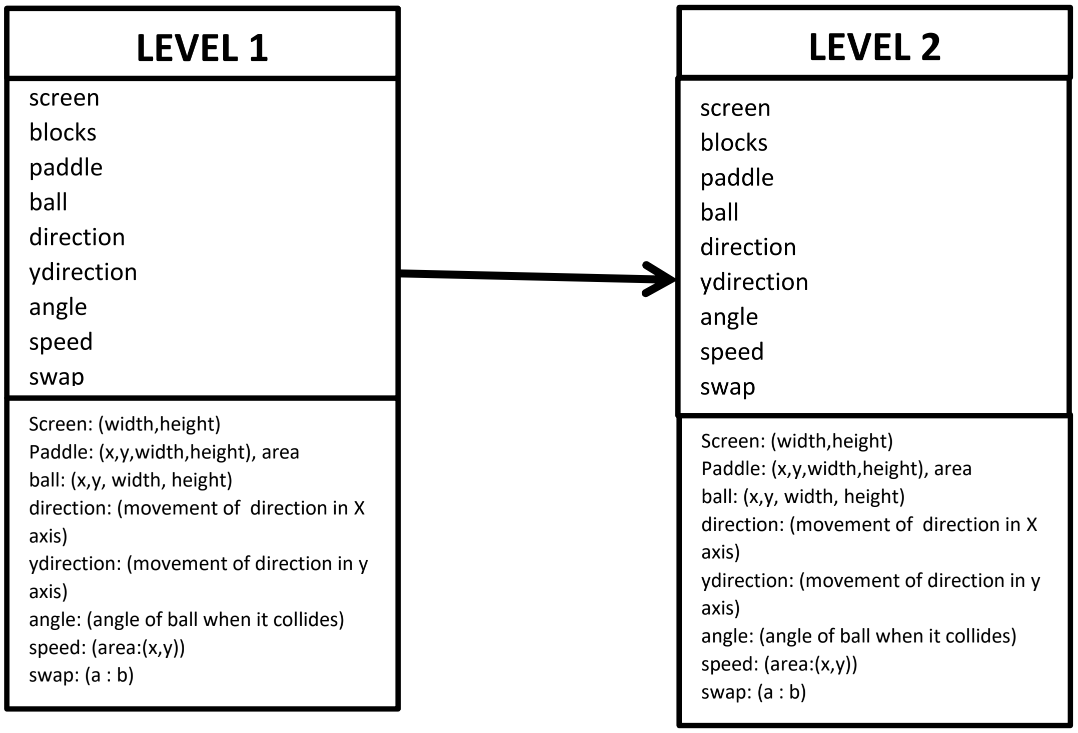
2. level 1 and level 2(is a class) :

- this holds the characteristics such as the height width color of the Paddle (used to catch the ball), the ball(used to break the bricks) , the bricks also called as a block, also holds the direction and speed as well as swap which is later on used for the "ballUpdates"

- this holds createBlocks which tells the program where to locate the x axis and y axis of the blocks in this level of the game as well as the width and the height of the blocks
- holds the ball update that tells the system what to do with the ball when the ball bounces back from the paddle after it is caught it includes the balls speed, the balls angles and the direction or what to do with the ball if it is not caught by the paddle, the ball update also has the score i.e if it reaches its maximum score it will move on to the next level or else if the ball falls off the game area then the system will show the gameover function
- holds the paddleUpdate which tells the system what to do when the user is dragging the paddle by the keypad and it updates the paddles every move
- the main, this holds the while loop for the game and the background as well as the sound

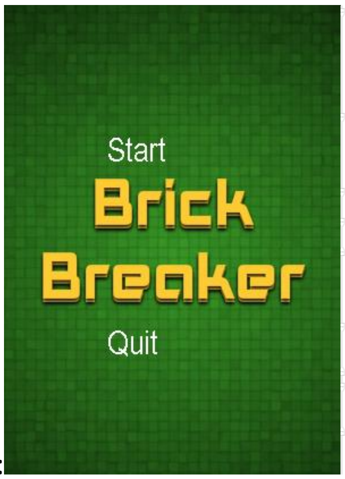
3. The end
   - The end function tells the system what to do if the user had lost already , users loose when they do not catch the ball
   - Either allows you to restart which will call the level1 class and lets you play again
   - Or it either allows you to exit the system if you no longer wish to play
4. WINNER
   - Is a function that is called when the user have completed both the levels
   - It prints a congratulation note

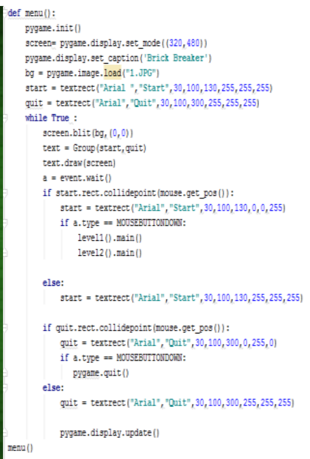
UML diagram


LEVEL 1
screen
blocks
paddle
ball
direction
ydirection
angle
speed
swap
Screen: (width,height)
Paddle: (x,y,width,height), area
ball: (x,y, width, height)
direction: (movement of direction in X axis)
ydirection: (movement of direction in y axis)
angle: (angle of ball when it collides)
speed: (area:(x,y))
swap: (a : b)
LEVEL 2
screen
blocks
paddle
ball
direction
ydirection
angle
speed
swap
Screen: (width,height)
Paddle: (x,y,width,height), area
ball: (x,y, width, height)
direction: (movement of direction in X axis)
ydirection: (movement of direction in y axis)
angle: (angle of ball when it collides)
speed: (area:(x,y))
swap: (a : b)

III. A brief teaser on the game

1. Menu

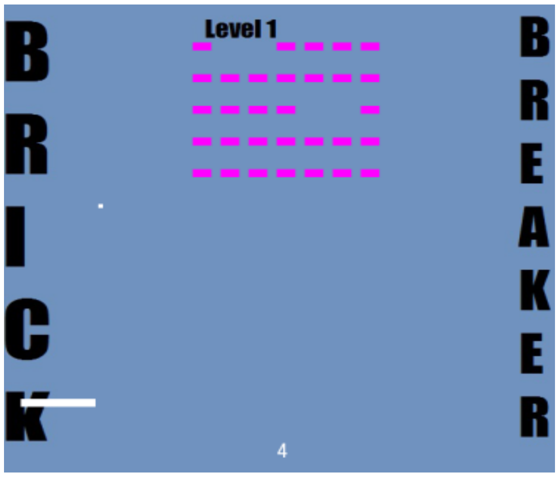


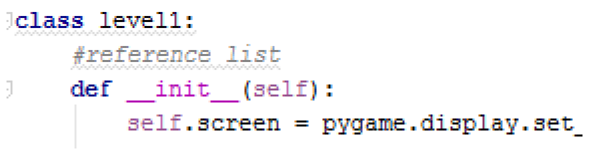


```
def menu():
    pygame.init()
    screen= pygame.display.set_mode((320,480))
    pygame.display.set_caption('Brick Breaker')
    bg = pygame.image.load("1.JPG")
    start = textrect("Arial ","Start",30,100,130,255,255,255)
    quit = textrect("Arial","Quit",30,100,300,255,255,255)
    while True :
        screen.blit(bg,(0,0))
        text = Group(start,quit)
        text.draw(screen)
        a = event.wait()
        if start.rect.collidepoint(mouse.get_pos()):
            start = textrect("Arial","Start",30,100,130,0,0,255)
            if a.type == MOUSEBUTTONDOWN:
                level1().main()
                level2().main()

        else:
            start = textrect("Arial","Start",30,100,130,255,255,255)

        if quit.rect.collidepoint(mouse.get_pos()):
            quit = textrect("Arial","Quit",30,100,300,0,255,0)
            if a.type == MOUSEBUTTONDOWN:
               pygame.quit()
        else:
            quit = textrect("Arial","Quit",30,100,300,255,255,255)

            pygame.display.update()
menu()
```

:

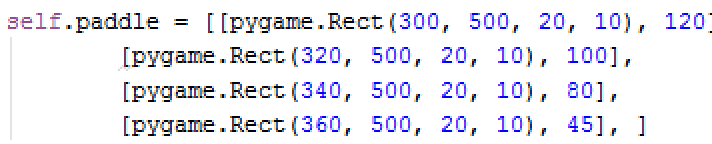
2.Level 1





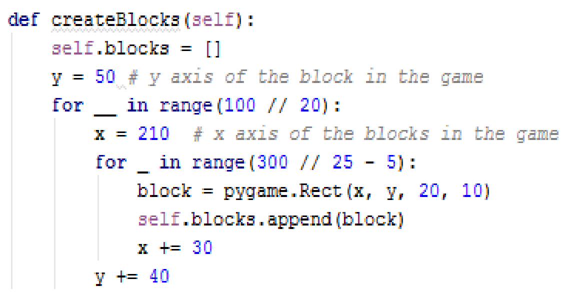
```
class level1:
    #reference list
    def __init__(self):
        self.screen = pygame.display.set_
```

Sets the size of the screen by telling the program our desired width and height



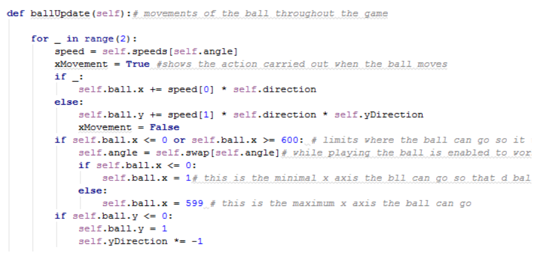
```
self.paddle = [[pygame.Rect(300, 500, 20, 10), 120
        [pygame.Rect(320, 500, 20, 10), 100],
        [pygame.Rect(340, 500, 20, 10), 80],
        [pygame.Rect(360, 500, 20, 10), 45], ]
```

Makes the paddle and the location of the paddle in the screen shows(x axis,y axis, width , height)



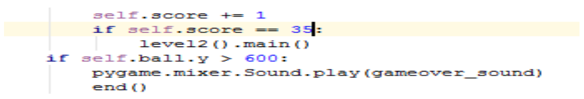
```
def createBlocks(self):
    self.blocks = []
    y = 50 # y axis of the block in the game
    for __ in range(100 // 20):
        x = 210  # x axis of the blocks in the game
        for _ in range(300 // 25 - 5):
            block = pygame.Rect(x, y, 20, 10)
            self.blocks.append(block)
            x += 30
        y += 40
```

Shows the y axis, x axis of the blocks(bricks) and their amount as well as their size



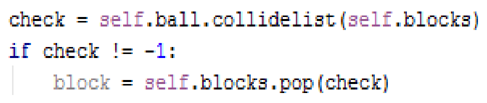
```python
def ballUpdate(self):# movements of the ball throughout the game

    for _ in range(2):
        speed = self.speeds[self.angle]
        xMovement = True #shows the action carried out when the ball moves
        if _:
            self.ball.x += speed[0] * self.direction
        else:
            self.ball.y += speed[1] * self.direction * self.yDirection
            xMovement = False
        if self.ball.x <= 0 or self.ball.x >= 600: # limits where the ball can go so it
            self.angle = self.swap[self.angle]# while playing the ball is enabled to wor
            if self.ball.x <= 0:
                self.ball.x = 1# this is the minimal x axis the bll can go so that d bal
            else:
                self.ball.x = 599 # this is the maximum x axis the ball can go
        if self.ball.y <= 0:
            self.ball.y = 1
            self.yDirection *= -1
```

This function also limits where the ball can go as if it goes outside of the frame then It will be difficult for the users to play the game ,Made a speed variable that just takes into action the attributes of speeds & the angles



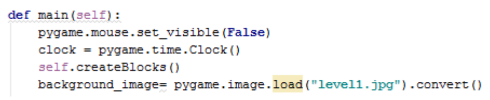
```python
        self.score += 1
        if self.score == 35:
            level2().main()
    if self.ball.y > 600:
        pygame.mixer.Sound.play(gameover_sound)
        end()
```

Shows that if the score has reached 35 i.e the amount of bocks it had popped so if all the blocks are popped the game automatically moves on to the next level but if the ball goes beyond the y axis set i.e when the ball is not caught by the paddle then the game would end and it plays the gameover sound while showing the gameover screen



```python
check = self.ball.collidelist(self.blocks)
if check != -1:
    block = self.blocks.pop(check)
```

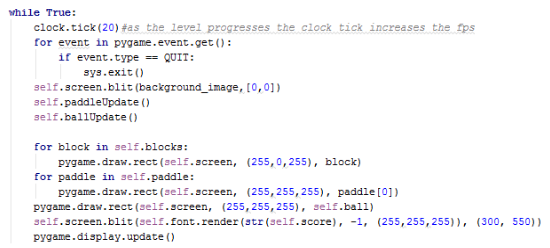
this shows that if the paddle and the block collides then the block is popped



```python
def main(self):
    pygame.mouse.set_visible(False)
    clock = pygame.time.Clock()
    self.createBlocks()
    background_image= pygame.image.load("level1.jpg").convert()
```

Tells the system what to do when the ball is moving& when its stationery

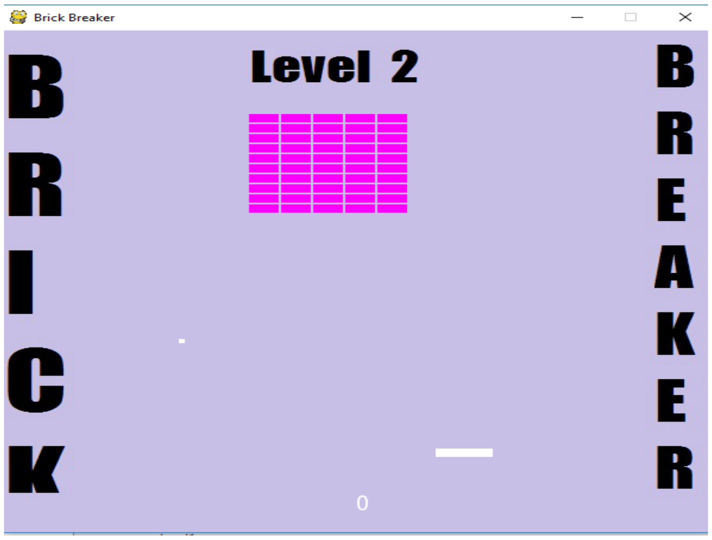
The mouse is hidden
Calls the pygame clock for fps
Creates the blocks and finally the background image

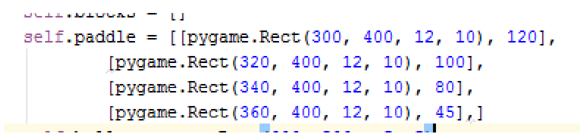


```python
while True:
    clock.tick(20)#as the level progresses the clock tick increases the fps
    for event in pygame.event.get():
        if event.type == QUIT:
            sys.exit()
    self.screen.blit(background_image,[0,0])
    self.paddleUpdate()
    self.ballUpdate()

    for block in self.blocks:
        pygame.draw.rect(self.screen, (255,0,255), block)
    for paddle in self.paddle:
        pygame.draw.rect(self.screen, (255,255,255), paddle[0])
    pygame.draw.rect(self.screen, (255,255,255), self.ball)
    self.screen.blit(self.font.render(str(self.score), -1, (255,255,255)), (300, 550))
    pygame.display.update()
```

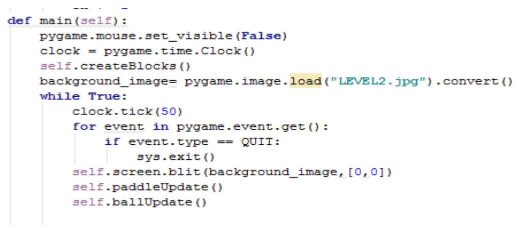
this shows the main loop for the game

3.Level 2





```
self.paddle = [[pygame.Rect(300, 400, 12, 10), 120],
            [pygame.Rect(320, 400, 12, 10), 100],
            [pygame.Rect(340, 400, 12, 10), 80],
            [pygame.Rect(360, 400, 12, 10), 45],]
```



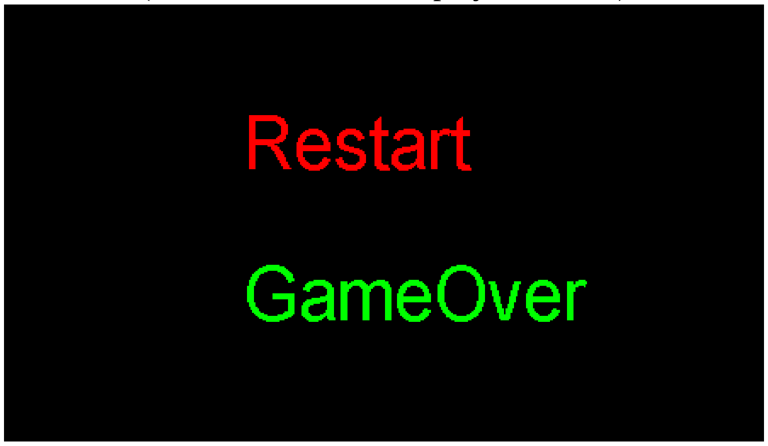
```
def main(self):
    pygame.mouse.set_visible(False)
    clock = pygame.time.Clock()
    self.createBlocks()
    background_image= pygame.image.load("LEVEL2.jpg").convert()
    while True:
        clock.tick(50)
        for event in pygame.event.get():
            if event.type == QUIT:
                sys.exit()
        self.screen.blit(background_image,[0,0])
        self.paddleUpdate()
        self.ballUpdate()
```

The position of the paddle is now set in 400 y axis so its even closer towards the brick making it more difficult for the user to catch the ball

In level 2 the width of the paddle is smaller than the one in level 1 as you can see from the width of 20 it became 12

In the main loop of the game the clock.tick has been increased to 50 therefore 50fos so the ball moves almost twice as much faster than the level 1

4.The end (what shows when the player has lost)



This set-up was simple one, you get 2 options that you can choose from and you either restart or you end the game

```
def end():
    go = textrect("Arial ","Game Over",50,200,300,0,255,0)
    restart = textrect("Arial","Restart",50,200,200,0,0,255)
    screen = pygame.display.set_mode((600, 600))
    pygame.mouse.set_visible(True)
```

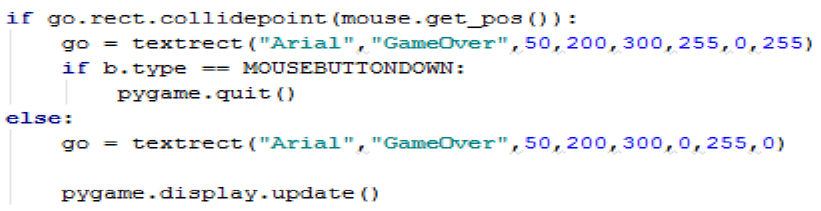
Over here I had just created the 2 options I want in my end() function and ive set the mouse to true to help the user see what it chooses the click

```
while True :
    screen.fill((0,0,0))
    options = Group(go,restart)
    options.draw(screen)
    display.update()
    b = event.wait()
```

 Over here I had created the background as a simple black background and grouped the 2 options that I had previously created then I draw it to the screen and then created an event and just named it by the variable b

```
if restart.rect.collidepoint(mouse.get_pos()):
    restart = textrect("Arial","Restart",50,200,200,0,0,255)
    if b.type == MOUSEBUTTONDOWN:
        level1().main()


else:
    restart = textrect("Arial","Restart",50,200,200,255,0,0)
```

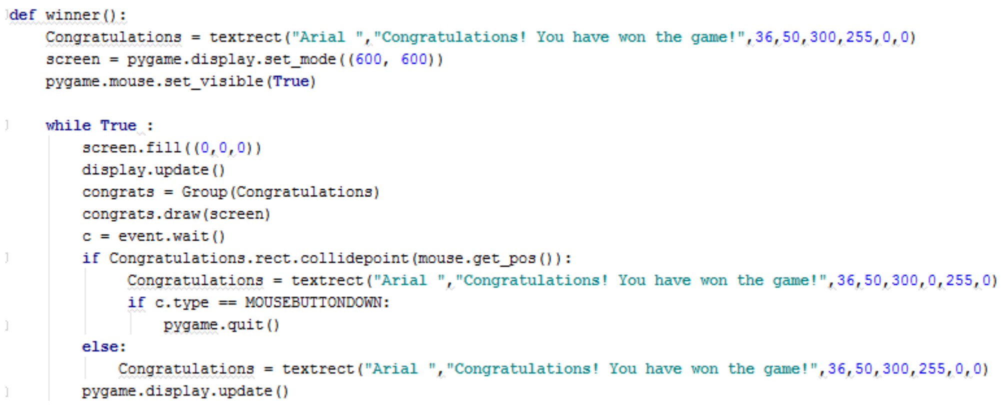
For the restart option if the user is just hovering above the option but had not chose it, the option would change colours from blue to red and if it clicks the option then the game would call the level 1 stage again



```
if go.rect.collidepoint(mouse.get_pos()):
    go = textrect("Arial","GameOver",50,200,300,255,0,255)
    if b.type == MOUSEBUTTONDOWN:
        pygame.quit()
else:
    go = textrect("Arial","GameOver",50,200,300,0,255,0)

    pygame.display.update()
```

Same goes for the game over option but the difference is if you press this option , instead of going back to level 1 it quits the game

4.The winner(shows what happens when the player has defeated both levels)



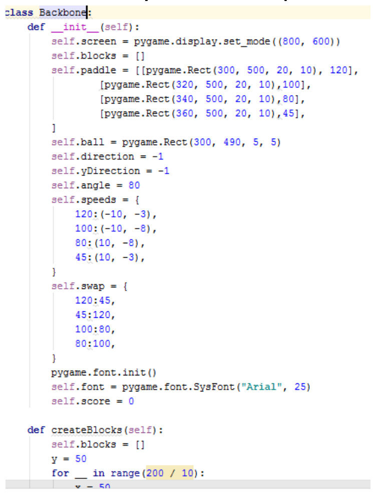
```
def winner():
    Congratulations = textrect("Arial ","Congratulations! You have won the game!",36,50,300,255,0,0)
    screen = pygame.display.set_mode((600, 600))
    pygame.mouse.set_visible(True)

    while True :
        screen.fill((0,0,0))
        display.update()
        congrats = Group(Congratulations)
        congrats.draw(screen)
        c = event.wait()
        if Congratulations.rect.collidepoint(mouse.get_pos()):
            Congratulations = textrect("Arial ","Congratulations! You have won the game!",36,50,300,0,255,0)
            if c.type == MOUSEBUTTONDOWN:
                pygame.quit()
        else:
            Congratulations = textrect("Arial ","Congratulations! You have won the game!",36,50,300,255,0,0)
        pygame.display.update()
```

Once you click on the congratulations note the game immediately quits

Documentation

1. 27 October 2017: *(basic game)*

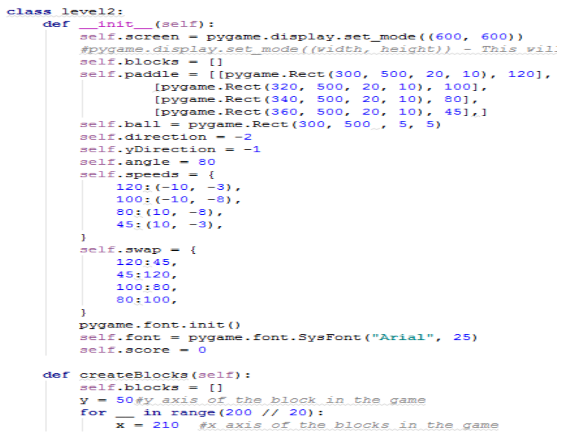
I have created the very basic functioning class for my game, for now I call my class BackBone and what it does is it breaks the bricks when it collides with the ball and the game would immediately end if the paddle does not catch the ball



```
class Backbone:
    def __init__(self):
        self.screen = pygame.display.set_mode((800, 600))
        self.blocks = []
        self.paddle = [[pygame.Rect(300, 500, 20, 10), 120],
                [pygame.Rect(320, 500, 20, 10),100],
                [pygame.Rect(340, 500, 20, 10),80],
                [pygame.Rect(360, 500, 20, 10),45],
        ]
        self.ball = pygame.Rect(300, 490, 5, 5)
        self.direction = -1
        self.yDirection = -1
        self.angle = 80
        self.speeds = {
            120:(-10, -3),
            100:(-10, -8),
            80:(10, -8),
            45:(10, -3),
        }
        self.swap = {
            120:45,
            45:120,
            100:80,
            80:100,
        }
        pygame.font.init()
        self.font = pygame.font.SysFont("Arial", 25)
        self.score = 0

    def createBlocks(self):
        self.blocks = []
        y = 50
        for __ in range(200 / 10):
            x = 50
```

2. 28 October 2017: *(level 1 and 2 of the game)*

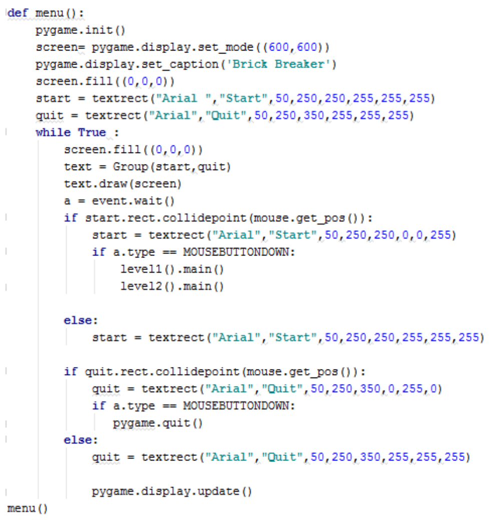
    Made a level 2 for my brick breaker program, I tried making a super class that is the backbone and 2 separate classes as a child class called level1 and level2 however I decided to just make 2 separate classes for each level



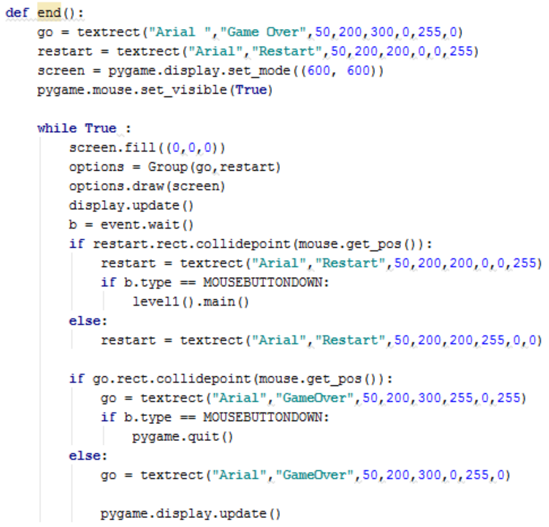
```
class level2:
    def __init__(self):
        self.screen = pygame.display.set_mode((600, 600))
        #pygame.display.set_mode((width, height)) - This wil
        self.blocks = []
        self.paddle = [[pygame.Rect(300, 500, 20, 10), 120],
                [pygame.Rect(320, 500, 20, 10), 100],
                [pygame.Rect(340, 500, 20, 10), 80],
                [pygame.Rect(360, 500, 20, 10), 45],]
        self.ball = pygame.Rect(300, 500 , 5, 5)
        self.direction = -2
        self.yDirection = -1
        self.angle = 80
        self.speeds = {
            120:(-10, -3),
            100:(-10, -8),
            80:(10, -8),
            45:(10, -3),
        }
        self.swap = {
            120:45,
            45:120,
            100:80,
            80:100,
        }
        pygame.font.init()
        self.font = pygame.font.SysFont("Arial", 25)
        self.score = 0

    def createBlocks(self):
        self.blocks = []
        y = 50#y axis of the block in the game
        for __ in range(200 // 20):
            x = 210  #x axis of the blocks in the game
```

3. 30 October 2017: *(creating menu and end)*

    Every game needs a menu so for today I created a menu function for my game, it is a very simple menu as it has 2 options that is to start the game or to quit



```
def menu():
    pygame.init()
    screen= pygame.display.set_mode((600,600))
    pygame.display.set_caption('Brick Breaker')
    screen.fill((0,0,0))
    start = textrect("Arial ","Start",50,250,250,255,255,255)
    quit = textrect("Arial","Quit",50,250,350,255,255,255)
    while True :
        screen.fill((0,0,0))
        text = Group(start,quit)
        text.draw(screen)
        a = event.wait()
        if start.rect.collidepoint(mouse.get_pos()):
            start = textrect("Arial","Start",50,250,250,0,0,255)
            if a.type == MOUSEBUTTONDOWN:
                level1().main()
                level2().main()

        else:
            start = textrect("Arial","Start",50,250,250,255,255,255)

        if quit.rect.collidepoint(mouse.get_pos()):
            quit = textrect("Arial","Quit",50,250,350,0,255,0)
            if a.type == MOUSEBUTTONDOWN:
               pygame.quit()
        else:
            quit = textrect("Arial","Quit",50,250,350,255,255,255)

            pygame.display.update()
menu()
```

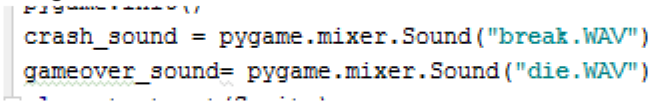


```
def end():
    go = textrect("Arial ","Game Over",50,200,300,0,255,0)
    restart = textrect("Arial","Restart",50,200,200,0,0,255)
    screen = pygame.display.set_mode((600, 600))
    pygame.mouse.set_visible(True)

    while True :
        screen.fill((0,0,0))
        options = Group(go,restart)
        options.draw(screen)
        display.update()
        b = event.wait()
        if restart.rect.collidepoint(mouse.get_pos()):
            restart = textrect("Arial","Restart",50,200,200,0,0,255)
            if b.type == MOUSEBUTTONDOWN:
                level1().main()
        else:
            restart = textrect("Arial","Restart",50,200,200,255,0,0)

        if go.rect.collidepoint(mouse.get_pos()):
            go = textrect("Arial","GameOver",50,200,300,255,0,255)
            if b.type == MOUSEBUTTONDOWN:
                pygame.quit()
        else:
            go = textrect("Arial","GameOver",50,200,300,0,255,0)

            pygame.display.update()
```

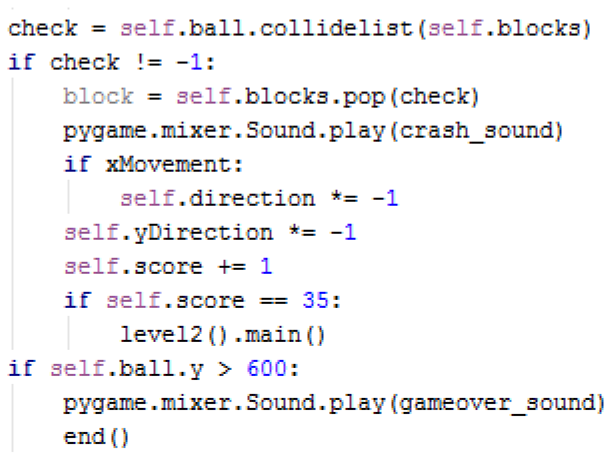
    After creating the menu I realized that every beginning must have an ending therefore I created another function for end, this will occur if the paddle does not catch the ball. I also modified both my classes so if the ball falls out of its respective frames then the game would immediately end

4. 1 November 2017: (sound effects)

    Used pygame.mixer.Sound to play a sound when the ball collides with the block as well as when the game dies



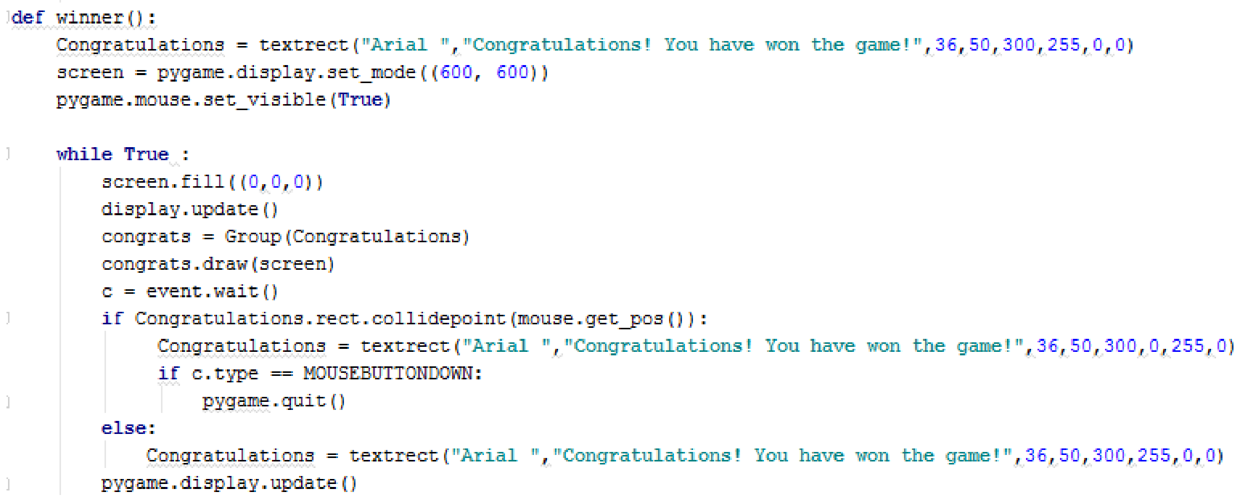
```
crash_sound = pygame.mixer.Sound("break.WAV")
gameover_sound= pygame.mixer.Sound("die.WAV")
```



```python
check = self.ball.collidelist(self.blocks)
if check != -1:
    block = self.blocks.pop(check)
    pygame.mixer.Sound.play(crash_sound)
    if xMovement:
        self.direction *= -1
    self.yDirection *= -1
    self.score += 1
    if self.score == 35:
        level2().main()
if self.ball.y > 600:
    pygame.mixer.Sound.play(gameover_sound)
    end()
```

5. 3 November 2017: (the winner)

   This is a function that is called once all the blocks from both the levels have been popped

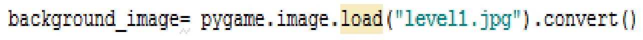


```python
def winner():
    Congratulations = textrect("Arial ","Congratulations! You have won the game!",36,50,300,255,0,0)
    screen = pygame.display.set_mode((600, 600))
    pygame.mouse.set_visible(True)

    while True :
        screen.fill((0,0,0))
        display.update()
        congrats = Group(Congratulations)
        congrats.draw(screen)
        c = event.wait()
        if Congratulations.rect.collidepoint(mouse.get_pos()):
            Congratulations = textrect("Arial ","Congratulations! You have won the game!",36,50,300,0,255,0)
            if c.type == MOUSEBUTTONDOWN:
                pygame.quit()
        else:
            Congratulations = textrect("Arial ","Congratulations! You have won the game!",36,50,300,255,0,0)
        pygame.display.update()
```

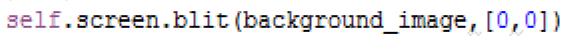
   Once the game is done the user an press the congratulations note and the game would end

6. 4 November 2017:

   Today I have updated the backgrounds for both game levels as well as the menu as it was too simple



```python
background_image= pygame.image.load("level1.jpg").convert()
```



```python
self.screen.blit(background_image, [0,0])
```

7. 5 & 6 November 2017:

   These 2 days I had mostly spent on creating new ways on how I could make my game better and how to shorten my codes however after many attempts I had decided that my main intent was to create a program that works the way I had planned on even if the codes may be longer than what I had planned

SOURCE CODE

```
import pygame
from pygame.locals import *
import sys
from  pygame.sprite import *
from pygame import *
pygame.init()
crash_sound = pygame.mixer.Sound("break.WAV")
gameover_sound= pygame.mixer.Sound("die.WAV")
class textrect(Sprite):
    def __init__(self, fontstyle , text , fontsize , xpos , ypos ,R, G , B ):
        Sprite.__init__(self)
        self.font= pygame.font.SysFont(fontstyle,fontsize)
        self.image= self.font.render(text, False,(R,G,B))
        self.rect = self.image.get_rect()
        self.rect.x = xpos
        self.rect.y = ypos
def winner():
    Congratulations = textrect("Arial ","Congratulations! You have won the
game!",36,50,300,255,0,0)
    screen = pygame.display.set_mode((600, 600))
    pygame.mouse.set_visible(True)

    while True :
        screen.fill((0,0,0))
        display.update()
        congrats = Group(Congratulations)
        congrats.draw(screen)
        c = event.wait()
        if Congratulations.rect.collidepoint(mouse.get_pos()):
             Congratulations = textrect("Arial ","Congratulations! You have won the
game!",36,50,300,0,255,0)
             if c.type == MOUSEBUTTONDOWN:
                 pygame.quit()
        else:
            Congratulations = textrect("Arial ","Congratulations! You have won the
game!",36,50,300,255,0,0)
        pygame.display.update()



def end():
    go = textrect("Arial ","Game Over",50,200,300,0,255,0)
    restart = textrect("Arial","Restart",50,200,200,0,0,255)
    screen = pygame.display.set_mode((600, 600))
    pygame.mouse.set_visible(True)

    while True :
        screen.fill((0,0,0))
        options = Group(go,restart)
        options.draw(screen)
        display.update()
        b = event.wait()
        if restart.rect.collidepoint(mouse.get_pos()):
            restart = textrect("Arial","Restart",50,200,200,0,0,255)
            if b.type == MOUSEBUTTONDOWN:
                level1().main()


        else:
            restart = textrect("Arial","Restart",50,200,200,255,0,0)

        if go.rect.collidepoint(mouse.get_pos()):
            go = textrect("Arial","GameOver",50,200,300,255,0,255)
            if b.type == MOUSEBUTTONDOWN:
                pygame.quit()
        else:
            go = textrect("Arial","GameOver",50,200,300,0,255,0)

            pygame.display.update()

class level1:
    #reference list
    def __init__(self):
        self.screen = pygame.display.set_mode((600, 600))

        # pygame.display.set_mode((width, height)) - This will launch a window of the
desired size
        self.blocks = []
        self.paddle = [[pygame.Rect(300, 500, 20, 10), 120],
                [pygame.Rect(320, 500, 20, 10), 100],
                [pygame.Rect(340, 500, 20, 10), 80],
                [pygame.Rect(360, 500, 20, 10), 45], ]
        self.ball = pygame.Rect(300, 500 , 5, 5)
        self.direction = -2
        self.yDirection = -1
        self.angle = 80
        self.speeds = {
            120:(-10, -3),
            100:(-10, -8),
            80:(10, -8),
            45:(10, -3),
        }
        self.swap = {
            120:45,
            45:120,
            100:80,
            80:100,
        }
        pygame.font.init()
        self.font = pygame.font.SysFont("Arial", 25)
        self.score = 0

    def createBlocks(self):
        self.blocks = []
        y = 50 # y axis of the block in the game
        for __ in range(100 // 20):
            x = 210  # x axis of the blocks in the game
            for _ in range(300 // 25 - 5):
                block = pygame.Rect(x, y, 20, 10)
                self.blocks.append(block)
                x += 30
            y += 40

    def ballUpdate(self):
        for _ in range(2):
            speed = self.speeds[self.angle]
            xMovement = True
            if _:
                self.ball.x += speed[0] * self.direction
            else:
                self.ball.y += speed[1] * self.direction * self.yDirection
                xMovement = False
            if self.ball.x <= 0 or self.ball.x >= 600: # limits where the ball can go
so it will not allow the ball to go outside of the screen
                self.angle = self.swap[self.angle]
                if self.ball.x <= 0:
                    self.ball.x = 1
                else:
                    self.ball.x = 599
            if self.ball.y <= 0:
                self.ball.y = 1
                self.yDirection *= -1

            for paddle in self.paddle:
                if paddle[0].colliderect(self.ball):
                    self.angle = paddle[1]
                    self.direction = -1
                    self.yDirection = -1
                    break
            check = self.ball.collidelist(self.blocks)
            if check != -1:
                block = self.blocks.pop(check)
                pygame.mixer.Sound.play(crash_sound)
                if xMovement:
                    self.direction *= -1
                self.yDirection *= -1
                self.score += 1
                if self.score == 35:
                    level2().main()
            if self.ball.y > 600:
                pygame.mixer.Sound.play(gameover_sound)
                end()

    def paddleUpdate(self):

        pos = pygame.mouse.get_pos()
        on = 0
        for p in self.paddle:
            p[0].x = pos[0] + 20 * on
            on += 1
    def main(self):
        pygame.mouse.set_visible(False)
        clock = pygame.time.Clock()
        self.createBlocks()
        background_image= pygame.image.load("level1.jpg").convert()
        while True:
            clock.tick(20)#as the level progresses the clock tick increases the fps
            for event in pygame.event.get():
                if event.type == QUIT:
                    sys.exit()
            self.screen.blit(background_image,[0,0])
            self.paddleUpdate()
            self.ballUpdate()

            for block in self.blocks:
                pygame.draw.rect(self.screen, (255,0,255), block)
            for paddle in self.paddle:
                pygame.draw.rect(self.screen, (255,255,255), paddle[0])
            pygame.draw.rect(self.screen, (255,255,255), self.ball)
            self.screen.blit(self.font.render(str(self.score), -1, (255,255,255)),
(300, 550))
            pygame.display.update()
class level2:
    def __init__(self):
        self.screen = pygame.display.set_mode((600, 600))
        #pygame.display.set_mode((width, height)) - This will launch a window of the
desired size
        self.blocks = []
        self.paddle = [[pygame.Rect(300, 500, 20, 10), 120],
                [pygame.Rect(320, 500, 20, 10), 100],
                [pygame.Rect(340, 500, 20, 10), 80],
                [pygame.Rect(360, 500, 20, 10), 45],]
        self.ball = pygame.Rect(300, 500 , 5, 5)
        self.direction = -2
        self.yDirection = -1
        self.angle = 80
        self.speeds = {
            120:(-10, -3),
            100:(-10, -8),
            80:(10, -8),
            45:(10, -3),
        }
        self.swap = {
            120:45,
            45:120,
            100:80,
            80:100,
        }
        pygame.font.init()
        self.font = pygame.font.SysFont("Arial", 25)
        self.score = 0

    def createBlocks(self):
        self.blocks = []
        y = 50#y axis of the block in the game
        for __ in range(200 // 20):
            x = 210  #x axis of the blocks in the game
            for _ in range(200 // 20 - 5):  #the 200 inside d bracket explains how
many blocks r there in this stage of the game
                block = pygame.Rect(x, y, 25, 10)
                self.blocks.append(block)
                x += 27
            y += 12

    def ballUpdate(self):
        for _ in range(2):
            speed = self.speeds[self.angle]
            xMovement = True
            if _:
                self.ball.x += speed[0] * self.direction
            else:
                self.ball.y += speed[1] * self.direction * self.yDirection
                xMovement = False
            if self.ball.x <= 0 or self.ball.x >= 600:
                self.angle = self.swap[self.angle]
                if self.ball.x <= 0:
                    self.ball.x = 1
                else:
                    self.ball.x = 599
            if self.ball.y <= 0:
                self.ball.y = 1
                self.yDirection *= -1

            for paddle in self.paddle:
                if paddle[0].colliderect(self.ball):
                    self.angle = paddle[1]
                    self.direction = -1
                    self.yDirection = -1
                    break
            check = self.ball.collidelist(self.blocks)
            if check != -1:
                block = self.blocks.pop(check)
                pygame.mixer.Sound.play(crash_sound)
                if xMovement:
                    self.direction *= -1
                self.yDirection *= -1
                self.score += 1
            if self.score == 50:
                winner()

            if self.ball.y > 600:
                pygame.mixer.Sound.play(gameover_sound)
                end()

    def paddleUpdate(self):

        pos = pygame.mouse.get_pos()
        on = 0
        for p in self.paddle:
            p[0].x = pos[0] + 20 * on
            on += 1
    def main(self):
        pygame.mouse.set_visible(False)
        clock = pygame.time.Clock()
        self.createBlocks()
        background_image= pygame.image.load("LEVEL2.jpg").convert()
        while True:
            clock.tick(30)
            for event in pygame.event.get():
                if event.type == QUIT:
                    sys.exit()
            self.screen.blit(background_image,[0,0])
            self.paddleUpdate()
            self.ballUpdate()

            for block in self.blocks:
                pygame.draw.rect(self.screen, (255,0,255), block)
            for paddle in self.paddle:
                pygame.draw.rect(self.screen, (255,255,255), paddle[0])
            pygame.draw.rect(self.screen, (255,255,255), self.ball)
            self.screen.blit(self.font.render(str(self.score), -1, (255,255,255)),
(400, 550))
            pygame.display.update()

def menu():
    pygame.init()
    screen= pygame.display.set_mode((320,480))
    pygame.display.set_caption('Brick Breaker')
    bg = pygame.image.load("1.JPG")
    start = textrect("Arial ","Start",30,100,130,255,255,255)
    quit = textrect("Arial","Quit",30,100,300,255,255,255)
    while True :
        screen.blit(bg,(0,0))
        text = Group(start,quit)
        text.draw(screen)
        a = event.wait()
        if start.rect.collidepoint(mouse.get_pos()):
            start = textrect("Arial","Start",30,100,130,0,0,255)
            if a.type == MOUSEBUTTONDOWN:
                level1().main()
                level2().main()

        else:
            start = textrect("Arial","Start",30,100,130,255,255,255)

        if quit.rect.collidepoint(mouse.get_pos()):
            quit = textrect("Arial","Quit",30,100,300,0,255,0)
            if a.type == MOUSEBUTTONDOWN:
               pygame.quit()
        else:
            quit = textrect("Arial","Quit",30,100,300,255,255,255)

            pygame.display.update()
menu()




if __name__ == "__main__":
    level1().main()

#reference list: GitHub. (2017). Max00355/Breakout. [online] Available at:
https://github.com/Max00355/Breakout [Accessed 6 Nov. 2017].
```