

**COMPUTER PROJECT**

**ON**

**“PYGAME”**



***SHIV ASHISH SCHOOL***

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***Certificate***

***Acknowledgement***

***Python Introduction***

* ****What is Python?****

**Python is a popular programming language. It was created by Guido van Rossum, and released in 1989.**

***Interesting fact* : Python is named after the comedy television show “Monty Python’s Flying Circus”. It is not named after the Python snake.**

**It is used for :**

* web development (server-side),
* software development,
* mathematics,
* system scripting
* data analysis,
* game development,
* desktop applications
* **What can Python do?**
* Python can be used on a server to create web applications.
* Python can be used alongside software to create workflows.
* Python can connect to database systems. It can also read and modify files.
* Python can be used to handle big data and perform complex mathematics.
* Python can be used for rapid prototyping, or for production-ready software development.
* **Why Python?**
* Python works on different platforms (Windows, Mac, Linux, etc.)
* Python has a simple syntax similar to the English language.
* Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
* Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
* Python can be treated in a procedural way, an object-oriented way or a functional way.
* **Python Syntax compared to other programming languages**
* Python was designed for readability, and has some similarities to the English language with influence from mathematics.
* Python uses new lines to complete a command, as opposed to other programming languages which often use semicolons or parentheses.
* Python relies on indentation, using whitespace, to define scope; such as the scope of loops, functions and classes. Other programming languages often use curly-brackets for this purpose.
* **Python-Pluses**

1. Easy to Use
2. Expressive Language
3. Interpreted Language
4. Free and Open Source
5. Cross-Platform Language
6. Extensive Libraries
7. Object-Oriented Language
8. Improvised Productivity
9. Advanced features
10. Automatic memory management

* **Python-Minuses (So Human Like)**

1. Not the Fastest Language
2. Lesser Libraries than C, Java, Perl
3. Not Strong on Type­Binding
4. Not Easily Convertible
5. High Memory Consumption
6. Weak in Mobile Development
7. Underdeveloped Database Access Layers

### ***Project Overview***

PingPong - A project made by Dev Radadia and Dheer Banker

The aim of the project is to create a ping-pong game with two game-modes – ‘1 Player’ and ‘2 Players’ with a smooth, intuitive gameplay.

* ***Salient Features* :**

1. The project is divided into 6 packages:
   1. ***ai*** – Contains the code governing the AI used in 1 player game-mode
   2. ***image*** – Contains the images used in the project
   3. ***r*** – Contains the screen-wise strings, resources and font styles used in aaathe project
   4. ***screens*** – Contains the code governing every screen in the project, aaaaaaaaawith a module for every screen
   5. ***sound*** – Contains the sounds used in the project
   6. ***sprites*** – Contains the different pygame drawables that have been aaaaaaaaused in the project
2. All the GUI Elements in the project are developed solely using pygame from scratch, in order to keep the GUI consistent throughout the application.
3. The project also includes various sounds in it, which are played when a button is clicked, or when the ball bounces with the paddle or the wall, etc.
4. There are a total of 6 screens in the project :
   1. ***About*** – Tells the user about the developers and the basic controls of aaaaaaaathe game
   2. ***Main*** ***Menu*** – The main screen that has options to go to the other aaaaaaaaaaaaascreens
   3. ***PlayerNames*** – The screen where players can enter their names and aaaaaaaaaaaaaaachoose their paddle colours
   4. ***Game*** – The game screen, where the players can play
   5. ***Pause*** – The screen which comes up when the game is paused, by aaaaaaaapressing ***Pause button*** or by pressing ***P***
   6. ***EndGame*** – The screen which declares the winner of the game that aaaaaaaaaaa was just played
5. Finally, all the screens are bound together by the controller code “***The Game.py***”.

***Procedural Design***

1. To start the application, click on **The Game.py** or run **The Game.py** via a Python console.
2. The main screen appears, which has three options :
   1. **Start** : Takes the user to the **Player Names** screen (details mentioned aaaaaaabelow).
   2. **About** : Takes the user to the **About** screen, which contains aaaaaaaainformation about the project and its basic controls.
   3. **Quit** : Exits the application.
3. **Player Names** screen : Here, the players can set their respective names and aaaaaaaaaaaaaaaaaaaaachoose their colours (default White). From here they aaaaaaaaaaaaaaaaaaaaacan either **Return to Main Menu** or press **Enter** to aaaaaaaaaaaaaaaaaaaaamove to the **Game** screen.
4. **Game** screen : After an initial countdown from 3 to 1, the game starts.

Players can :

* + - * 1. move their paddles using the respective controls (mentioned in **About** screen)
        2. pause the game using the ***Pause button*** or by pressing ***P***
        3. go to the main screen by pressing ***Esc***

1. **Pause** screen : Shows the current scores and has the options to **Resume, aaaaaaaaaaaaReturn to Main Menu** or **Quit**.
2. **Endgame** screen : The screen which follows when the game ends, showing aaaaaaaaaaaaaaaaathe winner’s name, and the options to **Play Again, aaaaaaaaaaaaaaaReturn to Main Menu,** or **Quit**.

***The possible screens and transitions are shown in the image below***

***Modules Used***

*User-defined Modules*

1. r.about
2. r.colors
3. r.endgame
4. r.font\_size
5. r.game
6. r.main
7. r.pause
8. r.playernames
9. screens.about
10. screens.endgame
11. screens.game
12. screens.main\_menu
13. screens.pause
14. screens.playernames
15. sprites.Ball
16. sprites.Border
17. sprites.Button
18. sprites.Label
19. sprites.Paddle
20. sprites.PauseButton
21. sprites.Textbox

*Built-In Modules*

1. pygame
2. random
3. math

***Functions Used***

1. main
2. start\_menu
3. player\_details
4. start\_game
5. pause\_game
6. launch\_endgame
7. launch\_about
8. \_\_init\_\_
9. show\_menu
10. showAbout
11. setAboutText
12. setDisplay
13. PlayerNames
14. handleColorClick
15. getPlayer1Name
16. getColor1
17. getPlayer2Name
18. getColor2
19. setColorButtons
20. playersReset
21. gameReset
22. collides
23. play
24. countdown
25. setGameObjective
26. setMovables
27. setPaddleMargin
28. setPaddleSpeed
29. setBallResetMargin
30. setBounceBias
31. setPlayer1Name
32. setPlayer2Name
33. setBounceAccelera ation
34. setPlayerColors
35. getWinnerColor
36. getWinnerName
37. getScores
38. pause\_game
39. setScores
40. setWinnerColor
41. setWinnerName
42. showEndScreen
43. bounce
44. same\_dir
45. crossed
46. ballReset
47. update
48. setResetMargin
49. setBallSpeed
50. getXSpeed
51. moveUp
52. moveDown
53. rectangle
54. draw
55. test\_surface
56. image
57. rect
58. setHighlightable
59. stayHighlighted
60. staysHighlighted
61. getTextRgb
62. handle\_event
63. define\_event
64. getText
65. setText

***The Game.py***

***r.\_\_init\_\_***

from . import game

from . import main

from . import endgame

from . import colors

from . import font\_size

from . import pause

from . import playernames

from . import about

\_\_all\_\_=['main','game', 'endgame', 'colors', 'font\_size', 'pause', 'playernames','about']

***r.about***

text\_about="This is a Pygame-Based Class-12 Project made by Dev Radadia and Dheer Banker.\n\n\nControls :-\nW and S : To move Left paddle Up and Down\nUp and Down (Arrows) : To move Right paddle Up and Down\n\n\nSet your name, choose your paddle colour, and PLAY ON !!! "

txt\_return\_btn="Return to Main Menu"

***r.colors***

BLACK = (0,0,0)

WHITE = (255,255,255)

BLUE = (19,244,239)

PINK = (240,0,255)

GREEN = (104,255,0)

YELLOW = (250,255,0)

RED =(255,0,92)

GOLD = (255,215,0)

SILVER = (192,192,192)

***r.endgame***

win\_statement=" Wins!"

play\_again\_btn\_txt="Play Again"

return\_to\_mainmenu\_button\_txt = "Return to Main Menu"

quit\_button\_txt = "Quit”

***r.font\_size***

xxxs = 20

xxs = 30

xs = 40

s = 50

m = 60

l = 80

xl = 100

xxl = 120

xxxl = 135

xxxxl = 200

***r.game***

BLACK = (0,0,0)

WHITE = (255,255,255)

BLUE = (106, 159, 181)

FPS = 60

SCREEN\_WIDTH = 900

SCREEN\_HEIGHT = 670

SCORE\_MARGIN = 70

PADDLE\_WIDTH = 12

PADDLE\_HEIGHT = 120

PADDLE\_MARGIN = 20

PADDLE\_BOUNCE\_BIAS = 80

PADDLE\_SPEED = 15

BALL\_WIDTH = 21

BALL\_HEIGHT = 21

BALL\_RESET\_Y\_MARGIN = 50

BALL\_BOUNCE\_ACC = 1.05

game\_obj\_txt = "Race to 10"

***r.main***

r\_title\_label\_txt = "Ping-Pong"

r\_start\_button\_txt = "Start"

r\_quit\_button\_txt = "Quit"

r\_about\_button\_txt = "About”

***r.pause***

paused\_label\_txt = "PAUSED"

resume\_button\_txt = "Resume"

return\_to\_mainmenu\_button\_txt = "Return to Main Menu"

quit\_button\_txt = "Quit"

***r.playernames***

playernames\_label\_txt = "Player Names"

p1\_label\_txt = "Player 1"

p2\_label\_txt = "Player 2"

name\_label\_txt = "Name :"

color\_blue\_label\_txt = "Blue"

color\_green\_label\_txt = "Green"

color\_yellow\_label\_txt = "Yellow"

color\_pink\_label\_txt = "Pink"

color\_red\_label\_txt = "Red"

return\_to\_mainmenu\_button\_txt = "Return to Main Menu"

enter\_button\_txt = "Enter"

***screens.\_\_init\_\_***

from . import game

from . import pause

from . import endgame

from . import main\_menu

from . import playernames

from . import about

\_\_all\_\_ = ['game', 'pause', 'endgame', 'main\_menu', 'playernames', 'about']

***screens.about***

import pygame

import pygame.freetype

from sprites.Border import \*

from sprites.Label import \*

from sprites.Button import \*

import r

CB\_RETURN=0

CB\_QUIT=-1

class AboutScreen():

def \_\_init\_\_(self,screen,abouttext,screen\_dimen,bg\_color,fg\_color,fontsize=r.font\_size.xxs, bg=None):

self.screen=screen

self.screen\_dimen=screen\_dimen

self.bg\_color=bg\_color

self.fg\_color=fg\_color

self.abouttext=abouttext

self.bgimg=bg

self.font=pygame.font.Font(None,fontsize)

self.clock=pygame.time.Clock()

self.setDisplay()

def showAbout(self):

exitw=False

buttons=[self.return\_btn]

while not exitw:

mouse\_up=False

for event in pygame.event.get():

if event.type==pygame.QUIT:

exitw=True

return CB\_QUIT

if event.type == pygame.MOUSEBUTTONUP and event.button == 1:

mouse\_up = True

keys=pygame.key.get\_pressed()

if keys[pygame.K\_ESCAPE]:

return CB\_RETURN

self.screen.fill(self.bg\_color)

if self.bgimg is not None:

self.screen.blit(self.bgimg,(0,0))

for button in buttons:

button\_action=button.update(pygame.mouse.get\_pos(),mouse\_up)

if button\_action is not None:

return button\_action

button.draw(self.screen)

border = Border()

border.rectangle(self.screen)

self.aboutLabel.draw()

pygame.display.flip()

self.clock.tick(30)

def setAboutText(self,abouttext):

self.abouttext=abouttext

self.aboutLabel=Label(self.screen,pygame.Rect(40,40,self.screen\_dimen[0]-80,self.screen\_dimen[1]-80),self.fg\_color,self.bg\_color,self.font,text=self.abouttext,lineSpacing=6)

def setDisplay(self):

self.return\_btn=Button((self.screen\_dimen[0]-220,self.screen\_dimen[1]-40),

text=r.about.txt\_return\_btn,

font\_size=r.font\_size.xxs,

bg\_rgb=self.bg\_color,

text\_rgb=self.fg\_color,

action=CB\_RETURN)

self.setAboutText(self.abouttext)

***screens.endgame***

import pygame

from sprites.Border import \*

from sprites.Label import \*

from sprites.Button import \*

import r

CB\_RETURN = 0

CB\_PAUSE = 1

CB\_ENDGAME = 2

CB\_QUIT = -1

CB\_PLAY = 4

class EndgameScreen():

def \_\_init\_\_(self, screen, win, screen\_dimen, bg\_color, fontsize = r.font\_size.xxl, bg=None):

self.screen = screen

self.screen\_dimen = screen\_dimen

self.bg\_color = bg\_color

self.win = win

self.font = pygame.font.Font("r\\font\_styles\Courier Bold.ttf",fontsize)

self.winnerName = ""

self.winnerColor = r.colors.WHITE

self.bgimg = bg

self.setDisplay()

def setWinnerColor(self, winnerColor):

self.winnerColor = winnerColor

self.winner\_label = Button(

center\_position=(r.game.SCREEN\_WIDTH/2, 100),

font\_size=r.font\_size.xxl,

bg\_rgb=r.colors.BLACK,

text\_rgb=self.winnerColor,

text=self.winnerName,

)

self.win\_label = Label(self.screen, pygame.Rect(225, 185, 1000 ,1000), self.winnerColor, self.bg\_color, self.font, text=self.win)

def setWinnerName(self, winnerName):

self.winnerName = winnerName

self.winner\_label = Button(

center\_position=(r.game.SCREEN\_WIDTH/2, 100),

font\_size=r.font\_size.xxl,

bg\_rgb=r.colors.BLACK,

text\_rgb=self.winnerColor,

text=self.winnerName,

)

self.win\_label = Label(self.screen, pygame.Rect(225, 185, 1000 ,1000), self.winnerColor, self.bg\_color, self.font, text=self.win)

def showEndScreen(self):

self.winner\_label.setHighlightable(False)

buttons = [self.winner\_label, self.play\_btn, self.return\_to\_mainmenu\_btn, self.quit\_btn]

while True:

mouse\_up = False

for event in pygame.event.get():

if event.type == pygame.QUIT:

return CB\_QUIT

if event.type == pygame.MOUSEBUTTONUP and event.button == 1:

mouse\_up = True

self.screen.fill(r.colors.BLACK)

if self.bgimg is not None:

self.screen.blit(self.bgimg,(0,0))

for button in buttons:

button\_action = button.update(pygame.mouse.get\_pos(), mouse\_up)

if button\_action is not None:

return button\_action

button.draw(self.screen)

border = Border()

border.rectangle(self.screen)

keys=pygame.key.get\_pressed()

if keys[pygame.K\_ESCAPE]:

return CB\_QUIT

self.win\_label.draw()

pygame.display.flip()

def setDisplay(self):

self.play\_btn = Button(

center\_position = (r.game.SCREEN\_WIDTH/2, 390),

font\_size = r.font\_size.m,

bg\_rgb = r.colors.BLACK,

text\_rgb = r.colors.WHITE,

text = r.endgame.play\_again\_btn\_txt,

action = CB\_PLAY

)

self.return\_to\_mainmenu\_btn = Button(

center\_position = (r.game.SCREEN\_WIDTH/2, 490),

font\_size = r.font\_size.m,

bg\_rgb = r.colors.BLACK,

text\_rgb = r.colors.WHITE,

text = r.endgame.return\_to\_mainmenu\_button\_txt,

action = CB\_RETURN

)

self.quit\_btn = Button(

center\_position = (r.game.SCREEN\_WIDTH/2, 590),

font\_size = r.font\_size.m,

bg\_rgb = r.colors.BLACK,

text\_rgb = r.colors.WHITE,

text = r.endgame.quit\_button\_txt,

action = CB\_QUIT,

)

***screens.game***

***screens.main\_menu***

***screens.pause***

import pygame

import r

from sprites.Border import \*

from sprites.Label import \*

from sprites.Button import \*

CB\_RETURN = 0

CB\_PLAY = 4

CB\_QUIT = -1

class PauseScreen():

def \_\_init\_\_(self, screen, pause, screen\_dimen, bg\_color, fg\_color, fontsize1 = r.font\_size.xxl, fontsize2 = r.font\_size.m, bg=None):

self.screen = screen

self.screen\_dimen = screen\_dimen

self.bg\_color = bg\_color

self.fg\_color = fg\_color

self.pause = pause

self.font1 = pygame.font.Font("r\\font\_styles\Courier Italic.ttf", fontsize1)

self.font2 = pygame.font.Font("r\\font\_styles\Courier.ttf", fontsize2)

self.scores = (0,0)

self.setDisplay()

self.bgimg = bg

def pause\_game(self):

buttons = [self.resume\_btn, self.quit\_btn, self.return\_to\_mainmenu\_btn]

while True:

mouse\_up = False

for event in pygame.event.get():

if event.type == pygame.MOUSEBUTTONUP and event.button == 1:

mouse\_up = True

self.screen.fill(r.game.BLACK)

if self.bgimg is not None:

self.screen.blit(self.bgimg,(0,0))

for button in buttons:

button\_action = button.update(pygame.mouse.get\_pos(), mouse\_up)

if button\_action is not None:

return button\_action

button.draw(self.screen)

keys = pygame.key.get\_pressed()

if keys[pygame.K\_r]:

return CB\_PLAY

border = Border()

border.rectangle(self.screen)

self.pause\_label.draw()

self.score\_label.draw()

pygame.display.flip()

def setDisplay(self):

self.pause\_label = Label(self.screen, pygame.Rect(230, 70, 1000 ,1000), self.fg\_color, self.bg\_color, self.font1, text=self.pause)

self.score\_label = Label(self.screen, pygame.Rect(360, 250, 1000 ,1000), self.fg\_color, self.bg\_color, self.font2, text=str(self.scores[0])+" : "+str(self.scores[1]))

self.resume\_btn = Button(

center\_position = (r.game.SCREEN\_WIDTH/2, 385),

font\_size = r.font\_size.m,

bg\_rgb = r.colors.BLACK,

text\_rgb = r.colors.WHITE,

text = r.pause.resume\_button\_txt,

action=CB\_PLAY,

)

self.return\_to\_mainmenu\_btn = Button(

center\_position = (r.game.SCREEN\_WIDTH/2, 485),

font\_size = r.font\_size.m,

bg\_rgb = r.colors.BLACK,

text\_rgb = r.colors.WHITE,

text = r.pause.return\_to\_mainmenu\_button\_txt,

action=CB\_RETURN,

)

self.quit\_btn = Button(

center\_position = (r.game.SCREEN\_WIDTH/2, 585),

font\_size = r.font\_size.m,

bg\_rgb = r.colors.BLACK,

text\_rgb = r.colors.WHITE,

text = r.pause.quit\_button\_txt,

action = CB\_QUIT,

)

def setScores(self,a):

self.scores=a

self.score\_label = Label(self.screen, pygame.Rect(360, 250, 1000 ,1000), self.fg\_color, self.bg\_color, self.font2, text=str(self.scores[0])+" : "+str(self.scores[1]))

***screens.playernames***

***sprites.\_\_init\_\_***

from . import Ball

from . import Paddle

from . import Border

from . import Button

from . import Textbox

from . import Label

\_\_all\_\_ = ['Ball', 'Paddle', 'Border', 'Button', 'Textbox', 'Label']

***sprites.Ball***

import pygame

import random

import math

ball\_color\_default = (255,255,255)

class Ball(pygame.sprite.Sprite):

def \_\_init\_\_(self, ball\_dimen, screen\_dimen, paddle\_dimen, score\_margin):

super().\_\_init\_\_()

self.image = pygame.Surface([ball\_dimen[0] , ball\_dimen[1]], pygame.SRCALPHA)

pygame.draw.circle(self.image, ball\_color\_default, (ball\_dimen[0]//2, ball\_dimen[0]//2),ball\_dimen[0]//2)

self.rect = self.image.get\_rect()

self.speed = 0

self.x = 0

self.y = 0

self.px = 0

self.py = 0

self.direction = 0

self.bounce\_bias = 0

self.reset\_margin = 0

self.ball\_dimen = ball\_dimen

self.screen\_dimen = screen\_dimen

self.paddle\_dimen = paddle\_dimen

self.score\_margin = score\_margin

self.bounceSound=pygame.mixer.Sound('sound/bounce1.wav')

self.crossedSound=pygame.mixer.Sound('sound/bounce2.wav')

self.ballReset()

def bounce(self,b\_param):

p\_dir=self.direction

self.direction = (180-self.direction)%360

if not self.same\_dir(p\_dir,self.direction + (b\_param/self.paddle\_dimen[1])\*self.bounce\_bias):

self.direction += (b\_param/self.paddle\_dimen[1])\*self.bounce\_bias

def same\_dir(self,dir1,dir2):

dir1=dir1%360

dir2=dir2%360

r1=-1

r2=-1

if (dir1<=90 and dir2>=0) or (dir1>=270 and dir1<=360):

r1=1

if (dir2<=90 and dir2>=0) or (dir2>=270 and dir2<=360):

r2=1

return r1==r2

def crossed(self,xcor):

return (((self.x+self.px)/2-xcor)\*((self.px+self.ppx)/2-self.getXSpeed()-xcor) < 0)

def ballReset(self):

self.speed = 4.0

self.y = random.randrange(self.reset\_margin + self.score\_margin , self.screen\_dimen[1] - self.reset\_margin)

self.x = self.screen\_dimen[0]/2 - self.ball\_dimen[0]/2

self.py = self.y

self.px = self.x

self.direction = random.randrange(-45,45)

if random.randrange(2) == 0:

self.direction += 180

def update(self):

rads = math.radians(self.direction)

self.ppx=self.px

self.ppy=self.py

self.px=self.x

self.py=self.y

self.x += math.cos(rads) \* self.speed

self.y -= math.sin(rads) \* self.speed

if self.x < -self.ball\_dimen[0]\*5 or self.x > self.screen\_dimen[0] + self.ball\_dimen[0]\*5:

self.crossedSound.play()

self.ballReset()

self.rect.x = int(self.x)

self.rect.y = int(self.y)

if self.y <= self.score\_margin:

self.bounceSound.play()

self.direction = (360-self.direction)%360

self.y = 1 + self.score\_margin

if self.y >= self.screen\_dimen[1] - self.ball\_dimen[1]:

self.bounceSound.play()

self.direction = (360-self.direction)%360

self.y = self.screen\_dimen[1] - self.ball\_dimen[1] - 1

def setBounceBias(self, bias):

self.bounce\_bias = bias

def setResetMargin(self, margin):

self.reset\_margin = margin

def setBallSpeed(self, speed):

self.speed = speed

def getXSpeed(self):

return math.cos(math.radians(self.direction)) \* self.speed

***sprites.Border***

import pygame

import r

class Border(pygame.sprite.Sprite):

def rectangle(self, screen):

pygame.draw.line(screen, r.colors.WHITE, [0,0],[r.game.SCREEN\_WIDTH,0], 5)

pygame.draw.line(screen, r.colors.WHITE, [r.game.SCREEN\_WIDTH,0],[r.game.SCREEN\_WIDTH,r.game.SCREEN\_HEIGHT], 5)

pygame.draw.line(screen, r.colors.WHITE, [r.game.SCREEN\_WIDTH,r.game.SCREEN\_HEIGHT],[0,r.game.SCREEN\_HEIGHT], 5)

pygame.draw.line(screen, r.colors.WHITE, [0,r.game.SCREEN\_HEIGHT],[0,0], 5)

***sprites.Button***

import pygame

from pygame.sprite import Sprite

from pygame.rect import Rect

def text\_surface(text, font\_size, text\_rgb, bg\_rgb):

pygame.init()

font = pygame.freetype.SysFont("Courier", font\_size, bold=True)

font.pad=True

surface, \_ = font.render(text=text, fgcolor=text\_rgb, bgcolor=bg\_rgb)

return surface.convert\_alpha()

class Button(Sprite):

def \_\_init\_\_(self, center\_position, text, font\_size, bg\_rgb, text\_rgb, action=None):

self.mouse\_over = False

self.text\_rgb=text\_rgb

default\_image = text\_surface(text=text, font\_size=font\_size, text\_rgb=text\_rgb, bg\_rgb=None)

selected\_image = text\_surface(text=text, font\_size=font\_size \* 1.2, text\_rgb=bg\_rgb, bg\_rgb=text\_rgb)

highlighted\_image = text\_surface(text=text, font\_size=font\_size \* 1.2, text\_rgb=text\_rgb, bg\_rgb=None)

self.images = [default\_image, selected\_image, highlighted\_image]

self.rects = [default\_image.get\_rect(center=center\_position),

selected\_image.get\_rect(center=center\_position),

highlighted\_image.get\_rect(center=center\_position)]

self.action = action

self.highlightable = True

self.stay\_highlighted=False

super().\_\_init\_\_()

@property

def image(self):

if self.stay\_highlighted:

return self.images[1]

if self.mouse\_over:

return self.images[2]

return self.images[0]

@property

def rect(self):

if self.stay\_highlighted:

return self.rects[1]

if self.mouse\_over:

return self.rects[2]

return self.rects[0]

def update(self, mouse\_pos, mouse\_up):

if not self.highlightable:

return

if self.rect.collidepoint(mouse\_pos):

self.mouse\_over = True

if mouse\_up:

click = pygame.mixer.Sound('sound/click3.wav')

click.play()

return self.action

else:

self.mouse\_over = False

def draw(self, surface):

surface.blit(self.image, self.rect)

def setHighlightable(self, highlightable):

self.highlightable = highlightable

def stayHighlighted(self,stay):

self.stay\_highlighted=stay

def staysHighlighted(self):

return self.stay\_highlighted

def getTextRgb(self):

return self.text\_rgb

***sprites.Label***

import pygame

class Label():

def \_\_init\_\_(self,screen,limitRect,fg\_color,bg\_color,font,text="",lineSpacing=-2):

self.limitRect=pygame.Rect(limitRect)

self.screen=screen

self.fg\_color=fg\_color

self.bg\_color=bg\_color

self.font=font

self.text=text

self.lineSpacing=lineSpacing

def draw(self):

fh=self.font.size("Tg")[1]

blit\_list=[]

j=0

temptxt=self.text

i=1

flag=True

while temptxt and (len(blit\_list)\*(fh+self.lineSpacing)<=self.limitRect.height):

if temptxt[0] == '\n':

for x in range(1,len(temptxt)):

if temptxt[x]!='\n':

break

blit\_list.append("")

temptxt=temptxt[x:]

continue

i=1

flag=True

while self.font.size(temptxt[:i])[0] < self.limitRect.width and i < len(temptxt) and flag:

i+=1

if temptxt[i-1]=='\n':

flag=False

if i<len(temptxt) and flag:

i=temptxt.rfind(" ",0,i)+1

if not flag:

i-=1

blit\_list.append(temptxt[:i])

temptxt=temptxt[i:]

y=self.limitRect.top

for st in blit\_list:

image=self.font.render(st,1,self.fg\_color)

self.screen.blit(image,(self.limitRect.left,y))

y+=fh+self.lineSpacing

def setText(self,text):

self.text=text

***sprites.Paddle***

import pygame

class Paddle(pygame.sprite.Sprite):

def \_\_init\_\_(self, screen\_dimen, paddle\_dimen, score\_margin, color):

super().\_\_init\_\_()

self.image = pygame.Surface([paddle\_dimen[0],paddle\_dimen[1]])

self.image.fill(color)

self.screen\_dimen=screen\_dimen

self.paddle\_dimen=paddle\_dimen

self.score\_margin=score\_margin

self.rect = self.image.get\_rect()

def moveUp(self,pixels):

self.rect.y -= pixels

if self.rect.y < self.score\_margin + 3:

self.rect.y = self.score\_margin + 3

def moveDown(self,pixels):

self.rect.y += pixels

if self.rect.y > self.screen\_dimen[1] - self.paddle\_dimen[1]:

self.rect.y = self.screen\_dimen[1] - self.paddle\_dimen[1]

***sprites.PauseButton***

import pygame

from pygame.sprite import Sprite

from pygame.rect import Rect

from r.game import \*

class PauseButton(Sprite):

def \_\_init\_\_(self, action = None):

pygame.init()

self.pausebutton = pygame.image.load('image\image.png')

self.pb = pygame.transform.scale(self.pausebutton, (50,50))

self.mouse\_over = False

self.rect = self.pb.get\_rect(center = (SCREEN\_WIDTH/2, 35))

self.action = action

self.clickSound=pygame.mixer.Sound('sound/click3.wav')

super().\_\_init\_\_()

def update(self, mouse\_pos, mouse\_up):

if self.rect.collidepoint(mouse\_pos):

self.mouse\_over = True

if mouse\_up:

self.clickSound.play()

return self.action

else:

self.mouse\_over = False

def draw(self, surface):

surface.blit(self.pb, self.rect)

***sprites.Textbox***

import pygame

import r

pygame.init()

class Textbox:

def \_\_init\_\_(self, x, y, width, height, fontsize=r.font\_size.xxs+1, maxlength=12, text='', textcolor=r.colors.BLACK, inactivebordercolor=r.colors.SILVER, activebordercolor=r.colors.GOLD):

self.rect = pygame.Rect(x, y, width, height)

self.color = inactivebordercolor

self.inactivecolor = inactivebordercolor

self.textcolor = textcolor

self.activecolor = activebordercolor

self.maxlength = maxlength

self.text = text

self.fontsize = fontsize

self.font=pygame.font.Font(None, self.fontsize)

self.txt\_surface = self.font.render(text, True, self.color)

self.txt\_surface.set\_alpha(0)

self.active = False

self.repeater\_count={}

self.nr\_init=400

self.nr\_inter=35

self.clock=pygame.time.Clock()

def handle\_event(self, events):

for event in events:

self.define\_event(event)

for k in self.repeater\_count:

self.repeater\_count[k][0] += self.clock.get\_time()

if self.repeater\_count[k][0] >= self.nr\_init:

self.repeater\_count[k][0] = (self.nr\_init - self.nr\_inter)

e\_key, e\_uni = k, self.repeater\_count[k][1]

pygame.event.post(pygame.event.Event(pygame.KEYDOWN, key=e\_key, unicode=e\_uni))

self.text\_surface = self.font.render(self.text, True, self.textcolor)

self.clock.tick()

def define\_event(self, event):

if event.type == pygame.MOUSEBUTTONDOWN:

if self.rect.collidepoint(event.pos):

click = pygame.mixer.Sound('sound/click3.wav')

click.play()

self.active = True

self.color = self.activecolor

else:

self.active = False

self.color = self.inactivecolor

if self.active:

if event.type == pygame.KEYDOWN:

if event.key not in self.repeater\_count:

self.repeater\_count[event.key]=[0,event.unicode]

if event.key == pygame.K\_DELETE:

self.text = ''

elif event.key == pygame.K\_BACKSPACE:

self.text = self.text[:-1]

elif event.key in [pygame.K\_TAB, pygame.K\_ESCAPE]:

pass

else:

if len(self.text) < self.maxlength:

self.text += event.unicode

elif event.type==pygame.KEYUP:

del self.repeater\_count[event.key]

def draw(self, screen):

pygame.draw.line(screen, r.colors.WHITE, (self.rect.x+2,self.rect.y+self.rect.height/2), (self.rect.x+self.rect.width-2,self.rect.y+self.rect.height/2), 30)

pygame.draw.rect(screen, self.color, self.rect, 4)

screen.blit(self.text\_surface, (self.rect.x+5, self.rect.y+5))

def getText(self):

return self.text



























