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**Introduction**

Fvuhsuhiuvhiufh

**System Requirements**

**Requirements to execute .exe file:**

1. Operating System: Windows XP or higher
2. CPU Requirements: 1.6 GHz or higher
3. Memory Requirements: 500 MB RAM

**Requirements to run Python file:**

1. Python 2.7.x 32 bit Version
2. Python IDLE or any other Python Interpreter
3. Pygame Module: Version 1.9.1 or higher

**Basic Algorithm**

Step 1: Start.

Step 2: Load images, sounds and music.

Step 3: Create superman object.

Step 4: Create platform objects.

Step 5: Create coin objects.

Step 6: Initialize fonts and variables.

Step 7: Start main loop of game.

Step 8: Check whether a platform is present under superman.

If yes, proceed to Step 9a.

Else, proceed to Step 9b.

Step 9a: Continue as per Step 8.

Step 9b: Make superman go down and continue as per step 8.

Step 10: Check whether superman touches a coin.

If yes, increment coin counter and score.

Step 11: Check user input and make superman fly if possible.

Step 12: Check if user exits or if superman falls into lava.

If yes, then go to step 13.

Else, go to step 8.

Step 13: Then exit main loop of game and go to high scores.

Step 14: Check if user exits, then go to Step 15.

Step 15: Stop.

**Modules and Library Functions**

**Modules Imported:**

1. Pygame
2. Sys
3. Time
4. Random

**Library Functions:**

1. Len
2. Raw\_input
3. Remove
4. Next

**User Defined Classes and Functions**

**User Defined Classes:**

1. MainChar
2. Coins
3. Plat

**User Defined Functions:**

1. Platgen
2. Bi
3. Hscore
4. Dispscore
5. Getname
6. Pixelator
7. Logo
8. Menu
9. Quitter

**Source Code**

The Python source code for the program is as follows:

“””

import pygame,sys

import time, random

from pygame.locals import \*

pygame.init()

"""Initial definitions of global varibales for screen setup and images of each object"""

scrwidth = 640

scrheight = 360

scr = pygame.display.set\_mode((scrwidth,scrheight),0,32)

pwidth = 150 #sizes of the platform images

pheight = 40

cwidth = 20 #sizes of the coin images

cheight = 20

skwidth = 80

skheight = 36

#Colours

BLACK = (0,0,0)

GREEN = (0,255,0)

RED = (255,0,0)

YELLOW = (255,255,0)

WHITE = (255,255,255)

#better to have pics which require high resolution in jpg

#pics which are small in size/res can be in png instead

back = "backt.jpg"

platimg = "platform2t.png"

supermanimg = "superman2t.png"

supermanupimg = "supermanupt.png"

supermandownimg = "supermandownt.png"

inst = "Instructions.png"

sto = "Story.png"

coin1 = "coin1.png"

coin10 = "coin10.png"

coin5 = "coin5.png"

lavaimg = "lava.png"

#supermanslantimg = "superman2.jpg" # for 'jumping'

#must convert images to use in pygame

spimg = pygame.image.load(supermanimg).convert\_alpha() # Normal

spUpimg = pygame.image.load(supermanimg).convert\_alpha() # Move Up

spDownimg = pygame.image.load(supermanimg).convert\_alpha() # Move Down

corner = spimg.get\_at((0, 0))

spimg.set\_colorkey(corner, RLEACCEL)

angle = 5

spUpimg = pygame.transform.rotate(spUpimg, angle)

spDownimg = pygame.transform.rotate(spDownimg, -angle)

corner = spUpimg.get\_at((0, 0))

spUpimg.set\_colorkey(corner, RLEACCEL)

corner = spDownimg.get\_at((0, 0))

spDownimg.set\_colorkey(corner, RLEACCEL)

coin1 = pygame.image.load(coin1).convert\_alpha()

coin10 = pygame.image.load(coin10).convert\_alpha()

coin5 = pygame.image.load(coin5).convert\_alpha()

corner = coin1.get\_at((0, 0))

coin1.set\_colorkey(corner, RLEACCEL)

corner = coin10.get\_at((0, 0))

coin10.set\_colorkey(corner, RLEACCEL)

corner = coin5.get\_at((0, 0))

coin5.set\_colorkey(corner, RLEACCEL)

instr = pygame.image.load(inst).convert()

story = pygame.image.load(sto).convert()

background = pygame.image.load(back).convert()

platimg = pygame.image.load(platimg).convert\_alpha()

lava = pygame.image.load(lavaimg).convert\_alpha()

#sp2img = pygame.image.load(supermanslantimg).convert()

#Font Defintions

up = 'up'

centre = 'centre'

down = 'down'

font1 = pygame.font.SysFont('Arial', 18)

font2 = pygame.font.SysFont('Arial', 20)

font2.set\_bold(True)

font3 = pygame.font.SysFont('Arial', 40)

font4 = pygame.font.SysFont('Arial', 28)

font5 = pygame.font.SysFont('Arial', 18)

font6 = pygame.font.SysFont('Castellar', 32)

font7 = pygame.font.SysFont('Rockwell', 32)

font8 = pygame.font.SysFont('Monaco', 30)

font8.set\_bold(True)

font9 = pygame.font.SysFont('Monaco', 22)

font10 = pygame.font.SysFont('Arial', 28)

font10.set\_bold(True)

studio\_red, studio\_green, studio\_blue = 50,125,225

game\_red, game\_green, game\_blue = 175, 50, 175

#Class Definitions

class MainChar(pygame.sprite.Sprite):

""" Class MainChar determines the behavior and properties of Superman

Retrieves Image for Superman and derives from Sprite Class to check for collisions"""

flightstate = False

alive = True

def \_\_init\_\_(self):

pygame.sprite.Sprite.\_\_init\_\_(self)

self.image = spimg

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

self.rect.x = 100 # Initially it was 30

self.rect.y = ((scrheight + 20 )/2) - skheight

self.true\_y = 0

def update(self,dsy):

self.true\_y += dsy

def x\_y(self,sx, sy):

self.rect.x = sx

self.rect.y = sy

def dx\_dy(self,dsx, dsy):

self.rect.x += dsx

self.rect.x += dsy

def default(self):

self.image = spimg

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

self.rect.x = 100 # Initially it was 30

self.rect.y = ((scrheight + 20 )/2) - skheight

self.true\_y = 0

class Coins(pygame.sprite.Sprite):

"""Class Coins for coin objects and the functions, movement

and values of coins in the game. Derived from Sprite Class to detect collisions"""

clist = []

sound = pygame.mixer.Sound('coin1.wav')

ctime = time.time()

rt = 8 # time for second coin after first

def \_\_init\_\_(self,px,py,n):

pygame.sprite.Sprite.\_\_init\_\_(self)

if n == 1:

self.image = coin1

self.type = 1

elif n == 5:

self.image = coin5

self.type = 5

elif n == 10:

self.image = coin10

self.type = 10

pygame.sprite.Sprite.\_\_init\_\_(self)

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

self.rect.x = px

self.rect.y = py

def update(self,dpx,dpy):

self.rect.x += dpx

self.rect.y += dpy

if self in Coins.clist and self.rect.x < -(cwidth) :

Coins.clist.remove(self)

splist.remove(self)

del self

@staticmethod

def generate():

r1 = [1,2,2,3,3,3,4,4,4,5,5,5,5,6,6,6,5,5,8,8,8,8,10,12,12]

r2 = [1]\*4+[5]

rt = random.choice(r1)

Coins.rt = random.choice(r1)

Coins.ctime = time.time()

gen = False

while not(gen):

ycoin = yabs + random.randint(-100,100)

c = Coins(scrwidth+30, ycoin, random.choice(r2))

gen = Coins.checkcollide(c)

Coins.clist += [c]

@staticmethod

def checkcollide(c):

splist.add(c)

for i in Plat.plist:

for j in Plat.plist[i]:

if pygame.sprite.collide\_rect(c, j):

splist.remove(c)

return False

return True

class Plat(pygame.sprite.Sprite):

""" Class Plat for all platform objects and controls movement and image blitted"""

pos = [up, centre, down]

plist = {up : [], centre : [], down : []}

pyabs = {up : -200, centre : 0, down : 200}

endcoor = {up : 0, centre : 0, down : 0} # The ending x-coordinate of the last platform

height\_flag = {up : False, centre : False, down : False}

# This determines whether the blocks added continuously

# are added at the same height

def \_\_init\_\_(self,px,py,position):

pygame.sprite.Sprite.\_\_init\_\_(self)

self.image = platimg

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

self.rect.x = px

self.rect.y = py

Plat.plist[position] += [self]

Plat.endcoor[position] = px + pwidth # This gives the ending

# x-coordinate of the last added platform

def update(self,dpx,dpy):

self.rect.x += dpx

self.rect.y += dpy

for position in Plat.plist:

if self in Plat.plist[position] and self.rect.x < -(pwidth) :

Plat.plist[position].remove(self)

splist.remove(self)

del self

break

def \_\_del\_\_(self):

pass

############################################################################

#User Defined Functions

def Platgen(yabs, sigma,position):

"""Generates the each of the platforms at one position and accepts location variables"""

global Plat

# plat\_num is a list that contins the values - 1,2,3 with

# different frequencies.

num = random.choice(plat\_num) # num determines the number of plates

# that will be added continuously in one go

if random.choice(existlist):

# Here, the plates are added continuously at the same height

fixed\_height = random.gauss( yabs + Plat.pyabs[position] - 30, sigma)

for i in range(num):

platform = Plat( scrwidth + i\*pwidth , fixed\_height, position)

splist.add(platform)

Plat.height\_flag[position] = True

# Here, height\_flag is True. Thus, more plates will be added

# after leaving some space. Otherwise it becomes inconvenient.

else:

# Here, the plates are added continuously at different heights

for i in range(num):

platform = Plat( scrwidth + i\*pwidth , random.gauss( yabs + Plat.pyabs[position]- 30, sigma), position)

splist.add(platform)

Plat.height\_flag[position] = False

# Here, height\_flag is False. Thus, more plates can be added

# immediately.

def quitter(score):

"""Function to handle the quitting of game and calls for highscore and displaying it"""

global alive

alive = False

txt1 = font3.render('YOU DIED!', True, WHITE)

txt2 = font1.render('Click to continue', True, WHITE)

txt3 = font1.render('Your score is: ' + str(int(score)), True, WHITE)

scr.blit(txt1, ((scrwidth-txt1.get\_width())/2, int(scrheight/2.5)))

scr.blit(txt2, ((scrwidth-txt2.get\_width())/2, int(scrheight/2.5)+70))

scr.blit(txt3, ((scrwidth-txt3.get\_width())/2, int(scrheight/2.5+145)))

flag = True

while flag:

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

elif event.type == MOUSEBUTTONDOWN:

scr.blit(background,(0,0))

hscore(score)

dispscore()

flag = False

break

elif event.type == KEYDOWN:

if event.key == K\_RETURN:

scr.blit(background,(0,0))

hscore(score)

dispscore()

flag = False

break

pygame.display.update()

def bi(n):

"""Converts decimal number n to binary equivalent"""

b,p=0,1

while n>0:

m=n%2

b+=m\*p

p\*=10

n//=2

return b

def hscore(n):

"""Checks if new highscore is applicable, writes over

Checks for Errors and tampering by external sources as well"""

n = int(n)

while True:

try:

b = db = vc = hsr = 0

f = open("HScore.bin","rb")

d = f.read()

f.close()

if d == "#\#001":

b = hsr =001

db = 1

else:

dec,last = 0,0

for i in range(len(d)):

if d[i:i+3] == "#\#":

dec += 1

last = i

for i in range(len(d)):

if 47<ord(d[i])<58 and db == 1 and vc == 1:

hsr = hsr\*10+int(d[i])

if 47<ord(d[i])<58 and db == dec and vc == 1:

b = b\*10+int(d[i])

elif d[i:i+3] == "#\#":

db += 1

vc = 0

elif d[i:i+2]=="AF":

vc = 1

if (int(str(b//100),2)%9999999967) != 0 or (int(str(hsr//100),2)%9999999967)!=0:

raise ValueError("Tampered file!")

s = (int(str(b//100),2)/9999999967)

if (n >= s or dec < 5) and n!=0:

nam = getname()

tnam = "F/"

for i in nam:

tnam = tnam+str(bi(ord(i)\*137))+"/"

nam = tnam+"AF"

if db == 1 and s == 0:

f = open("HScore.bin","wb")

f.write("#\#"+nam+"//"+str(bi(n\*9999999967)\*100+len(str(n))))

f.close()

else:

f = open("HScore.bin","rb")

d = f.read()

f.close()

j = flag = i = 0

while i <len(d):

if d[i:i+3] == "#\#":

j = i

dec = ""

if d[i:i+4] == "AF//":

i += 4

while (d[i:i+3]!="#\#" and i<len(d)):

dec += d[i]

i += 1

dec = int(dec)

i -= 1

if (int(str(dec//100),2)/9999999967)<n:

flag = 1

break

i += 1

if db == 5:

d = d[:last]

f = open('HScore.bin',"wb")

if flag:

f.write(d[:j]+"#\#"+nam+"//"+str(bi(n\*9999999967)\*100+len(str(n)))+d[j:])

else:

f.write(d+"#\#"+nam+"//"+str(bi(n\*9999999967)\*100+len(str(n))))

f.close()

else:

scr.blit(font4.render('High score:' + str(int(str(hsr//100),2)/9999999967), True, (255,255,255)), (scrwidth//2.5-50, int(scrheight/2.5)+55))

break

except:

f = open("HScore.bin","wb")

f.write("#\#001")

f.close()

def dispscore1():

"""Function for simple viewing of highscores only

Also checks for tampering from external sources"""

while True:

try:

f = open('HScore.bin',"rb")

d = f.read()

f.close()

break

except:

f = open("HScore.bin","wb")

f.write("#\#001")

f.close

i = 0

scr.blit(background,(0,0))

sl=0

linespace = 40

scrwidth = 640

scrheight = 360

if d == "#\#001":

scr.blit(font4.render("No Scores Yet On This Device", True, (255,255,255)), (scrwidth//2.5-80, int(scrheight/2.5)))

sl = 3

else:

l = []

size = sznstr = 0

while i < len(d):

if d[i] == "#":

sl += 1

nstr = b = ""

i += 5

while d[i] != "A":

while d[i].isdigit():

b += d[i]

i += 1

nstr += chr(int(b,2)/137)

i += 1

b = ''

i += 4

while i < len(d):

b += d[i]

if i+1==len(d) or d[i] == "#":

b = b[:-3]

i-=2

break

i+=1

b = int(b,2)/9999999967

if i == len(d) -3:

b \*= 2

l += [[sl , nstr , b]]

txt1 = font4.render(str(sl)+nstr + str(b), True, (255,255,255))

if size < sznstr:

sznstr = font4.render(nstr, True, (255,255,255)).get\_width()

size = sznstr

txt2 = font4.render(str(sl)+nstr + str(b), True, (255,255,255))

if size < txt1.get\_width():

size = txt1.get\_width()+3

sznstr = font4.render(nstr, True, (255,255,255)).get\_width()

centre = scrwidth//2

if i == len(d) -3:

for j in l:

if j[0] == 1:

txt1 = font4.render("SL No.", True, (255,255,255))

txt2 = font4.render("NAME", True, (255,255,255))

txt3 = font4.render("SCORE", True, (255,255,255))

half = sznstr//2

nsx = (centre - half)+(sznstr-txt2.get\_width())/2

scr.blit(txt1, (nsx-90, int(scrheight/4.5)-20))

scr.blit(txt2, (((nsx+10, int(scrheight/4.5)-20))))

scr.blit(txt3, (nsx+half+60, int(scrheight/4.5)-20))

txt4 = font4.render(str(j[0]), True, (255,255,255))

txt5 = font4.render(j[1], True, (255,255,255))

txt6 = font4.render(str(j[2]), True, (255,255,255))

half = (txt5.get\_width())//2

nsx = (centre - half)+(sznstr-txt5.get\_width())/2

scr.blit(txt4, (nsx-58, int(scrheight/4.5)+j[0]\*linespace-15))

scr.blit(txt5, (nsx, int(scrheight/4.5)+j[0]\*linespace-15))

scr.blit(txt6, (nsx+half+80, int(scrheight/4.5)+j[0]\*linespace-15))

i += 1

scr.blit(font1.render('Click to continue', True, WHITE), (scrwidth//2.5+23, int(scrheight/4.5)+(sl+1)\*(linespace)))

pygame.display.update()

flag = True

while flag:

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

elif event.type == MOUSEBUTTONDOWN:

flag = False

break

elif event.type == KEYDOWN:

if event.key == K\_RETURN:

flag = False

break

def dispscore():

"""Function for simple viewing of highscores only

Also checks for tampering from external sources"""

while True:

try:

f = open('HScore.bin',"rb")

d = f.read()

f.close()

break

except:

f = open("HScore.bin","wb")

f.write("#\#001")

f.close

i = 0

scr.blit(background,(0,0))

sl=0

linespace = 40

scrwidth = 640

scrheight = 360

if d == "#\#001":

scr.blit(font4.render("No Scores Yet On This Device", True, (255,255,255)), (scrwidth//2.5-80, int(scrheight/2.5)))

sl = 3

else:

l1,l2 = ["NAME"], ["SCORE"]

l = [["SL No.","NAME","SCORE"]]

size = sznstr = 0

while i < len(d):

if d[i] == "#":

sl += 1

nstr = b = ""

i += 5

while d[i] != "A":

while d[i].isdigit():

b += d[i]

i += 1

nstr += chr(int(b,2)/137)

i += 1

b = ''

i += 4

while i < len(d):

b += d[i]

if i+1==len(d) or d[i] == "#":

b = b[:-3]

i-=2

break

i+=1

b = int(b,2)/9999999967

if i == len(d) -3:

b \*= 2

l += [[sl , nstr , b]]

l1 += [nstr]

l2 += [str(b)]

i += 1

centre = scrwidth//2

bsx = bnx = 0

for i in range(len(l1)):

if font4.render(l2[i], True, (255,255,255)).get\_width() > bsx:

bsx = font4.render(l2[i], True, (255,255,255)).get\_width()

if font4.render(l1[i], True, (255,255,255)).get\_width() > bnx:

bnx = font4.render(l1[i], True, (255,255,255)).get\_width()

halfn = bnx/2

halfs = bsx/2

for j in l:

if j[0] == "SL No.":

txt1 = font10.render("SL No.", True, (255,255,255))

txt2 = font10.render("NAME", True, (255,255,255))

txt3 = font10.render("SCORE", True, (255,255,255))

nsx = centre - halfn

cn = (bnx-txt2.get\_width())/2

nnx = centre +halfn

cs = (bsx-txt3.get\_width())/2

scr.blit(txt1, (nsx-110, int(scrheight/4.5)-20))

scr.blit(txt2, (((nsx + cn, int(scrheight/4.5)-20))))

scr.blit(txt3, (nnx+cs+50, int(scrheight/4.5)-20))

continue

txt4 = font4.render(str(j[0])+".", True, (255,255,255))

txt5 = font4.render(j[1], True, (255,255,255))

txt6 = font4.render(str(j[2]), True, (255,255,255))

nsx = centre - halfn

cn = (bnx-txt5.get\_width())/2

nnx = centre + halfn

cs = (bsx-txt6.get\_width())/2

scr.blit(txt4, (nsx-80, int(scrheight/4.5)+j[0]\*linespace-15))

scr.blit(txt5, (nsx+cn, int(scrheight/4.5)+j[0]\*linespace-15))

scr.blit(txt6, (nnx+cs+53, int(scrheight/4.5)+j[0]\*linespace-15))

scr.blit(font1.render('Click to continue', True, WHITE), (scrwidth//2.5+23, int(scrheight/4.5)+(sl+1)\*(linespace)))

pygame.display.update()

flag = True

while flag:

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

elif event.type == MOUSEBUTTONDOWN:

flag = False

break

elif event.type == KEYDOWN:

if event.key == K\_RETURN:

flag = False

break

def getname():

"""Function to retreive name from pygame window with input inside a box"""

nstr = key = ''

blink = ["|"," "]

bl = 0

blt = time.time()

while True:

txt = font4.render(nstr + blink[bl], 1, (255,255,255))

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

elif event.type == KEYDOWN:

key = event.key

if key == K\_RETURN:

return nstr

elif key == K\_BACKSPACE:

nstr = nstr[:-1]

elif key<=127:

twidth = txt.get\_width()

if twidth < 224:

nstr += chr(key)

else:

nstr = nstr[:-1] + chr(key)

if time.time() - blt > 0.4 :

bl += 1

bl %= 2

blt = time.time()

txt = font4.render(nstr + blink[bl], 1, (255,255,255))

scr.blit(background,(0,0))

scr.blit(font4.render('You got a new high score!', True, WHITE), (scrwidth//2.5-70, int(scrheight/3.5)))

scr.blit(font4.render("Enter your Name:", 1, WHITE),((scrwidth / 2) - 240, (scrheight / 2)-13))

pygame.draw.rect(scr, (0,0,0),((scrwidth / 2) - 50,(scrheight / 2) - 10,230,32), 0)

pygame.draw.rect(scr, (255,255,255),((scrwidth / 2) - 50,(scrheight/ 2) - 12,230,34), 1)

nstr = nstr.title()

#Blits the flashing line

scr.blit(txt,((scrwidth / 2) - 47, (scrheight / 2) - 14))

pygame.display.update()

def pause():

""" Function to handle the game when paused by user"""

scr.blit(background,(0,0))

pygame.draw.polygon(scr, BLACK, ((fl\_x, fl\_y),

(fl\_x + flwidth, fl\_y), (fl\_x + flwidth, fl\_y + flheight),

(fl\_x, fl\_y + flheight)))

pygame.draw.polygon(scr, barcolour, ((fl\_x + 2, fl\_y + 1),

(fl\_x + greenwidth + 2, fl\_y), (fl\_x + greenwidth + 2, fl\_y + flheight - 1),

(fl\_x + 2, fl\_y + flheight - 1)))

scr.blit(font2.render('STAMINA', True, (255,255,255)), (fl\_x+flwidth/4, fl\_y))

scr.blit(font2.render('SCORE: ', True, (255,0,0)), (scrwidth - 150, 20))

scr.blit(font1.render(str(int(score)), True, (255,0,0)), (scrwidth - 150 + 80, 22)) ###

scr.blit(lava, (xlava, ylava))

txt1 = font3.render('GAME PAUSED', True, WHITE)

txt2 = font1.render('Click to continue', True, WHITE)

scr.blit(txt1, ((scrwidth-txt1.get\_width())/2, int(scrheight/2.5)))

scr.blit(txt2, ((scrwidth-txt2.get\_width())/2, int(scrheight/2.5)+70))

pygame.display.update()

paused = True

while paused:

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

if event.type == KEYDOWN:

if event.key in [K\_q,K\_ESCAPE]:

scr.blit(background,(0,0))

quitter(score)

elif event.key in [K\_p]:

paused = False

elif event.key == K\_RETURN:

paused = False

if event.type == MOUSEBUTTONDOWN:

paused = False

intern

def list\_gen():

"""Generates the list with random length"""

global length\_list

notyet = []

for i in xrange(0,scrwidth, box\_width):

for j in xrange(0,scrheight, box\_width):

notyet.append([i,j])

while notyet:

j = random.choice(notyet)

notyet.remove(j)

length\_list -= 1

yield j

def pixelator():

"""Function for initial animation of pixels appearing"""

clock = pygame.time.Clock()

fill\_num = 2

pix = list\_gen()

prev\_length = length\_list

esc\_flag = False

try:

fps = 500

while True and not esc\_flag:

if length\_list <= int(prev\_length\*0.25):

fill\_num += 1

prev\_length = length\_list

for i in xrange(fill\_num):

j = pix.next()

a, b = j[0], j[1]

red = random.randint(0,255)

green = random.randint(0,255)

blue = random.randint(0,255)

pygame.draw.polygon(scr, (red, green, blue),

((a,b),

(a + box\_width -1, b), (a + box\_width -1, b + box\_width -1),

(a, b + box\_width -1)))

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

elif event.type == KEYDOWN:

if event.key == [K\_ESCAPE, K\_SPACE]:

esc\_flag = True

if event.type == MOUSEBUTTONDOWN:

esc\_flag = True

pygame.display.update()

clock.tick(fps)

except StopIteration:

pass

fps = 50

i = 0

while i<= scrwidth/2 and not esc\_flag:

left, right = scrwidth/2 - i, scrwidth/2 + i

up = int(left \* float(scrheight)/scrwidth)

down = int(right \* float(scrheight)/scrwidth)

pygame.draw.polygon(scr, (0, 0, 0),

((left,up), (right, up), (right, down), (left, down)))

i += 3

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

if event.type == KEYDOWN:

if event.key in [K\_ESCAPE, K\_SPACE]:

esc\_flag = True

if event.type == MOUSEBUTTONDOWN:

esc\_flag = True

pygame.display.update()

clock.tick(fps)

pygame.draw.polygon(scr, (0,0,0),((0,0),(scrwidth, 0),

(scrwidth, scrheight),(0, scrheight)))

pygame.display.update()

def logo():

"""Displays GA Studios Logo in different colours"""

red, green, blue = studio\_red, studio\_green, studio\_blue

steps = 15.0

txt = font6.render('GA Studios'+' '+chr(169), True,

(0, 0, 0))

txt\_width = txt.get\_width()

txt\_height = txt.get\_height()

del txt

clock = pygame.time.Clock()

fps = 10

rcount = gcount = bcount = 0

esc\_flag = False

while True and not esc\_flag:

pygame.draw.polygon(scr, (0,0,0), ((int(scrwidth\*0.3), int(scrheight\*0.4)),

(int(scrwidth\*0.7), int(scrheight\*0.4)),

(int(scrwidth\*0.7), int(scrheight\*0.6)),

(int(scrwidth\*0.3), int(scrheight\*0.6))))

pygame.display.update()

if rcount <= int(steps):

scr.blit(font6.render('GA Studios'+' '+chr(169), True,

(int(red \* rcount/steps), 0, 0)),

((scrwidth - txt\_width)/2, (scrheight - txt\_height)/2))

pygame.display.update()

rcount += 1

elif gcount <= int(steps):

scr.blit(font6.render('GA Studios'+' '+chr(169), True,

(red, int(green \* gcount/steps), 0)),

((scrwidth - txt\_width)/2, (scrheight - txt\_height)/2))

pygame.display.update()

gcount += 1

elif bcount <= int(steps):

scr.blit(font6.render('GA Studios'+' '+chr(169), True,

(red, green, int(blue \* bcount/steps))),

((scrwidth - txt\_width)/2, (scrheight - txt\_height)/2))

pygame.display.update()

bcount += 1

else:

break

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

if event.type == KEYDOWN:

if event.key in [K\_ESCAPE, K\_SPACE]:

esc\_flag = True

if event.type == MOUSEBUTTONDOWN:

esc\_flag = True

clock.tick(fps)

pygame.draw.polygon(scr, (0,0,0),((0,0),(scrwidth, 0),

(scrwidth, scrheight),(0, scrheight)))

scr.blit(font6.render('GA Studios'+' '+chr(169), True,

(red, green, blue)),

((scrwidth - txt\_width)/2, (scrheight - txt\_height)/2))

pygame.display.update()

time.sleep(0.5)

def instructions():

"Displays the intructions and the story"

scr.blit(story, (0,0))

pygame.display.update()

esc\_flag = False

clock = pygame.time.Clock()

fps = 60

while not esc\_flag:

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

if event.type == KEYDOWN:

if event.key in [K\_ESCAPE, K\_SPACE, K\_RETURN]:

esc\_flag = True

if event.type == MOUSEBUTTONDOWN:

pass

clock.tick(fps)

scr.blit(instr, (0,0))

pygame.display.update()

esc\_flag = False

while not esc\_flag:

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

if event.type == KEYDOWN:

if event.key in [K\_ESCAPE, K\_SPACE, K\_RETURN]:

esc\_flag = True

if event.type == MOUSEBUTTONDOWN:

pass

def menu():

"""Main function to handle menu and subsequent input from user"""

pygame.draw.polygon(scr, (0,0,0),((0,0),(scrwidth, 0),

(scrwidth, scrheight),(0, scrheight)))

txt = font6.render('GA Studios'+' '+chr(169), True,

(studio\_red, studio\_green, studio\_blue))

txt\_width = txt.get\_width()

txt\_height = txt.get\_height()

scr.blit(txt, ((scrwidth - txt\_width)/2, (scrheight - txt\_height)/2 + 100))

game\_txt = font7.render('Superbot', True,

(game\_red, game\_green, game\_blue))

game\_width, game\_height = game\_txt.get\_width(), game\_txt.get\_height()

scr.blit(game\_txt, ((scrwidth - game\_width)/2,

(scrheight - 150 - game\_height)/2))

pygame.display.update()

time.sleep(1)

menu\_list = ['Play', 'Instructions', 'High scores', 'Exit']

menu\_state = prev\_state= 0

st\_left = ' '\*12

st\_right = menu\_list[1]

st\_current = menu\_list[0]

superman.x\_y(-skwidth, scrheight/2 - 150)

dsx, dsy = 4,0

clock = pygame.time.Clock()

fps = 60

col\_1 = (200,100,100)

col\_2 = (220,170,120)

start\_play = False

txt1 = font1.render('Use SPACE or ENTER key to select', True, (175,175,100))

while True:

pygame.draw.polygon(scr, (0,0,0),((0,0),(scrwidth, 0),

(scrwidth, scrheight),(0, scrheight)))

if start\_play:

break

scr.blit(superman.image, (superman.rect.x,superman.rect.y))

scr.blit(txt, ((scrwidth - txt\_width)/2,

(scrheight - txt\_height)/2 + 100))

scr.blit(game\_txt, ((scrwidth - game\_width)/2,

(scrheight - 150 - game\_height)/2))

scr.blit(txt1, (20,330))

if menu\_state != prev\_state:

prev\_state = menu\_state

st\_current = menu\_list[menu\_state]

if menu\_state != 0:

st\_left = menu\_list[menu\_state-1]

else:

st\_left = ' '\*12

try:

st\_right = menu\_list[menu\_state+1]

except IndexError:

st\_right = ' '\*12

txt\_left = font9.render(st\_left, True, col\_1)

scr.blit(txt\_left, (scrwidth/5 - txt\_left.get\_width()/2,

(scrheight - txt\_left.get\_height())/2))

txt\_right = font9.render(st\_right, True, col\_1)

scr.blit(txt\_right, ((scrwidth\*4)/5 - txt\_right.get\_width()/2,

(scrheight - txt\_right.get\_height())/2))

txt\_current = font8.render(st\_current, True, col\_2)

scr.blit(txt\_current, ((scrwidth - txt\_current.get\_width())/2,

(scrheight - txt\_current.get\_height())/2))

if superman.rect.x > scrwidth:

superman.x\_y(-skwidth, scrheight/2 - 150)

superman.dx\_dy(dsx, dsy)

pygame.display.update()

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

if event.type == KEYDOWN:

if event.key == K\_RIGHT:

if menu\_state < 3:

menu\_state += 1

if event.key == K\_LEFT:

if menu\_state > 0:

menu\_state -= 1

if event.key in [K\_RETURN, K\_SPACE]:

if menu\_state == 0:

start\_play = True

superman.default()

elif menu\_state == 1:

instructions()

elif menu\_state == 2:

dispscore()

elif menu\_state == 3:

pygame.quit()

sys.exit()

if event.type == MOUSEBUTTONDOWN:

pass

clock.tick(fps)

############################################################################

"""Data Definitions at the start of the program"""

superman = MainChar()

splist = pygame.sprite.Group()

splist.add(superman)

box\_width = 5

length\_list = 0

fl\_x = fl\_y = 20

flwidth = 200

flheight = 20

maxflytime = 2.0 # Fly Key is f

flydivconst = 3.0 # The flybar will get charged at 1/flydivconst times the

# speed with fly gets used up

clock = pygame.time.Clock()

yabs = skheight+superman.rect.y-1 #starting height of platforms (mean of Gaussian Distribution)

sigma = 20 #Standard deviation for the Gaussian distribution of platforms

# sigma was initially 150

pixelator()

logo()

ingame = True

"""Loop to run entire game begins"""

while ingame:

#Data Definitions

superman = MainChar()

splist = pygame.sprite.Group()

splist.add(superman)

Coins.clist = []

fps = 60

dx = -5

dy = fy = 0

y\_coord = ((scrheight + 20 )/2) - skheight

xlava = 0

ylava = scrheight+220 #200 pixels below bottom of screen

minylava = 290 # lava rises to this height

deathsound = pygame.mixer.Sound('lava.wav')

deathsoundstate = True

for i in range(10):

for position in Plat.pos:

platform = Plat(i\*pwidth, yabs, position)

splist.add(platform)

st = time.time()

fsj = False

#Platform variables

existlist = [0 for i in range(13)] + [1 for i in range(3)] # This is used to

#determine whether a plate should be added or not

gap\_length = {up : 0, centre : 0, down : 0}

# if a plate is not added, then gap\_length is added

# to endcoor (ending coordinate), so, there will be some

# space before the next plate is added

plat\_num = [1 for i in range(11)] + [2 for i in range(5)] + [3 for i in range(2)]

# This has the values for the number of plates that should be added

# continuously in one go

last\_platform = {} # Stores the last platform of each level

#Flying

flybar = 0.0 # Show how much fly you have left

flyflag = False # To check whether superman is flying

prevflytime = time.time()

jump = 0

score = 0

dist = 0

coincount = 0

newcoin = False

coinscore = 500

alive = True

menu()

c1 = Coins(10\*pwidth-10,yabs-35, 1)

Coins.clist += [c1]

Coins.ctime = time.time()

splist.add(c1)

superman.default()

pygame.sprite.spritecollide

"""Loop for inividual gameplay begins"""

while alive:

scr.blit(background,(0,0))

splist.draw(scr)

scr.blit(superman.image, (superman.rect.x,superman.rect.y))

dist += abs(dx)

if newcoin:

score += (abs(dx))\*\*1.2 \* (coincount)\*coinscore

coincount = 0

newcoin = False

else:

score += (abs(dx))\*\*1.2

for i in Coins.clist:

if pygame.sprite.collide\_rect(superman, i):

Coins.sound.play()

newcoin = True

coincount = i.type

Coins.clist.remove(i)

splist.remove(i)

del i

if time.time() - Coins.ctime > Coins.rt:

Coins.generate()

# Fly Bar Code Starts

# Checking how long superman can fly

flybarfraction = flybar/maxflytime

if flybarfraction > 1:

flybarfraction = 1

elif flybarfraction < 0:

flybarfraction = 0

pygame.draw.polygon(scr, BLACK, ((fl\_x, fl\_y),

(fl\_x + flwidth, fl\_y), (fl\_x + flwidth, fl\_y + flheight),

(fl\_x, fl\_y + flheight)))

greenwidth = int((flwidth-4) \* flybarfraction)

if flybar > 1.25:

barcolour = GREEN

elif 1.25 > flybar > 0.45:

barcolour = YELLOW

else:

barcolour = RED

pygame.draw.polygon(scr, barcolour, ((fl\_x + 2, fl\_y + 1),

(fl\_x + greenwidth + 2, fl\_y), (fl\_x + greenwidth + 2, fl\_y + flheight - 1),

(fl\_x + 2, fl\_y + flheight - 1)))

scr.blit(font2.render('STAMINA', True, (255,255,255)), (fl\_x+flwidth/4, fl\_y))

scr.blit(font2.render('SCORE: ', True, (255,0,0)), (scrwidth - 150, 20))

scr.blit(font1.render(str(int(score)), True, (255,0,0)), (scrwidth - 150 + 80, 22)) ###

scr.blit(lava, (xlava, ylava))

pygame.display.update()

y\_coord += dy

ylava += dy

if y\_coord < -100:

superman.rect.y += 5

if deathsoundstate and superman.rect.y > (scrheight-130):

deathsound.play()

deathsoundstate = False

elif superman.rect.y > (scrheight+10):

#code to die

quitter(score)

#alive = False

break

if not flyflag:

if flybar < maxflytime:

flybar += 1.0/(fps \* flydivconst)

else:

flybar = maxflytime

if flyflag:

if jump == 0:

jump = 1

if flybar <= 0:

flybar = 0

flyflag = False

dy = -2

prevflytime = time.time()

else:

flybar -= 1.0/(fps)

#Fly Bar Code Ends Here

if dy == 2 and time.time()-uptime >= 0.8:

superman.image = spDownimg

dy = -2

uptime = 0

if dy != 2 and not(flyflag):

dy = -2

superman.image = spDownimg

for a in Plat.plist:

for i in Plat.plist[a]:

if i.rect.x-skwidth-6 <= superman.rect.x <= (i.rect.x+pwidth+6) and -3<i.rect.y -(superman.rect.y+skheight)<3 :

dy = 0

jump = 0

flyflag = False

fsj = False

superman.image = spimg # To change images while moving straight, moving up and moving down

break

yabs += dy

for i in Plat.plist:

for j in Plat.plist[i]:

j.update(dx,dy)

for i in Coins.clist:

i.update(dx,dy)

superman.update(dy)

#Generating new platforms

for position in Plat.pos:

#last\_platform[position] = Plat.plist[position][-1]

last\_platform = Plat.plist[position][-1]

Plat.endcoor[position] = last\_platform.rect.x + pwidth + gap\_length[position]

# gap\_length is added if a gap should be inserted

if Plat.endcoor[position] - scrwidth <= 0:

if random.choice(existlist) and not Plat.height\_flag[position]:

# In this case, platform(s) will be added

Platgen(yabs, sigma, position)

gap\_length[position] = 0

else:

# In this case, gap(s) will be added

gap\_length[position] = pwidth \* random.choice(plat\_num)

if Plat.height\_flag[position] == True:

Plat.height\_flag[position] = False

#Retrieving user input from Keypress and Mouse Actions

for event in pygame.event.get():

if event.type == QUIT:

pygame.quit()

sys.exit()

if event.type == KEYDOWN and deathsoundstate:

if event.key == K\_SPACE and deathsoundstate:

if (dy == 0 or fsj) and jump < 2:

dy = 2

jump += 1

uptime = time.time()

fsj = not(fsj)

superman.image = spUpimg # Moving Up

elif (dy == -2 or fsj) and jump < 2:

dy = 2

jump = 2

uptime = time.time()

fsj = not(fsj)

superman.image = spUpimg # Moving Up

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

quitter(score)

elif event.key in [K\_p]:

pause()

elif event.key in [K\_w]:

while True:

pass

elif event.key in (K\_f,) and flybar > 0: # I thought (K\_f, K\_F)

dy = 0

flyflag = True

startflytime = time.time()

superman.image = spimg # Changing it back to the normal image

if event.type == KEYUP and deathsoundstate:

if flyflag:

dy = -2

flyflag = False

superman.image = spDownimg

if event.type == MOUSEBUTTONDOWN and deathsoundstate:

if dy == 0 and jump < 2:

dy = 2

jump += 1

uptime = time.time()

superman.image = spUpimg

elif dy == -2 and jump < 2:

dy = 2

jump = 2

uptime = time.time()

superman.image = spUpimg

#Ensures the screen updates at fps frames per second

clock.tick(fps) “””

Screenshots

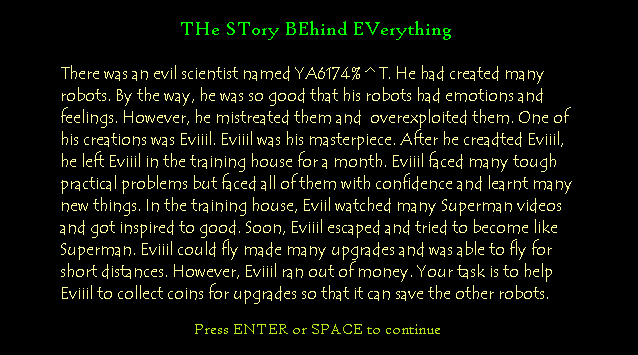
Start-up Screen:



Menu:



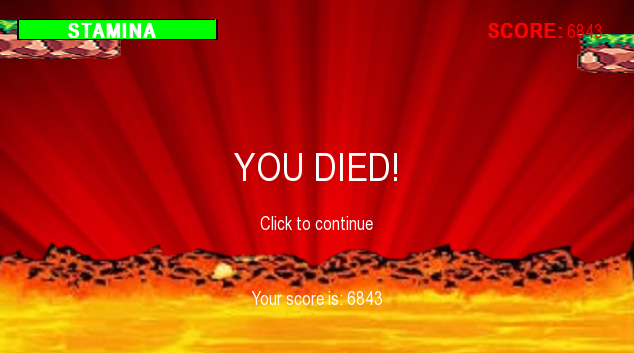
Instructions and Storyline:



Main Loop of Game:



Screen after loss:



HighScore List:



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2. Making Games with Python & Pygame ; Authored by Al Sweigart