

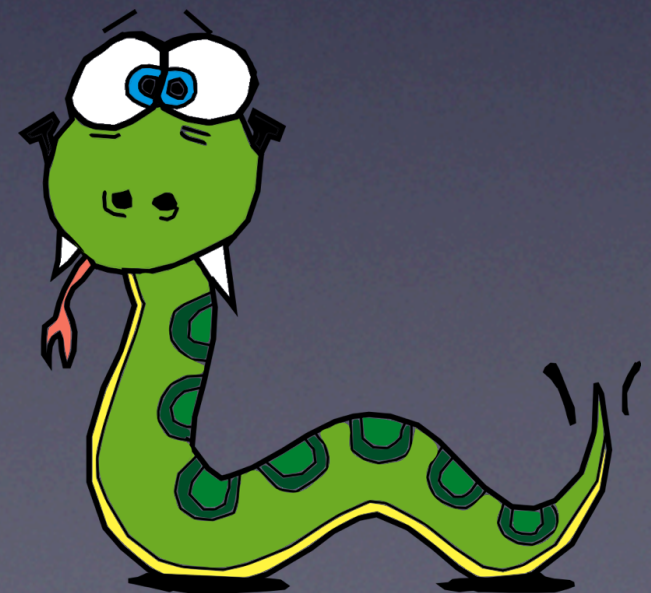
Python Game Programming

Part IV
Going





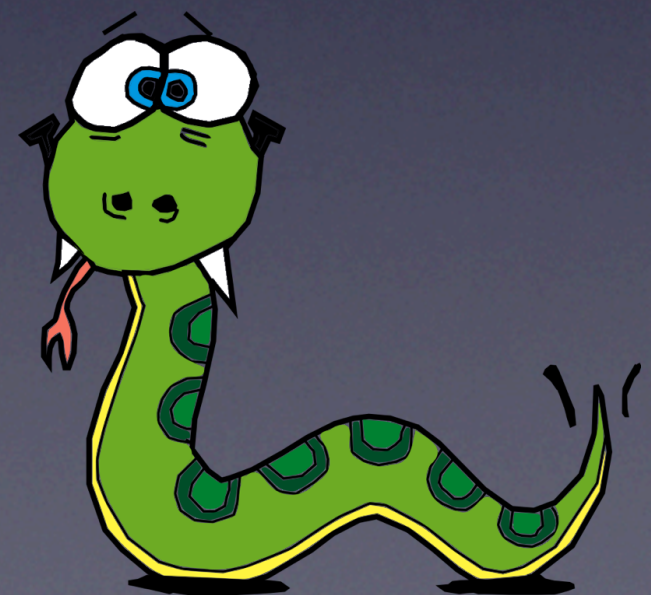
```
import pygame  
from pygame.locals import *  
from sys import exit
```





Βιβλιοθήκη

```
import pygame  
from pygame.locals import *  
from sys import exit
```

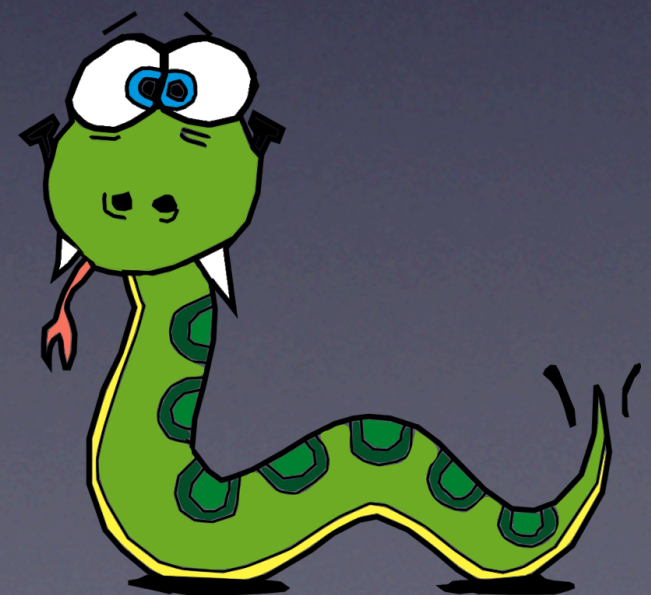




Βιβλιοθήκη

```
import pygame  
from pygame.locals import *  
from sys import exit
```

Σταθερές





76 hello-world.py - D:/Data/Desktop/python/3/Animation/hello-world.py

File Edit Format Run Options Windows Help

```
textfont = pygame.font.SysFont("Tahoma", 48)
thetext = textfont.render("Hello World!", True,
```

```
# Initialize text position
```

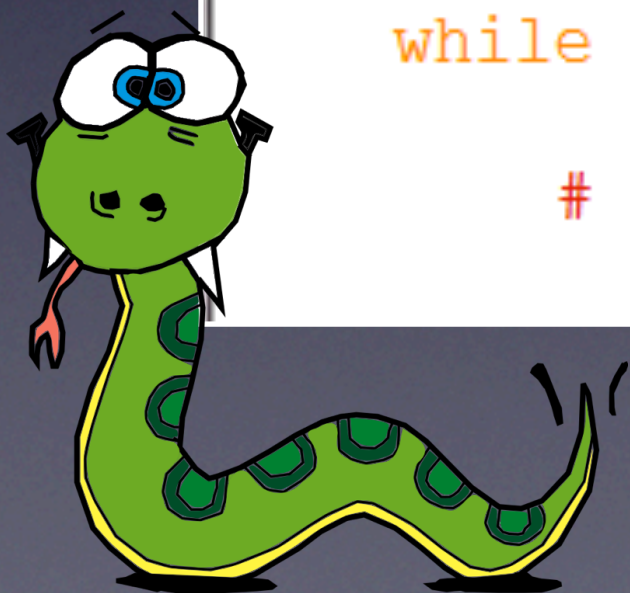
```
textx = centerMessage(thetext.)
texty = 40
```

```
# Begin main lo
```

```
endprogram = F
```

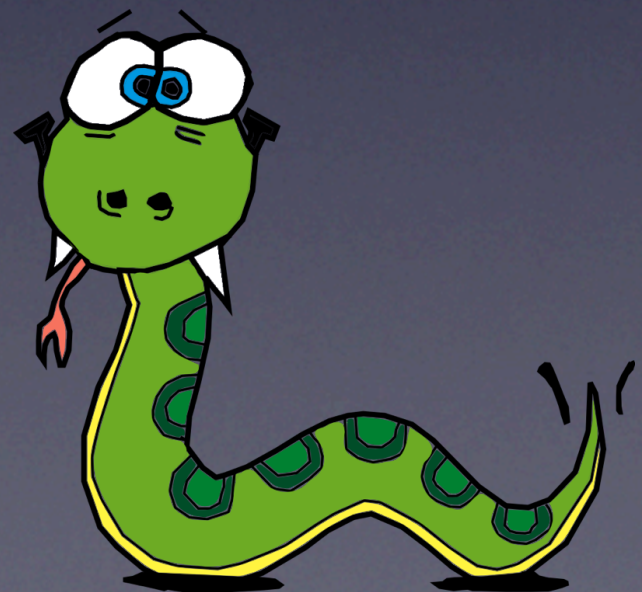
```
while not endp
```

```
# fill screen with bluish tint
```





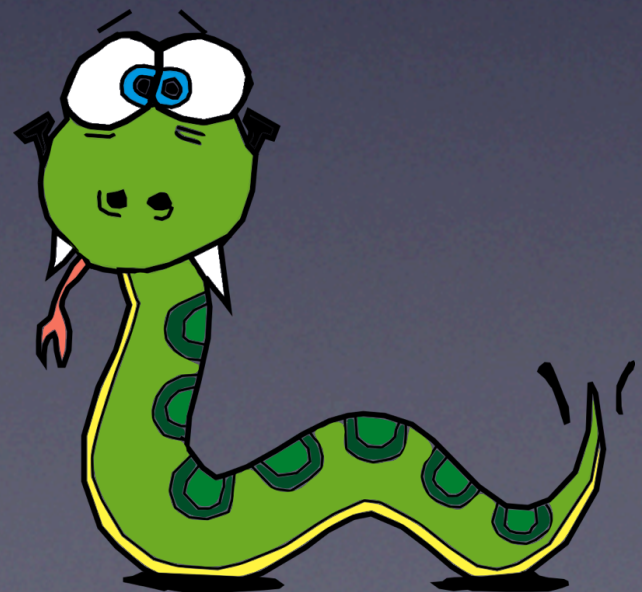
```
pygame.init()  
swidth, sheight = 320,140  
surfacecolor = (50,80,250)  
screen = pygame.display.set_mode((swidth, sheight),  
                                  DOUBLEBUF)
```





Εκκίνηση
βιβλιοθήκης

```
pygame.init()  
swidth, sheight = 320,140  
surfacecolor = (50,80,250)  
screen = pygame.display.set_mode((swidth, sheight),  
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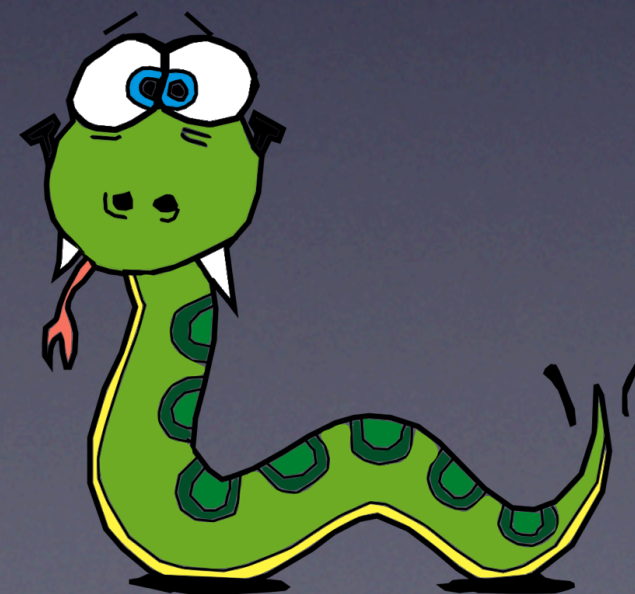




Εκκίνηση
βιβλιοθήκης

```
pygame.init()  
swidth, sheight = 320,140  
surfacecolor = (50,80,250)  
screen = pygame.display.set_mode((swidth, sheight),  
                                DOUBLEBUF)
```

Επιφάνεια
(Surface)



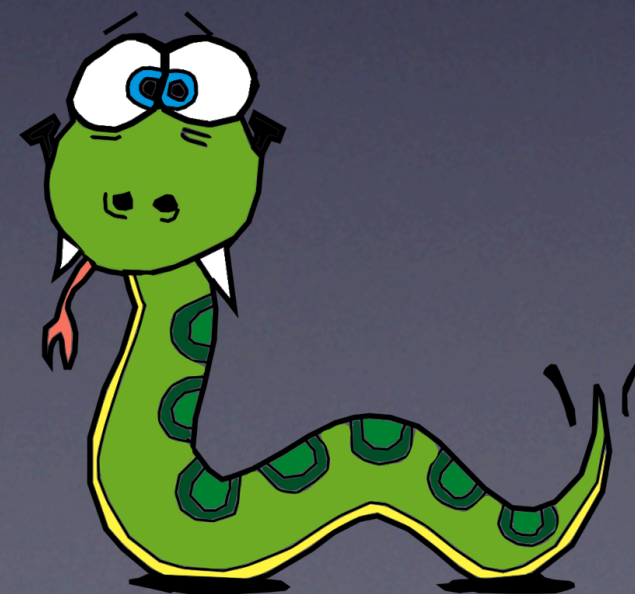


Εκκίνηση
βιβλιοθήκης

Μέγεθος
Παραθύρου

```
pygame.init()  
swidth, sheight = 320, 140  
surfacecolor = (50, 80, 250)  
screen = pygame.display.set_mode((swidth, sheight),  
                                  DOUBLEBUF)
```

Επιφάνεια
(Surface)





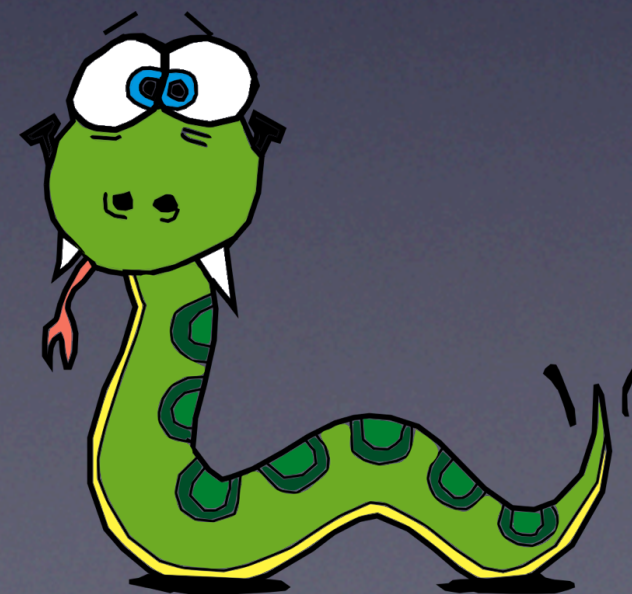
Εκκίνηση
βιβλιοθήκης

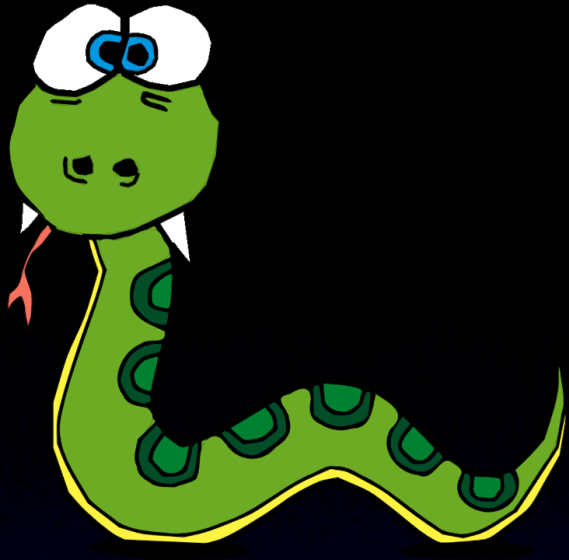
Μέγεθος
Παραθύρου

```
pygame.init()  
swidth, sheight = 320, 140  
surfacecolor = (50, 80, 250)  
screen = pygame.display.set_mode((swidth, sheight),  
                                  DOUBLEBUF)
```

Επιφάνεια
(Surface)

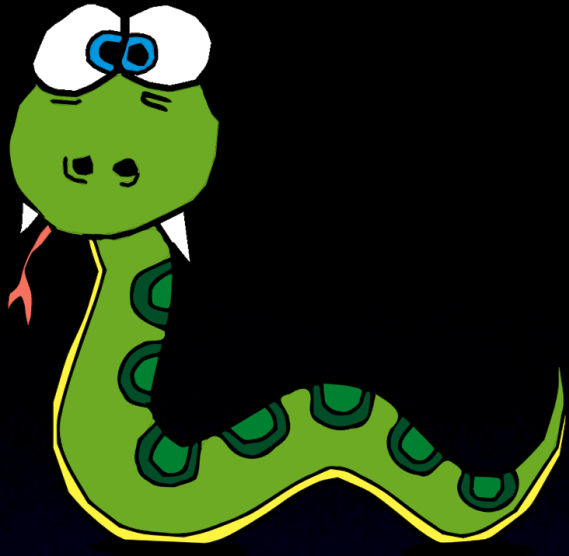
Είδος οθόνης





```
pygame.display.set_caption("Hello Pygame!")  
textfont = pygame.font.SysFont("Arial",48)  
thetext = textfont.render("Hello World!",  
                           False,  
                           (255,0,0),  
                           (255,255,0))
```

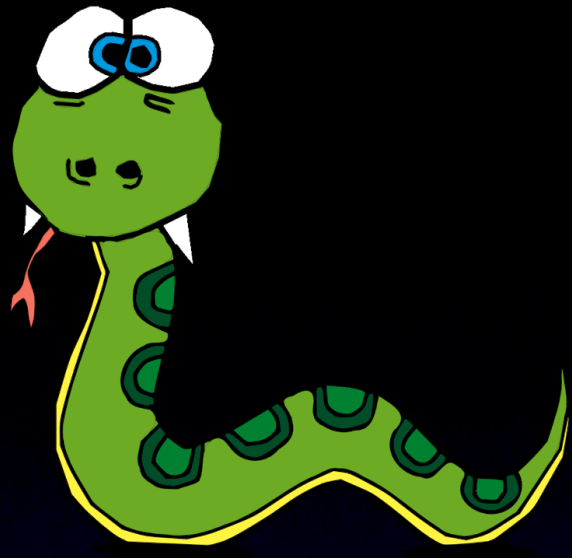




Τίτλος
παράθύρου

```
pygame.display.set_caption("Hello Pygame!")  
textfont = pygame.font.SysFont("Arial",48)  
thetext = textfont.render("Hello World!",  
                           False,  
                           (255,0,0),  
                           (255,255,0))
```



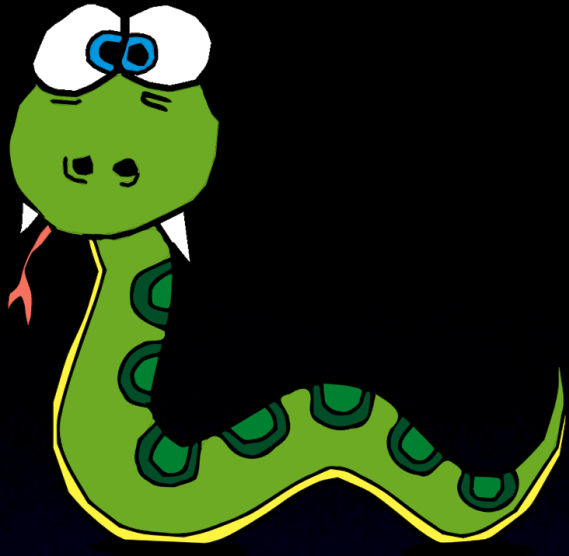


Επιλογή
γραμμάτων

Τίτλος
παραθύρου

```
pygame.display.set_caption("Hello Pygame!")  
textfont = pygame.font.SysFont("Arial",48)  
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                           False,  
                           (255,0,0),  
                           (255,255,0))
```





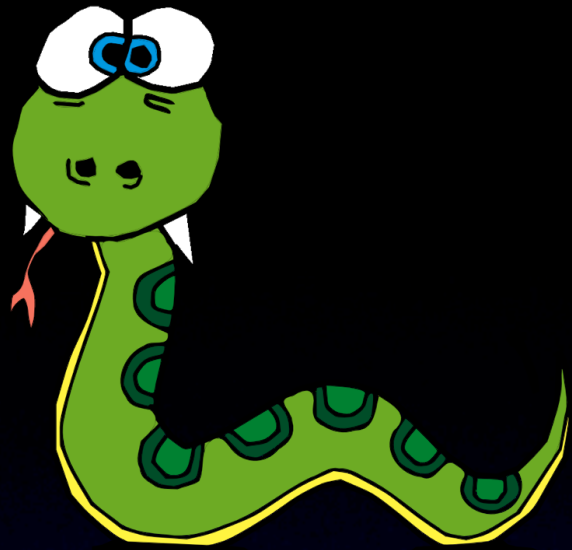
Επιλογή
γραμμάτων

Τίτλος
παραθύρου

```
pygame.display.set_caption("Hello Pygame!")  
textfont = pygame.font.SysFont("Arial",48)  
thetext = textfont.render("Hello World!",  
                           False,  
                           (255,0,0),  
                           (255,255,0) )
```

Antialias
(what?)





Επιλογή
γραμμάτων

Τίτλος
παραθύρου

```
pygame.display.set_caption("Hello Pygame!")  
textfont = pygame.font.SysFont("Arial",48)  
thetext = textfont.render("Hello World!",  
                           False,  
                           (255,0,0),  
                           (255,255,0) )
```

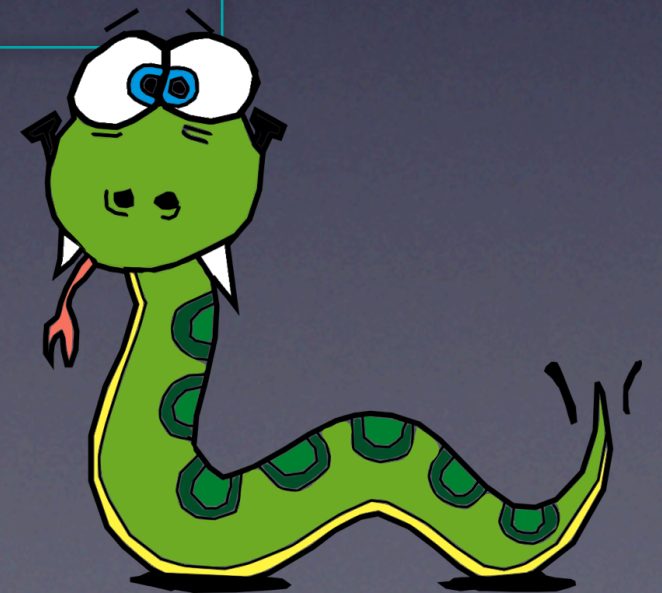
Antialias
(what?)

Επιλογή
χρωμάτων





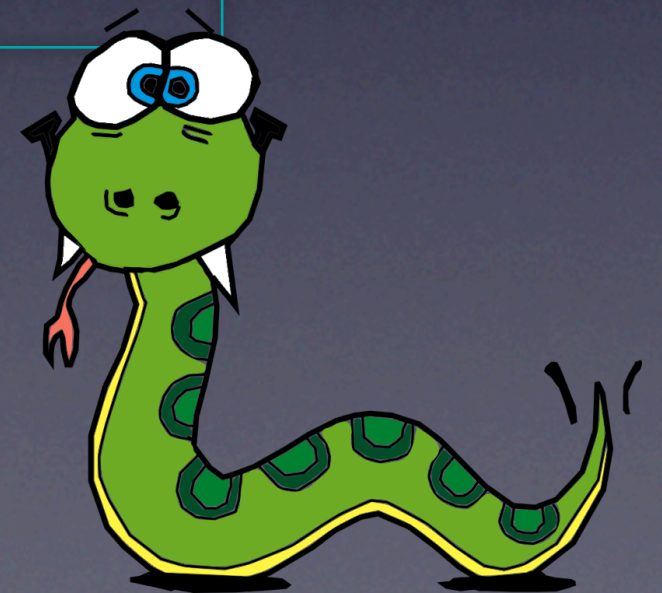
```
endprogram = False
while not endprogram:
    screen.fill(surfacecolor)
    screen.blit(thetext, (55, 40))
    endprogram = getQuit()
    pygame.display.update()
pygame.quit()
exit()
```





Γέμισμα
με χρώμα

```
endprogram = False
while not endprogram:
    screen.fill(surfacecolor)
    screen.blit(thetext, (55, 40))
    endprogram = getQuit()
    pygame.display.update()
pygame.quit()
exit()
```

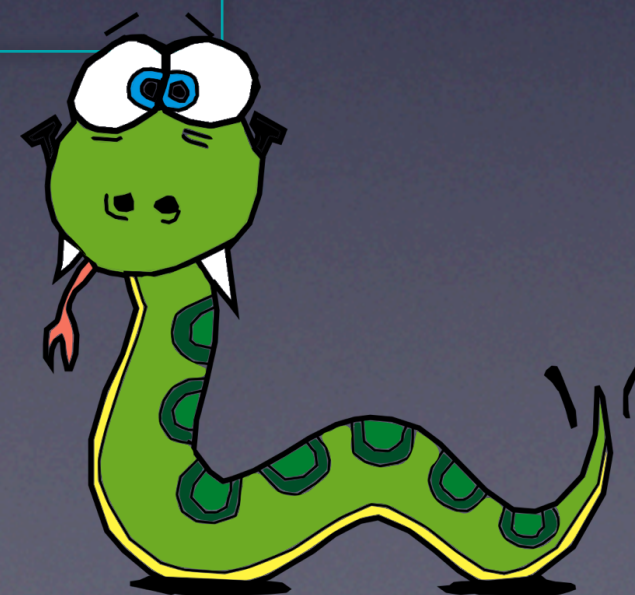




```
endprogram = False
while not endprogram:
    screen.fill(surfacecolor)
    screen.blit(thetext, (55, 40))
    endprogram = getQuit()
    pygame.display.update()
pygame.quit()
exit()
```

Γέμισμα
με χρώμα

Στήλη, γραμμή



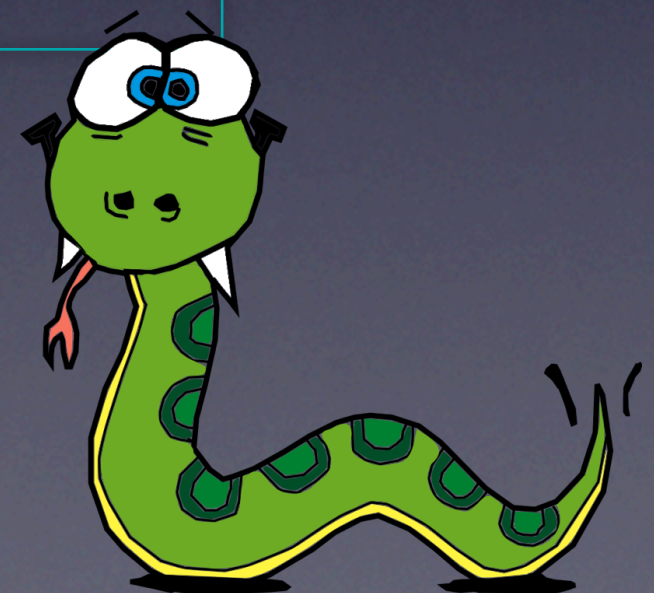


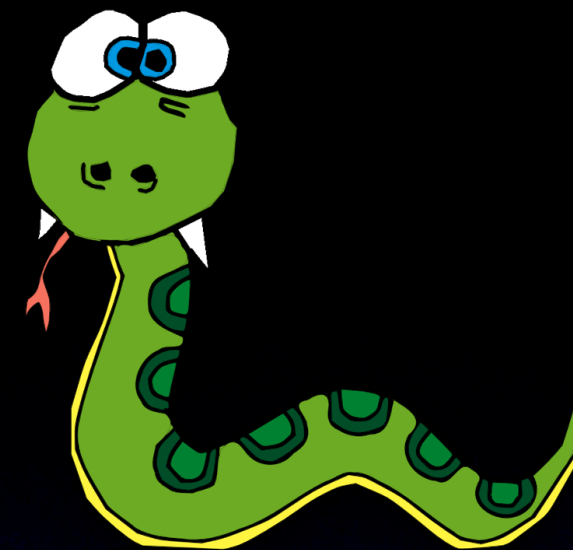
```
endprogram = False
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    screen.fill(surfacecolor)
    screen.blit(thetext, (55, 40))
    endprogram = getQuit()
    pygame.display.update()
pygame.quit()
exit()
```

Γέμισμα
με χρώμα

Στήλη, γραμμή

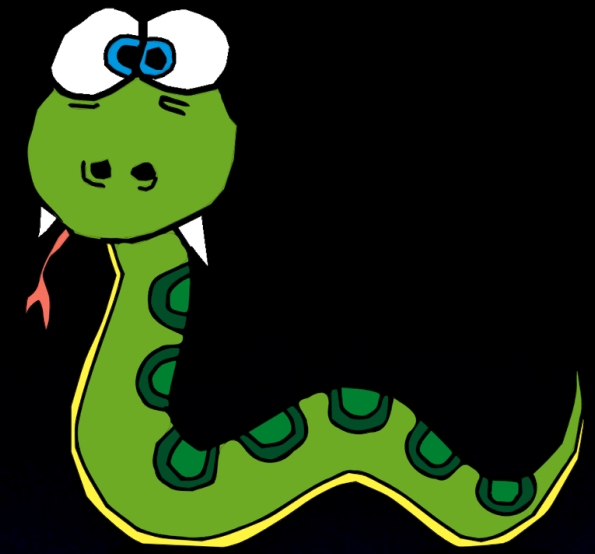
?





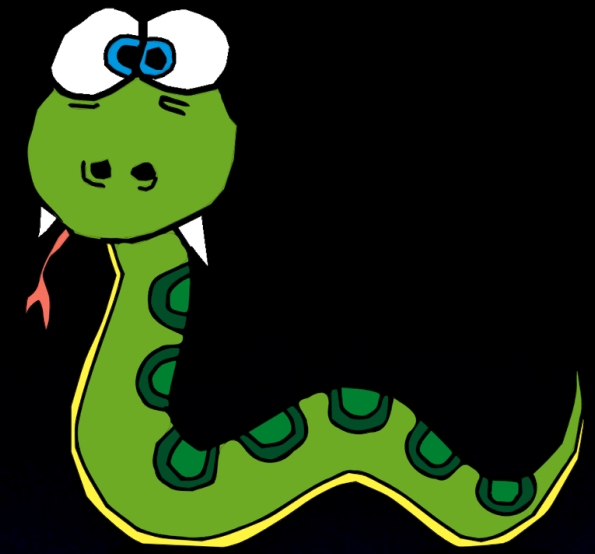
Hello World!

Buffer



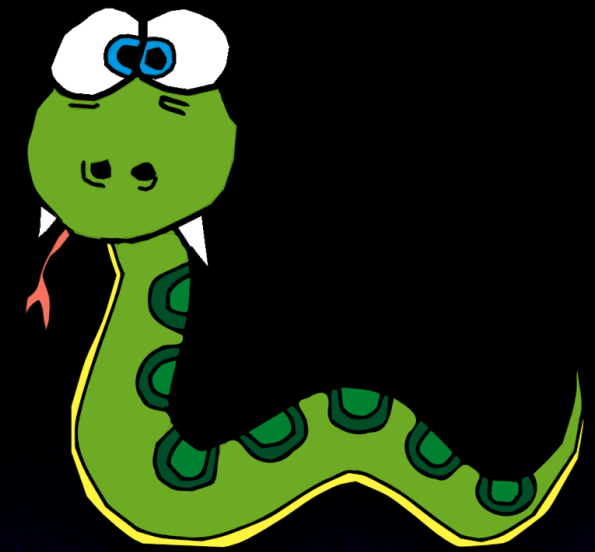
Hello World!

Buffer



Hello World!

Buffer

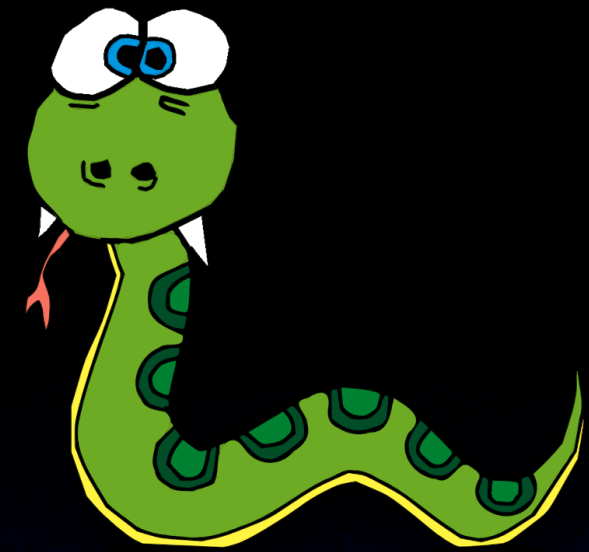


`pygame.display.update()`



Hello World!

Buffer

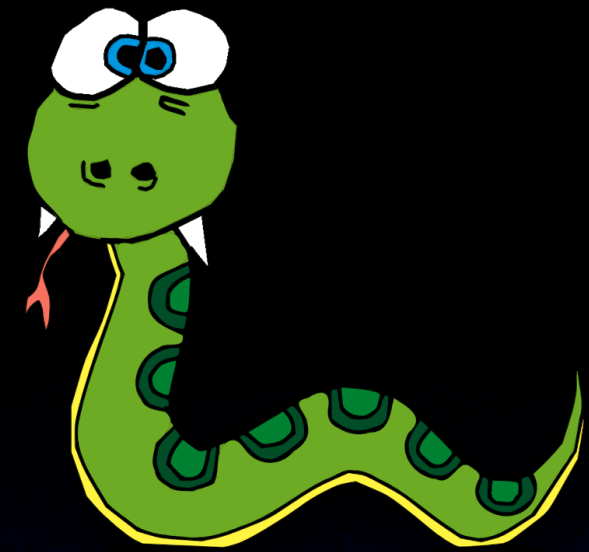


`pygame.display.update()`



Hello World!

Buffer



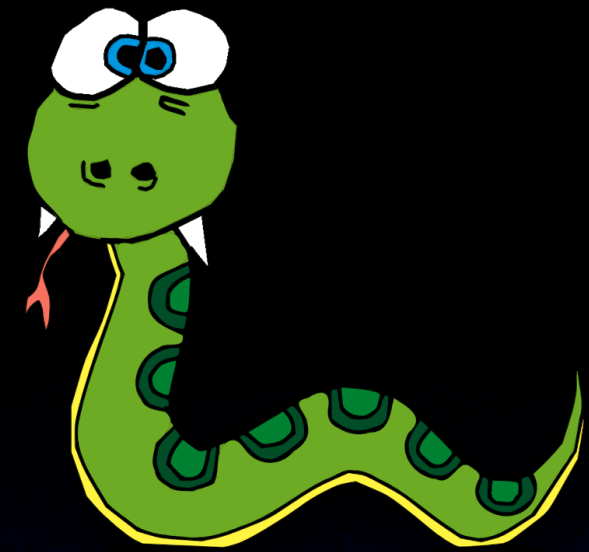
Frame

`pygame.display.update()`



Hello World!

Buffer

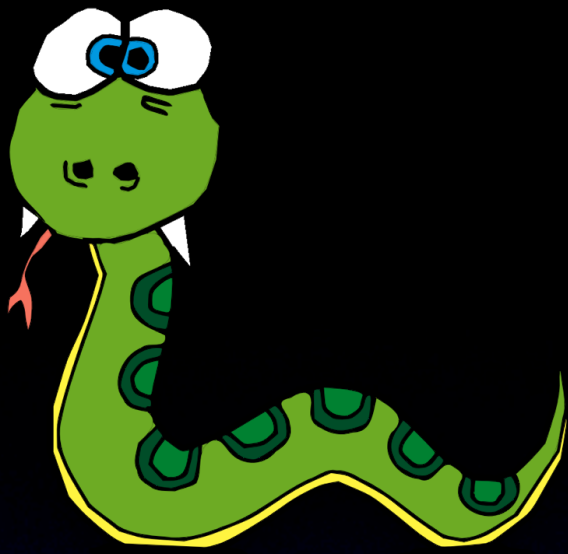


`pygame.display.update()`

Frame

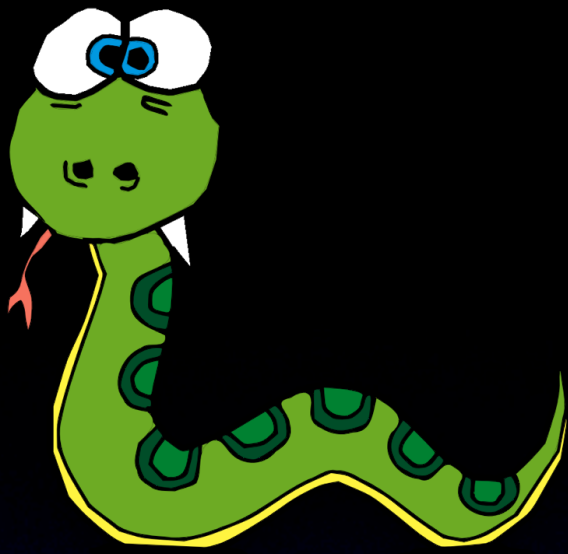
Frame rate





```
def getQuit():  
    for event in pygame.event.get():  
        if event.type == QUIT:  
            return True  
    return False
```

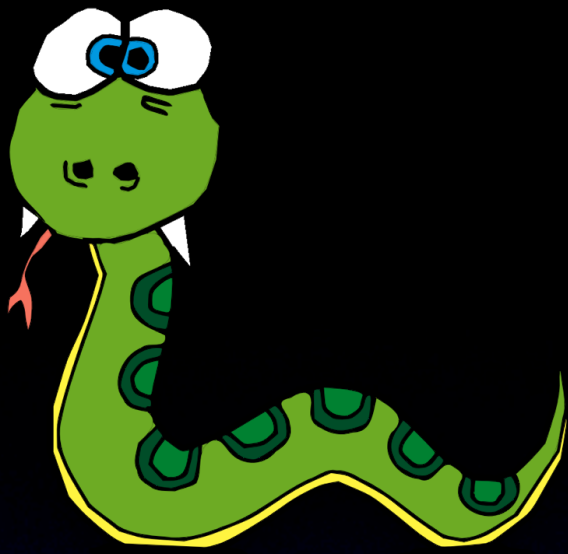




Επεξεργασία
ουράς γεγονότων
Event queue

```
def getQuit():  
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```



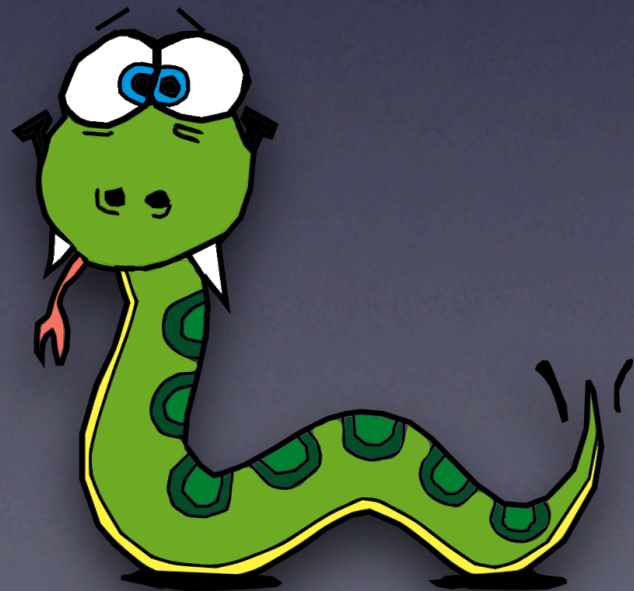


Επεξεργασία
ουράς γεγονότων
Event queue

```
def getQuit():  
    for event in pygame.event.get():  
        if event.type == QUIT:  
            return True  
    return False
```

Ο χρήστης έκλεισε το
παράθυρο






```
#!/usr/bin/env python
```

```
import pygame
```

```
from pygame.locals import *
```

```
from sys import exit
```

```
from random import
```

```
pygame.init()
```

```
screen = pygame.display
```

```
while True:
```

```
    ypos=0
```

```
    for ypos in range
```

```
        for xpos in range
```

```
            for event in
```

```
                if event.type
```

```
                    pygame
```

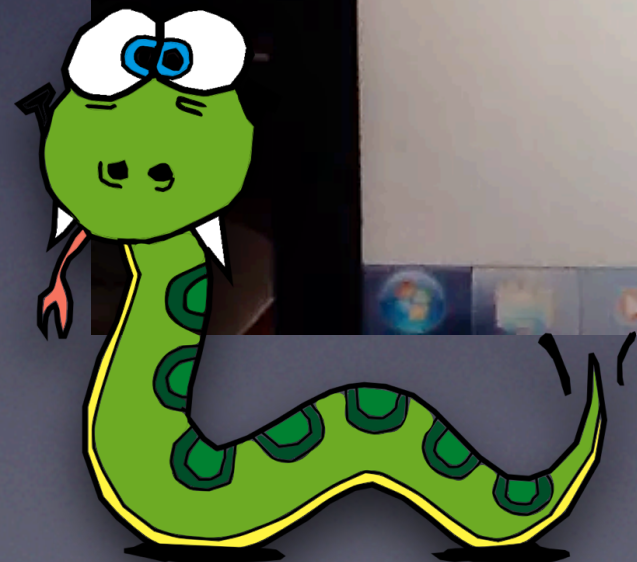
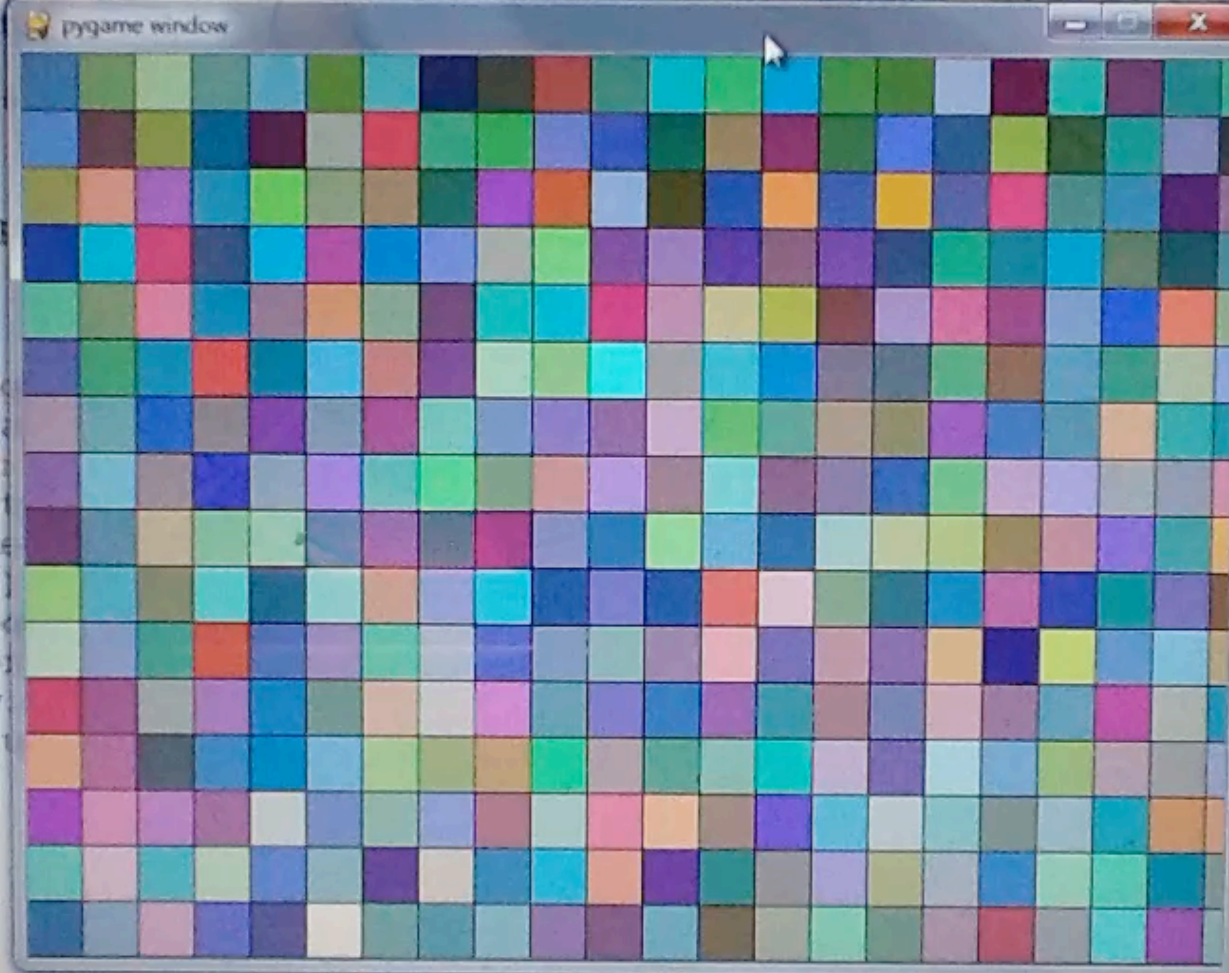
```
                    exit()
```

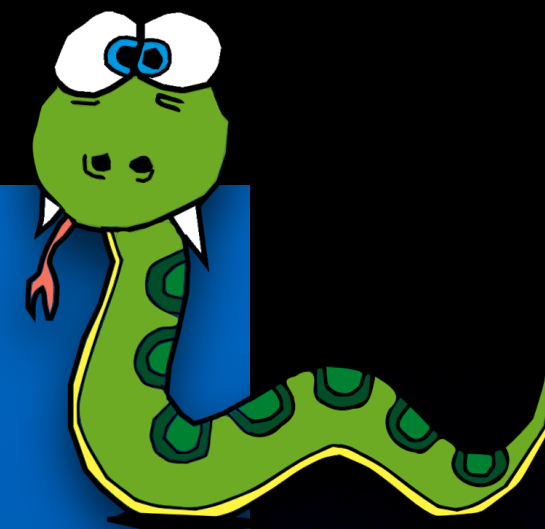
```
            the_pos=(xpos,
```

```
            random_color)
```

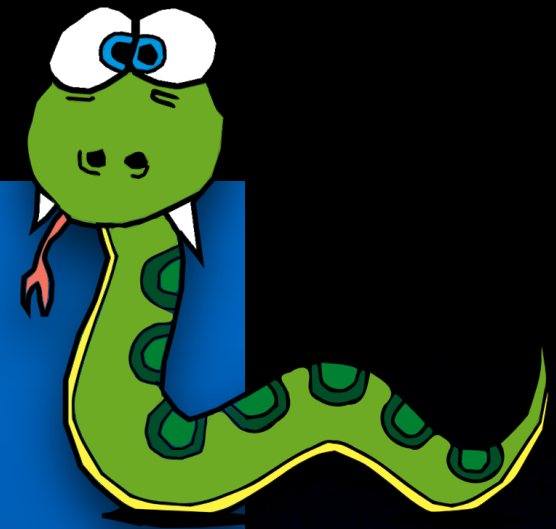
```
            pygame.draw
```

```
            pygame.display
```





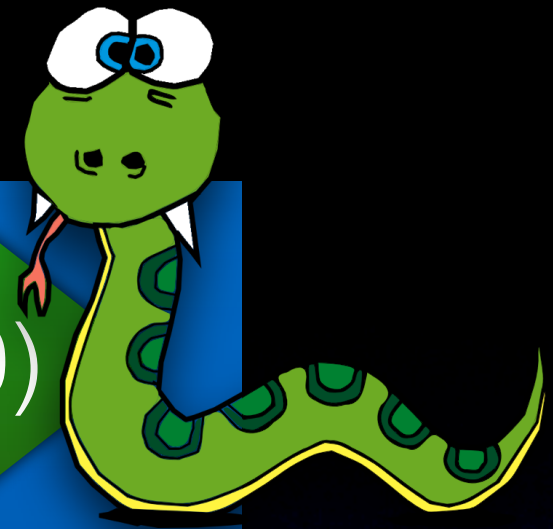
(0,0)



(0,0)

+

(640,0)



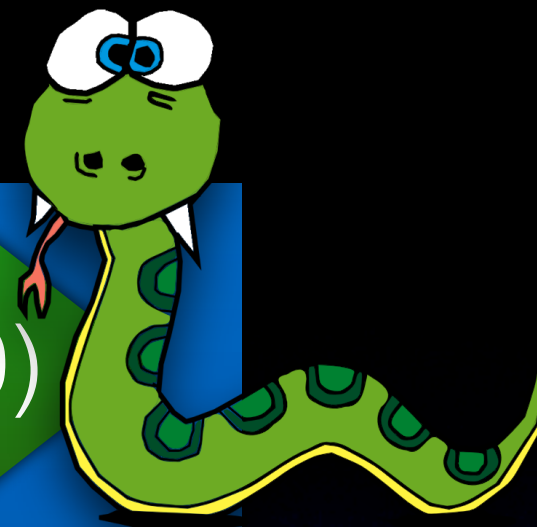
(0,0)

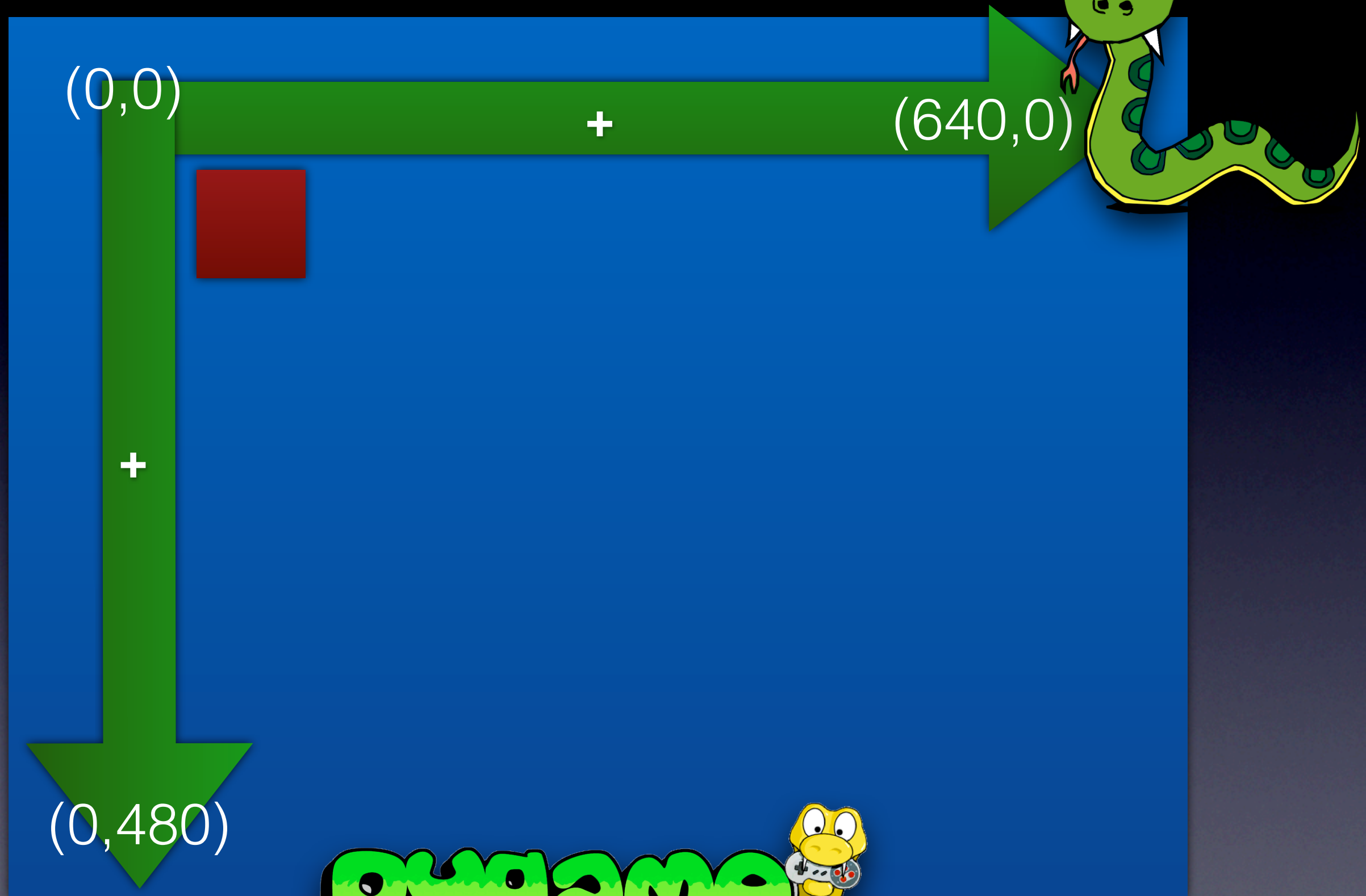
+

(640,0)

+

(0,480)





pygame
powered

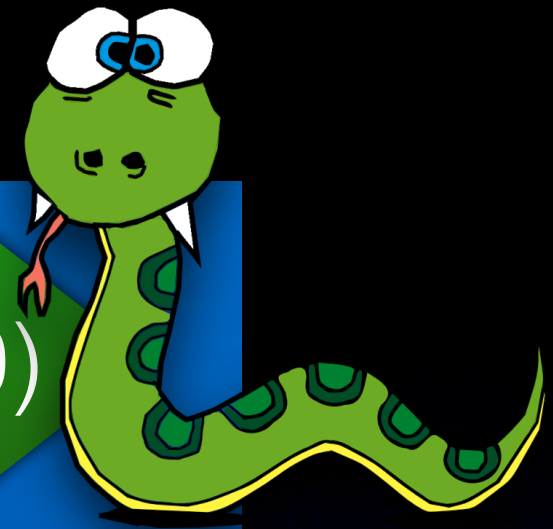
(0,0)

+

(640,0)

+

(0,480)



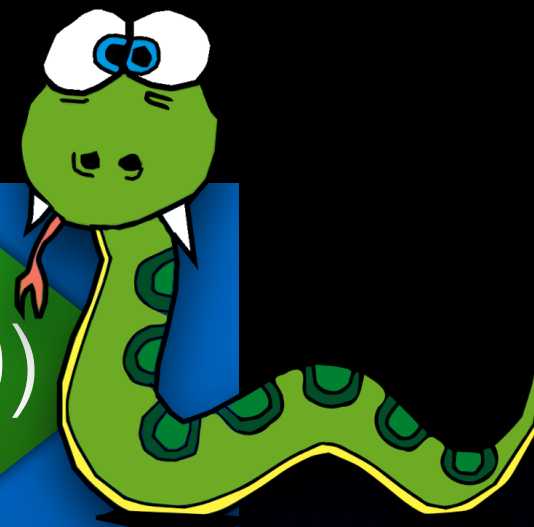
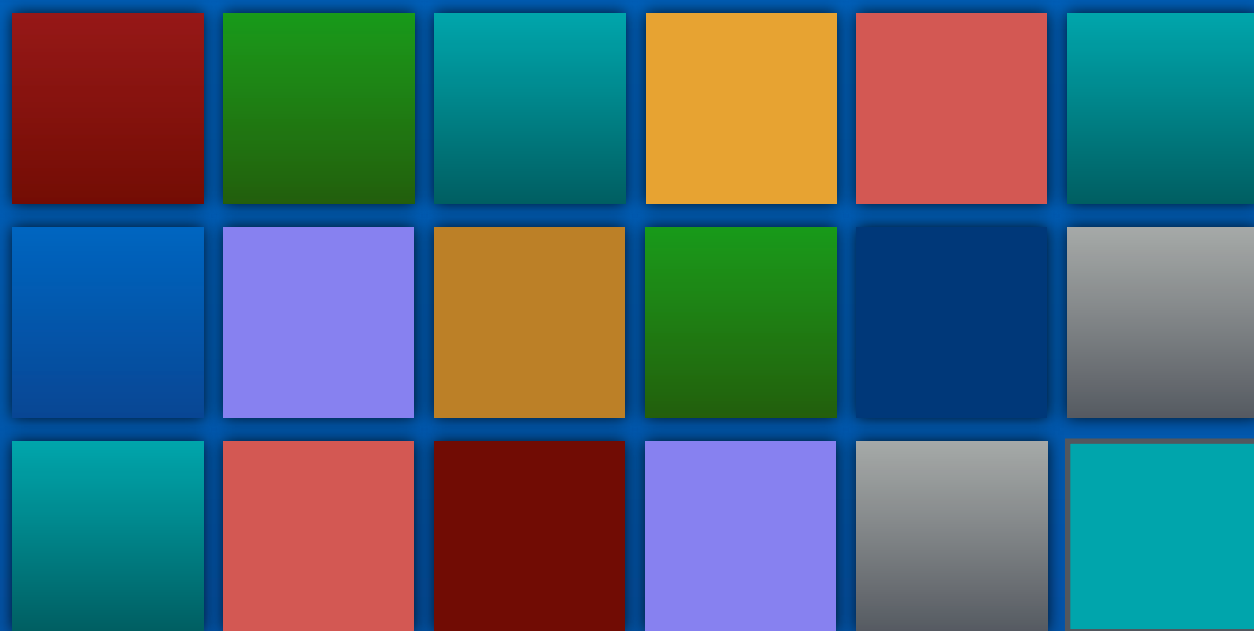
(0,0)

+

(640,0)

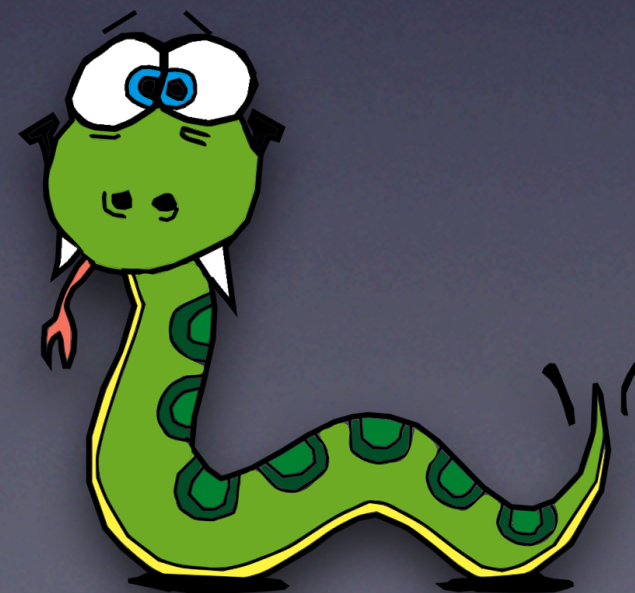
+

(0,480)





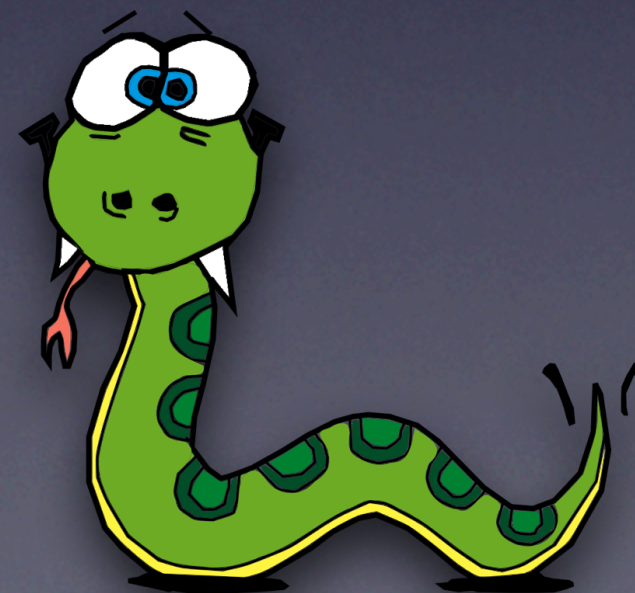
```
swidth,sheight = 640,480  
bsize = 29  
pygame.init()  
screen = pygame.display.set_mode((swidth, sheight),  
                                  DOUBLEBUF)
```





```
swidth,sheight = 640,480  
bsize = 29  
pygame.init()  
screen = pygame.display.set_mode((swidth, sheight),  
                                DOUBLEBUF)
```

Εκκίνηση
βιβλιοθήκης

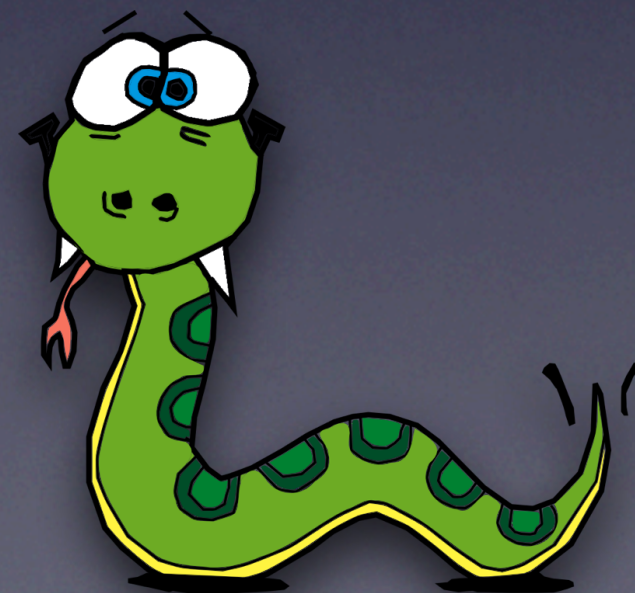




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swidth,sheight = 640,480  
bsize = 29  
pygame.init()  
screen = pygame.display.set_mode((swidth, sheight),  
                                DOUBLEBUF)
```

Εκκίνηση
βιβλιοθήκης

Επιφάνεια
(Surface)





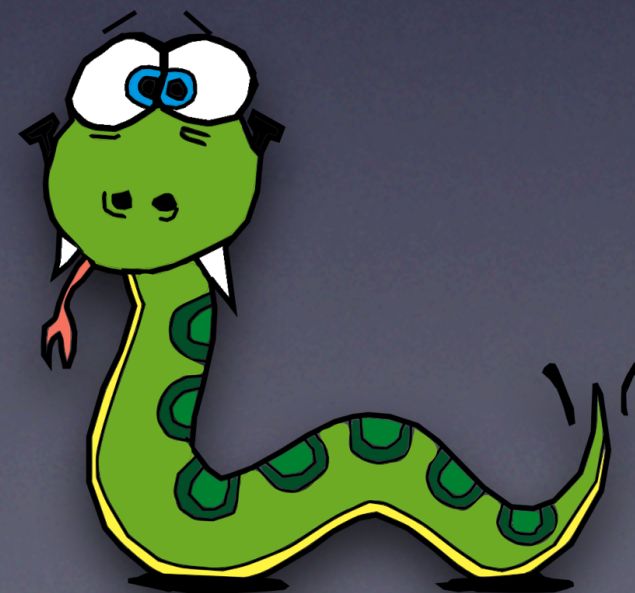
```
swidth, sheight = 640, 480  
bsize = 29  
pygame.init()  
screen = pygame.display.set_mode((swidth, sheight),
```

Εκκίνηση
βιβλιοθήκης

Μέγεθος
Παραθύρου

```
DOUBLEBUF)
```

Επιφάνεια
(Surface)





```
swidth, sheight = 640, 480  
bsize = 29  
pygame.init()  
screen = pygame.display.set_mode((swidth, sheight),
```

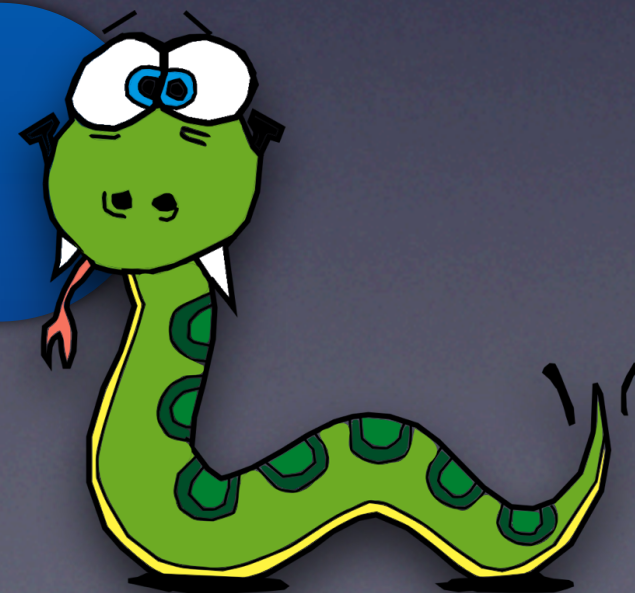
Εκκίνηση
βιβλιοθήκης

Μέγεθος
Παραθύρου

```
DOUBLEBUF)
```

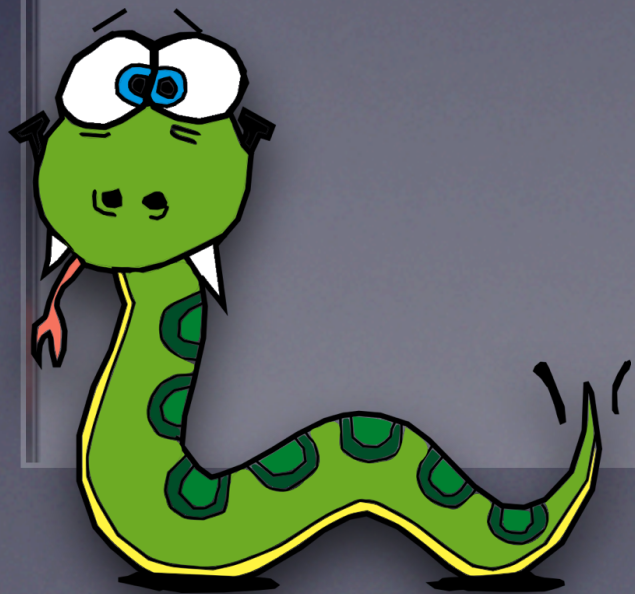
Επιφάνεια
(Surface)

Είδος οθόνης





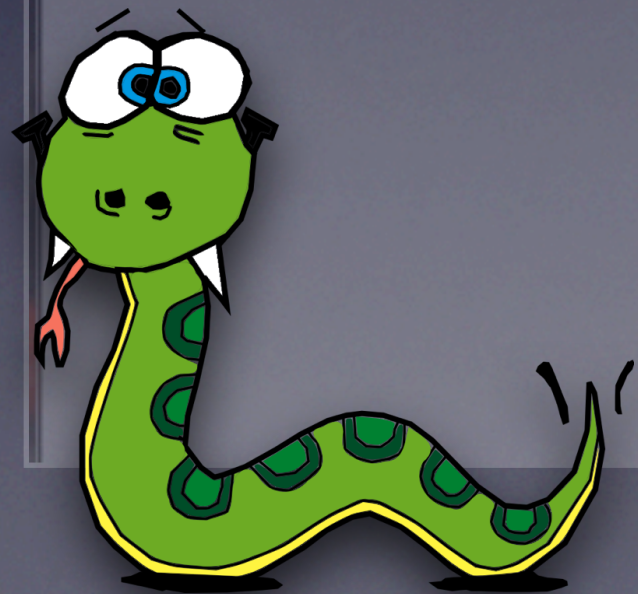
```
endprogram = False
import pygame
while not endprogram:
    from sys import exit
    ypos=0
    from random import *
    for ypos in range(0,sheight,bsize+1):
        pygame.init()
        screen = pygame.display.set_mode((640,360))
        for xpos in range(0,swidth,bsize+1):
            endprogram = getQuit()
            the_pos=(xpos,ypos,bsize,bsize)
            random_color = (randint(0,255), randint(0,255),
                           randint(0,255))
            pygame.draw.rect(screen, random_color, the_pos)
            random_color = (randint(0,255), randint(0,255),
                           randint(0,255))
            pygame.draw.rect(screen, random_color, the_pos)
            pygame.display.update()
pygame.quit()
exit()
```





ΣΥΝΤΕΤΑΓΜΕΝΕΣ
& μέγεθος

```
74 circletest.py - D:\Data\Desktop\circletest.py
File Edit Format Run Options Windows Help
#!/usr/bin/env python
import pygame
while not endprogram:
    from sys import exit
    ypos=0
    from random import *
    for ypos in range(0,sheight,bsize+1):
        pygame.init()
        screen = pygame.display.set_mode((0,0))
        for xpos in range(0,swidth,bsize+1):
            endprogram = getQuit()
            the_pos=(xpos,ypos,bsize,bsize)
            random_color = (randint(0,255), randint(0,255),
                           randint(0,255))
            pygame.draw.rect(screen, random_color, the_pos)
            random_color = (randint(0,255), ra
            pygame.draw.rect(screen, random_color, the_pos)
            pygame.display.update()
pygame.quit()
exit()
```

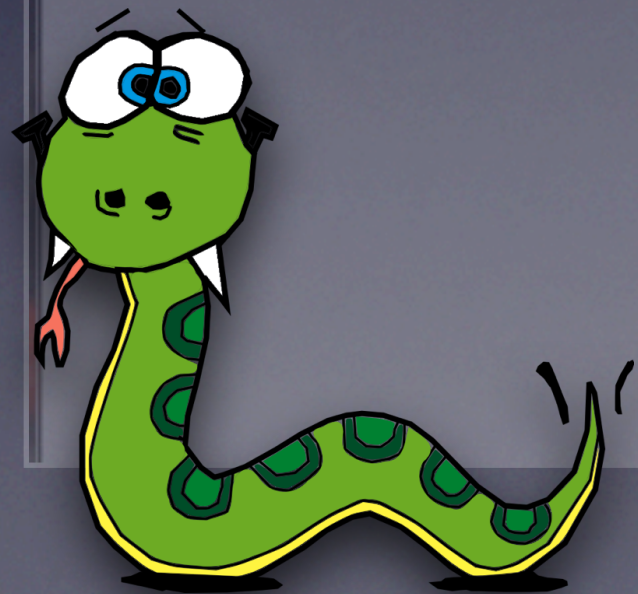




```
endprogram = False
while not endprogram:
    ypos=0
    for ypos in range(0, sheight, bsize+1):
        pygame.init()
        screen = pygame.display.set_mode((0,0))
        while True:
            endprogram = getQuit()
            ypos=0
            for ypos in range(0, 30, 1):
                for xpos in range(0, 30, 1):
                    random_color = (randint(0,255), randint(0,255),
                                   randint(0,255))
                    the_pos=(xpos, ypos, bsize, bsize)
                    pygame.draw.rect(screen, random_color, the_pos)
            pygame.display.update()
        pygame.quit()
    exit()
```

Συντεταγμένες
& μέγεθος

Σχεδίαση
τετραγώνου



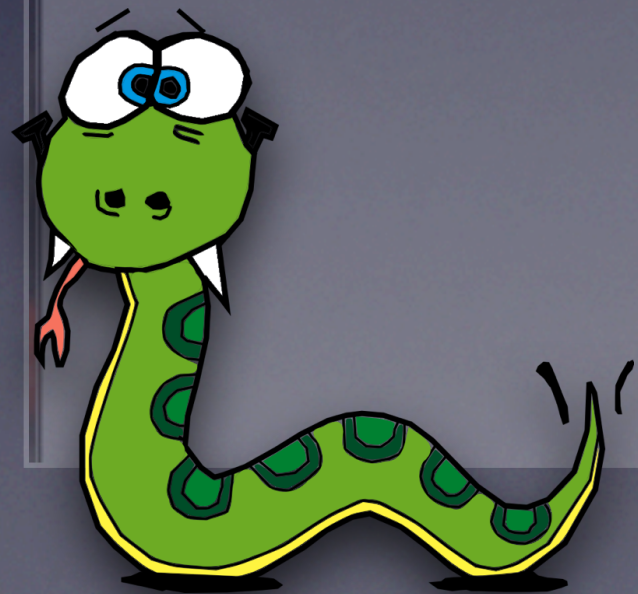


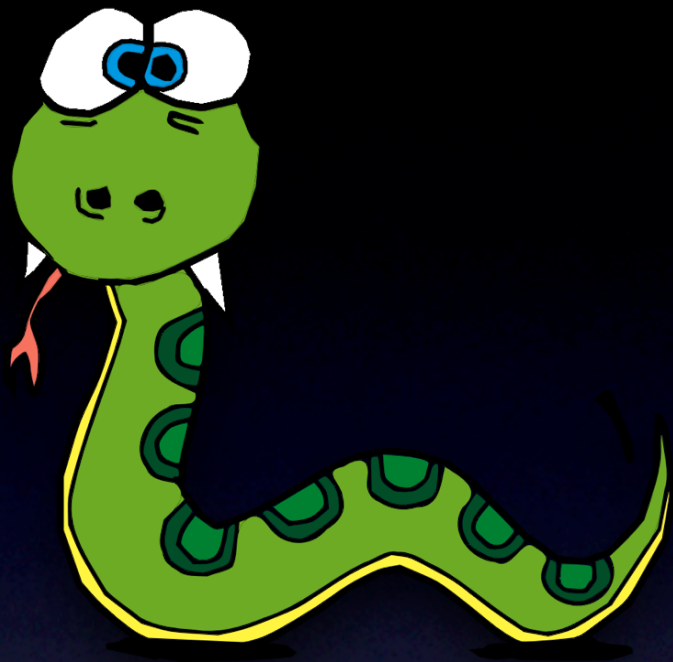
```
endprogram = False
while not endprogram:
    ypos=0
    for ypos in range(0, sheight, bsize+1):
        pygame.init()
        screen = pygame.display.set_mode((0,0))
        while True:
            endprogram = getQuit()
            ypos=0
            for ypos in range(0, 30, 1):
                for xpos in range(0, 30, 1):
                    random_color = (randint(0,255), randint(0,255),
                                   randint(0,255))
                    the_pos=(xpos, ypos, bsize, bsize)
                    pygame.draw.rect(screen, random_color, the_pos)
                pygame.display.update()
            pygame.quit()
        exit()
```

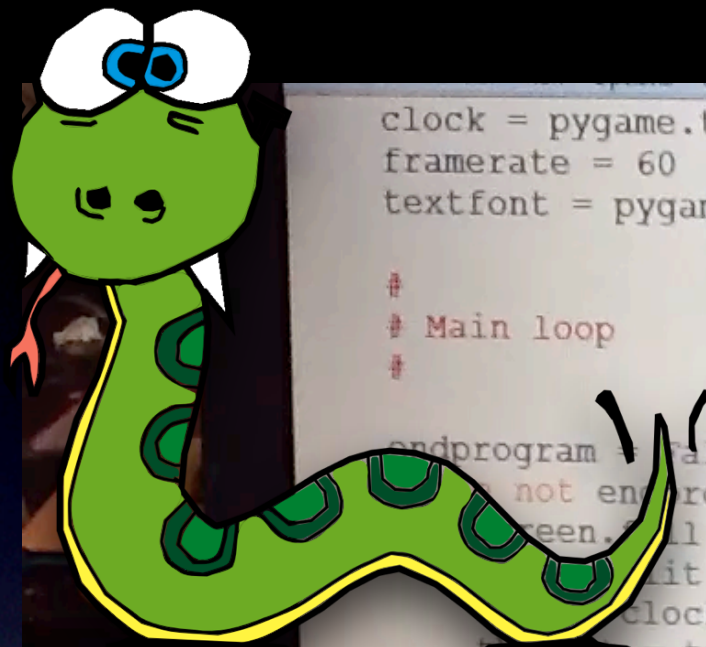
Συντεταγμένες
& μέγεθος

Ανανέωση
οθόνης

Σχεδίαση
τετραγώνου







```
clock = pygame.time.Clock()  
framerate = 60  
textfont = pygame
```

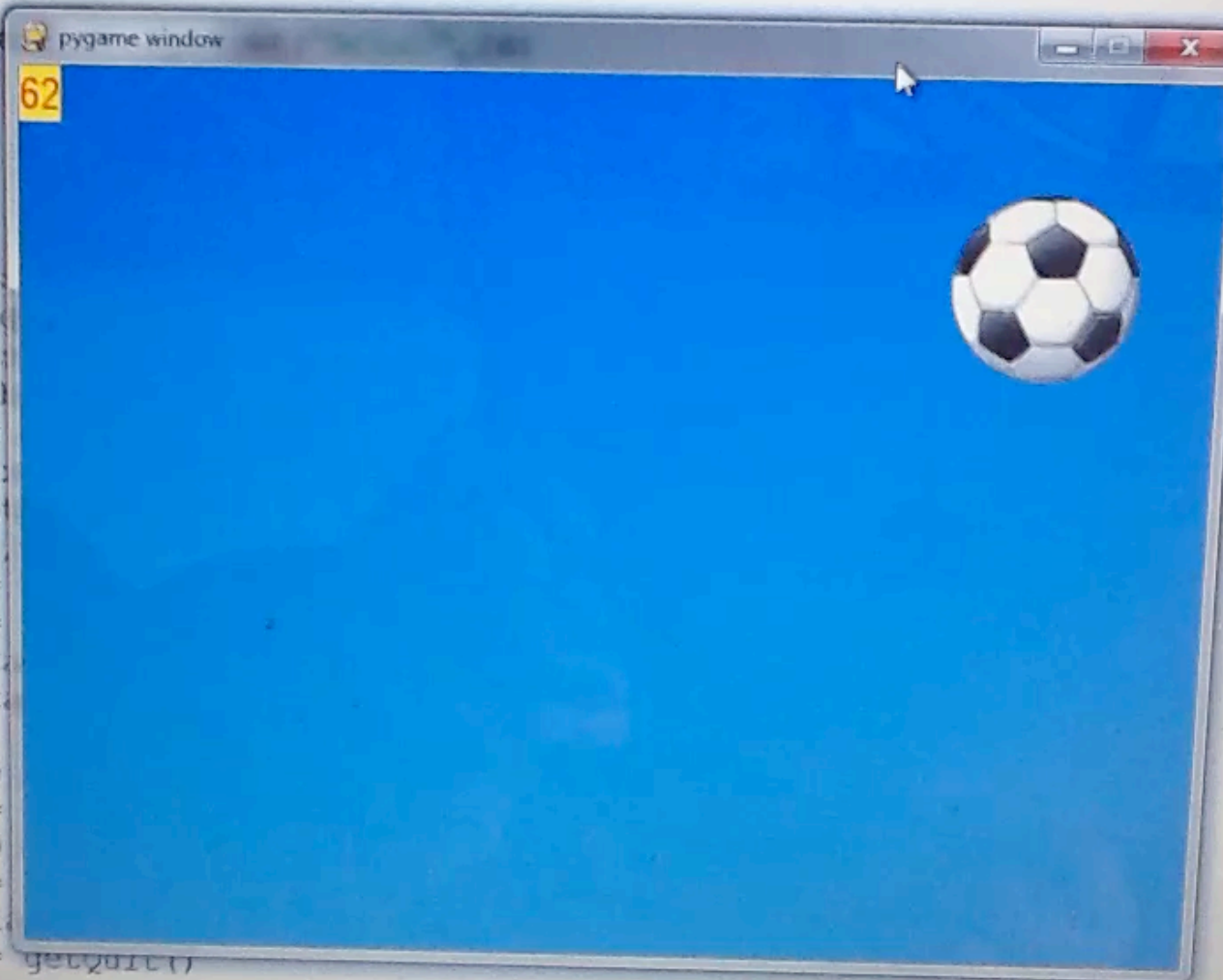
```
#  
# Main loop  
#
```

```
endprogram = False  
not endro  
screen.blit(  
clock  
= tes  
screen.blit(  
time = time  
distance_x =  
distance_y =  
x = x + dista  
y = y + dista
```

```
if (x > (640  
    xspeed =  
if (y > (480  
    yspeed =
```

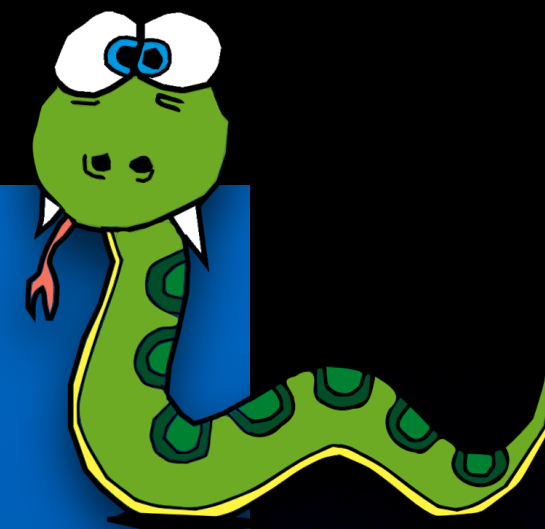
```
pygame.display  
endprogram = getquit()
```

```
pygame.quit()  
exit()
```



pygame
POWERED





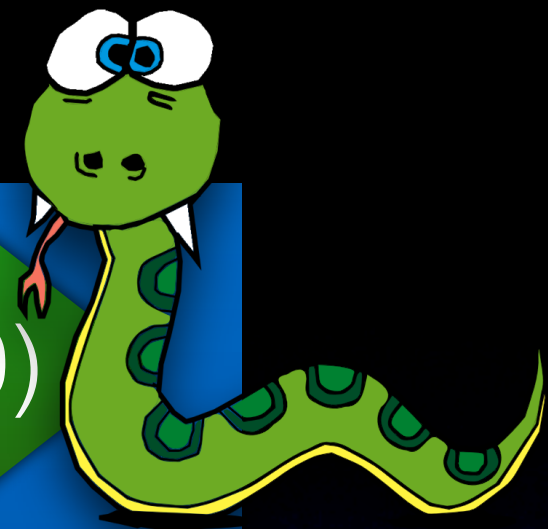
(0,0)

+

(640,0)

+

(0,480)



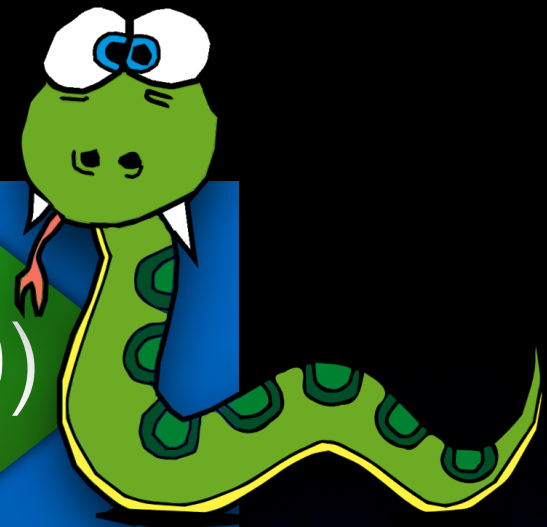
(0,0)

+

(640,0)

+

(0,480)



(0,0)

+

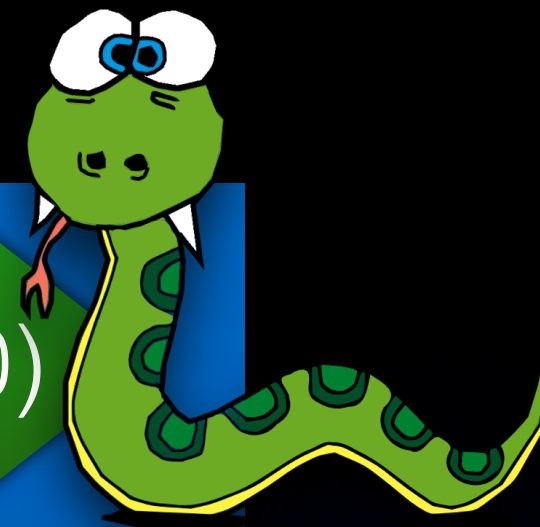
(640,0)

+

(0,480)

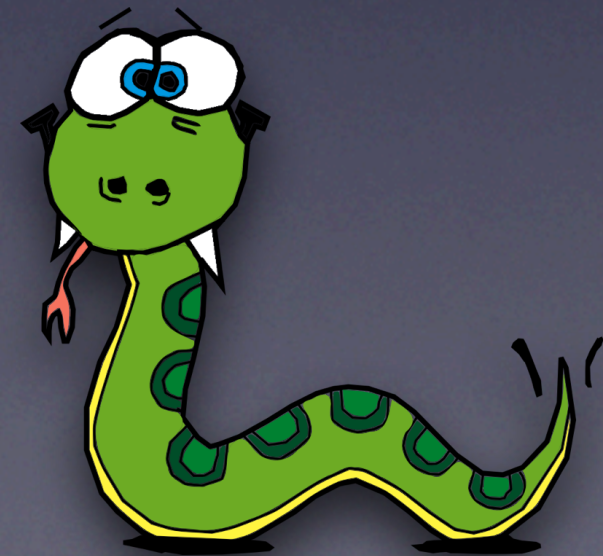


(320,240)





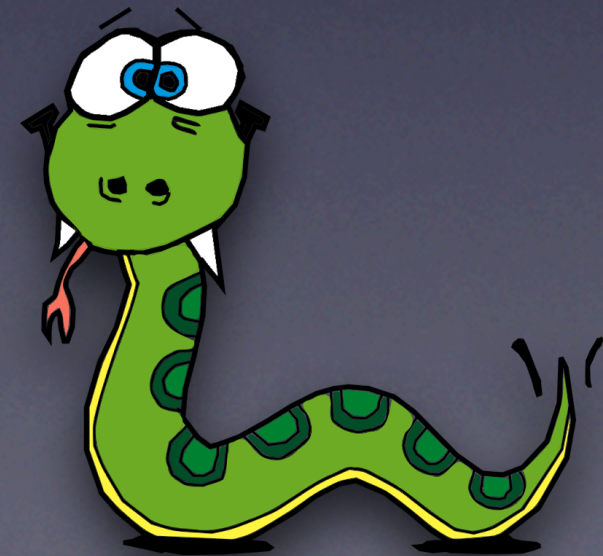
```
pygame.init()
ballimage = 'soccer-ball.png'
x,y = 100.0,100.0
xspeed,yspeed = 50,50
swidth,sheight = 640,480
surfacecolor = (50,80,250)
screen = pygame.display.set_mode((swidth, sheight),
                                  DOUBLEBUF)
surfacecolor= (50,80,250)
```





Εικόνα μπάλας

```
pygame.init()  
ballimage = 'soccer-ball.png'  
x,y = 100.0,100.0  
xspeed,yspeed = 50,50  
swidth,sheight = 640,480  
surfacecolor = (50,80,250)  
screen = pygame.display.set_mode((swidth, sheight),  
                                  DOUBLEBUF)  
surfacecolor= (50,80,250)
```

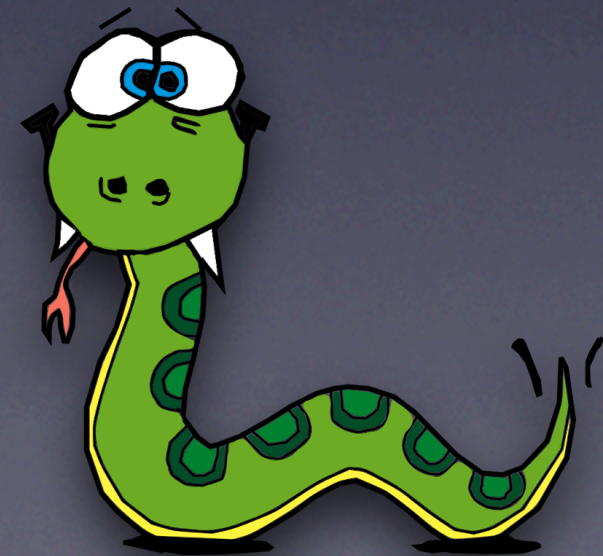


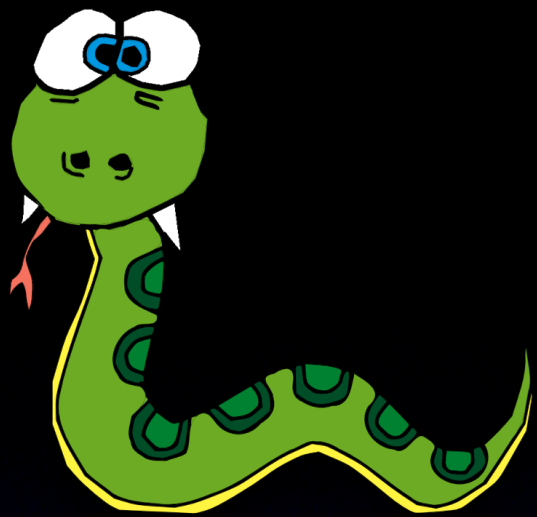


Εικόνα μπάλας

Αρχική θέση
και ταχύτητες

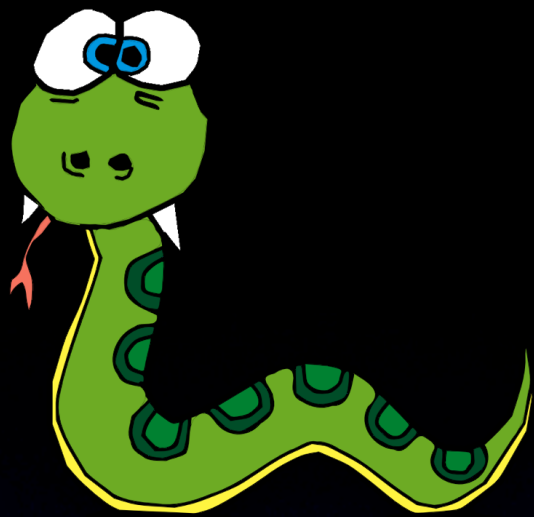
```
pygame.init()  
ballimage = 'soccer-ball.png'  
x,y = 100.0,100.0  
xspeed,yspeed = 50,50  
swidth,sheight = 640,480  
surfacecolor = (50,80,250)  
screen = pygame.display.set_mode((swidth, sheight),  
                                   DOUBLEBUF)  
surfacecolor= (50,80,250)
```





```
ball = pygame.image.load(ballimage)
ballwidth = ball.get_width()
ballheight = ball.get_height()
clock = pygame.time.Clock()
framerate = 60
textfont = pygame.font.SysFont("Arial", 24)
```

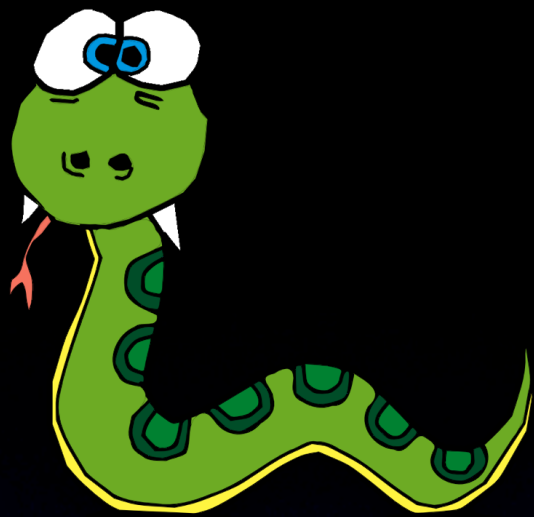




Φόρτωση
εικόνας

```
ball = pygame.image.load(ballimage)
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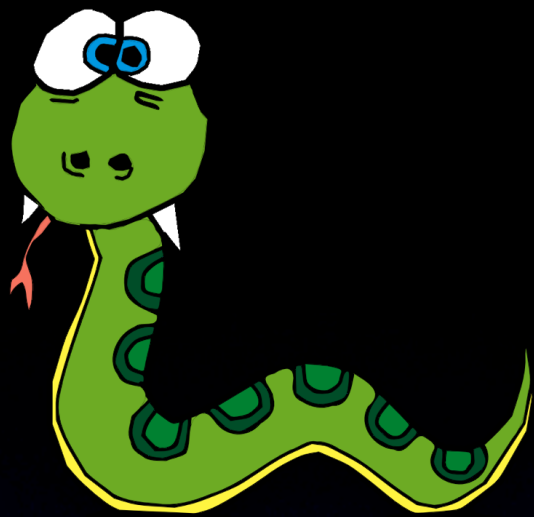


Φόρτωση
εικόνας

```
ball = pygame.image.load(ballimage)
ballwidth = ball.get_width()
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clock = pygame.time.Clock()
framerate = 60
textfont = pygame.font.SysFont("Arial", 24)
```

Εύρεση
μεγέθους





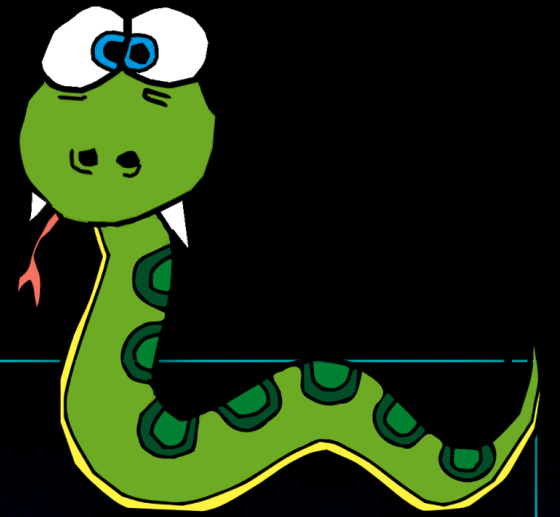
Φόρτωση
εικόνας

```
ball = pygame.image.load(ballimage)
ballwidth = ball.get_width()
ballheight = ball.get_height()
clock = pygame.time.Clock()
framerate = 60
textfont = pygame.font.SysFont("Arial", 24)
```

Εύρεση
μεγέθους

Ρολόι ???



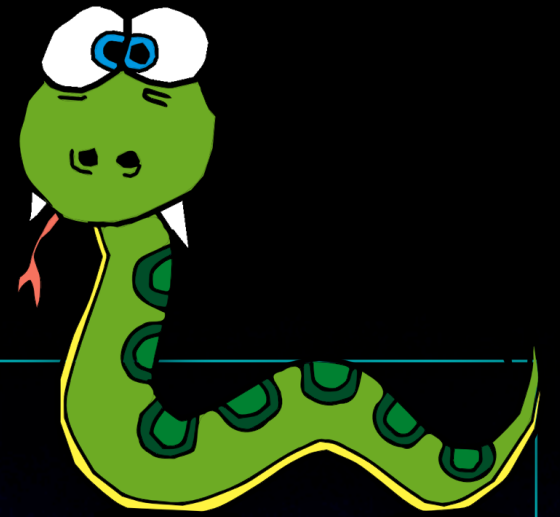


```
endprogram = False
while not endprogram:
    screen.fill(surfacecolor)
    screen.blit(ball, (x, y))
    time = clock.tick(framerate)
    thetext = textfont.render(str(1000/time), True,
                               (255,0,0), (255,255,0))

    screen.blit(thetext, (0,0))
    time = time / 1000.0
    distance_x = time * xspeed
    distance_y = time * yspeed
    x = x + distance_x
    y = y + distance_y
```



Τικ, τὰκ,
Τικ, τὰκ!



```
endprogram = False
while not endprogram:
    screen.fill(surfacecolor)
    screen.blit(ball, (x, y))
    time = clock.tick(framerate)
    thetext = textfont.render(str(1000/time), True,
                               (255, 0, 0), (255, 255, 0))

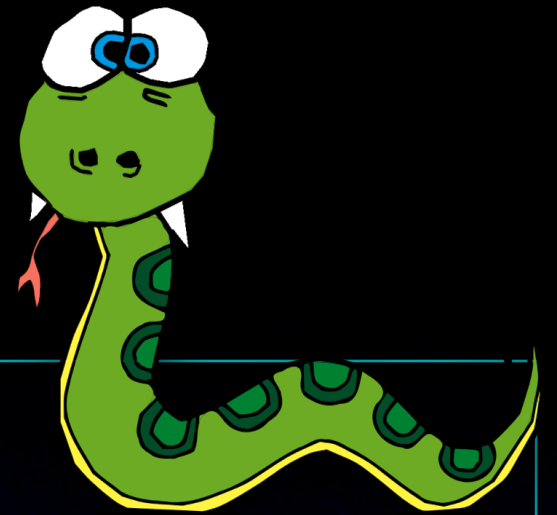
    screen.blit(thetext, (0, 0))
    time = time / 1000.0
    distance_x = time * xspeed
    distance_y = time * yspeed
    x = x + distance_x
    y = y + distance_y
```




```
endprogram = False
while not endprogram:
    screen.fill(surfacecolor)
    screen.blit(ball, (x, y))
    time = clock.tick(framerate)
    thetext = textfont.render(str(1000/time), True,
                               (255,0,0), (255,255,0))

    screen.blit(thetext, (0,0))
    time = time / 1000.0
    distance_x = time * xspeed
    distance_y = time * yspeed
    x = x + distance_x
    y = y + distance_y
```

Τικ, τακ,
Τικ, τακ!



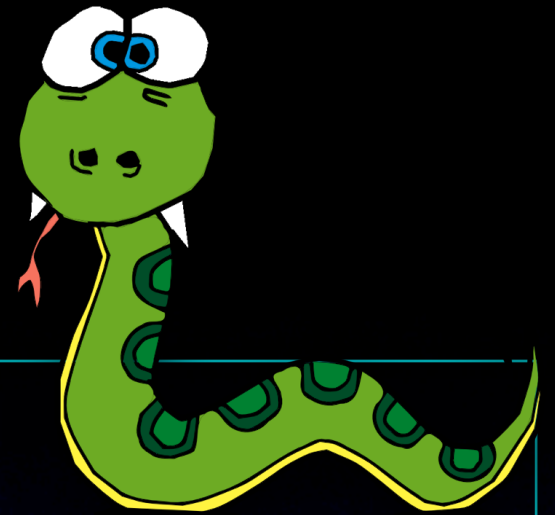
Καρέ το
δευτερόλεπτο




```
endprogram = False
while not endprogram:
    screen.fill(surfacecolor)
    screen.blit(ball, (x, y))
    time = clock.tick(framerate)
    thetext = textfont.render(str(1000/time), True,
                               (255, 0, 0), (255, 255, 0))

    screen.blit(thetext, (0, 0))
    time = time / 1000.0
    distance_x = time * xspeed
    distance_y = time * yspeed
    x = x + distance_x
    y = y + distance_y
```

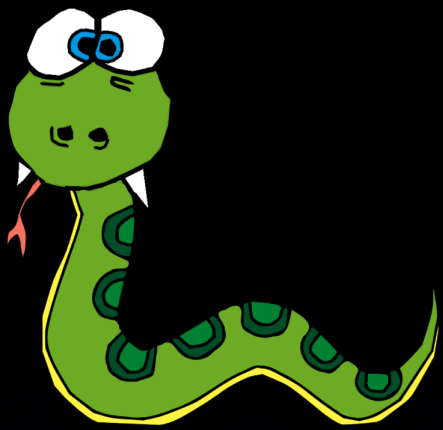
Τικ, τακ,
Τικ, τακ!



Καρέ το
δευτερόλεπτο

Νέα θέση μπάλας

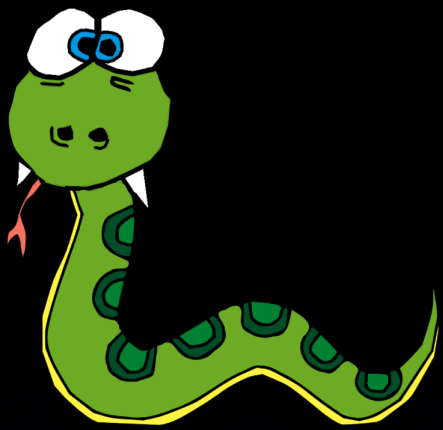




```
if (x > (640.0-ballwidth) or x<=0.0):  
    xspeed = -xspeed  
if (y > (480.0-ballheight) or y<=0.0):  
    yspeed = -yspeed  
pygame.display.update()  
endprogram = getQuit()
```

```
pygame.quit()  
exit()
```





```
if (x > (640.0-ballwidth) or x<=0.0):  
    xspeed = -xspeed  
if (y > (480.0-ballheight) or y<=0.0):  
    yspeed = -yspeed  
pygame.display.update()  
endprogram = getQuit()
```

```
pygame.quit()  
exit()
```

Εκτός οθόνης;
Αναστροφή ταχύτητας!



Τέλος



Τέλος



Αλλά το παιχνίδι τώρα