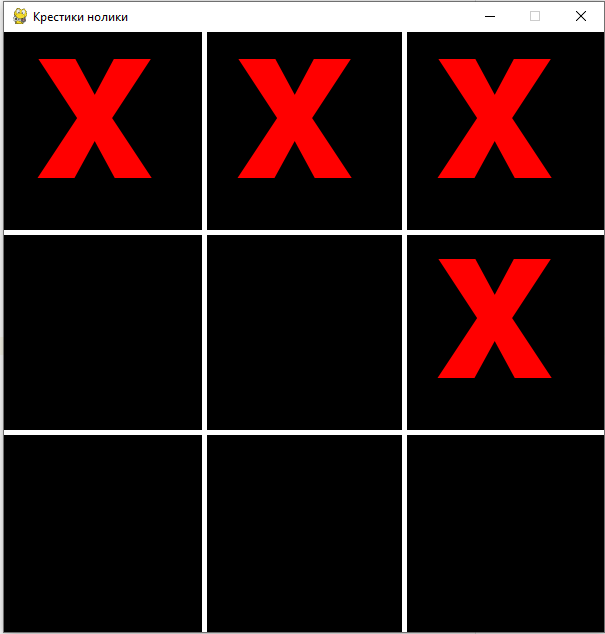
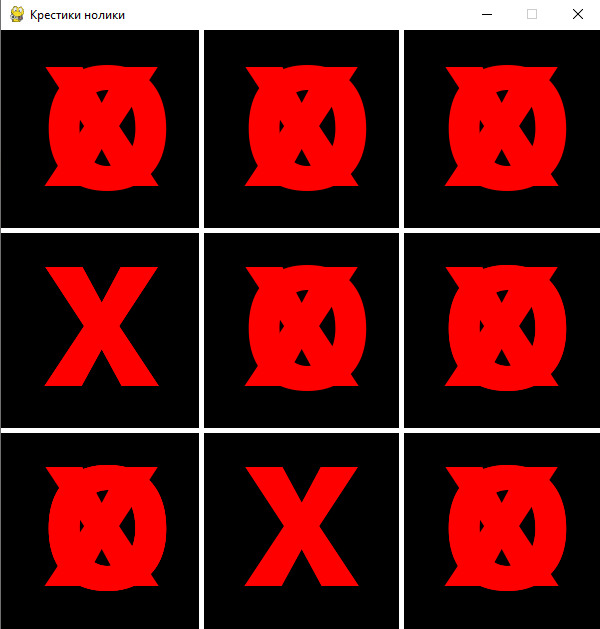
Программирование позиционных игр. Крестики-нолики

import pygame  
from pygame import display, init, draw, event, MOUSEBUTTONDOWN, font  
  
init()  
font.init()  
  
SIZE = (600, 600)  
  
SCREEN = display.set\_mode(SIZE)  
display.set\_caption("Крестики нолики")  
  
draw.line(SCREEN, 'white', (200, 0), (200, 600), 5)  
draw.line(SCREEN, 'white', (400, 0), (400, 600), 5)  
  
draw.line(SCREEN, 'white', (0, 200), (600, 200), 5)  
draw.line(SCREEN, 'white', (0, 400), (600, 400), 5)  
display.update()  
font = font.SysFont('Сourier New', 320)  
  
  
def draw\_char(x, y):  
 x //= 200  
 y //= 200  
 char\_render = font.render('x', True, 'red')  
 SCREEN.blit(char\_render, (x \* 200 + 30, y \* 200 - 30))  
 display.update()  
  
  
while True:  
 for e in event.get():  
 if e.type == pygame.QUIT:  
 exit()  
 if e.type == MOUSEBUTTONDOWN:  
 x, y = e.pos  
 draw\_char(x, y)

Логическую проверку на крестик-нолик

F = True  
def draw\_char(x, y):  
 global F  
 F = not F  
 char = 'o' if F else 'x'  
 x = x // 200 \* 200 + 40  
 y = y // 200 \* 200 - 20  
 char\_render = font.render(char, True, 'red')  
 SCREEN.blit(char\_render, (x , y ))  
 display.update()

Заполняем список значений

F = True  
lst = [[0,0,0] for i in range(3)]  
print(lst)  
def draw\_char(x, y):  
 x = x // 200  
 y = y // 200  
 if not lst [y][x]:  
 global F  
 char = 'o' if F else 'x'  
 F = not F  
 lst [y][x] = char  
 print(lst)  
 x = x \* 200 + 40  
 y = y \* 200 - 20  
 char\_render = font.render(char, True, 'red')  
 SCREEN.blit(char\_render, (x , y ))  
 display.update()

Программируем проверку на победу:

from pygame import display, init, draw, event, MOUSEBUTTONDOWN, font, QUIT  
  
init()  
font.init()  
  
SIZE = (600, 600)  
  
SCREEN = display.set\_mode(SIZE)  
display.set\_caption("Крестики нолики")  
for x in (200,400):  
 draw.line(SCREEN, 'white', (x, 0), (x, 600), 5)  
 draw.line(SCREEN, 'white', (0, x), (600, x), 5)  
  
  
display.update()  
font = font.SysFont('Сourier New', 320)  
F = True  
lst = [[0, 0, 0] for i in range(3)]  
print(lst)  
  
def draw\_char(x, y):  
 x = x // 200  
 y = y // 200  
 if not lst[y][x]:  
 global F  
 char = 'o' if F else 'x'  
 F = not F  
 lst[y][x] = char  
 print (is\_win())  
 x = x \* 200 + 40  
 y = y \* 200 - 20  
 char\_render = font.render(char, True, 'red')  
 SCREEN.blit(char\_render, (x, y))  
 display.update()  
  
  
def is\_win():  
 for row in lst:  
 res0 = [0 for i in row if i == 'o']  
 resX = [1 for i in row if i == 'x']  
 if (len(res0) == 3 or len(resX) == 3) and (all(res0) or all(resX)):  
 return 'win'  
 if lst[0][0] == lst[1][1] == lst[2][2] == 'x' or lst[0][0] == lst[1][1] == lst[2][2] == 'o':  
 return 'win'  
 if lst[0][2] == lst[1][1] == lst[2][0] == 'x' or lst[0][2] == lst[1][1] == lst[2][0] == 'o' :  
 return 'win'  
  
while True:  
 for e in event.get():  
 if e.type == QUIT:  
 exit()  
 if e.type == MOUSEBUTTONDOWN:  
 x, y = e.pos  
 draw\_char(x, y)

Далее

import time  
  
from pygame import display, init, draw, event, MOUSEBUTTONDOWN, font, QUIT  
from random import randrange  
  
init()  
font.init()  
  
SIZE = (600, 600)  
  
SCREEN = display.set\_mode(SIZE)  
display.set\_caption("Крестики нолики")  
for x in (200, 400):  
 draw.line(SCREEN, 'white', (x, 0), (x, 600), 5)  
 draw.line(SCREEN, 'white', (0, x), (600, x), 5)  
  
display.update()  
font = font.SysFont('Сourier New', 320)  
F = True  
lst = [[0, 0, 0] for i in range(3)]  
print(lst)  
  
  
def user\_make\_step(x, y):  
 x = x // 200  
 y = y // 200  
 if not lst[y][x]:  
 lst[y][x] = 'x'  
 print(is\_win())  
 render\_char('x', x, y)  
 comp\_make\_step()  
  
  
def render\_char(char, x, y):  
 x = x \* 200 + 40  
 y = y \* 200 - 20  
 char\_render = font.render(char, True, 'red')  
 SCREEN.blit(char\_render, (x, y))  
 display.update()  
  
  
def comp\_make\_step():  
 time.sleep(1)  
 lst0 = sum(lst, [])  
 lst0 = [i for i in lst0 if i]  
 if len(lst0) == 9:  
 print('Ничья')  
 return  
 while True:  
 x, y = randrange(3), randrange(3)  
 if lst[y][x] == 0:  
 lst[y][x] = 'o'  
 render\_char('o', x, y)  
 break  
  
  
def is\_win():  
 for row in lst:  
 res0 = [0 for i in row if i == 'o']  
 resX = [1 for i in row if i == 'x']  
 if (len(res0) == 3 or len(resX) == 3) and (all(res0) or all(resX)):  
 return 'win'  
 if lst[0][0] == lst[1][1] == lst[2][2] == 'x' or lst[0][0] == lst[1][1] == lst[2][2] == 'o':  
 return 'win'  
 if lst[0][2] == lst[1][1] == lst[2][0] == 'x' or lst[0][2] == lst[1][1] == lst[2][0] == 'o':  
 return 'win'  
  
  
while True:  
 for e in event.get():  
 if e.type == QUIT:  
 exit()  
 if e.type == MOUSEBUTTONDOWN:  
 x, y = e.pos  
 user\_make\_step(x, y)