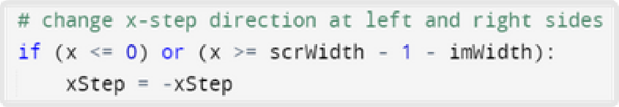
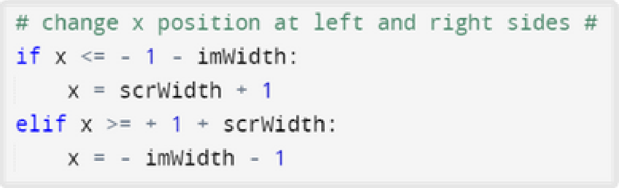
Nakrit Kreechaichana 6510110212

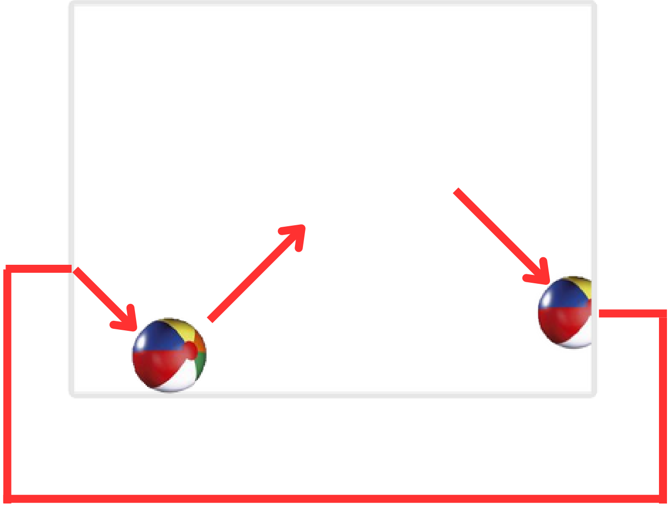
1. beachBounce.py --> beachMover.py



```
# change x-step direction at left and right sides
if (x <= 0) or (x >= scrWidth - 1 - imWidth):
    xStep = -xStep
```

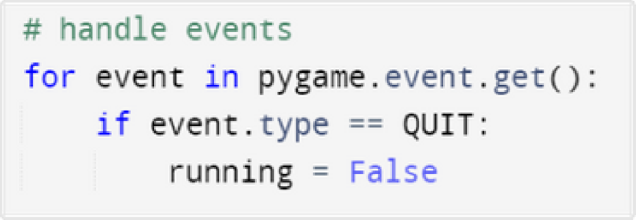


```
# change x position at left and right sides #
if x <= - 1 - imWidth:
    x = scrWidth + 1
elif x >= + 1 + scrWidth:
    x = - imWidth - 1
```

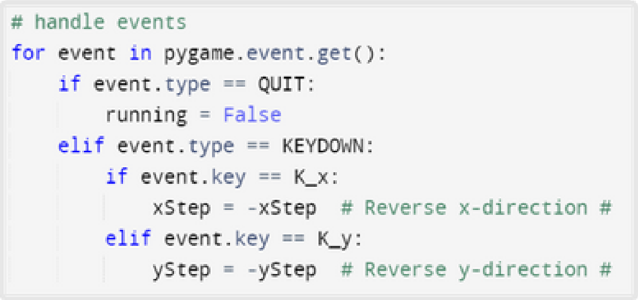


EXPLAIN: changes the **x-step** direction when ball reaches the left or right edge to changes the **x-position** when it reaches the edge.

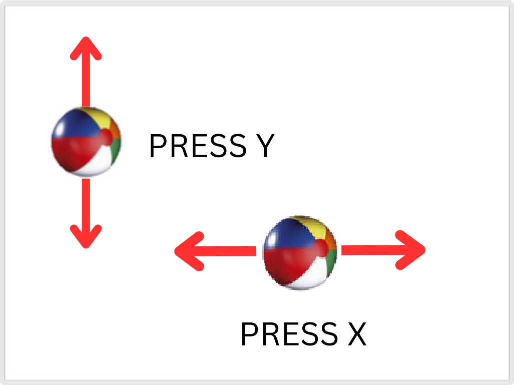
2. beachMover.py + X_KEY + Y_KEY



```
# handle events
for event in pygame.event.get():
    if event.type == QUIT:
        running = False
```



```
# handle events
for event in pygame.event.get():
    if event.type == QUIT:
        running = False
    elif event.type == KEYDOWN:
        if event.key == K_x:
            xStep = -xStep   # Reverse x-direction #
        elif event.key == K_y:
            yStep = -yStep   # Reverse y-direction #
```



EXPLAIN: changes the first code that only handles quitting, while the second code also handles key presses, **X** to reverse **x-step**, **Y** to reverse **y-step**

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```
# beachMover.py
# Bounce a beach ball in Top and Bottom of the windows
# and Move beach ball to opposite when it's collision to left and right of the window

import pygame
from pygame.locals import *

BLACK = (   0,   0,   0)
WHITE = ( 255, 255, 255)

# ---------- main -------------

pygame.init()
screen = pygame.display.set_mode([640,480])
screen.fill(WHITE)
pygame.display.set_caption("Bouncing Beachball")


ballIm = pygame.image.load('ball.png').convert_alpha()

# store dimensions for later
scrWidth, scrHeight = screen.get_size()
imWidth, imHeight = ballIm.get_size()

# start position of the ball
x = 50; y = 50

# step size and direction along each axis
xStep = 10; yStep = 10

clock = pygame.time.Clock()

running = True
while running:
    clock.tick(30)

    # handle events
    for event in pygame.event.get():
        if event.type == QUIT:
            running = False
        elif event.type == KEYDOWN:
            if event.key == K_x:
                xStep = -xStep  # Reverse x-direction #
            elif event.key == K_y:
                yStep = -yStep  # Reverse y-direction #
```

changes the code that only handles quitting, while the second code also handles key presses, **X** to reverse **x-step**, **Y** to reverse **y-step**

```
    # update game state
    # change x position at left and right sides #
    if x <= - 1 - imWidth:
        x = scrWidth + 1
    elif x >= + 1 + scrWidth:
        x = - imWidth - 1
```

changes the **x-step** direction when ball reaches the left or right edge to changes the **x-position** when it reaches the edge.

```
    # change y-step direction at top and bottom sides
    if (y <= 0) or (y >= scrHeight -1 - imHeight):
        yStep = -yStep

    x += xStep   # move the ball horizontally
    y += yStep   # and vertically

    # redraw
    screen.fill(WHITE)
    screen.blit(ballIm, [x, y])
    pygame.display.update()

pygame.quit()
```