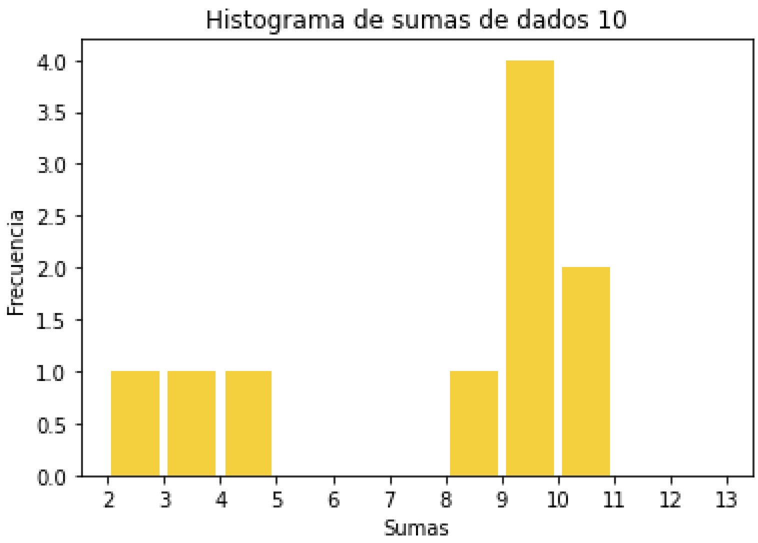
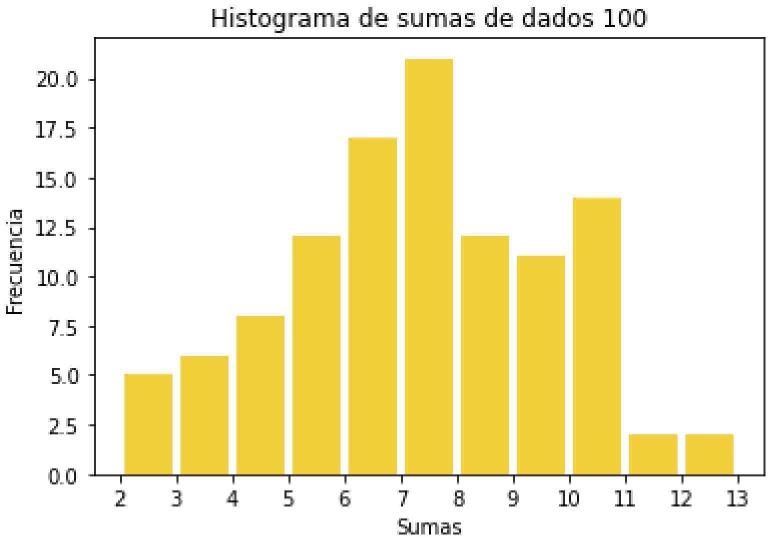
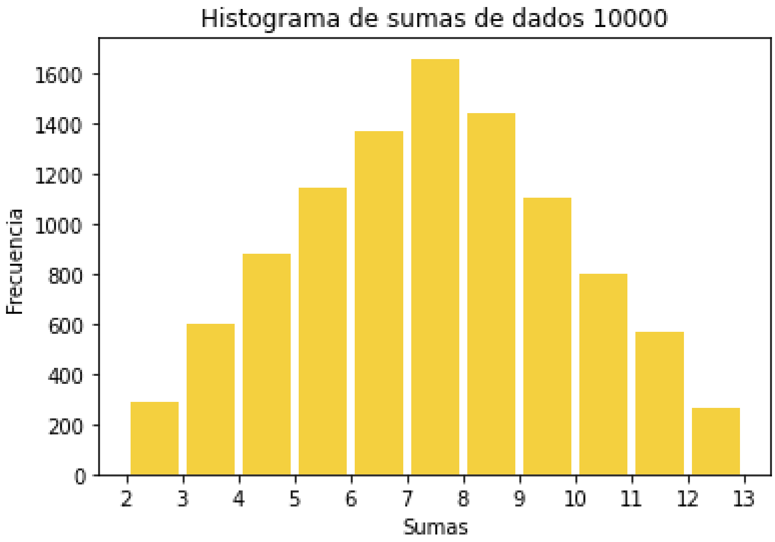
```python
import random
import matplotlib.pyplot as plot


def sumaValores(a,b):
  c = a+b
  frecuenciaSuma(c)
  return c

vec = []
def frecuenciaSuma(c):
  vec.append(c)


def graficarHistograma(repeticiones):
  for i in range(0,repeticiones):
    dadoA = random.randint(1,6)
    dadoB = random.randint(1,6)
    sumaValores(dadoA,dadoB)
  mapa_vector = {}

  for suma in vec:
    if suma in mapa_vector:
      mapa_vector[suma] += 1
    else:
      mapa_vector[suma] = 1
  intervalos = range(min(vec), 12 + 2)
  plot.hist(x=vec, bins=intervalos, color='#F4D03F', rwidth=0.85)
  w1 = 'Histograma de sumas de dados '
  w2 = str(repeticiones)
  plot.title(w1 + w2)
  plot.xlabel('Sumas')
  plot.ylabel('Frecuencia')
  plot.xticks(intervalos)
  plot.show()

graficarHistograma(10)
```



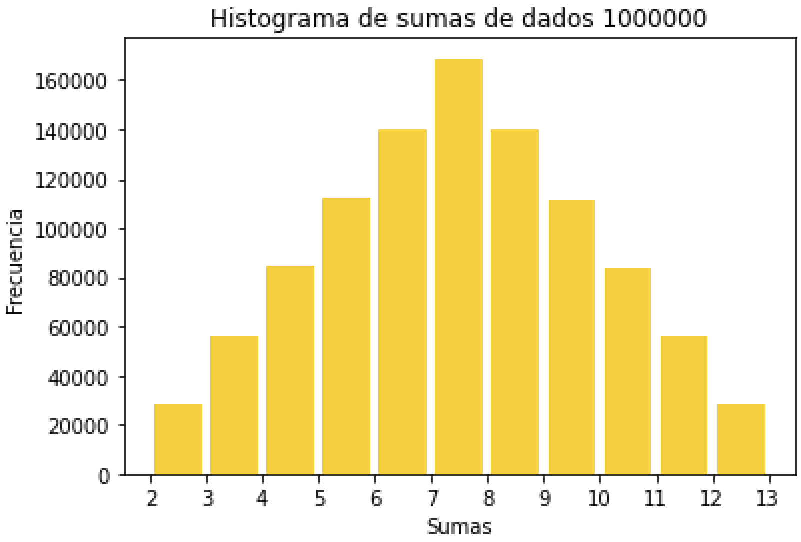
```
graficarHistograma(100)
```



```
graficarHistograma(10000)
```



```
graficarHistograma(1000000)
```



```
# Python code to implement Conway's Game Of Life
import argparse
import numpy as np
import matplotlib.pyplot as plt
import matplotlib.animation as animation

# setting up the values for the grid
ON = 255
OFF = 0
vals = [ON, OFF]

def randomGrid(N):

    """returns a grid of NxN random values"""
    return np.random.choice(vals, N*N, p=[0.2, 0.8]).reshape(N, N)

def addGlider(i, j, grid):

    """adds a glider with top left cell at (i, j)"""
    glider = np.array([[0, 0, 255],
                    [255, 0, 255],
                    [0, 255, 255]])
    grid[i:i+3, j:j+3] = glider

def addGosperGliderGun(i, j, grid):

    """adds a Gosper Glider Gun with top left
    cell at (i, j)"""
    gun = np.zeros(11*38).reshape(11, 38)

    gun[5][1] = gun[5][2] = 255
    gun[6][1] = gun[6][2] = 255

    gun[3][13] = gun[3][14] = 255
    gun[4][12] = gun[4][16] = 255
    gun[5][11] = gun[5][17] = 255
    gun[6][11] = gun[6][15] = gun[6][17] = gun[6][18] = 255
    gun[7][11] = gun[7][17] = 255
    gun[8][12] = gun[8][16] = 255
    gun[9][13] = gun[9][14] = 255

    gun[1][25] = 255
    gun[2][23] = gun[2][25] = 255
    gun[3][21] = gun[3][22] = 255
    gun[4][21] = gun[4][22] = 255
    gun[5][21] = gun[5][22] = 255
    gun[6][23] = gun[6][25] = 255
    gun[7][25] = 255

    gun[3][35] = gun[3][36] = 255
    gun[4][35] = gun[4][36] = 255

    grid[i:i+11, j:j+38] = gun

```

```python
def update(frameNum, img, grid, N):

    # copy grid since we require 8 neighbors
    # for calculation and we go line by line
    newGrid = grid.copy()
    for i in range(N):
        for j in range(N):

            # compute 8-neghbor sum
            # using toroidal boundary conditions - x and y wrap around
            # so that the simulaton takes place on a toroidal surface.
            total = int((grid[i, (j-1)%N] + grid[i, (j+1)%N] +
                        grid[(i-1)%N, j] + grid[(i+1)%N, j] +
                        grid[(i-1)%N, (j-1)%N] + grid[(i-1)%N, (j+1)%N] +
                        grid[(i+1)%N, (j-1)%N] + grid[(i+1)%N, (j+1)%N])/255)

            # apply Conway's rules
            if grid[i, j] == ON:
                if (total < 2) or (total > 3):
                    newGrid[i, j] = OFF
            else:
                if total == 3:
                    newGrid[i, j] = ON

    # update data
    img.set_data(newGrid)
    grid[:] = newGrid[:]
    return img,

# main() function
def main():

    # Command line args are in sys.argv[1], sys.argv[2] ..
    # sys.argv[0] is the script name itself and can be ignored
    # parse arguments
    parser = argparse.ArgumentParser(description="Runs Conway's Game of Life simulation

    # add arguments
    parser.add_argument('--grid-size', dest='N', required=False)
    parser.add_argument('--mov-file', dest='movfile', required=False)
    parser.add_argument('--interval', dest='interval', required=False)
    parser.add_argument('--glider', action='store_true', required=False)
    parser.add_argument('--gosper', action='store_true', required=False)
    args = parser.parse_args()

    # set grid size
    N = 100
    if args.N and int(args.N) > 8:
        N = int(args.N)

    # set animation update interval
    updateInterval = 50
    if args.interval:
        updateInterval = int(args.interval)

    # declare grid
    grid = np.array([])

    # check if "glider" demo flag is specified
    if args.glider:
        grid = np.zeros(N*N).reshape(N, N)
        addGlider(1, 1, grid)
    elif args.gosper:
        grid = np.zeros(N*N).reshape(N, N)
        addGosperGliderGun(10, 10, grid)

    else: # populate grid with random on/off -
            # more off than on
        grid = randomGrid(N)

    # set up animation
    fig, ax = plt.subplots()
    img = ax.imshow(grid, interpolation='nearest')
    ani = animation.FuncAnimation(fig, update, fargs=(img, grid, N, ),
                                frames = 10,
                                interval=updateInterval,
                                save_count=50)

    # # of frames?
    # set output file
    if args.movfile:
        ani.save(args.movfile, fps=30, extra_args=['-vcodec', 'libx264'])

    plt.show()

# call main
if __name__ == '__main__':
    main()

```

```
usage: ipykernel_launcher.py [-h] [--grid-size N] [--mov-file MOVFILE]
                             [--interval INTERVAL] [--glider] [--gosper]
ipykernel_launcher.py: error: unrecognized arguments: -f /root/.local/share/jupyte
An exception has occurred, use %tb to see the full traceback.

SystemExit: 2
```

SEARCH STACK OVERFLOW

```
/usr/local/lib/python3.7/dist-packages/IPython/core/interactiveshell.py:2890: User
  warn("To exit: use 'exit', 'quit', or Ctrl-D.", stacklevel=1)
```